Appendix I

Badger Wind Reclamation and Weed Management Plan

Badger Wind, LLC
February 2022

BADGER WIND
RECLAMATION AND WEED MANAGEMENT PLAN

Prepared for

Badger Wind, LLC
401 N. Michigan Avenue, Suite 501
Chicago, IL 60611

Prepared by

Atwell, LLC
3000 Center Green Drive, Suite 210
Boulder, CO 80301

Project No. 19000785

February 2022

ATWELL

TABLE OF CONTENTS

1 INTRODUCTION

This document includes reclamation and weed management plans developed in support of the proposed Badger Wind, LLC (Badger Wind) wind energy conversion project (Project) in Logan County and McIntosh County, North Dakota.

The Project would comprise a nameplate capacity of up to 251.6 megawatts (MW). This would be accomplished by construction and operation of up to 74 wind turbines within an approximately 55,745-acre Project Area. The Project is bisected by the Logan and McIntosh County line, in south-central North Dakota, near the City of Wishek. Project infrastructure includes turbines, access roads, a collector substation, collection lines, a transmission line, meteorological evaluation towers (MET towers), an Aircraft Detection Lighting System (ADLS) tower, and an operation and maintenance (O&M) facility. Crane walk paths will be employed during Project construction.

2 RECLAMATION PLAN

2.1 INTRODUCTION

The objectives for this reclamation effort are to:

- Reclaim areas affected by surface-disturbing activities to as near as practicable to the conditions as it existed prior to the beginning of Project construction
- Prevent soil and water erosion on the Project site
- Prevent the introduction and spread of noxious weeds on the Project site.

The Project Area currently supports a matrix of grasslands, pastures, hayfields, and croplands. Because the duration of construction is expected to be relatively short, Badger Wind's revegetation approach places a strong emphasis on conservation and the re-use of existing site resources such as topsoil. Strategic implementation of revegetation activities will have the goal of minimizing changes to native soil conditions as well as the number of equipment passes through the project area to accomplish successful revegetation. Revegetation will include seeding with vegetation similar in composition to surrounding areas and free of noxious weeds. Revegetation with appropriate seed mix will be conducted immediately upon completion of the project installation.

Fertilizer and soil amendments will not be applied. Soil that is currently supporting native vegetation or agricultural crops within the Project Area indicates that sufficient soil nutrient content is present. Even slow-release organic fertilizers can stimulate weed establishment, and in keeping with the strategy of changing native soil conditions the least amount possible, soil amendments are not warranted in this situation. However, application of granular humate and an endomycorrhizal inoculum are recommended to increase the potential of local topsoil to support germination and establishment of seeded plant species.

The methods for accomplishing this approach are described below.

2.2 TOPSOIL CARE

Living organisms in healthy topsoil improve the ability of native plants to capture and uptake water and nutrients, establish, and reproduce. Preservation of soil structure and organisms during construction enhances revegetation success. Topsoil will be treated with care, as a resource for successful vegetation. Topsoil will be salvaged, segregated from subsoil, stored, and replaced as described below.

