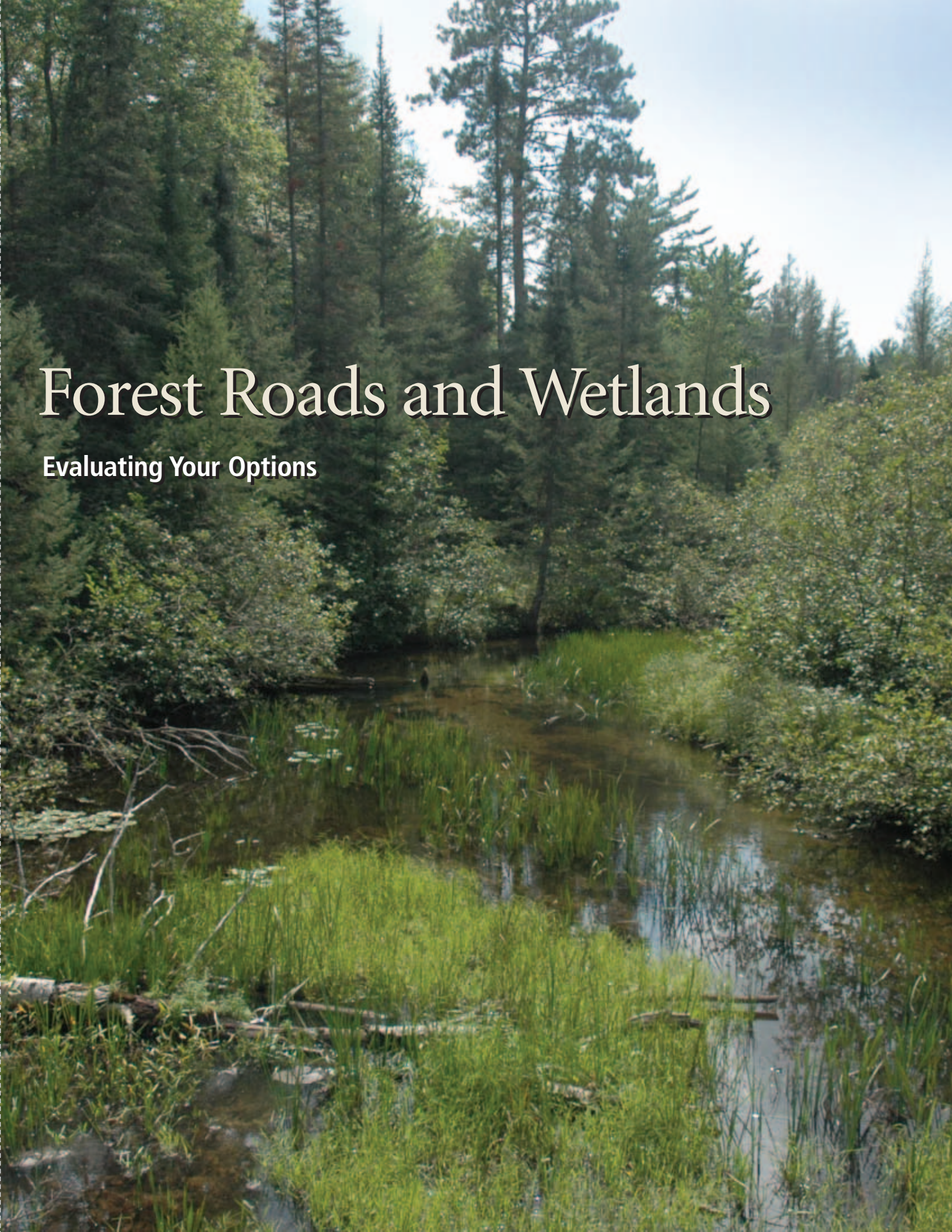

Forest Roads and Wetlands

Evaluating Your Options

For many people, owning land is one of their most rewarding investments. They may enjoy financial benefits from timber harvests and other activities, as well as more personal rewards, such as hunting, hiking and snowmobiling.

The question of how to access your property may seem a simple one. You need access to get there and it is essential for the harvesting of wood products. Roads and trails are also valuable for other management activities such as tree planting, thinnings, wild fire prevention and wildlife management. Recreational activities, such as picking mushrooms, hunting, hiking, snowmobiling and skiing are all enjoyable on a good trail system.

Minimize the effects of forest roads and trails to protect our natural resources.

David Herrick

Jeff Martin, DNR

Jeff Martin, DNR

Garlic mustard

Jeff Martin, DNR

Reed canary grass

Carmen Wagner, DNR

Roads and landings in upland areas tend to be easier and cheaper to construct than in wetlands.

