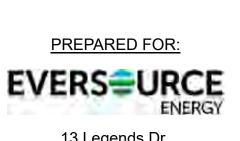
## V182 & F139 Lines - Maintenance Project

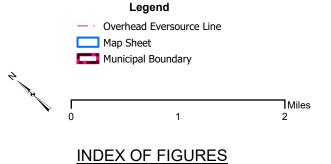
Franklin, Northfield, Canterbury, and Concord New Hampshire Alteration of Terrain Permitting Plans

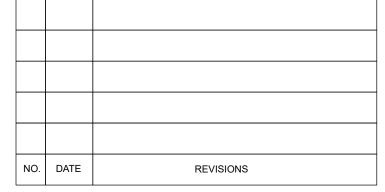
Branch NORTHFIELD FRANKLIN Old Tilton Rd ANDOVER CANTERBURY 7 8 39 9 10 11 12 13 14. 15 16 17 18 19 MODIFICATIONS IN ACCESS ROUTES, WORK PAD Gerrish Rd LOCATIONS OR OTHER WETLANDS IMPACT AREAS SHALL BE APPROVED BY PUBLIC SERVICE COMPANY OF NH AND IN COMPLIANCE WITH NHDES WETLANDS RULES: BOSCAWEN ENV-WT 307 - GENERAL REQUIREMENTS ENV-WT 313.03 - AVOIDANCE AND MINIMIZATION ENV-WT 521 - UTILITY PROJECT SPECIFIC CONDITIONS King St Hill

Date: June 5, 2023

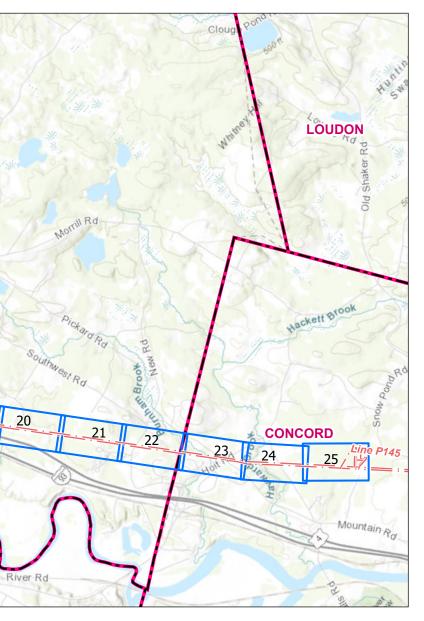


13 Legends Dr Hooksett, NH 03106





Title Sheet / Index Map Map Sheets 1-25







2 Bedford Farms Drive Suite 200 Bedford, NH 03110

# Construction **Requirement** Notes

Date Issued: June 5, 2023

### General Notes:

- 1. This plan set is intended to show the proposed line replacements of the V182/F139 electric transmission lines from the Webster Lake Substation in Franklin, NH to the Farmwood Substation in Concord, NH.
- 2. Erosion control and temporary stormwater control measures shall comply with the New Hampshire Stormwater Manual Volume 3 – Erosion and Sediment Control During Construction December 2008 and the New Hampshire Department of Natural and Cultural Resources Best Management Practices Manual Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire, March 2019.
- VHB Certified Wetlands Scientists reviewed and confirmed previously delineated wetlands performed by 3. Normandeau Associates and GZA along the PSNH V182/F139 ROW.
- 4. Wetland delineations were performed to the standards in the Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0 (January 2012).
- 5. Elevations are based contours derived from NH GRANIT LIDAR (Coastal New Hampshire 2015)
- Proposed construction limits of disturbance are approximate. Contractor is responsible for minimizing earth 6. disturbance, as practicable.
- 7. The environmental controls shown on these plans may need to be supplemented due to season of work or work methods proposed. Refer to BMP manuals and additional guidance documents, as needed.
- Erosion and sedimentation control measures shall be installed prior to start of work, shall be maintained, and 8. shall remain in place during construction until all disturbed surfaces are stabilized. Following stabilization, erosion and sedimentation control measures that are not compostable shall be removed and properly disposed of off-site.
- 9. Erosion and sedimentation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters. The type and installation method of erosion and sediment controls shall be in accordance with the BMP Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire ("BMP Manual") (NHDNCR, 2019).
- 10. Temporary stone construction entrances will be used at points of construction ingress/egress from public and private roadways.
- 11. The selected contractor is responsible for street sweeping at points of ingress/egress from public and private roadways.
- 12. Swamp matting shown on the plans represents the square footage and alignment of matting which is required and has been approved by the regulators. Additional layers of mats may be required at certain locations. Any increase in the number, change in alignment, or decision not to use swamp mats must be approved by the Permittee or an authorized representative of the Permittee(s) and, as appropriate, regulators.
- 13. Any excavated material shall be placed outside of jurisdictional areas or removed from the site.
- 14. If dewatering is required, dewatering basins shall be placed in uplands areas and discharge water into upland areas.
- 15. Areas of soil disturbance shall be stabilized following construction in accordance with the BMP Manual.
- 16. For work within the 100-year floodplain, there shall be no net additional fill placed, existing surface grades shall be restored upon completion of work.