- A Public Service Commission (Commission) third party construction inspector will be present on the Project site during initial topsoil removal/segregation to observe that topsoil is being properly removed and kept segregated from subsoil.
- Badger Wind will establish the date and time for the third party construction inspector's topsoil removal oversight in the preconstruction conference.
- To the extent practicable, erosion and sediment control measures shall be installed prior to any required grading activities. At all times during Project construction, all temporary and permanent erosion and sediment control measures shall be maintained and repaired as needed to prevent accelerated erosion on the site and any adjacent properties.
- All topsoil to a depth of up to 12 inches, or to the depth of cultivation, whichever is greater, will be salvaged from all areas of temporary and permanent surface disturbance. This should include any rooted herbaceous plants, roots, shrub twigs, and branches that are present.
- Unless otherwise approved by the Commission, topsoil must be removed before topsoil freezes in the late fall/ early winter to the point that frost inhibits proper soil segregation.
- Any area on which excavated subsoil will be placed must be first stripped of topsoil, to the specified depth.
- Topsoil will be carefully stripped to the specified depth and segregated from subsoil.
- Stripped and segregated topsoil will be stockpiled for storage. No topsoil shall be removed from the site. Topsoil stockpiles must not be placed in natural drainages and will be protected from water erosion and compaction by heavy machinery.
- Runoff from stockpiled topsoil areas will be controlled to prevent erosion.
- For collection line trenches, topsoil will be stripped to the specified depth, including any rooted herbaceous plants, roots, shrub twigs, and branches that are present, and will be bladed from Project disturbance areas into windrows at each outer edge of temporary construction limits. Topsoil windrows will be constructed to lie parallel to slopes.
- After backfilling excavation areas with subsoil is complete, any excess subsoil must be placed over the excavation area, blending the grade into existing topography.
- Topsoil will be redistributed after subsoils have been integrated into the disturbed areas. This surface will be rough graded to provide a suitable base for topsoil. Topsoil will be evenly distributed and lightly raked or harrowed to provide an appropriate surface to be seeded and/or planted.

2.3 CONSTRUCTION SEQUENCING

Sequence of Project construction activities will generally be as follows, and may vary depending on Project constraints:

1) Grading of access roads and installation/replacement of culverts, as necessary
2) Construction of access roads
3) Preparation of crane walk paths
4) Trenching for collection lines, including boring protected areas such as wetlands, waterways, and other natural areas
5) Construction/installation of Project infrastructure, including establishment of permanent, non-vegetated surface cover, as necessary
6) Temporary reclamation in areas with anticipated further surface disturbance
7) Final reclamation of all temporary disturbance areas not included in permanent infrastructure footprints.

2.4 PREVENTION OF SOIL LOSS DUE TO WATER EROSION

- A National Pollutant Discharge Elimination System (NPDES) permit, Storm Water Pollution Prevention Plan (SWPPP), and associated best management practices (BMPs) will be developed and implemented prior to the commencement of construction. Erosion and sedimentation will be reduced through the use of BMPs, which may include mulching, hydroseeding, erosion control blankets, silt fence installation, jute matting, revegetation, and/or interim reclamation.
- Silt fences are used to intercept sediment and sheet flow from disturbed areas during construction. They shall also be used for perimeter control across the site. Silt fences should be placed prior to any site grading and regularly checked to ensure that runoff has not eroded a channel beneath the fence. The fence itself should also be checked for tears and sagging that can occur during construction activities. Regular maintenance shall be provided at a minimum of once every 14 days or when deficiencies in the fencing are found.
- Straw bales are used to intercept and filter sediment in the runoff and prevent it from entering local drainage systems. Straw bales shall be installed prior to any site grading and shall remain in place until the upstream disturbed area is stabilized.
- Surface flows will be directed away from cut-and-fill slopes and into ditches that discharge into natural drainages.

2.5 PREVENTION OF SOIL LOSS DUE TO WIND EROSION

- Fugitive dust emissions resulting from grading activities and/or wind shall be controlled using the best available control technology as defined by the North Dakota Department of Health at the time of grading.
- Sediment control logs (which may act as perimeter control if silt fencing is not used) shall be installed prior to any up-gradient land-disturbing activities.

2.6 RECLAMATION SOIL PREPARATION

- Following the completion of construction, impacted soils that will not continue to be used for operation of Project facilities will be restored to pre-construction condition in accordance with landowner lease agreements and Commission requirements.
- Subsoil to be used as backfill will be spread out around the construction areas, graded in some locations to drain away from turbines or other infrastructure, and topped with gravel or topsoil as appropriate. As part of the post-construction reclamation efforts, compacted soils in areas where Project infrastructure is not located will be ripped with a grader, spread with topsoil stockpiled during construction, and revegetated by seeding. Depending upon the timing of reclamation activity, these areas may be reseeded with temporary cover crops or planted with row crops.
- At the end of the Project's life, Project facilities will be decommissioned, and soils will be returned back to agricultural or other desired use in accordance with the Commission's requirements and the Project's Decommissioning Plan.