Unfortunately, roads and trails can also present some management challenges. Both foot and motorized traffic have been shown to introduce invasive species, like garlic mustard and reed canary grass. Roads and trails may have unintended consequences on wildlife by disrupting their favored travel corridors. Roads and trails can also have impacts on water quality in lakes, streams and wetlands.

As a result, the construction and maintenance of roads and trails that cross lakes, streams and wetlands are subject to regulation by federal and state authorities. One of the primary goals of these regulations is to protect the quality of lakes, streams and wetlands. By keeping roads and trails to well-drained upland sites, landowners can minimize effects on water resources. However, limiting roads and trails to upland sites can be a challenge for some landowners, because Wisconsin is blessed with over five million acres of wetlands and over 84,000 miles of rivers and streams. In some instances, landowners may find the best solution to be not building a road or a portion of the road and to instead enjoy some areas from a distance.

Avoiding wetlands or, when necessary, using a carefully located and constructed wetland crossing can help to minimize the effects of roads and trails. Once roads and trails are constructed, landowners need to commit to maintaining their road and trail systems, not only to protect their investment in the roads and trails, but also to protect the quality of the surrounding environment.

Background photo: Carmen Wagner, DNR

Wisconsin Department of Tourism.

If you are thinking of building a forest road and trail system, here are a few things for you to consider:

- How do you plan to use your roads and trails?
- What parts of your property do you need to access?
- Where are the best locations to site your roads or trails?
- What types of roads or trails do you need – permanent or temporary?
- What standard do you need to build your roads and trails to?
- What permits or regulations apply to your project?

Scott Witte

Wisconsin Department of Tourism.

Background photo: Carmen Wagner, DNR

Use

The first question to ask yourself is how do you plan to use your road and trail system. Is it just for forest management activities? Do you want to use ATVs on it after your timber harvest? Do you want to be able to get to the deer stands in your woods? Or are you more interested in hiking and skiing? The important thing to remember is that there are no "right" or "wrong" answers to these questions – this is just about how you want to use your land. Recognizing your interests and the potential uses before you start building roads and trails can help to minimize costs, ease permitting decisions and save valuable time.

Nina Stensberg, DNR

Consider where active timber management will occur when planning your road and trail network.

Access

You also need to determine what parts of your property you would like to access with roads and trails. If you have a forest management plan, this can help you identify areas that will be actively managed with timber sales and areas passively managed without timber sales. If there are parts of your property where you are unlikely to have timber sales or management activities requiring motorized access, then it may be best to keep your road and trail system away from these areas.

You should also consider whether the best point of access is through your property. In some instances, it may be better to try to work with your neighbors to access a portion of your property rather than trying to cross a large river or wetland.

Carmen Wagner, DNR

Small wetlands can be easily avoided by rerouting roads and trails.

Location

After you have determined how you want to use your property and what parts of your property you want to access, the next step is to figure out the best way for your road and trail system to get to those areas. Soils, slopes, floodplains, wetlands and other factors can impact your decision on where to locate your roads and trails.

Well-drained soils are preferred for roads and trails in order to maintain a dry travel surface. Roads and trails on poorly drained or wet soils can become rutted and surface materials may wash away. Drainage structures can be used to help improve road drainage and direct water away from roads and trails, but it is preferable to select locations that need fewer improvements to function properly. This will also help to keep construction costs down.

The topography of the land can also guide where you place roads and trails. Generally, a slight slope can improve road drainage, but steep slopes pose a number of problems. If steep slopes cannot be avoided, roads that will be used by logging trucks should be kept to a grade of less than 10% (a 10-foot rise for each 100 feet of length). For short distances, a grade of 15-20% may be acceptable. For trails, the grade should not exceed 15% for most logging equipment.

Long steady grades not only challenge equipment, but are also likely to lead to erosion problems. On long grades, the volume and speed of water can build-up, increasing the potential for erosion. To prevent this, diversion ditches, cross drains and other drainage structures can be installed to direct the water away from the road and into roadside vegetation.

Carmen Wagner, DNR

Poorly located and maintained roads can affect water quality and wildlife, as well as be impassable for long periods of time.

Shelly Wrzochalski, DNR

Tom Hill, DNR

Temporary crossings, like timber mats and pole fords, provide excellent access when permanent crossings are not required.

It is best to avoid floodplains and wetlands, if possible, when locating your roads and trails. Both of these areas can have standing water and wet soils for long periods of time, making it difficult to access parts of your property. If you need access just for a timber sale, then the preferred solution may be to use a temporary road or trail to access these areas, rather than installing a permanent access.