### Construction Sequence

- 1. Prior to construction crew mobilization, wetland limits will be flagged with pink neon vinyl ribbons and vernal pool limits will be flagged with orange neon vinyl ribbons tied to vegetation and visible to the crews. 2. Proposed pole locations will be staked in the field with numbered grade stakes.
- 3. Crews will be provided with approved plans depicting work areas and required matting and erosion controls to be used to avoid and minimize jurisdictional impacts.
- 4. Civil crews will mobilize to the project vicinity. It is anticipated that the Contractor will secure a marshalling yard outside of the ROW in a previously disturbed or developed area that will be used for delivery of materials, field office and parking.
- 5. Crews will establish construction track pads, where appropriate, as access is established from public roads into the ROW. Traffic control will be implemented, as required, by DOT or local access approvals.
- 6. Erosion and sediment control BMPs will be installed prior to land disturbing activities.
- 7. Civil crews will begin removing topsoil and establishing gravel access roads along designated routes. 8. Timber matting will be laid down across wetland crossings and around existing pole locations that are in or
- adjacent to wetlands.
- 9. Once access is established, line crews will mobilize to start drilling activities associated with pole replacements.
- 10. New steel poles will be installed. Existing conductors and static wire will be transferred to new steel poles until all new steel poles are installed.
- 11. New conductor and optical grounding wire will replace existing conductor and static wire. 12. Old poles, conductor, insulators, and any other type of construction debris will be removed from the site and
- properly disposed.
- 13. Work pad restoration will begin following line construction completion. Work pads will be covered with topsoil, seeded, and mulched. A portion of each work pad will be maintained for future access. 14. Timber matting will be removed from wetland areas. Care should be taken to remove any pieces of matting
- that break off during mat removal.
- 15. If required, wetland areas will be smoothed, seeded with an appropriate wetland seed mix, and mulched to ensure revegetation.
- 16. Access roads will be pulled back from wetland areas by a minimum of 10-15 feet. 17. Civil crews should ensure that appropriate water diversion BMPs implemented for the access roads are
- functioning prior to demobilizing from the ROW.
- 18. Sediment and erosion controls should remain in place until areas are stabilized and then be removed and properly disposed. If sediment and erosion controls can fully decompose, then erosion controls can remain in place after demobilization.
- 19. Wetland areas will be assessed by a qualified environmental monitor to ensure wetland vegetation is reestablished within impacted areas prior to releasing the contractor.

### Invasive Species Control Plan

- 1. Workers who will be operating equipment in areas that may contain invasive plant species will be trained in the identification and modes of dispersal and spread of common, highly-prolific terrestrial invasive plant species that are commonly found within the utility ROW.
- 2. In locations where invasive infestations exist, the contractor shall minimize contact with invasive species by choosing access routes and staging areas that are outside areas of infestation to the greatest extent practicable.
- 3. The contractor will be responsible for certifying that all equipment on the project is clean of invasive species prior to arriving onsite. The contractor will also be responsible for cleaning equipment as it is moved within the project to reduce the risk of spreading invasive plant seeds and fragments.
- 4. Clean vehicles, equipment, materials, gear, footwear or clothing of all visible soil and plant material on site in the infested area, or as near as practical to the infested area, prior to leaving the project site.
- 5. Cleaning methods can include:
  - a. Use a brush, broom or hand tools to manually clean.
  - b. Clean debris off equipment such as construction matting by shaking or dropping mats in a controlled manner to dislodge attached soil and debris.
  - c. Compressed air.
  - d. Using low-or high-pressure wash stations provided containment is in compliance with wastewater discharge regulations.
- 6. Do not decontaminate equipment next to streams or water bodies that could potentially transport seeds or propagules.
- 7. Decontaminate equipment and materials that may be contaminated by aquatic plant materials adjacent to the surface water they were exposed to prior to use in another surface water body.
- Do not transport water withdrawn from a surface water body and discharge it to another water body. 8.
- 9. Stabilize disturbed soils as soon as possible by seeding and/or using mulch, straw or gravel that is free of invasive plant material.
- 10. Where possible, when excavating soils, top layers of soil containing plant material and roots should be segregated from sub soils and left on site.
- 11. Do not transport fill and material containing invasive plant material onto a project site.
- 12. If fill and materials containing invasive species must be transported off site, cover soil and other material containing invasive plant material during transport and do not reuse. Stockpile or dispose of these materials in such a manner that would not promote the spread of invasive plants.