2.7 SEEDING PREPARATION AND SEEDING

Successful site reclamation via seeding is most successful when the following steps are taken, in order described.

- Temporary soil stabilization measures shall be applied as quickly as reasonably possible to disturbed areas. Permanent soil stabilization measures shall be applied to disturbed areas as quickly as reasonably possible after final grade is reached on any portion of the site.
- Any areas severely compacted by machinery and equipment during construction should be ripped by tractor or backhoe to loosen soils and allow for water infiltration and root growth.
- Disturbed surface areas will be final-graded to match previous conditions and tied into new parking and road areas in a natural grade, as possible.

- Topsoil and composite plant debris will be redistributed within the graded areas to be revegetated after rough grading to provide a suitable base for areas that will be seeded.
- Following seed bed preparation, soil surface stabilization will comprise seeding with a seed mix appropriate to site-specific conditions:
  - a temporary cover crop when additional surface-disturbing activities are anticipated;
  - a pasture seed mix, developed in coordination with local Natural Resource Conservation Service office (NRCS) and landowners (subject to Commission approval, as needed); or
  - a mix of native grass and forb species common to natural local grasslands, developed in coordination with local NRCS office and landowners (subject to Commission approval, as needed).
- Per NRCS recommendations, as necessary, temporary soil stabilization shall consist of seeding with Canada wildrye (*Elymus canadensis)* at 40 pounds pure live seed (PLS)/acre. Temporary seeding areas will be hydromulched with wood fiber/tackifier at one ton/acre.
- Following soil surface preparation, areas of permanent reclamation will be drill seeded with the appropriate seed mix at the specified seeding rate. Smaller areas may also be broadcast seeded at double the seeding rate used for drill seeding.
- Seeding areas will be hydromulched with wood fiber with tackifier at a rate of one ton/acre. Alternative acceptable mulching will be 1.5 tons of weed-free straw per acre, mechanically or hand crimped into topsoil.

3 WEED MANAGEMENT PLAN

3.1 INTRODUCTION

This weed management plan provides general information on an integrated approach to noxious weed management during the construction and operation of the Project.

3.2 PLAN GOALS

Noxious weeds and other invasive plant species pose an increasing threat to native ecosystems, croplands, and other plant communities. Invasive and noxious weeds are not only a problem on disturbed sites, but they can also easily become established within relatively undisturbed ecosystems. Because they have few, if any, natural predators, competitors, or pathogens, the growth of invasive and noxious weeds can increase unchecked, removing moisture, nutrients, and sunlight from surrounding plant communities. In addition, invasive and noxious weeds can alter ecosystem structure and function, threatening wildlife biodiversity and ecosystem integrity.

The overall goal of this plan is to describe weed management practices to prevent and control the spread of noxious weeds and other nonnative invasive plant species on lands owned, leased, and managed by Badger Wind.

3.3 STATE AND COUNTY NOXIOUS WEED LAW AND POLICY

North Dakota Law (NDCC § 4.1-47-02) requires every person to do all things necessary and proper to control the spread of noxious weeds. The North Dakota Department of Agriculture coordinates the efforts of county and city weed boards and state and federal land managers to implement integrated weed management programs. The agricultural commissioner is required to create and maintain a list of noxious weeds within the state. There are currently 13 noxious weeds on the list that require management, as follows:

- Absinth wormwood (*Artemisia absinthium*)
- Canada thistle (*Cirsium arvense*)
- Dalmatian toadflax *(Linaria genistifolia* spp. *dalmatica*)
- Diffuse knapweed (*Centaurea diffusa*)
- Houndstongue (*Cynoglossum officinale*)
- Leafy spurge (*Euphorbia esula*)
- Musk thistle (*Carduus nutans*)

- Palmer amaranth (*Amaranthus palmeri*)
- Purple loosestrife (*Lythrum salicaria*, *Lythrum virgatum*, and all cultivars)
- Russian knapweed (*Centaurea repens*)
- Salt cedar or tamarisk (*Tamarix* spp.)
- Spotted knapweed (*Centaurea maculosa*)
- Yellow toadflax (*Linaria vulgaris*)

Counties have the option to add additional weeds to the noxious weeds list for enforcement within their jurisdiction. Logan County designates black henbane (*Hyoscyamus niger*) as a noxious weed. McIntosh County has no additional noxious weed designations.