If any stream crossings are required, you should identify the best locations for the crossing first and then bring the road to that location. Stream crossings are ideally placed where the channel is straight and narrow, the banks are low and the soil is firm and rocky. The approaches to the crossing should be as low or flat as possible. Crossings with large wetlands adjacent to the stream should be avoided, if possible. If a large wetland is next to the stream, a temporary stream and wetland crossing may be the best solution.

Permits are required for roads and trails to cross lakes, streams, wetlands and floodplains – be sure to check with federal, state and local agencies if you have questions about permit requirements.

The construction and maintenance of roads and trails that cross lakes, streams and wetlands are subject to regulation by federal and state authorities.

Type

There are three general types of roads and trails. Often you can find all three types on one property. The types of roads and trails that you select will depend on your forest management objectives and your site conditions.

Jeff Martin, DNR

A **permanent all-season** road or trail provides year-round access. It often has a built-up gravel surface to provide better drainage. These are the most expensive types of roads and trails to build.

Carmen Wagner, DNR

A **permanent seasonal** road or trail generally provides access only during frozen ground conditions or dry conditions. Improvements may be limited to grading a flat surface. Gravel or other surfacing material may be limited to a few critical areas.

Heidi Brunkow, DNR

A **temporary** road or trail is designed to be used for a specific project – such as a timber harvest. These are the most common type of forest roads and trails. When the project is done, the road or trail is closed by removing any temporary fills and revegetating the surface. The same route may be used for future timber harvests, but additional motorized traffic is not expected in the intervening years.

Carmen Wagner, DNR

For crossings, be sure to understand the weight limitations of different designs when making your selection.

Background photo: Carment Wagner, DNR

Standards

The type of roads and trails you select will determine what construction standards you will use. There are many resources available on construction standards for roads and trails, such as ***A Landowner's Guide to Building Forest Access Roads*** (Forest Service PUB NA-TP-06-98). Specifications are available on road widths, surfacing, crossing structures, drainage structures, soil stabilization and other considerations.

The width required for forest roads and trails is based on the type of logging equipment and logging trucks that are expected to be used during your timber harvest. Provide additional space, as needed, for curves, pull-outs and turn-arounds. Keep road widths to minimum because as road width increase, the cost of your roads and trails will increase and additional forestland will be taken out of production.

Gravel or other surfacing materials may be needed to provide a dry and safe travel surface. Often, gravel is added to roads and trails where they intersect public roads, on slopes steeper than 10%, at approaches to stream crossings, and at drainage structures.

Paul Pingrey, DNR

For the forest road exemption for wetland crossings, the primary use of the road must be silviculture.

Carmen Wagner, DNR

This road failed to provide adequate cross drainage for water flow through the wetland. Trees on the "uphill" side of the road drowned out as a result.

Does your project meet the criteria for the forest road exemption?

A CHECKLIST is provided on the reverse side of this page to help you determine whether your project meets the criteria for the forest road exemption. It is recommended that you fill out this form and confer with USACE and WDNR staff to receive confirmation on whether your project meets the forest road exemption. Depending on the specifics of your project, USACE or WNDR staff will be responsible for determining whether a project meets the exemption criteria or whether a permit is required. Misuse of the forest road exemption is a violation of federal and state laws and can result in fines, orders to remove the road and restore the wetland, and other penalties.

If your project does not meet the forest road exemption requirements, then a permit is required for the wetland crossing. You will need to complete the Wetland Water Quality Certification application materials and submit it to both the USACE and the WDNR. It is important to remember that the WDNR may also require permits for stream crossings, even if a project meets the forest road exemption.

When answering questions, provide detailed comments so that another person reviewing this checklist could make a reasonably informed decision on whether your project meets the eligibility requirements.

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Permits & Regulations

Several aspects of forest road construction may require permits, such as crossing lakes, streams, wetlands and floodplains. This publication is primarily concerned with permits needed for wetland crossings associated with forest roads and trails. A more detailed description of permits and regulations pertaining to forest roads is available in ***Do I Need a Permit for…Building a Forest Road?*** (DNR PUB-FR-380).

The US Army Corps of Engineers (USACE) and Wisconsin Department of Natural Resources (WDNR) regulate the excavation and placement of any material in wetlands for the purpose of constructing roads and trails. Your road project may also be regulated by your town, village, city or county. Contact your local offices for more details about their regulations. In this publication, the focus is on federal and state wetland regulations.