### **Erosion Control**

- 1. The project shall be managed in a manner that meets the requirements and intent of RSA 430:53 and chapter AGR 3800 relative to invasive species.
- documents pertaining to this project and as field conditions dictate.
- 3. Temporary water diversion (swales, basins, etc.) must be used as necessary until areas are stabilized.
- 4. Diversion swales and other temporary BMP's shall be installed early on in the construction sequence (before rough grading.
- 5. Contractor shall inspect and maintain erosion control measures, and remove sediment therefrom on a weekly an upland area such that they do not encumber other drainage structures and protected areas.
- 6. Contractor shall be fully responsible to control construction such that sedimentation shall not affect regulatory protected areas, whether such sedimentation is caused by water, wind, or direct deposit.
- 7. Contractor shall perform construction sequencing such that earth materials are exposed for a minimum of time before they are covered, seeded, or otherwise stabilized to prevent erosion.
- 8. Areas remaining unstabilized for a period of more than 45 days shall be temporarily seeded and mulched. S traw mulch shall be applied at a minimum rate of 1-1/2 tons/acre.
- 9. Permanent seeding shall occur between April 1 and June 1, and/or between August 15 and October 15. All seeding from September 15 on shall be straw mulched.
- 10. Dust shall be controlled through the use of water.
- 11. Soils to be stockpiled for a period of more than 45 days shall be temporarily seeded and mulched. Contractor shall install silt fencing along downhill side of stockpiles.
- 12. Contractor shall provide temporary sedimentation basins to control sedimentation and stormwater runoff during the construction period. The contractor shall submit proposed basin locations, designs, etc. to the Engineer for review prior to construction. Temporary sedimentation basins shall meet NHDES requirements.
- 13. Contractor shall provide necessary erosion control measures to ensure that surface water run-off from unstabilized areas does not carry silt, sediment, and other debris outside of the limits of work.
- 14. An area shall be considered stable if one of the following has occurred:
  - Base course gravels have been installed in areas to be paved; A.

2. Prior to starting any earth moving operations, the contractor shall notify appropriate agencies and shall install erosion control measures as shown on the plans, as field and as identified in federal, state, and local approval

basis and within twelve hours after each storm event (0.5" of rainfall or greater) and dispose of sediments in

- A minimum of 85% vegetated growth has been established; B.
- C. A minimum of 3-inches of non-erosive material, such as stone or riprap, has been installed;
- Erosion control blankets have been properly installed. D.
- 15. The smallest practical area shall be disturbed during construction and shall be in conformance with the requirements of Env-Wq 1505.03 for Maximum Open Area Allowed.
- 16. All ditches, swales, and drainage basins shall be stabilized prior to directing runoff to them.
- 17. All roadways shall be stabilized within 72 hours of achieving finished grade.
- 18. All cut and fill slopes shall be loamed and seeded within 72 hours of achieving finished grade.
- 19. All permanent and temporary seeding shall be as follows (unless otherwise noted):

Permanent Seeding	<b>Proportion</b>	Germination (min.)	Purity (min.)
Lawns:			
Creeping Red Fescue	50%	85%	95%
Kentucky Bluegrass	40%	85%	90%
Manhattan Perennial Rye	10%	90%	95%
Temporary Seeding*	% Weight	Germination (min.)	
Winter Rye	80% min.	85%	
Red Fescue (creeping)	4% min.	80%	
Perennial Rye Grass	3% min.	90%	
Red Clover	3% min.	90%	
Other Crop Grass	0.5% max.		
Noxious Weed Seed	0.5% max.		
Inert Matter	1.0% max.		
* Temporary seed for lawns shall o	nly be planted wh	en nermanent grasses can	not be planted due

Temporary seed for lawns shall only be planted when permanent grasses cannot be planted due to the growing season.

- 20. No-mow planting mix (for areas indicated on the plan or as directed) the no-mow planting mix" shall be the "New England Conservation Wildlife Mix" as manufactured by New England Wetland Plants, Inc.
- 21. Erosion control blankets shall be installed on all disturbed slopes that are steeper than 3-ft horizontal and 1-ft vertical (3:1). erosion control blankets shall be north American Green SC150BN, or approved equivalent.

### Winter construction

1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized. Stabilization methods shall include seeding and installing erosion control blankets on slopes greater than 3:1 and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. the installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or frozen ground and shall be completed in advance of thaw or spring melt events.