3.4 WEED MANAGEMENT STRATEGY

Weed management is a constant and iterative process that accommodates the specific ecological conditions, weed species, and land uses of a site. To control activities of extensive existing populations requires an integration of techniques that will be implemented for multiple years. However, in the meantime, small, incipient populations will be eradicated to prevent them from expanding and requiring additional, large management efforts.

Weed management must be accomplished through several integrated actions that address the varied aspects of weed incidence, occurrence, and management. These actions are discussed in the context of their application at the Project in greater detail below:

- Prevent new weed infestations with scrupulous use of best land management practices and increased public awareness
- Monitor site for incipient weed infestations
- Detect and eradicate small and incipient weed populations
- Prioritize and rigorously manage large weed populations emphasizing integrated weed management methods with the intention of containment and control.

3.4.1 Prevent New Weed Infestations

Prevention is a proactive control measure with long-term ecological and economic benefits. If new weed populations are prevented from establishing, ecological health is encouraged, and future control actions are considerably minimized.

Weed prevention can be addressed by**:**

- Limiting opportunities for weed propagules (e.g., seeds, shoots, root fragments) to enter the property
- Reducing negative human impacts to existing vegetation
- Maintaining healthy and vigorous plant communities that can exclude weeds, should they enter the local system.

Many weeds enter a location via seeds or other propagules in contaminated construction and fill material, sand and gravel, or topsoil. Weeds can also be transported from colonized areas to weed-free areas through maintenance activities. Weeds and plant propagules can be transported on vehicles or human workers.

Human visitors may also inadvertently transport problem plant species on vehicles, clothing, shoes, and dogs. Human transportation corridors such as roads and trails are often the point source of weed infestations into natural plant communities. Making these areas a high priority for monitoring and spot treatment will reduce the chance that additional weeds that enter as point infestations will spread into adjacent areas and become large management issues.

Some noxious weeds have been known to enter new sites as planted ornamentals in landscaped areas and gardens. These types of plants are usually well adapted to local conditions, which make them appealing to landscapers and gardeners. However, these characteristics also allow some plant species to escape cultivation, naturalize, and spread in the surrounding open lands. Raising the awareness of residents to this problem may prevent similar infestations in the future. The invasive nature of any ornamental plants used in future site landscaping should be investigated before planting.

Several sources have noted that thick cover of a healthy, strongly competing native plant community can be an important component of weed control. Management practices that minimize disturbance to native plant communities reduce opportunities for weeds to invade the site. This includes careful use of off-road vehicles and avoiding soil disturbances in natural vegetation areas whenever possible.

Careful revegetation of surface disturbed areas will also help prevent new weed infestations by using certified weed-free fill, topsoil, seeds, mulch, and vigorous native plant materials. A seed mix of native grasses found to grow well on, or in the vicinity of the Project, will be developed in coordination with the NRCS for revegetation of disturbed areas.

Construction activities for the Project will be conducted in a manner that supports the goal of preventing new weed infestations. The following best management practices will be employed during construction and will be included in the Final Plat and plans for site grading, drainage, and erosion control as notes:

- Other than vehicles essential to construction and maintenance activities, no motorized vehicles will be allowed off-road on open space or any other common property.
- Soil from areas with noxious weed populations will not be removed or introduced to the construction site, to avoid transport of weed seeds or other propagules.
- Construction activities will not be conducted such that noxious weeds are disturbed when they bear mature seed heads (to prevent release of seed into other areas). Or, before construction activities in such areas the weed plants will be cut or mown, and the material removed and disposed of before plants set seed.
- All earth moving equipment will be washed at a controlled location prior to being moved onto the Project site.
- All seed, soil, and mulch imported onto the Project site will be certified as weed-free.
- All excavations, placement of fill soil, or other areas of surface disturbance will be revegetated with appropriate site seed mix within 14 days of completion of grading, in order to facilitate establishment of desirable vegetation and discourage weed infestation.