When building a road or trail in a wetland, permits are generally required; however, in some instances forest roads may be exempt from permit requirements if certain use, location and design standards are satisfied. The federal Clean Water Act and related state legislation allow for the placement of wetland fill "…for the purpose of construction or maintenance of…forest roads,…where such roads are constructed and maintained, in accordance with best management practices…" [Section 404 (f)(1)(E) of the Clean Water Act].

There are four basic criteria that need to be satisfied for the forest road exemption:

1. **Silviculture will be practiced on the property served by the road.**
   To meet this criterion, you need to demonstrate that you have made a commitment to practice forestry on your property. There are several types of documentation that you can provide to demonstrate your commitment to managing your forestland. This may include participating in Wisconsin's Managed Forest Law program, following a stewardship management plan or having a timber sale contract.

2. **The primary purpose of the road is silviculture.**
   To meet this standard, you need to confirm that the road is to be used primarily for forest management activities. If the road may be used for other purposes such as a driveway, then you will need to apply for a permit. Also, if at any time the use of the road changes from primarily silviculture to other uses, you will need to apply for a permit for the road, even if the road was already constructed under the forest road exemption. The exemption is maintained only while the road is being used as a forest road.

3. **There are no practical alternatives to the construction of the road.**
   To satisfy this requirement, you will need to show that all opportunities to avoid and minimize impacts on the wetland have been reviewed. Considerations may include whether an alternative upland route is available – on your property or on a neighbor's.

4. **All reasonable measures will be taken to minimize adverse impacts.**
   To qualify for the forest road exemption, all fifteen federal best management practices (BMPs) must be met for the construction and maintenance of forest roads. The goals of the federal BMPs are to ensure that:
   - Water flow and circulation patterns of lakes, streams and wetlands are maintained.
   - Chemical and biological characteristics of lakes, streams and wetlands are not impaired.
   - The reach of lakes, streams and their floodplains is not reduced.
   - Any adverse effects on the surrounding aquatic environment are minimized.

   A primary consideration in this section is whether impacts can be minimized by using a temporary road instead of a permanent road. In most cases, temporary roads are more likely to satisfy the exemption standards than permanent roads. Not constructing a road may also be an option to consider.

The list below covers the fifteen federal BMPs required for the construction and maintenance of forest roads.

This list is written in lay language. For the exact language of the law, contact the USACE staff in your area.

- Avoid filling wetlands if practicable alternatives exist – especially in breeding and nesting areas for migratory birds and spawning areas for fish.
- Limit the number, length and width of forest roads and skid trails to the minimum necessary to accomplish the forest management goals, consistent with topographic and climatic conditions.
- Locate roads outside of riparian management zones (RMZs), except at stream crossings.
- Place bridges or culverts in road fill to prevent constriction of expected flood flows – other design methods may also be appropriate.
- Stabilize fill to prevent erosion and sedimentation – before, during and after road construction.
- Minimize the use of equipment in wetlands outside of the fill areas.
- Minimize disturbance of wetland and aquatic vegetation during the design, construction and maintenance of roads.
- Design, construct and maintain wetland crossings to avoid disrupting movement of fish and other aquatic species.
- Use fill from upland sources whenever feasible.
- Place fill so as to not affect any threatened or endangered species and to prevent any adverse modification or destruction of critical habitat for these species.
- Do not place fill near public water supply intakes.
- Do not place fill in areas of concentrated shellfish production.
- Do not place fill in National Wild and Scenic River Systems – in Wisconsin, these are portions of the Namekagon, St. Croix and Wolf Rivers.
- Use fill that is clean, non-erodible and non-toxic.
- Remove all temporary fill and restore disturbed areas to their original elevation.

Background photo: Carmen Wagner, DNR

Does your project meet the criteria for the forest road exemption?

Checklist

1. Silviculture will be practiced on the property served by the road.

QUESTION	YES	NO	COMMENTS
1.A. Is the property enrolled in a forest management program?	☐	☐	
1.B. Is there a written forest management plan for the property?	☐	☐	
1.C. Is there a signed logging contract?	☐	☐	
1.D. Are there plans in place for reforestation of the property?	☐	☐	

2. The primary purpose of the road is silviculture.

QUESTION	YES	NO	COMMENTS
2.A. Are there buildings, like deer stands, evident that benefit from road access?	☐	☐	
2.B. Will the road be used for multiple purposes, like a driveway?	☐	☐	
2.C. Will the road be built to a standard exceeding that required for forest management activities, based on the number of acres served by the road?	☐	☐	