2. All ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be temporarily stabilized with stone or erosion control blankets appropriate for the design flow conditions.

3. After October 15th, incomplete access road or work area surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel (NHDOT 304.3).

Wildlife conservation measures:

- The Project has limited its wetland impacts to those that are unavoidable due to the placement of construction matting for the structure and line replacements.
- buffers around them.
- Areas disturbed during construction will be reseeded and stabilized.
- erosion controls, such as those made from woven organic materials or other biodegradable materials, rather than those that use welded plastic netting or polypropylene;
- migration of animals into the active work zone;
- letter assigned number, the project name, and the term "Wildlife Species Observation";
- Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHF&G in digital format at the above email address for verification, as feasible;
- In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHF&G and implementation of corrective actions recommended by NHF&G, if any, to assure the project does not and
- of the permit.

Wherever possible, the Project is also avoiding all areas around identified vernal pools by establishing 50-foot

Erosion controls will be employed around all wetland areas adjacent to proposed work areas. Wildlife-friendly

If appropriate in sensitive areas, exclusion fencing or other physical barrier around the limit of work to prevent

All observations of threatened or endangered species on the project site shall be reported immediately to the NHF&G nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at <u>NHFGreview@wildlife.nh.gov</u>, with the email subject line containing the NHB DataCheck tool results

appreciably jeopardize the continued existence of threatened and endangered species as defined in Fis 1002.04;

The NHF&G, including its employees and authorized agents, shall have access to the property during the term

### Final New Hampshire Fish and Game Permit Conditions (3/23/23):

- 1. Blanding's turtle (state endangered), spotted turtle (state threatened), and wood turtle (state species of special concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. Rare species information, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be posted on site at all times and communicated during morning tailgate meetings prior to work commencement. Refer to the species flyers located on the next plan sheet.
- 2. At least one qualified biological monitor shall be on-site at all times at all active work areas within 300' of Hayward Brook, Burnham Brook and Shaw Brook (including work pads, staging areas, access roads, vegetation removal/maintenance, etc.). A qualified biological monitor shall be someone with training and experience in turtle and reptile identification and handling techniques and shall operate under the guidance of a qualified herpetologist. A qualified herpetologist shall be a wildlife biologist well versed on and with extensive experience in turtle identification, life history, habitat preference, handling, and documentation, i.e. activity, sexing, aging, etc. Provide qualifications of both to NHFG.
  - a. The qualified herpetologist shall be responsible for
    - i. Searching for, identifying, documenting, reporting and relocating any state-listed herpetofauna within the work areas.
    - ii. Instructing and guiding biological monitor on matters pertaining to herpetofauna.
    - iii. Ensuring proper documentation and handling techniques are abided to by the construction personnel and the biological monitor.
    - iv. At the end of the project, the qualified herpetologist shall provide Eversource Licensing and Permitting staff a report, which includes a summary of observations, reporting logs documenting any documented state-listed species, and mapping and .shp files showing the location of any observed state-listed species. The report shall be reviewed and provided to NHFG for their records.
  - b. The biological monitor shall:
    - i. Inspect all work areas for S&E controls, the presence of state-listed species, to ensure compliance with environmental regulations and permit conditions.
    - ii. Maintain regular contact with the project's qualified herpetologist on all matters pertaining to herpetofauna protection and surveys.
    - iii. Report observations of state-listed species immediately to EL&P staff who shall in turn report those observations immediately to NHFG.
    - iv. Document field activities and observations daily.

### 3. For all work pads, staging areas, and matted access roads within 300' of Hayward Brook, Burnham Brook and Shaw Brook:

- a. Immediately prior to work or the movement of equipment, searches and sweeps shall be conducted by a qualified herpetologist/biologist or biological monitor.
- b. Bridge matting or double stack matting shall be used in all wetland areas in order to minimize the chance of turtles climbing onto work locations.
  - i. Any reptiles observed on bridge matting or double stack matting shall be reported to NHFG immediately.
- c. In all upland work areas, material shall be staged/placed within pre-established work pads which have been cleared for and isolated from turtle entry, and all work pads around structures shall be cleared and isolated from turtle entry with wildlife exclusion silt fence prior to work. These areas shall be cleared by a qualified biologist or herpetologist.
  - i. Silt fence shall be constructed as soon as possible in order to minimize the chance of turtles nesting in work areas.
  - ii. Silt fence used for wildlife exclusion should fully enclose the work areas and should be buried to a depth no less than 6-8" and be 18" above grade with ground stakes on the active site side of the fence. Access gates shall be weighed down and lay flat on the ground to prevent wildlife entry. There should be no gaps between the gate and the silt fence or the gate and the ground.
  - iii. Any failings in silt fence for wildlife exclusion shall be reported to NHFG immediately.