3.4.2 Monitor for Incipient Weed Populations

Studies have shown that most weed infestations begin as small points of one or a few individual plants. These point infestations tend to gradually expand over time, then spread explosively into large populations with the potential to seriously impact native vegetation. Control at the point infestation stage is easier, more economical, and more effective than after a weed population becomes established.

Monitoring known weed populations and checking for new introductions should be done throughout the growing season. This is especially important along road and parking lot edges and other heavily used areas. This process is facilitated if all maintenance personnel are trained to recognize the potential noxious weeds in the area and keep track of new point infestations, the boundaries of established weed populations, and monitoring the success of management activities.

3.4.3 Detect and Eradicate New Weed Populations

Small weed infestations are much easier to control than larger ones because they have less-developed root systems, smaller seed reserves in the soil, and fewer resources accumulated in roots and rhizomes. The goal of managing small, focal weed populations can appropriately complete eradication. This can be accomplished with any of the methods described below in Section 3.4 that are appropriate for a specific weed. Mechanical methods are often very effective at this stage of a weed infestation, as are spot herbicide treatments of individual plants. Any

particular treatment will need to be repeated several times to eradicate new point infestations. These areas should continue to be monitored following control activities and treatment methods should be reevaluated if the populations do not respond or increase in size.

3.4.4 Treatment Method

Expansion of noxious weeds is a dynamic process. Existing infestations of weeds can continue to spread and new infestations can become established. Reducing the spread of noxious weeds requires a timely, adaptive, and integrated approach. Due to the dynamics of noxious weeds, treatment areas and approaches vary from year to year. The following sections describe the methods that may be employed to control invasive and noxious weed species.

Manual or Mechanical Removal

Manual techniques involve the use of tools such as shovels, axes, rakes, grubbing hoes, and hand clippers to expose, cut, and remove most of the target plant's central root mass. Hand grubbing (uprooting individual plants by hand) is another technique used where soil disturbance must be held to a minimum. Manual treatments can be far more species-selective and can be used in sensitive habitats where herbicides would not be appropriate or in areas not accessible to ground vehicles.

Mechanical methods primarily include mowing to cut herbaceous vegetation above the ground surface. Tillage for noxious weed control generally involves plowing, sweeping, or disking of a site to kill and incorporate existing vegetation in preparation of a seedbed. However, these methods involve a significant amount of ground disturbance and are generally not recommended.

Biological Control

Biological noxious weed control programs employ living organisms to selectively suppress noxious weed populations. Primary techniques include controlled foraging by herbivorous animals (e.g., sheep or goats) and introduction of host-specific pathogens or insects.

Grazing can aid in control of noxious weeds through removal of herbaceous vegetation. Also, by timing grazing to correspond with the peak palatability of a noxious weed species or peak vulnerability of a species, effects on surrounding vegetation can be minimized. In addition, depending on the species and the site conditions, grazing can be used to remove decadent aboveground biomass and noxious weed litter. This can temporarily decrease soil surface moisture and open the canopy, which may be favorable for native species competition and regeneration.

Insects, pathogens, or a combination of the two may be released in an area infested by noxious weeds to selectively feed on or infect target plants. Introduced insects and or pathogens can

weaken the target species directly by attacking vital plant parts (e.g., roots, seeds, or leaves) or indirectly by creating an environment that reduces the species' competitive advantage. The insects to be introduced must be approved and recommended for use by the U.S. Department of Agriculture Animal and Plant Health Inspection Service. Any proposed inoculation of noxious weeds with larval stage insects will require specific approval from County Weed Coordinators, depending on the location of the proposed release.