3. There are no practical alternatives to the construction of the forest road.

QUESTION	YES	NO	COMMENTS
3.A. Are there existing access options that may preclude the need for a new road through a wetland?	☐	☐	
3.B. Can the proposed road location be modified to avoid or minimize wetland impacts?	☐	☐	
3.C. Is dry season or frozen ground access a practical option?	☐	☐	
3.D. Can easements be obtained for off-site upland access?	☐	☐	

4. All reasonable measures will be taken to minimize adverse impacts.

QUESTION	YES	NO	COMMENTS
4.A. Is a temporary road a practical option, if a permanent road is proposed?	☐	☐	
4.B. Will existing surface water drainage patterns be maintained?	☐	☐	
4.C. Will cross drainage be provided to maintain water flow through the wetlands?	☐	☐	
4.D. Will temporary and permanent erosion control practices be installed and maintained?	☐	☐	
4.E. Will the movement of aquatic species be maintained?	☐	☐	
4.F. If threatened or endangered species are known to be on the property, is their habitat protected?	☐	☐	
4.G. Will an upland road fill source be used?	☐	☐	

NOTE: If you have selected any of the boxes that are highlighted in yellow (☐), it is likely that the project will not qualify for the forest road exemption and you should apply for a permit. If you believe that your project still qualifies for the exemption, provide detailed comments so that another person reviewing this checklist could reasonably reach the same conclusion.

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Carmen Wagner, DNR

Additional Sources of Information

Sources for additional information on the topics discussed in this publication are listed below. WDNR publications are available from your local WDNR Service Center or by calling (608) 267-7494.

- Wisconsin's Forestry Best Management Practices for Water Quality Field Manual, WDNR PUB-FR-093: **http://dnr.wi.gov/forestry/usesof/bmp/bmpfieldmanual.htm**
- Do I Need a Permit for…Building a Forest Road?, WDNR PUB-FR-380: **http://dnr.wi.gov/forestry/publications/pdf/FR-380-2007.pdf**
- A Landowner's Guide to Building Forest Access Roads, USDA Forest Service Publication #NA-TP-06-98: **http://na.fs.fed.us/spfo/pubs/stewardship/accessroads/accessroads.htm**
- Forested Wetlands: Functions, Benefits and the Use of Best Management Practices, USDA Forest Service Publication #NA-PR-01-95: **http://na.fs.fed.us/spfo/pubs/n_resource/wetlands/index.htm**
- Wetland Water Quality Certification Application Materials: **http://dnr.wi.gov/org/water/fhp/waterway/wetlands.htm**l

Contact Information

- For questions about federal wetland regulations, contact your regional USACE staff person: **http://www.mvp.usace.army.mil/regulatory/default.asp?pageid=691**
- For questions about WDNR wetland regulations, contact your local WDNR water management specialist: **http://dnr.wi.gov/org/water/fhp/waterway/watermanagementspecialists.html**
- For questions about Wisconsin Forestry BMPs, contact your local WDNR forester: **http://dnr.wi.gov/forestry/ftax/County.asp**

A publication of the Wisconsin Department of Natural Resources

The purpose of this publication is to inform, not to advise. It is recommended that you seek professionals knowledgeable about the specifics of your woodland and applicable regulations prior to implementing any forest management activities on your property.

This publication is available from Wisconsin Department of Natural Resources, Division of Forestry, PO Box 7921, Madison, WI, 53707.

For additional information, call (608) 267-7494 or visit our web-site at: www.dnr.wi.gov/forestry/

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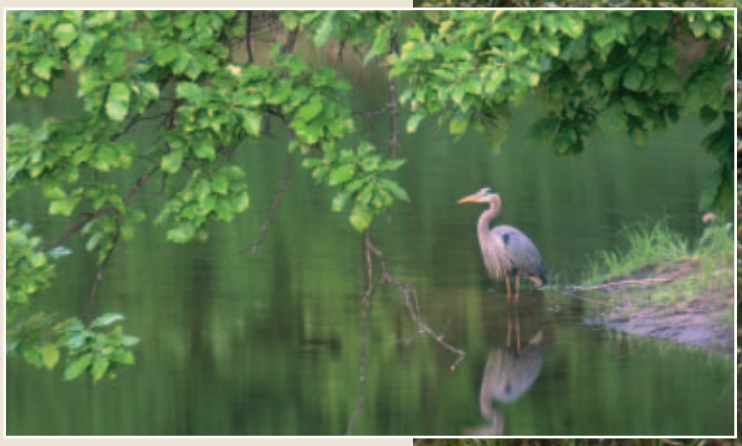

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