4. Turtles may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15th – June 30th. Nesting areas may include work pads and access roads that are not hard pack gravel and other sandy/gravel work areas. All turtle species nests are protected by NH laws. Be aware of the potential to encounter nesting wildlife in these areas.

5. If a nest or scrape is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.

- 6. Vernal pools and potential vernal pools shall be flagged prior to work, and impacts shall be avoided. No disturb vegetative buffers of 50' shall be maintained with the following exceptions:
- a. NHFG understands that impacts to PVP-4/W-100 cannot be avoided given that existing F139 structure 161 is in close proximity and is proposed to be replaced. All disturbance to this potential vernal pool shall occur under frozen conditions in order to prevent rutting.
- b. Impacts to PVP-1 buffer and PVP-2 buffer shall be allowed. See plan sheets 8 and 20.

7. All matting which will be placed in waterbodies deemed suitable for hibernating rare turtles will be placed prior to the start of the inactive season (October 16-March 31) so as to prevent accidental placement atop hibernating turtles. Immediately prior to matting placement in these wetlands, the area shall be swept by a qualified biologist. They shall watch for signs that turtles are being disturbed in the area (ex. Heads coming above water, animals moving in water). Contact NHFG if biologist/herpetologist sees or suspects turtles in matting areas. Areas identified as suitable hibernation habitat shall be identified on plan sheets and provided to NHFG at least two weeks prior to beginning work. Biologist qualifications shall be provided to NHFG. 8. Immediately prior to the placement of matting in wetlands during the active season (April 1-October 15) in all areas not within 300' of Hayward Brook, Burnham Brook, and Shaw Brook, the areas shall be cleared by a trained individual.

a. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site.

9. All work activities shall be restricted to the defined roads, construction areas, and staging areas, with no equipment or materials staged or stored outside of the defined areas as shown on plan sheets. 10. For all areas not within 300' of Hayward Brook, Burnham Brook, searches and sweeps shall be conducted immediately before the start of work and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work.

11. Work, pull pads, and access shall be minimized to the greatest extent possible.

12. Works pads shall be reduced post-construction to 30' x 60' and restored with a native vegetation seed mix.

13. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches;

14. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife.nh.gov, with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation;

15. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible; 16. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.

a. Site operators shall be allowed to relocate wildlife encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.

17. The NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

### Additional Recommendations:

• Smooth green snakes (state species of special concern) occur within the vicinity of the project site. All operators and personnel working on or entering the site should be made aware of the potential presence of these species and should be provided flyers that help to identify these species, along with NHFG contact information. Rare species information, observations, when to contact NHFG immediately and NHFG contact information) should be posted on site at all times and communicated during morning tailgate meetings prior to work commencement. Refer to the species flyers located on the next plan sheet.







Report sightings to NHFG Wildlife Division at <u>NHFGReview@wildlife.nh.gov</u>

Reference NHB# and project name if applicable. Please report promptly, noting specific location and date. Photographs strongly encouraged.



- Thin, bright green snake
- 10-20 inches long
- White or pale yellow underside
- Found in open or lightly forested habitats such as grassy fields, meadows, blueberry barrens, and forest openings
- Dead individuals turn blue







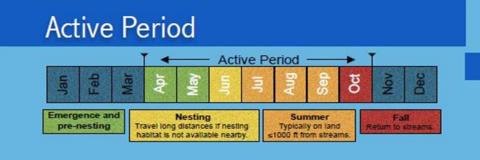
# Managing Forests

Forest management activities have the potential to both kill Wood Turtles and degrade habitat. However, if applied carefully, timber harvesting can be compatible with Wood Turtle habitat conservation and enhancement.

### Guidelines for managing forests:

- 1. Restrict all logging operations within 300 ft of Wood Turtle streams during the active period: April-October.
- 2. Minimize harvests within 300 ft of all Wood Turtle streams and within 1000 ft of regionally significant\* streams.
- 3. If early-successional habitats are completely absent: small group selection cuts (top image) created during the inactive period may enhance habitat.
- 4. Discontinue logging road use after harvests are complete.

\*Regionally significant streams are streams identified as critical to Wood Turtle conservation in the Northeast. Contact your state wildlife agency if you are uncertain about the status of a stream.



# Wood Turtle Habitat

Wood Turtles live in and around cool, clean, slow-moving streams and rivers from Virginia to southern Canada. These semiaquatic turtles overwinter and mate in streams, but spend much of the warmer months roaming the surrounding landscape. They utilize a wide range of upland habitats from fields and shrublands to mature forest.