Herbicide Treatments

Chemical treatment methods employ herbicides to control noxious weeds. All applications of herbicides will adhere to required and recommended restrictions on herbicide labels. A communication plan will be implemented to provide notification of treatment activities. Herbicides will be applied from ground vehicles (e.g., trucks, all-terrain vehicles, and tractors), from backpack equipment, or small hand sprayers. Target species will be spot treated where this method is practical and effective. Ground vehicles and backpack applicators will be equipped with handheld spraying equipment (e.g., wands and spray guns) for spot treatment. Additional items in backpack equipment may include drip and wick applicators, or whirling disk applicators. Dry formulations may be applied with mechanical broadcast equipment, or by hand. Truck mounted boom sprayers or broadcast spreaders would be used only where target vegetation is dense enough and infestation size large enough (usually >1 acre) to warrant such methods.

All herbicides used in weed control on the Project Area will be registered by the U.S. Environmental Protection Agency (EPA) for forestry, right-of-way, and rangeland uses. Specific chemicals will be selected for each treatment area based on efficacy of control for the target species, relative risks to non-target species (both plant and animal), and human safety.

In the event of an herbicide spill, the emergency spill plan outlined in **Section 3.5** will be followed. All workers, including contractors, will have the appropriate knowledge and equipment to carry out the plan, and a copy of the spill plan will be kept in all project-related transport vehicles.

All herbicide applications will follow EPA label instructions. Application of herbicides will be suspended when any of the following conditions exist: wind velocity exceeds six miles per hour during application of liquid or granular herbicides; snow or ice covers the foliage of noxious weeds; or precipitation is occurring or is imminent.

Vehicle-mounted sprayers (e.g., handgun, boom, injector) will be used mainly in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to, and applied within, the Project site with the following provisions:

- All herbicide use will be conducted in compliance with the North Dakota Department of Agriculture Pesticide Program, under delegated authority to enforce the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) under state laws and administrative rules.
- Herbicides will be transported to the Project site daily or will be stored under proper precautions at the Project O&M facility.
- On-site herbicide quantities will be limited as practicable.
- Concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling, and in a compartment that is isolated from food, clothing, and safety equipment.
- Mixing will be conducted in an upland area and at a distance greater than 100 feet from open or flowing water or wetlands, greater than 200 feet from private wells, and greater than 400 feet from public wells.
- All herbicide equipment and containers will be inspected for leaks daily.
- All herbicide applicators will have a Commercial Applicator's license with the State of North Dakota for the use of restricted use herbicides and have adequate training for the use of general herbicides.
- Exercise "safety first" at all times.
- Herbicide will be applied only as intended and consistent with state and federal pesticide use laws.
- Herbicide will only be applied as directed by the product label.

Safety Considerations and Herbicide Restrictions

Always wear gloves and eye protection when hand pulling or digging. Several weed species have irritating effects to human skin and eyes. Weeds removed through pulling, digging, or cutting should be bagged and removed from the site. County Weed Coordinators may be able to provide a disposal site, or suggestions for such a site, depending on location.

If chemical weed control methods (herbicides) are chosen for integration into the weed management program, the physical characteristics of each specific site must be carefully considered. Incorrect application of an herbicide can cause severe damage to native plant species as well as the physical environment. Particular attention should be paid to soils, water table

depth, surface water locations, and specific native plants that occur alongside the target weed species.

Only experienced personnel, using calibrated equipment and appropriate personal protection, should apply herbicide treatments. Before using any herbicide, all label instructions and restrictions must be read, understood, and followed precisely. Please note that herbicide labels are changed regularly and should be reviewed often. Supplemental labels are also often available for specific areas and environmental conditions. Herbicides must be applied in conformance with every aspect of their label. Herbicide application beyond the bounds specified on the label is illegal.

3.4.5 Control Existing Populations

To successfully control or manage established weed populations, several factors need to be examined and understood. Priorities for control must be established and management activities should be planned for efficient use of resources and optimal control results. The planning process must consider the physical characteristics of each site, the surrounding non-target plant species, and the life history and phenology of each target weed species, which provides windows of vulnerability to different mechanical, biological, or chemical control methods. Timing of all control techniques must be carefully considered and implemented to maximize effectiveness and minimize risk to non-target organisms.