# Found a Wood Turtle?

If you find a Wood Turtle, please take pictures, note the location, and alert your state agency to your discovery. It is

always best to leave turtles where you find them unless they are directly in harm's way (such as on a road), in which case the traveling turtle should be moved and released in the direction that it was headed.

Carapace Plastron

www.americanturtles.org





www.parcplace.org

Supported by: U.S. Fish and Wildlife Service Competitive State Wildlife Grants





Nesting Areas Agricultural Land Forest Land Roads

# **Creating Nesting Areas**

Wood Turtles require open, well-drained, elevated, and exposed areas of sand and/or gravel for nesting. These conditions occur naturally in the form of sand/gravel bars, beaches, and cutbanks. Wood Turtles also make use of anthropogenic features for nesting such as gravel pits, boat ramps, powerline corridors, and roadsides.

### Considerations for managing nesting habitat:

- 1. Survey and map natural streamside nesting areas using ground surveys and aerial photographs.
- 2. Manage natural streamside nesting habitat by clearing vegetation during the inactive season.
- 3. If natural streamside nesting features are not available, evaluate existing anthropogenic nesting habitat and protect, manage, and/or augment as necessary. Create nesting habitat during winter.

#### Creating nesting habitat:

Clear land to expose mixed poorly-graded sand and gravel, or build mound(s) of sand in open areas near streams (≤200 ft). Avoid placing nesting areas near roads and, if possible, disperse nesting areas to decrease the chance of depredation. Suggested dimensions for nesting mounds: 60 x 25 x 5 ft.



# Managing Agricultural Land

Agricultural land can be attractive and beneficial for Wood Turtles if properly managed. Unfortunately, agricultural machinery can also kill Wood Turtles and harm local populations.



#### Guidelines for managing agricultural land:

- 1. Establish unfragmented and unmanaged riparian/upland buffers of ≥300 ft around all Wood Turtle streams and buffers of ≥1000 ft around regionally significant\* streams.
- 2. Manage fields during the inactive period (Nov 1-Mar 31). If warm season management is necessary, leave unmanaged buffers >35 ft at the streamside edge of fields and maintain them during winter.
- Use crop varieties that can be harvested in October. 3.
- Implement grazing or off-season burning. Exclude livestock from the riparian corridor.
- 5. Use sickle bar mowers and raise blade height >6 inches when possible.
- 6. Conduct systematic surveys to identify heavily used turtle areas (e.g., early summer nesting congregations in fields).



See Managing Forests





Road mortalities are one of the major factors contributing to the decline of Wood Turtles. Roads that run parallel to Wood Turtle streams, especially within 300 ft, are particularly harmful for nearby populations. The most effective way to protect Wood Turtles is to restrict the construction of new roads near important habitat.

### Guidelines for minimizing road mortalities:



- 1. Prohibit road construction within 300 ft of all Wood Turtle streams and where feasible within 1000 ft of regionally significant\* streams.
- 2. Culverts and crossings should be avoided whenever possible near Wood Turtle streams.
- 3. If a road crossing is necessary, it is critical that: A. The culvert or bridge allows turtles to pass below (e.g., is not perched or undersized\*\*). B. The road surfaces and side slopes are not attractive to Wood Turtles (e.g., avoid creating nesting or early-successional habitat). Minimize road construction up to 3.5 miles from
  - regionally significant\* streams.

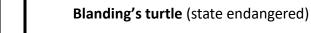
\*See Managing Forests \*\*See Stream Crossing Standards

# **PLEASE REPORT RARE TURTLES**

### The NH Fish & Game Department is requesting observations of three turtle species that could

### be encountered onsite.

Report sightings immediately to NHFG Wildlife Division at 603-271-2461 (M-F 8-4) or to NHFG Wildlife Biologist Melissa Winters 603-479-1129 (cell) anytime. Please report promptly, noting specific location and date – Photographs strongly encouraged



- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land





### Wood turtle (special concern)

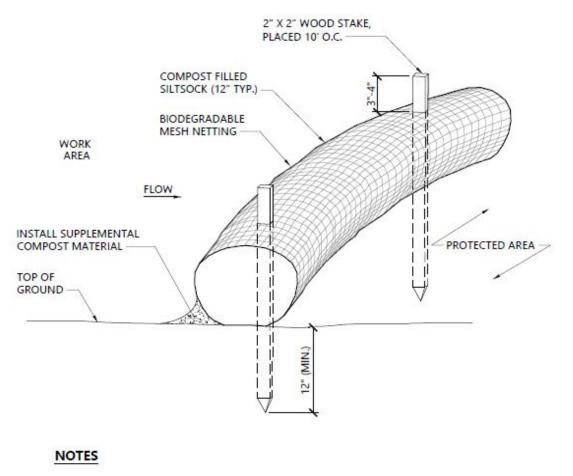
- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land



### Spotted turtle (state threatened)

- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle





- SILTSOCK SHALL BE FILTREXX SILTSOXX WITH SILTSOXX NATURAL ORIGINAL 1. OR NATURAL PLUS+ COMPOST FILL.
- SILTSOCKS SHALL OVERLAP A MINIMUM OF 12 INCHES. 2.
- SILTSOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM 3. EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
- COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE 4. ENGINEER.

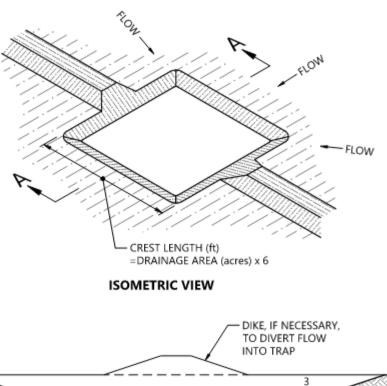
Siltsock -	Erosion	Control	Barrier	
				_

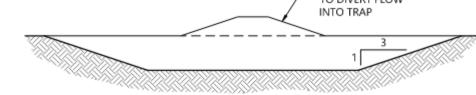
N.T.S.

Source: VHB

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REV





SECTION A-A

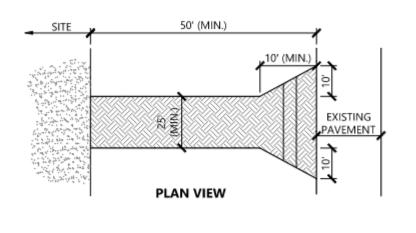
### NOTES

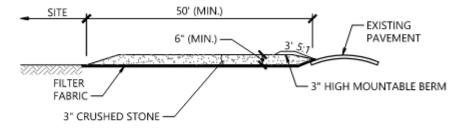
- 1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE .
- 2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
- 3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
- 4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER, AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
- 5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
- 6. THE TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
- 7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.

### Temporary Sediment Trap

N.T.S.

Source: NH Stormwater Manual





### CROSS-SECTION

#### NOTES

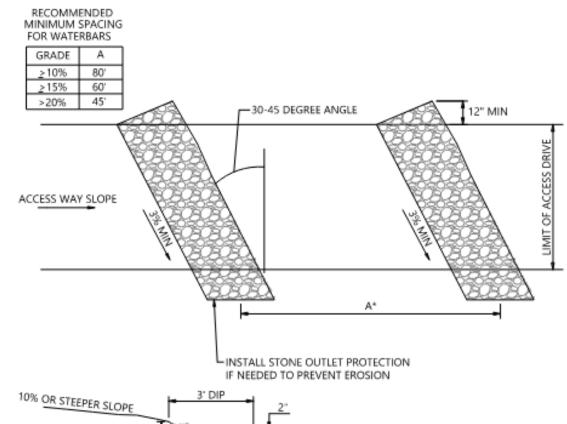
- 1. EXIT WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- 2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
- 3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

### Stabilized Construction Exit

N.T.S.

Source: VHB

5/17

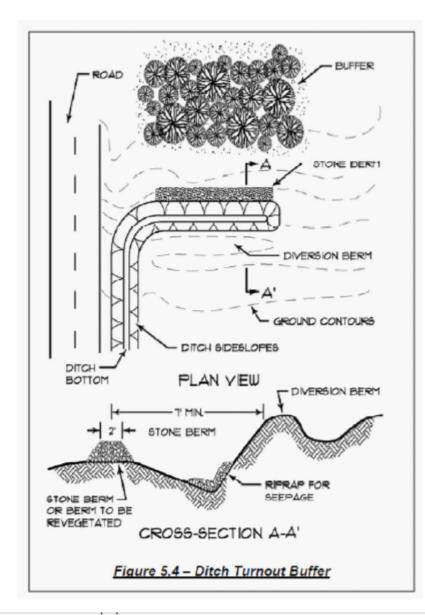


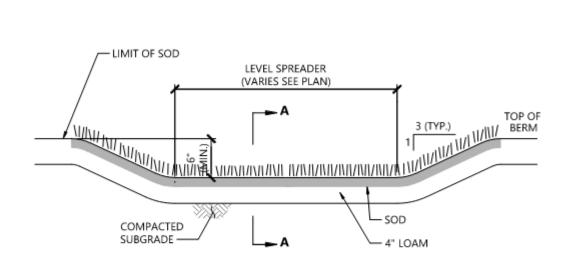
#### NOTES

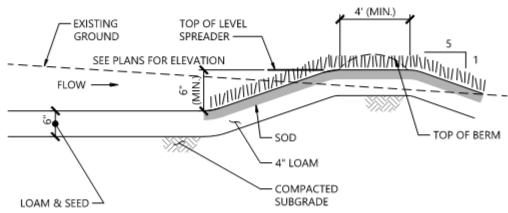
- WATERBARS SHOULD BE INSTALLED IN SECTIONS WITH SLOPES GREATER THAN OR EQUAL TO 10%.
- 2. CONTRACTOR TO OBSERVE THE CLEARINGS DURING A RAINSTORM TO DETERMINE IF ADDITIONAL WATERBARS OR ADJUSTMENTS TO WATERBARS ARE NEEDED.
- 3. WATERBAR DESIGN AND SPACING PROVIDED FOR GUIDANCE TO CONTROL EROSION ALONG CROSS-COUNTRY CLEARINGS. THE CONTRACTOR SHALL DETERMINE IF OTHER APPROPRIATE MEASURES ARE REQUIRED TO CONTROL RUNOFF AND EROSION IN CLEARING AREAS.
- 4. FOR WIDER LIMITS OF CLEARING MULTIPLE LOG LENGTHS MAY BE REQUIRED.

#### Waterbars (Alternative) - For Utility Access Areas 11/15 N.T.S. Source: VHB LD\_









- Stone Berm Specifications: The stone berm to which the ditch turn-out delivers the runoff must be at least 20 feet in length and must be constructed along the contour. It must be at least one- foot high and two feet across the top with 2:1 side slopes.
- Stone Size: The stone must be coarse enough that it will not clog with sediment. Stone for ٠ stone bermed level lip spreaders must consist of sound durable rock that will not disintegrate by exposure to water or weather. Fieldstone, rough quarried stone, blasted ledge rock or tailings may be used. The rock must be well graded with a median size of approximately 3 inches and a maximum size of 6 inches. See Table 5.4 above.

### Ditch Turnout

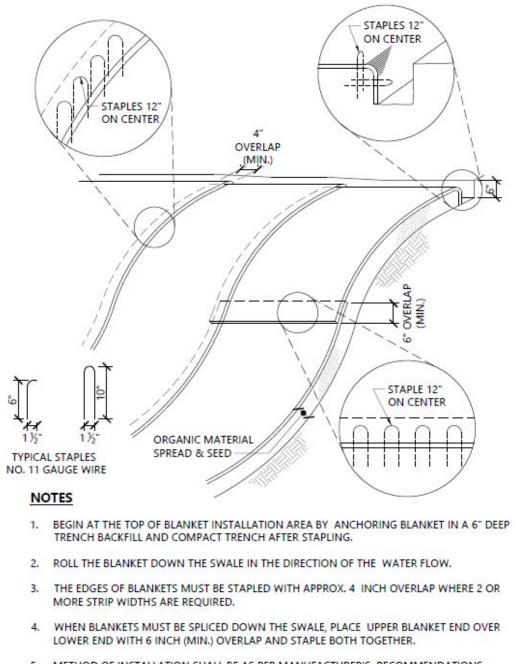
N.T.S.

Source: MDEP



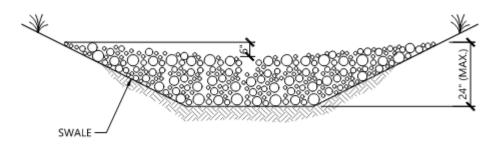
### SECTION A-A

	1/16
LD	172

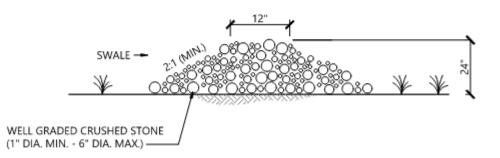


- 5. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
- 6. EROSION CONTROL BLANKETS SHALL BE USED IN ALL AREAS WHERE SLOPES EXCEED 3:1.
- 7. EROSION CONTROL BLANKETS SHALL NOT CONTAIN WELDED PLASTIC, PLASTIC MULTI-FILAMENT OR MONO-FILAMENT POLYPROPYLENE NETTING OR MESH.

Erosion Control Blanket Slope Installation			1/16
N.T.S.	Source: VHB	REV	LD_680







### CROSS-SECTION

### NOTES

- 1. TOP OF DOWNGRADIENT CHECKDAM AND BOTTOM OF UPGRADIENT CHECKDAM TO BE SET AT THE SAME ELEVATION.
- 2. STONE CHECKDAMS MAY BE REMOVED WHEN 90% OF THE VEGETATIVE COVER IS ESTABLISHED.

## **Temporary Stone Checkdam**

N.T.S.

Source: VHB

REV