Types of noxious weed species that could be found on the Badger Wind site are discussed below. Appropriate control measures are discussed in terms of life histories and specific site conditions.

Annual Species

Annual species complete their entire life cycle (germinating, growing, flowering, and producing seeds) in one year. Because annual plants depend entirely on seeds for reproduction, seeds are the focus of most control measures. Mechanical control methods include preventing seed set, blocking entrance of seeds into the soil seed bank, and optimizing conditions that will hasten the depletion of viable seeds from the seed bank.

The single listed annual in North Dakota is Palmer amaranth.

Biennial Species

Biennial plants complete their entire life cycle in two growing seasons. The first year an individual biennial plant grows as a cluster of basal leaves or a rosette without producing flowers its first growing season. The rosette over-winters and in the second year the plant produces a flowering stalk, seeds, and dies. This life history strategy implies a large dependence upon seeds, and the

two-year old seed-bearing individuals, for continuing in current locations and colonizing new sites.

Removing the seed head buds before flowering by cutting the stalks, mowing, or hand-pulling is an effective way to reduce or eliminate seed formation. These activities should begin in the late spring and summer and must be repeated throughout the growing season, as the plants will continue to produce flower buds in an attempt to reproduce. Assiduous mechanical control that involves prevention of seed set by biennial weeds for multiple growing seasons will eventually exhaust the viable seed bank in the soil and reduce or eliminate additional seeds from entering the plant community.

Biological control agents also usually target seed production, or seed producing individuals, in biennial species.

Herbicides are usually applied to biennials at the rosette stage, either in the fall or spring, depending on the species. Herbicide treatments are particularly effective when combined with mechanical methods that have weakened individual plants and reduced the number of seeds entering the system.

Biennial species listed in North Dakota include diffuse knapweed, houndstongue, musk thistle, spotted knapweed (or a short-lived perennial), and black henbane.

Perennial Species

Individuals of perennial species persist for several years due to their formation of extensive root systems. Many perennials are able to reproduce both by seed and vegetatively. These life history traits make control of perennial weed species more difficult than annuals or biennials as individual plants must be eradicated both above- and below-ground. Seeds and growing plants (including the belowground component) must be destroyed at the same time for effective control. Because of this, mechanical methods are often not sufficient in themselves for control. But mowing or pulling throughout the growing season do weaken perennials, making them more susceptible to herbicides applied in the fall.

Perennial species listed in North Dakota include absinth wormwood, Canada thistle, Dalmatian toadflax, leafy spurge, purple loosestrife, Russian knapweed, tamarisk, spotted knapweed (can also be a biennial), and yellow toadflax.

3.4.6 Monitoring

Weed management is a constant and iterative process. Continual monitoring of treated populations, and the entire Project site, is strongly recommended. If weed management goals are not being met, or new species or populations are observed, the control strategies may need to be

recalculated. Likewise, species may be shifted to different priority-to-control groups based on response to control treatments and behavior within the surrounding plant community. It is important to note that research on weed ecology and management techniques is on-going. The methods discussed below only include those known at the time of the writing of this plan. New techniques should be integrated into this plan, as information is available.

3.5 Emergency Spill Plan for Herbicides

Badger Wind will implement a Spill Preservation, Containment, and Control Plan (SPCC) for construction and operations that incorporates all reasonable precautions to be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Employees and contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for a quick and effective response to spills. Items to be included in the spill kit are:

- Protective clothing and gloves
- A minimum of 10 pounds of suitable commercial adsorbent and barrier materials
- Plastic bags and bucket
- Shovel
- Fiber brush and screw-in handle
- Dustpan
- Caution tape
- Detergent

The response to an herbicide spill will vary depending on the material spilled, and the size and location of the spill. The order of priorities after discovering a spill are to protect the safety of personnel and the public, minimize damage to the environment, and conduct cleanup and remediation activities.

All herbicide contractors and employees will obtain and have readily available copies of the appropriate material safety data sheets and the herbicide labels for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements.