Appendix E

Vegetation Management Plan

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Vegetation Establishment and Management Plan

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Abbreviations and Definitions

- AAs: Assessment Areas
- AIMP: Agricultural Impact Mitigation Plan
- BMPs: Best Management Practices
- BWSR: Minnesota Board of Water and Soil Resources
- Coneflower: Coneflower Energy, LLC
- MDA: Minnesota Department of Agriculture
- DNR: Minnesota Department of Natural Resources
- DOC: Minnesota Department of Commerce
- Garvin Scenario: The Project would interconnect to Xcel Energy's proposed Garvin Substation, the terminus of the proposed Minnesota Energy Connection's double-circuit 345 kV transmission line.
- MSL: Mean Sea Level
- kV: kilovolt
- MISO Scenario: The Project would interconnect to the Lyon County to Lake Yankton 115 kV transmission line that bisects the northern portion of the Project Area.
- MW: Megawatt
- NLCD: National Landcover Dataset
- O&M Building: Operations and Maintenance Building
- Project: Coneflower Solar Project
- Project Area: Site; Approximate 2,299-acre area of privately-owned land for which Coneflower Energy, LLC has lease and easement agreements to allow construction and operation of the Project
- Project Footprint: Approximate 1,723-acre area where Coneflower Energy, LLC proposes to build the Coneflower Solar Project facilities
- PSI: pounds per square inch
- PV: Photovoltaic
- SWPPP: Stormwater Pollution Prevention Plan
- VMP: Vegetation Management Plan
- VMU: Vegetation Management Unit

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1.0 Executive Summary

Coneflower Energy, LLC (Coneflower) proposes to construct and operate an up to 235 megawatt (MW) photovoltaic (PV) solar energy generating facility and associated infrastructure, known as the Coneflower Solar Project (Project; see Figure 1). The proposed Project is located in Custer Township in Lyon County, Minnesota. The Project is sited on approximately 2,300 acres of private land under voluntary agreements to participate in the Project. Within the Project Area, approximately 1,723 acres will host Project facilities (Project Footprint; see Figure 2).

The Project Area is predominately cultivated cropland (90 percent, based on National Land Cover Dataset) on gently rolling terrain with soils that are mostly loamy textures, including sandy loam and silty clay loam. Some soils are hydric. The overall goal of this Vegetation Management Plan (VMP) is to establish and maintain perennial vegetation throughout the Project Area utilizing diverse native prairie species to the greatest extent practical. The vegetation will need to be compatible with the operation and maintenance of the solar generation facility. This perennial vegetation is expected to stabilize the soil, improve soil health, and provide habitat for native wildlife. Over the lifetime of the Project, Coneflower will maintain this vegetation to control invasive and other unwanted species and provide habitat for native insects and other wildlife in a manner compatible with the operation of the facility.

2.0 Vegetation and Establishment Management Plan

2.1 VMP Goals and Objectives

This VMP follows the Minnesota Department of Commerce's guidance for developing a vegetation establishment and management plan for solar facilities (DOC 2021). Coneflower's primary goals related to vegetation management are described below with the related objectives to meet the goals.

- **Goal 1:** Establish perennial vegetation over 90 percent of the Project Area (not including roads and infrastructure), incorporating beneficial native species as appropriate.
    - ***Objective 1a.*** Design seed mixes appropriate for this region and expected conditions in the Project Area, with a diversity of grasses and forbs where appropriate.
    - ***Objective 1b.*** Use plant species that provide habitat and nectar sources throughout the growing season.
- **Goal 2:** Provide soil stability and improve soil health over the life of the Project.
    - ***Objective 2a.*** Quickly establish vegetation to minimize the duration and extent of bare soil.
    - ***Objective 2b.*** Include diverse native plant species, as appropriate, that stabilize soils, improve soil health, and sequester carbon with deep and varied root structures.
- **Goal 3:** Establish vegetation that will be compatible with the Project operations and minimize maintenance requirements and costs.
    - ***Objective 3a.*** Use species within the arrays that are short-statured and will not impede or shade solar panels and will not obstruct maintenance and access.
    - ***Objective 3b.*** Implement a long-term management plan that emphasizes regular maintenance and monitoring to minimize the need for widespread herbicide applications and height reduction mowing.
- **Goal 4:** Minimize invasive species, noxious weeds, woody species, and other undesirable species in the Project area.

- ***Objective 4a.*** Establish and selectively manage plant species that do not require extensive maintenance, provide complete cover, and minimize invasion by tall or otherwise undesirable species that may interfere with panels and equipment.
- ***Objective 4b.*** Plan for long-term monitoring and maintenance to quickly detect new infestations and effectively control undesirable species.

3.0 Site Description

3.1 Project Location and Site Layout

The proposed Project is located in Custer Township in Lyon County, about 15 miles south of Marshall, Minnesota (Figure 1). U. S. Highway 14 (US 14) bisects the Site, running east to west, while US 59 runs north to south on the eastern border. Other roads are present within and along the boundaries of the Site. The Project Area consists of a contiguous block of private land, covering approximately 2,300 acres in total. Developed land exists in pockets within and adjacent to the Project Area, including single-family homes and farmsteads with outbuildings.

The Project Area falls within the Minnesota Department of Natural Resources (DNR) Ecological Classification System's Prairie Parkland Province, North Central Glaciated Plains Section, and Coteau Moraines Subsection. The landscape of this area is rolling terrain with predominately agricultural activities.

Coneflower has obtained leases and easements for 2,299 acres of privately-owned land in the Project Area. Based on preliminary design, Coneflower has designed the Project such that Project facilities will cover approximately 1,732 acres of the Project Area (Project Footprint). There are approximately 567 acres of the Project Area for which Coneflower has site control, but are currently not contemplated for occupation by solar facilities (Figure 2 – Project Area and Project Footprint). The 567-acre portion of the Project Area that will not be utilized by the Project is currently under lease with the underlying landowner; however, the landowner will be able to continue to farm this area for the life of the Project or these areas will be maintained in accordance with this VMP.

The Project will interconnect to the Lyon County to Lake Yankton 115 kV transmission line that bisects the northern portion of the Project Area (MISO Scenario). The Project is also uniquely positioned within one-half mile of Xcel Energy's proposed Garvin Substation, the terminus of the proposed Minnesota Energy Connection 345 kV transmission line (Garvin Scenario). This transmission line is proposed to deliver new renewable energy to customers to replace retiring coal plants. In this early stage, both interconnection options are viable. The Project facilities and layout between each scenario are substantially similar; the key difference is that in the MISO Scenario, the Project Substation is located in the north-central portion of the Project Area adjacent to the Lyon County to Lake Yankton transmission line whereas in the Garvin Scenario, the Project substation is located in the eastern portion of the Project Areas near the proposed Garvin substation. The Preliminary Project Layout for the MISO and Garvin Scenarios are displayed on Figures 3a and 3b, respectively.

3.2 Land Cover

The existing vegetation within the Project Area is predominately agricultural cultivated cropland (90 percent) (Figure 2). Typically, corn and soybeans are grown in the area. Trees, primarily cottonwood and boxelder, are present as shelterbelts between agricultural fields and along some roads; there are no large

tracts of forested land within the Project Area. The majority of the Project Area has been cultivated since before 1938 (Image 1).

Image 1: 1938 Aerial Imagery

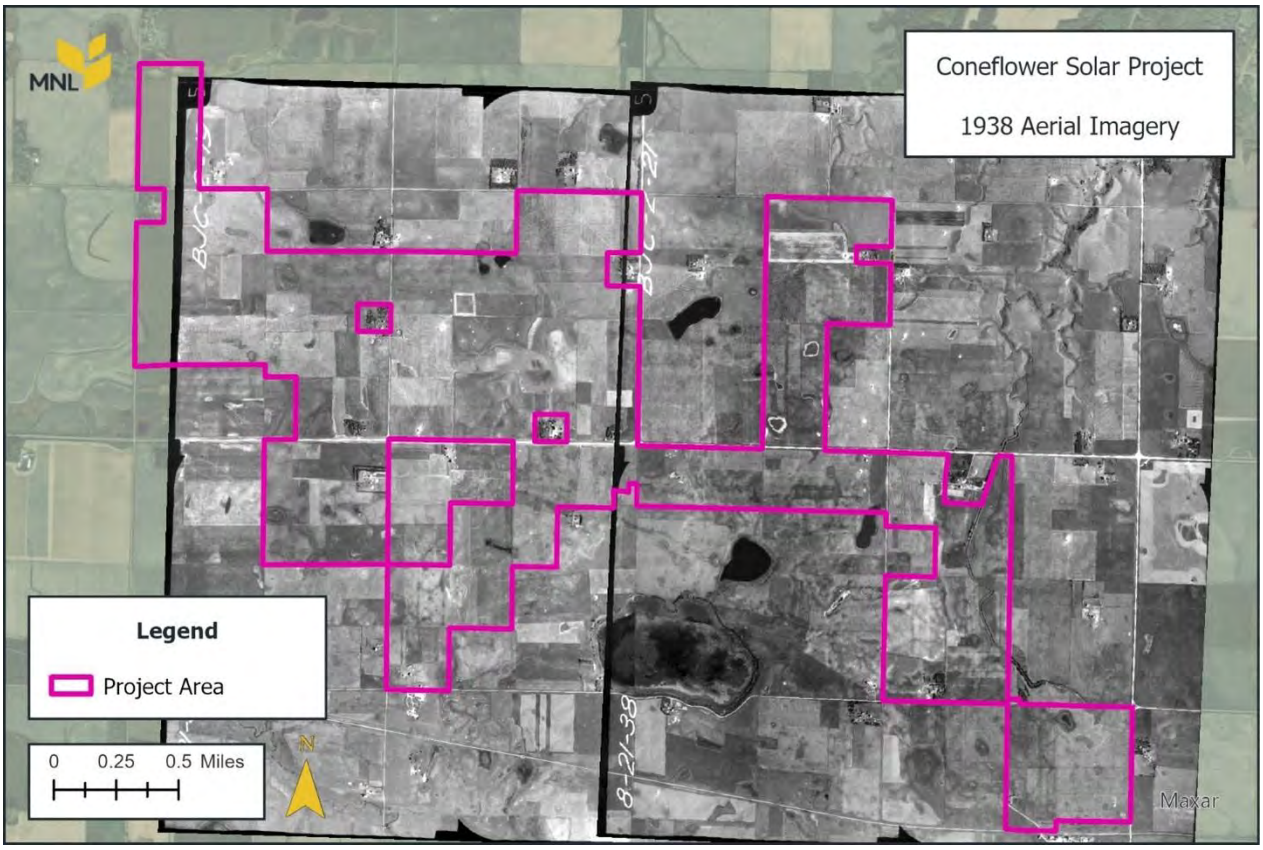

Figure 4 shows the land cover in the Project Area. Land cover classification of the Project Area is primarily cultivated crops (90 percent), with some small pockets of emergent herbaceous wetlands (2 percent), pasture/hay (5 percent), and developed-open space (3 percent; these are primarily roads). Aerial imagery matches these land cover classifications, showing most of the Project Area in cultivated farmland. This land use is predominant throughout the region.

Before extensive agriculture, the historic vegetation of this area was primarily prairie with some areas of wet prairie, river bottom forest, oak openings, and open water found nearby. There are nearby native plant communities that have been mapped by the DNR. Many areas of historically undisturbed dry prairie are mapped, including some adjacent parcels on the southern boundary of the Project Area. Another nearby prairie wetland complex is adjacent to the Project Area. There are also native hardwood forests and floodplain forests associated with the nearby Cottonwood River to the northeast.

3.3 Soils

The soils in the Project Area are mapped as Mollisols, or prairie soils. They are primarily Udolls, well-drained prairie soils with loamy textures. Portions of the Project Area are Aquolls, moderate to poorly drained soils with silty clay loam and clay loam textures. Some of these soils are considered hydric. Coneflower has conducted wetland delineations within the Project Area; these are discussed in Section 3.5 below. Soil drainage classes are displayed on Figure 5.

Table 1

Summary of Soils within the Project Area

Map Unit Symbol	Soil Name	Acres	Percent of Project Area	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group	Compaction Prone[1]
GP	Pits, gravel-Udipsamments complex	0.3	0.0%	Not prime farmland	N/A	0	N/A	Low
J100D2	Buse, eroded-Wilno complex, 12 to 18 percent slopes	11.0	0.5%	Not prime farmland	No	0.34	4L	Medium
J101B	Hokans-Svea complex, 1 to 4 percent slopes	576.3	25.1%	All areas are prime farmland	No	0.35	6	Low
J104A	Svea loam, 1 to 3 percent slopes	181.4	7.9%	All areas are prime farmland	No	0.34	6	Low
J106B	Barnes, occasional saturation-Buse-Svea complex, 1 to 6 percent slopes	534.7	23.3%	All areas are prime farmland	No	0.32	6	Medium
J107A	Lakepark-Roliss-Parnell, depressional, complex, 0 to 3 percent slopes	296.5	12.9%	Prime farmland if drained	Yes	0.34	6	Low
J11A	Vallers clay loam, 0 to 2 percent slopes	65.6	2.9%	Prime farmland if drained	Yes	0.32	4L	Low
J12A	Marysland loam, 0 to 2 percent slopes	1.0	0.0%	Prime farmland if drained	Yes	0.13	4L	Low
J195B	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	4.2	0.2%	All areas are prime farmland	No	0.43	6	Medium
J199A	Fulda silty clay, 0 to 2 percent slopes	6.6	0.3%	Prime farmland if drained	Yes	0.3	4	Low
J1A	Parnell silty clay loam, depressional, 0 to 1 percent slopes	185.0	8.0%	Prime farmland if drained	Yes	0.34	6	Low

Table 1

Summary of Soils within the Project Area

Map Unit Symbol	Soil Name	Acres	Percent of Project Area	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group	Compaction Prone[1]
J227D2	Buse, moderately eroded-Sandberg complex, 12 to 18 percent slopes	9.8	0.4%	Not prime farmland	No	0.23	4L	Medium
J232B	Barnes, occasional saturation-Buse-Arvilla complex, 2 to 6 percent slopes	47.8	2.1%	All areas are prime farmland	No	0.25	6	Medium
J235C2	Buse, moderately eroded-Barnes, moderately eroded-Arvilla complex, 6 to 12 percent slopes	12.2	0.5%	Farmland of statewide importance	No	0.25	4L	Medium
J236A	Highpoint Lake silty clay, 0 to 2 percent slopes	5.3	0.2%	All areas are prime farmland	No	0.34	4	Low
J25A	Rauville silty clay loam, 0 to 1 percent slopes, frequently flooded	0.8	0.0%	Not prime farmland	Yes	0.37	4L	Low
J26B	Darnen loam, 2 to 6 percent slopes	15.0	0.7%	All areas are prime farmland	No	0.3	6	Low
J31B	Arvilla-Sandberg complex, 2 to 6 percent slopes	47.7	2.1%	Not prime farmland	No	0.05	3	Medium
J42C	Sandberg-Arvilla complex, 6 to 12 percent slopes	13.3	0.6%	Not prime farmland	No	0.05	5	Medium
J48A	Southam silty clay loam, 0 to 1 percent slopes	7.7	0.3%	Not prime farmland	Yes	0.32	8	Low
J57A	Balaton loam, 1 to 3 percent slopes	13.2	0.6%	All areas are prime farmland	No	0.31	4L	Low
J75A	Fordville loam, coteau, 0 to 2 percent slopes	1.6	0.1%	All areas are prime farmland	No	0.1	6	Medium

Table 1

Summary of Soils within the Project Area

Map Unit Symbol	Soil Name	Acres	Percent of Project Area	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group	Compaction Prone[1]
J75B	Renshaw-Fordville loams, coteau, 2 to 6 percent slopes	2.7	0.1%	All areas are prime farmland	No	0.07	6	Medium
J7A	Sverdrup sandy loam, 0 to 2 percent slopes	5.8	0.3%	Farmland of statewide importance	No	0.09	3	Medium
J7B	Sverdrup sandy loam, 2 to 6 percent slopes	0.5	0.0%	Farmland of statewide importance	No	0.09	3	Medium
J95E	Buse, stony-Wilno complex, 18 to 25 percent slopes	7.4	0.3%	Not prime farmland	No	0.34	4L	Medium
J96C2	Barnes-Buse complex, 6 to 12 percent slopes, moderately eroded	246.0	10.7%	Farmland of statewide importance	No	0.32	6	Medium
GP	Pits, gravel-Udipsamments complex	0.3	0.0%	Not prime farmland	N/A	0	N/A	Low
	Total	**2,299.4**	**100%**					

1 NRCS Web Soil Survey indicates a Low rating as the potential for compaction being insignificant. The soil is able to support standard equipment with minimal compaction. A Medium rating is defined as having significant potential for compaction. After the initial compaction (i.e. the first equipment pass), this soil is able to support standard equipment with only minimal increases in soil density. There are no Compaction Ratings of High within the Project Area.

3.4 Topography

Elevations in the Project Area are generally between 1490 and 1590 feet (ft.) above mean sea level (MSL), with a gradually rolling topography. Some low points within the Project Area are associated with wetlands, as described in the hydrology section. Site elevations are displayed on Figure 6.

3.5 Hydrology

A major watershed boundary runs through the Project Area (Figure 7). The northern portions of the Project Area are part of Cottonwood River major watershed (#29). The Cottonwood River is just northeast of the Project Area and flows north and east toward the Minnesota River. The southern portions of the Project Area are part of Des Moines River – Headwaters major watershed (#51). The Des Moines River flows southeast through Iowa into the Mississippi River at the border of Iowa and Missouri. Both of these watersheds are part of the Upper Mississippi basin (DNR Level 01 – HUC 02). Intermittent streams run through and adjacent to the Project Area. Within the Project Area, there are several emergent freshwater wetlands, including shallow marshes and seasonally flooded/saturated wetlands. Coneflower has confirmed wetlands within the Project Area with a wetland delineation. A matrix of streams, open water, and wetlands surrounds the Project Area. No public water courses or basins are present in the Project Area.

4.0 Management Units

To achieve the goals and objectives of this VMP and to differentiate management requirements within the Project Area, the Project Area will be divided into four vegetation management unit (VMU) types. These units are as follows:

- **Array VMU:** This VMU will be comprised of short-statured, perennial species that will not interfere with the operation of the solar panels and their leading edge of 18" height. This will have grasses and sedges that provide habitat resources and forbes that provide nectar sources throughout the growing season.
- **Perimeter Shortgrass VMU:** This VMU will primarily be located along the perimeter and within fenced areas – 15 feet inside the fence. This area will have native species that should remain shorter than 3 feet tall and will include grasses and diverse forbs. This VMU will provide high-quality native prairie habitat and be easily managed for the operations that occur within these areas.
- **Perimeter Mixed Height VMU:** This VMU will be primarily outside the fenced area, including areas that were previously cultivated that, with solar facilities, are less than 20 acres and no longer suitable for the landowner to actively row crop. This VMU may include some areas within the fenced area near ditches but separate from most operational areas. This area will have native species, including some species taller than 4 feet, and will include grasses and diverse forbs. This will provide high-quality native prairie habitat.
- **Wet VMU**: This VMU will be seeded with a diverse native seed mix within stormwater catchments and low areas that may be susceptible to ponding. This will include species adapted to saturated soils and periods of shallow inundation.

There are areas within the Project Area that fall outside the Project Footprint for which Coneflower has intentionally avoided the placement of solar facilities. These include existing wetlands, drainages, gravel operations, and fallow ground. In these areas that are also uncultivated (i.e., they have existing

vegetation) and that will not have ground disturbance, they will not be reseeded into one of the VMUs described above. These areas are categorized as "Existing Public Road" or "Existing Vegetation to Remain". Similarly, there are areas within the Project Footprint for which Coneflower will have its graveled solar facilities (access roads, inverters, Project Substation, Switching Station, and O&M Building) that will also not require vegetation. A summary of VMUs for the Project for both the MISO and Garvin Scenarios are displayed below in Table 2; these are also displayed on Figures 8a and 8b.

Table 2
Summary of Vegetation Management Units for the MISO and Garvin Scenarios

Vegetation Management Unit	Acres	
	MISO Scenario	Garvin Scenario
Array	1,590.0	1594.5
Perimeter Shortgrass	61.0	61.1
Perimeter Mixed-Height	272.0	274.3
Wet	17.7	17.7
Existing Vegetation to Remain (outside the security fence)	301.3	299.1
Existing Public Road	18.8	18.8
Coneflower Solar Facility (access roads, inverters, Project Substation, Switching Station, and O&M Building) that does not require vegetation	38.3	33.6
Total	**2,299.1**	**2,299.1**

5.0 Management Objectives for Each VMU

Establishment period and long-term management objectives are defined independently for each VMU. The Array VMU is unique because it is within the operational area of the Project; therefore, the vegetation in this area must remain lower to the ground to prevent shading of the solar panels and interference with other solar equipment. Additional management activity is expected within the arrays to meet these objectives. The other VMUs are not subject to the same constraints as the array VMU and thus will all have reduced management requirements and similar objectives.

5.1 Array VMU Objectives

Establishment Period Objectives (0-5 Years)

- Minimize soil disturbance, soil compaction, and subsoil mixing to prepare an adequate seedbed for seeding.
- Comply with the best management practices outlined in the Agricultural Impact Mitigation Plan (AIMP) and the Stormwater Pollution Prevention Plan (SWPPP) and Construction Stormwater General Permit by installing appropriate BMPs and carefully monitoring construction activities. As described further in the AIMP, Coneflower will have an independent construction monitor to assist with construction compliance.
- Establish perennial vegetation including low-growing grasses and wildflowers to minimize interference with solar operations and reduce long-term maintenance needs.
- Monitor 2-4 times throughout the growing seasons to document seed establishment and plan vegetation management activities, as described in Section 7.0.

Long Term Objectives (5+ Years)

- Maintain desirable, seeded perennial vegetation to reduce invasion of noxious weeds, woody species, and other undesirable plants.
- Monitor annually to assess conditions and identify problems to be addressed through management activities, as described in Section 7.0.

5.2 Perimeter and Wet VMUs Objectives

Establishment Period Objectives (0-5 Years)

- Minimize soil disturbance, soil compaction, and subsoil mixing to prepare an adequate seedbed for seeding. Comply with the AIMP, SWPPP, and Construction Stormwater General Permit by installing appropriate BMPs and carefully monitoring construction activities.
- Establish perennial native vegetation including high diversity of grasses and forbs to provide high quality habitat and nectar sources. Specifically, these mixes will each include a minimum of:
    - 25% wildflower seed by number of seeds
    - 25 native species
    - Three forb species that bloom in each portion of the growing season: early, mid, and late.
- Monitor 2-4 times throughout the growing seasons to document seed establishment and plan vegetation management activities, as described in Section 7.0.

Long Term Objectives (5+ Years)

- Maintain desirable, seeded perennial vegetation to reduce invasion of noxious weeds, woody species, and other undesirable plants.
- Monitor annually to assess conditions and identify problems to be addressed through management activities, as described in Section 7.0.

6.0 Vegetation Establishment

The following vegetation establishment guidelines are based on observations of the status of the Project Area, a review of historical land use within the Project Area, expected conditions prior to and during construction, and construction timelines.

Table 3
Establishment Timeline

Activity	Summary	Timeline
Crop harvest	Harvest of annual crops by current farmer/landowner	As appropriate according to crop
Preparatory herbicide treatments	Application of a non-specific herbicide to live vegetation in the seeding area if undesirable vegetation is present	After crop harvest; at minimum 14-21 days prior to seeding
Seedbed preparation	De-compact soil if needed and prepare a smooth, evenly textured soil surface	Immediately preceding seeding
Seeding	Install seed mixes with a no-till drill seeder	Within 14 days of completion of seedbed preparation; seeding best conducted whenever soils are not frozen between approx. Apr 1-Jul 31 and Sep 30-Dec 1

Table 3 Establishment Timeline		
Activity	**Summary**	**Timeline**
Install BMPs as outlined in the AIMP and SWPPP	Placement of erosion control measures	Prior to grading
Grading and installation of solar infrastructure	Install solar panels and associated infrastructure	Allow seeded vegetation at least one month of growth to establish before beginning grading
Re-seeding	Conduct supplemental seeding as needed for areas impacted by construction	Within 14 days of completion of construction activities in any given area

6.1 Site Preparation

BMPs will be installed before and during grading activities, including placement of erosion control measures such as silt fence, biolog, and sediment catch basins, to prevent soil loss. Areas with existing vegetation will be avoided during construction to the degree feasible, provided this vegetation does not include noxious and undesirable species. If possible, Coneflower may work with landowners to pretreat areas with noxious weeds in the prior growing season. Tree clearing, grubbing, and stump removal will be conducted only where necessary. Grading will be completed in accordance with the Site plans and in a manner that minimizes overall soil disturbance and reduces the movement of soil as much as possible.

Topsoil will be segregated during grading and redistributed across graded areas. Where necessary, soils compacted by construction activities beyond the range of 250 PSI as determined by a soil compaction tester will be decompacted with chisel plows, rippers, or tillers depending on the depth and severity of the compaction. Decompaction may be followed by disking to prepare a smooth, evenly textured soil surface.

If existing undesirable vegetation is present following grading and decompaction, preparatory herbicide treatment should be conducted as needed. This spraying should be done at least 14-21 days prior to scheduled seeding with the application of a non-specific herbicide to all undesirable live vegetation in the seeding area. A second herbicide treatment may be applied to any significant areas of undesirable vegetation still growing 14 days after the first herbicide application. Drift would be minimized by utilizing appropriate equipment calibrated to be conducive to the weather conditions at the time of treatment.

6.2 Seeding and Planting

If possible, seed should be installed prior to construction of solar equipment and infrastructure. Pre-construction seeding helps with early establishment of vegetation to preserve soil stability, prevent erosion, and maintain a cleaner working area during the construction process. Construction will inevitably result in some disturbance to seeded areas, which may require re-seeding after completion of work in the impacted areas.

All seed should be installed using a Truax no-till drill or Trillion type seeder (or similar). Where drill-seeding is not practical due to Site conditions, including the presence of installed solar equipment, seed will be broadcast onto the soil surface using a Vicon seeder (or similar) and raked to ensure good seed-to-soil contact.

Prior to seed installation, the seeding contractor will calibrate and adjust seeding equipment to sow seeds at the proper seeding rate. Equipment will be operated in a manner to ensure complete coverage of the entire area to be seeded. Equipment will be steam cleaned or thoroughly washed prior to starting work to prevent contamination from outside seed sources.

6.2.1 Cover Crop

A cover crop should be installed into any open soils left undisturbed for more than 14 days without erosion control or permanent seeding to provide soil stabilization. Cover crops are annual grass species which germinate and grow rapidly to provide quick cover and erosion control. Oats or rye should be used for spring and summer seedings, while winter wheat should be used for fall seedings. Cover crop will be included in all permanent seed mixes at a reduced rate.

6.2.2 Seed Mixes

Four seed mixes are planned for the Project in accordance with the four VMUs and are shown in Appendix A. The Array Mix will be used within the solar arrays. This seed mix is intended to include only low growing species to accommodate the current Site design of 18-inch panel ground clearance. This mix will include bee lawn fescue, clover, and wildflower species to provide nectar sources throughout the growing season.

The other three seed mixes are composed of a high diversity of native grasses, sedges, and forbs and will all provide quality restored prairie habitat. The planting areas of each of these mixes are shown in Figures 8a and 8b according to the VMUs.

Certain species in the proposed seed mixes may not be available when installation is planned. If necessary, any substitution will be approved by Coneflower and will be consistent with this VMP's stated goals and objectives.

Prior to or shortly after the planting of native species, Coneflower will contact each landowner with property directly adjacent to the Site to inform them of the native plants on this Site. Coneflower will request that the landowner use care to minimize pesticide drift. Consistent with the Lyon County Zoning Ordinance, Coneflower has sited all panels at least 25 feet from adjacent non-participating property lines. As depicted on Figures 8a and 8b, the Perimeter Shortgrass VMU and Perimeter Mixed Height VMU are generally between any panels and adjacent non-participating parcels.

6.2.3 Landscape Screening Areas

Table 4 shows potential and representative trees and shrubs to use for screening; other species may be used depending on availability. Native tree and shrub species are preferred.

Table 4
Potential and Representative Species for Landscape Screening

Scientific name	Common name	Container size	Spacing (ft.)
Deciduous and coniferous trees			
Crataegus mollis	Downy hawthorn	10#	15
Juniperus virginiana	Easter red cedar	10#	15
Pinus banksiana	Jack pine	10#	15
Deciduous shrubs			
Amelanchier arborea	Downy serviceberry	5#	6
Cornus racemosa	Gray dogwood	5#	6
Corylus americana	American hazelnut	5#	6
Physocarpus apulifolius	Common ninebark	5#	6

Table 4 Potential and Representative Species for Landscape Screening			
Scientific name	**Common name**	**Container size**	**Spacing (ft.)**
Prunus americana	American wild plum	5#	6
Rhus glabra	Smooth sumac	5#	6
Viburnum rafinesquianum	Downy arrowwood viburnum	5#	6

6.2.4 Supplemental Seeding

Supplemental seeding may be necessary where vegetation establishment does not meet the requirements of this VMP. Establishment failure can occur for a variety of reasons, including compacted soil conditions, flooding, drought, and extensive weed competition. Depending on the reason(s) for failure, recommendations may be provided to adjust species in the re-seeding mix to better accommodate growing conditions in the specific area.

If temporary disturbance is necessary after final construction (such as excavating or trenching for repairs or maintenance), the seeding contractor will work with Coneflower to choose an appropriate seed mix for these areas.

If certain areas are continually impacted by maintenance activities (such as travel paths) and initially seeded species fail to thrive, these areas may be re-seeded with species that can tolerate a higher level of disturbance. Seed selection and rate for supplemental seeding will be determined based upon present Site conditions. As needed, temporary cover crops may be installed. The timing and methodologies of supplemental seeding will be determined for each specific situation based on the conditions, scope, and other mitigating factors.

6.3 Establishment and Management Techniques

A variety of vegetation management techniques may be implemented for the Project when necessary, based on this VMP and adjusted per recommendations from the vegetation management and monitoring contractor(s), as discussed in Section 7.0. Methods will be selected to provide the best control possible of noxious, invasive, and woody species while minimizing impacts on seeded species and ensuring vegetation does not shade or interfere with solar modules and equipment. All weeds on the Minnesota State Noxious Weed List (Minnesota Department of Agriculture [MDA] 2024) will be managed per their designation category on the list at the time of the inspection, i.e., eradicate or control.

6.3.1 Mechanical Mowing

Areas that require mowing will be determined by the management contractor and Coneflower. Mowing will be accomplished by agricultural tractors with flail or rotary mower attachments, zero-turn mowers, and/or other mechanical option(s) as approved by Coneflower. Flail mower implements are preferred to mulch the cut material and avoid forming a mat of cut vegetation which could smother desirable plant growth. Other mechanical cutting implements may be used if haying is expected to follow the mowing operation. Where appropriate, mower height should be at least 6-9” from the ground to avoid damaging flowering plants.

Weed whipping may be used to remove excessive vegetation growth in areas that are difficult to access with mechanical mowing equipment. These areas may include directly underneath solar panels, around pilings, underneath tracker drivelines or above-ground cabling, around sensitive electrical equipment, around gates/entrances, along fencelines, in wet or steep areas, in areas with biologs or other BMPs, and around screening trees/shrubs.

Establishment Phase Mowing (first two years)
During the first year, vegetation in the seeded areas should be mowed 2-3 times throughout the growing season as needed to prevent weed seed production, remove shading from small plant seedlings, and prevent shading of solar modules. During the second year, vegetation in the seeded areas will likely require mowing 1-2 times throughout the growing season to control annual weeds, ensure good establishment of seeded species, and prevent shading of modules. Noxious, invasive, and woody plants may also require mowing to prevent seed development.

Maintenance Phase Mowing (year three and beyond)
Mowing 1-2 times per year during the growing season may be required to prevent shading of panels, minimize impact on desirable plant community and control noxious weeds and woody species.

6.3.2 Haying
If haying is used as a management tool for the Project, it would include mowing followed by mechanical removal of the cut thatch material. Haying is beneficial for the Site to minimize the accumulation of material that may pose wildfire risks. In addition, removing the thatch is beneficial for the growth of many species, because it allows new seedlings to become established. This method will only be used where practical for access with the necessary equipment.

6.3.3 Grazing
Grazing may be utilized as a management tool for the Project. Sheep grazing (not cattle or goats) can be implemented in place of mowing to manage vegetation height or density. Grazing provides many of the same impacts as mowing including decreasing vegetation height and module shading, but with the added benefit of doing so immediately adjacent to and underneath sensitive equipment. In addition, grazing helps to remove the vegetative thatch from the Site, reducing the risk of wildfires, and minimizes risks to ground nesting birds. Sheep grazing also re-introduces valuable services for the overall health of the vegetation by recycling nutrients and has been shown to increase soil carbon and nutrients when grazing in native vegetation (Towner et al. 2022). Grazing intensity and timing will vary based on vegetation type and management objectives. Native plantings and targeted noxious weed programs subject to a high-impact grazing should aim to defoliate at least 80% of the vegetation. This requires relatively high stocking density and a limited time within a given paddock, ideally less than four weeks. Cool-season-dominant or forage plantings may be subject to low-intensity or continual grazing. Dormant-season grazing events may be recommended to further reduce thatch at any location.

6.3.4 Control and Prevention of Invasive Species
Noxious, invasive, and undesirable plant species will be controlled by Coneflower for the life of the Project as required per law (M.S. 18.75-18.91) and solar operations. All species listed on the state noxious weed list maintained by the MDA (2024) will be controlled in accordance with State of Minnesota noxious weed rules and regulations. Invasive plant species as listed by DNR may be controlled as appropriate for Project objectives to prevent shading/interference with solar equipment, in particular tall herbaceous plants such as bull thistle, giant ragweed, and stinging nettle, and all woody and vining plants.

Invasive Species Prevention
In an effort to reduce the spread of noxious and invasive weeds, all machinery and equipment to be used will be thoroughly inspected and cleaned before arrival. Any plants, seeds, mud, and dirt clods will be removed through washing to prevent the import of undesirable species to the Site. Any equipment arriving to the Project that has not been properly cleaned will be sent away to an off-site location for cleaning and

inspection before returning. During construction, weed management will be achieved through a combination of herbicide applications and mowing to prevent the production of undesirable seeds.

Herbicide Use

Herbicides are an effective weed management tool. While mowing/grazing controls annuals and may provide short-term control for some perennials, most perennial invasive species, and in particular woody plants, must be treated with herbicide to provide effective control. Herbicide treatment will reduce populations, prevent the spread of weed seeds, and kill vegetation that may be encroaching or shading modules and electrical equipment.

Herbicide treatments will begin as needed based on weed populations, as early as the first year, if extensive perennial weeds or woody species are present. Ongoing annual herbicide applications will likely be required into the long-term maintenance phase to continue providing control of woody and noxious species introduced to the Site from surrounding landscapes. Selective herbicide application, using herbicides formulated for specific plant groups, and spot herbicide application, applying herbicide directly to the foliage of target plants, are preferred over broadcast and non-selective applications. These techniques will ensure good control of invasive species while minimizing off-target damage to desirable plants. If broadcast applications are recommended, the most selective herbicide will be utilized, and the application will be limited to the minimum effective area. If non-selective herbicides are required for certain weed species, their use will be limited to the minimum effective area and application method.

In addition to herbicide treatment for weeds, pre-emergent and non-selective herbicides may be applied to specific areas of the Site (around electrical equipment and along roads/gravel) to maintain bare ground. Herbicide treatments for bare ground include a chemical adjuvant to increase soil deposition/adsorption and prevent runoff.

All herbicide applications will be completed per manufacturer label instructions, and all applicators will hold a valid State of Minnesota Pesticide Applicator License. Coneflower may elect to participate in DriftWatch to minimize herbicide drift impacts to nearby sensitive crops and bee hives.

7.0 Vegetation Monitoring and Adaptive Management

Site monitoring will be conducted by a qualified third-party independent monitor. Monitoring will evaluate the establishment of seeded species, identify invasive, noxious, and woody species presence, check for erosion or other Site issues, and determine vegetation maintenance needs and timing. These monitoring visits will occur three times per year/growing season during the early establishment period (Years 1-3) and 1-2 times per year thereafter.

7.1 Monitoring Protocols

During Years 1-3, monitoring visits will occur at regular intervals throughout the growing season to continually evaluate and adjust vegetation management strategies, approximately in May, July, and September. After the early establishment period, monitoring visits should be conducted at minimum in mid-summer (June/July), and potentially another visit in spring or fall. These visits should be coordinated with vegetation management activities to ensure an accurate assessment of the Site vegetation and provide timely recommendations for further management services.

Qualitative monitoring will be completed at each of the monitoring Site visits, beginning in Year 1. This will include a general review of the Site, often directed by on-Site personnel and management contractors

with familiarity with conditions. This review will document problematic areas, such as populations of noxious and invasive species, tree seedlings, erosion issues, etc., and the information will be shared with vegetation management contractors to address each issue.

Quantitative monitoring will be completed once each year/growing season, beginning in Year 3 and continuing for 10 years or until it is determined that monitoring is no longer needed. This monitoring will utilize timed-meander surveys within approximately 25 separate Assessment Areas (AAs) each no larger than 20 acres. The AAs will be mapped from desktop with the intention of selecting representative portions of the Site that include at least 10 percent of the full area. Each AA will be within a unique vegetation area and VMU. Within each AA, an ecologist will walk for 20 minutes and document all species encountered. At the end of the 20-minute walk, cover will be estimated for each species observed. These data will be used to assess total cover of noxious and/or undesirable species, seeded species, and other species present from year to year.

7.2 Monitoring Team

A qualified third-party independent monitor (e.g., the project's agricultural monitor, environmental inspector, or restoration ecologist), with sufficient botanical experience identifying native plants, native plant communities, invasive species, and non-native species typical of Minnesota, should complete the vegetation monitoring to ensure an unbiased reporting of vegetation establishment.

7.3 Projected Outcomes

Quantitative monitoring will be used to assess the vegetative cover relative to the following projected outcomes:

- All vegetated areas have at least 90% vegetative cover not including roads, etc.
- Vegetative cover within the Array VMU must have 80% cover by desirable species
- Noxious weeds and invasive species will not exceed 10% cover
- Each VMU with native vegetation must meet the following:
    - At least 70% cover by native species
    - At least 15 native species have 1% or greater cover
    - Forbs make up at least 15% cover
    - At least 3 plants are present that bloom in spring/early summer and 3 that bloom in late summer/fall

Areas that fail to meet these performance standards must be treated accordingly to remediate the issues. This may include re-seeding or installing live plants if necessary.

7.4 Adaptive Management

Some management methods may be tested on small areas before implementing across broader sections to better understand if certain approaches work better than others for the specific conditions. Therefore, implementation of certain measures may be completed over multiple years before it is expanded to the full Site.

8.0 Annual Reporting

Coneflower will prepare an annual monitoring report after each growing season, beginning in Year 1 and continuing for 10 years or until it is determined that monitoring is no longer needed. The annual report will include the following:

- A description of Site conditions
- A summary of quantitative and qualitative monitoring results
- A summary of management activities implemented during the reporting period intended to meet objectives for management unit
- A description of challenges or unforeseen circumstances (e.g., unanticipated weather events) that the Project faced during the reporting year and how these challenges may have affected vegetation establishment
- Representative photographs of the management area vegetation

9.0 Information Sources

9.1 References

DOC. March 2021. Guidance for Developing a Vegetation Establishment and Management Plan for Solar Facilities. Division of Energy Resources, Energy Environmental Review and Analysis. Accessed May 6, 2024. URL: https://apps.commerce.state.mn.us/eera/web/project-file/11702.

MDA. 2024. Minnesota Noxious Weed List. Accessed May 5, 2024. URL: https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list.

Towner, E., Karas, T., Janski, J., Macknick, J. & Ravi, S. January 13, 2022. Managed sheep grazing can improve soil quality and carbon sequestration at solar photovoltaic Sites. *ESS Open Archive*. DOI: https://doi.org/10.1002/essoar.10510141.1.

9.2 GIS Data

These GIS data layers were referenced in establishing background information about the Site.

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DNR. 2023. MNDNR Watershed Suite. Metadata URL: https://resources.gisdata.mn.gov/pub/gdrs/data/pub/us_mn_state_dnr/geos_dnr_watersheds/metadata/metadata.html

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Figures

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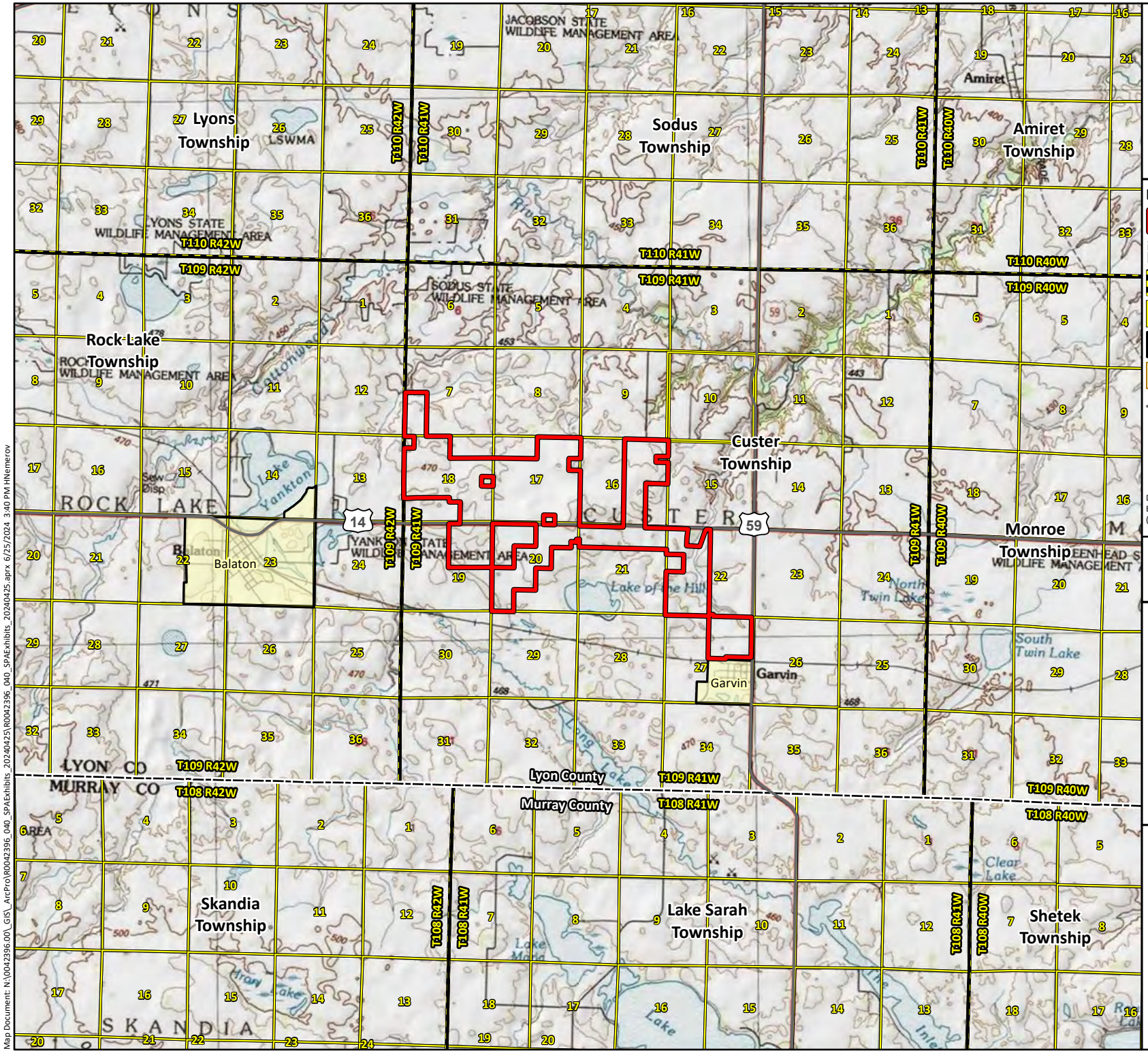

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Coneflower Energy Solar Project

Lyon County, Minnesota

Project Location

Figure 1

Legend

- Project Area
- County Boundary
- PLSS Township Boundary
- PLSS Section Boundary
- Civil Township Boundary
- City Boundary
- MN Highway

Data Source(s): Westwood (2024); ESRI WMS USA Topography Basemap (Accessed 2024); U.S. Census Bureau (2023); MnGEO (2024); PLSS (2023).

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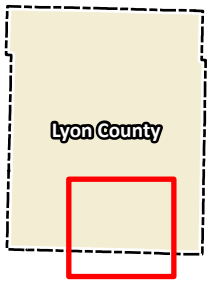

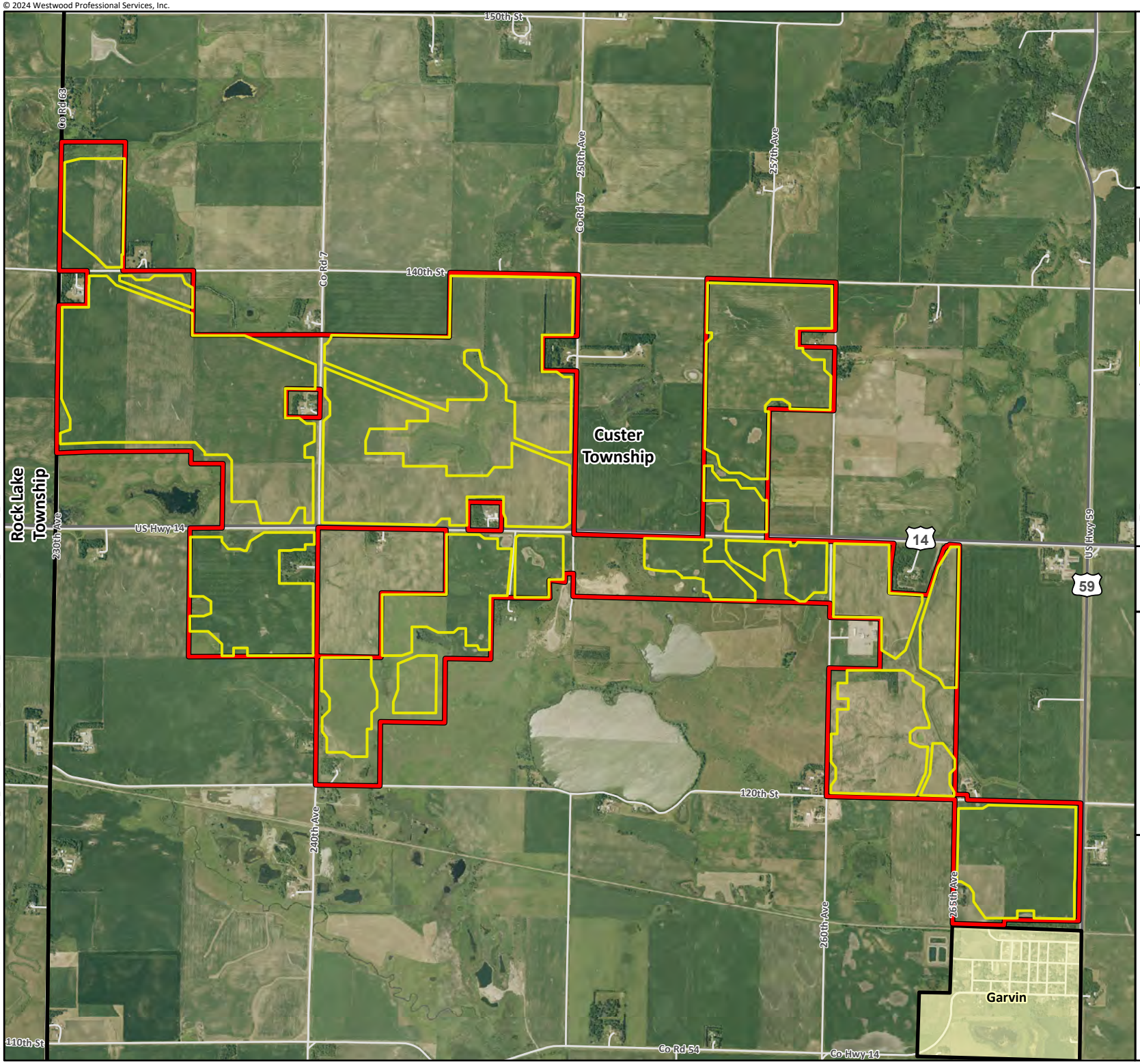

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Coneflower Energy Solar Project

Lyon County, Minnesota

Project Area and Project Footprint

Figure 2

Legend

- Project Area
- County Boundary
- Civil Township Boundary
- City Boundary
- Project Footprint
- MN Highway
- Local Road

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2024).

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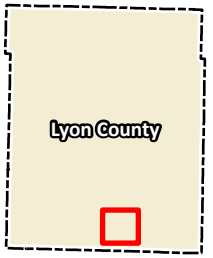

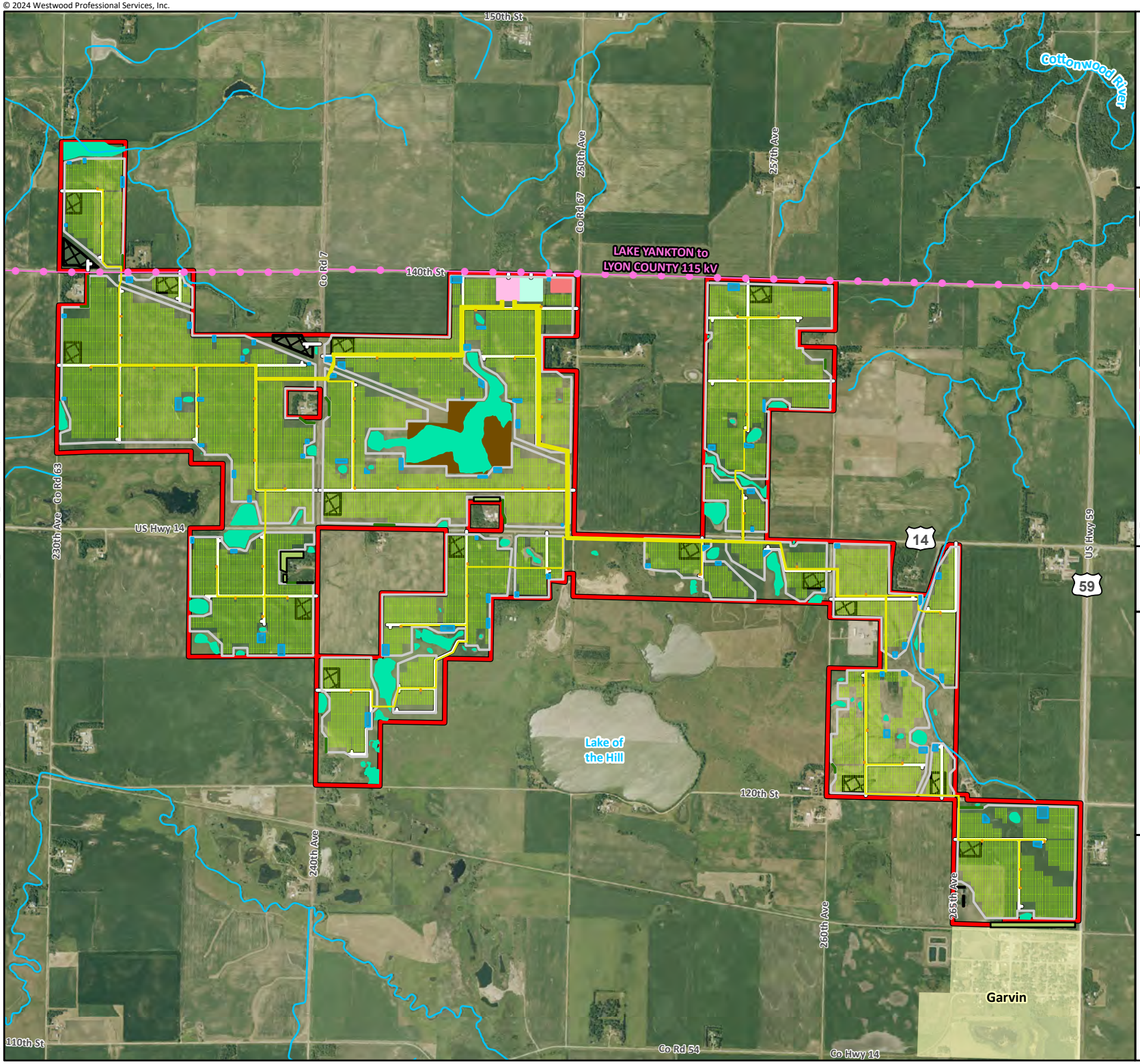

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Coneflower Energy Solar Project

Lyon County, Minnesota

Preliminary Project Layout (MISO Scenario)

Figure 3a

Legend

- Project Area
- County Boundary
- City Boundary
- RIM Reserve Easement
- Solar Array
- Security Fence
- Access Road
- O&M Building
- Substation
- Switching Station
- Inverter
- Stormwater Basin
- Temporary Laydown Yard
- Existing Vegetative Buffer
- Proposed Vegetative Buffer
- Field Delineated Wetland (2023)
- Underground Collection Line
- Interconnecting Transmission Line
- NHD Flowline

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2024); NHD (2023).

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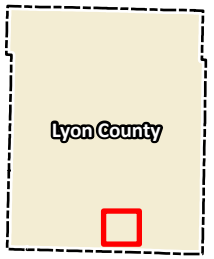

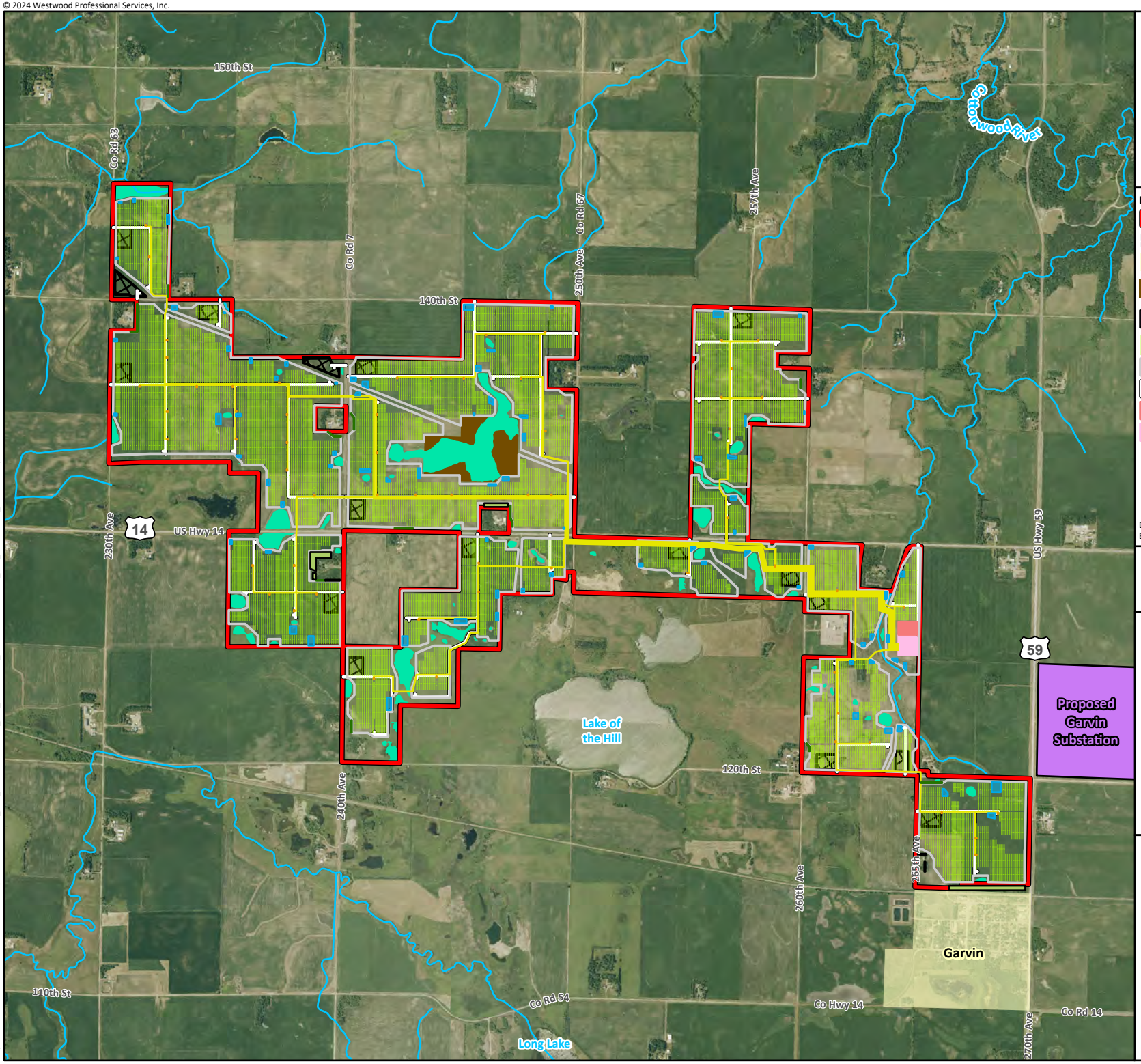

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Coneflower Energy Solar Project

Lyon County, Minnesota

Preliminary Project Layout (Garvin Scenario)

Figure 3b

Legend

- Project Area
- County Boundary
- City Boundary
- RIM Reserve Easement
- Proposed Garvin Substation
- Solar Array
- Security Fence
- Access Road
- O&M Building
- Substation
- Inverter
- Stormwater Basin
- Temporary Laydown Yard
- Existing Vegetative Buffer
- Proposed Vegetative Buffer
- Field Delineated Wetland (2023)
- Underground Collection Line
- NHD Flowline

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2024); NHD (2023).

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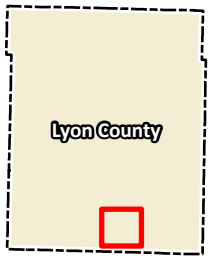

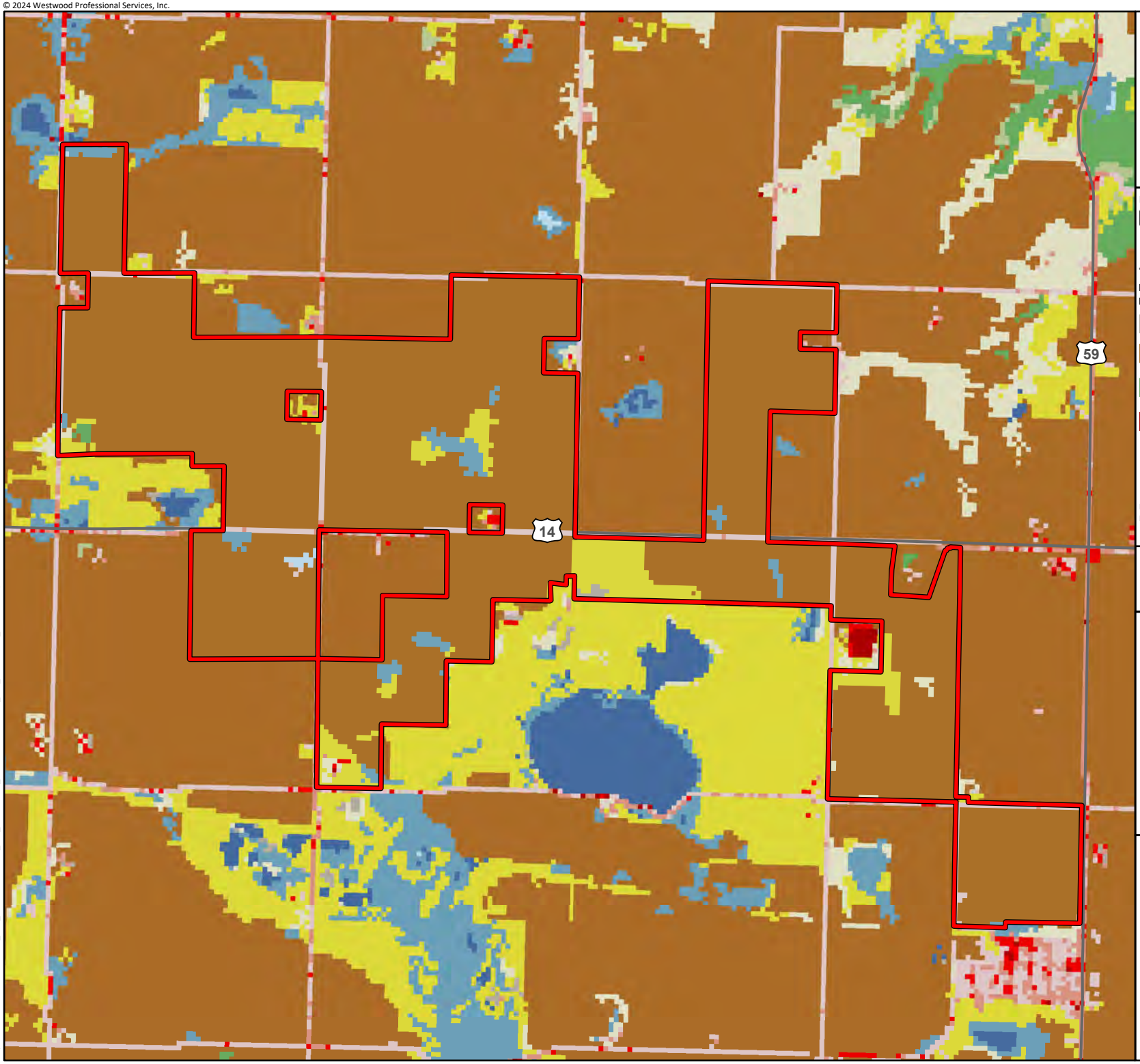

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Coneflower Energy Solar Project

Lyon County, Minnesota

NLCD Land Cover Classification

Figure 4

Legend

- Project Area
- County Boundary
- MN Highway

NLCD Land Cover in Project Area (2021)

- Barren Land
- Cultivated Crops
- Deciduous Forest
- Developed, High Intensity
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Hay/Pasture
- Herbaceous
- Woody Wetlands

Data Source(s): Westwood (2024); U.S. Census Bureau (2023); NLCD (2021).

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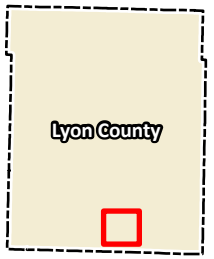

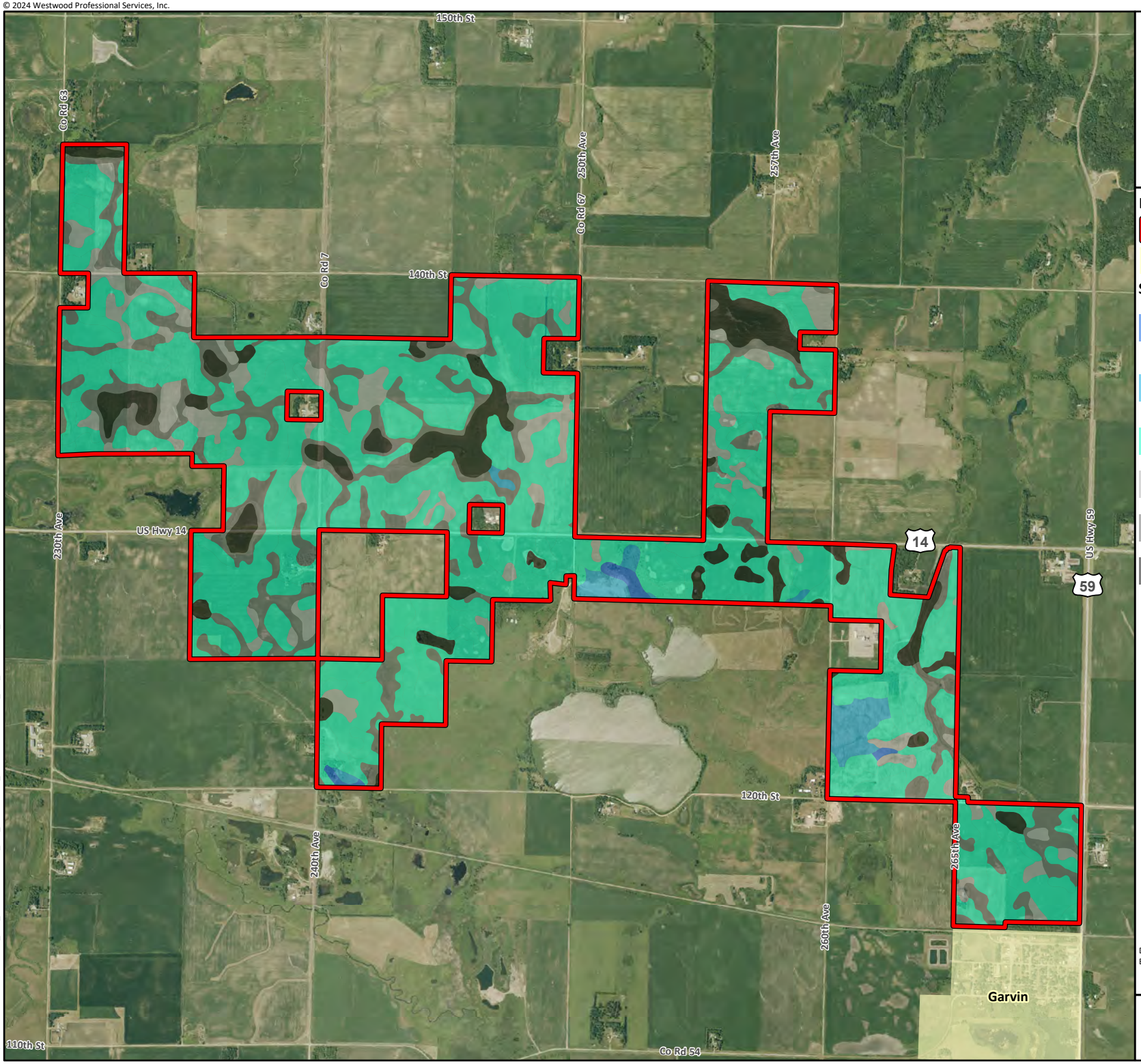

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Coneflower Energy Solar Project

Lyon County, Minnesota

Soil Drainage Classes

Figure 5

Legend

- Project Area
- City Boundary

Soil Drainage Class

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Poorly drained
- Very poorly drained

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2024); SSURGO (2024).

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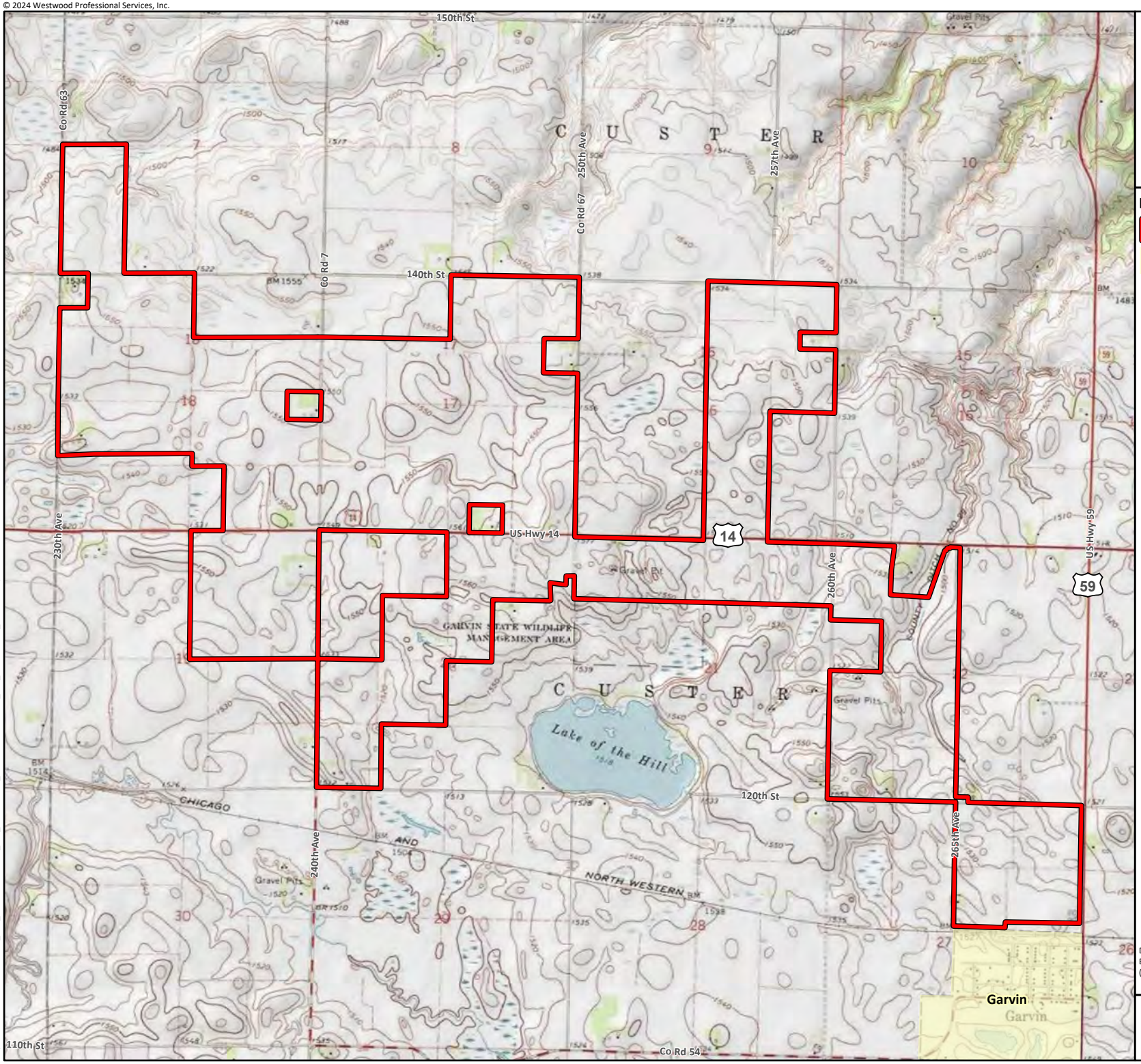

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Coneflower Energy Solar Project

Lyon County, Minnesota

Elevation Map

Figure 6

Legend

- Project Area
- City Boundary

Data Source(s): Westwood (2024); ESRI WMS U.S. Topography Basemap (Accessed 2024); U.S. Census Bureau (2023); MnGEO (2024).

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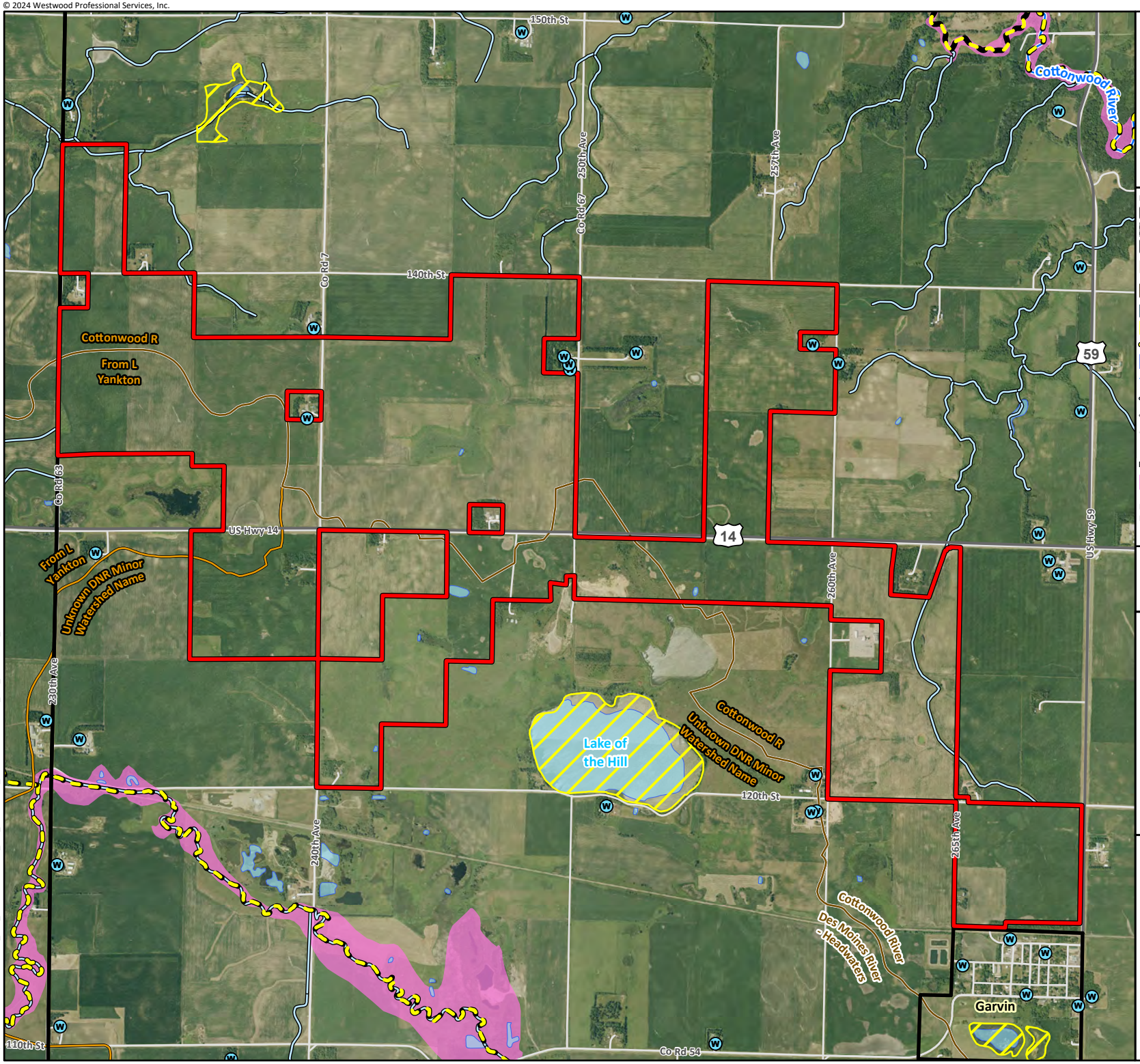

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Coneflower Energy Solar Project

Lyon County, Minnesota

Hydrology

Figure 7

Legend

- Project Area
- County Boundary
- Civil Township Boundary
- Major Watershed Boundary
- Minor Watershed Boundary
- NWI Wetland
- PWI Basin
- PWI Watercourse
- NHD Waterbody
- Named NHD Flowline
- Unnamed NHD Flowline
- MN Highway
- Local Road
- County Well Index

FEMA Flood Zone

- FEMA Zone A Floodplain

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2023); NWI (2024); FEMA (2023).

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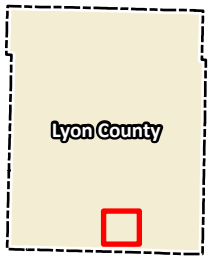

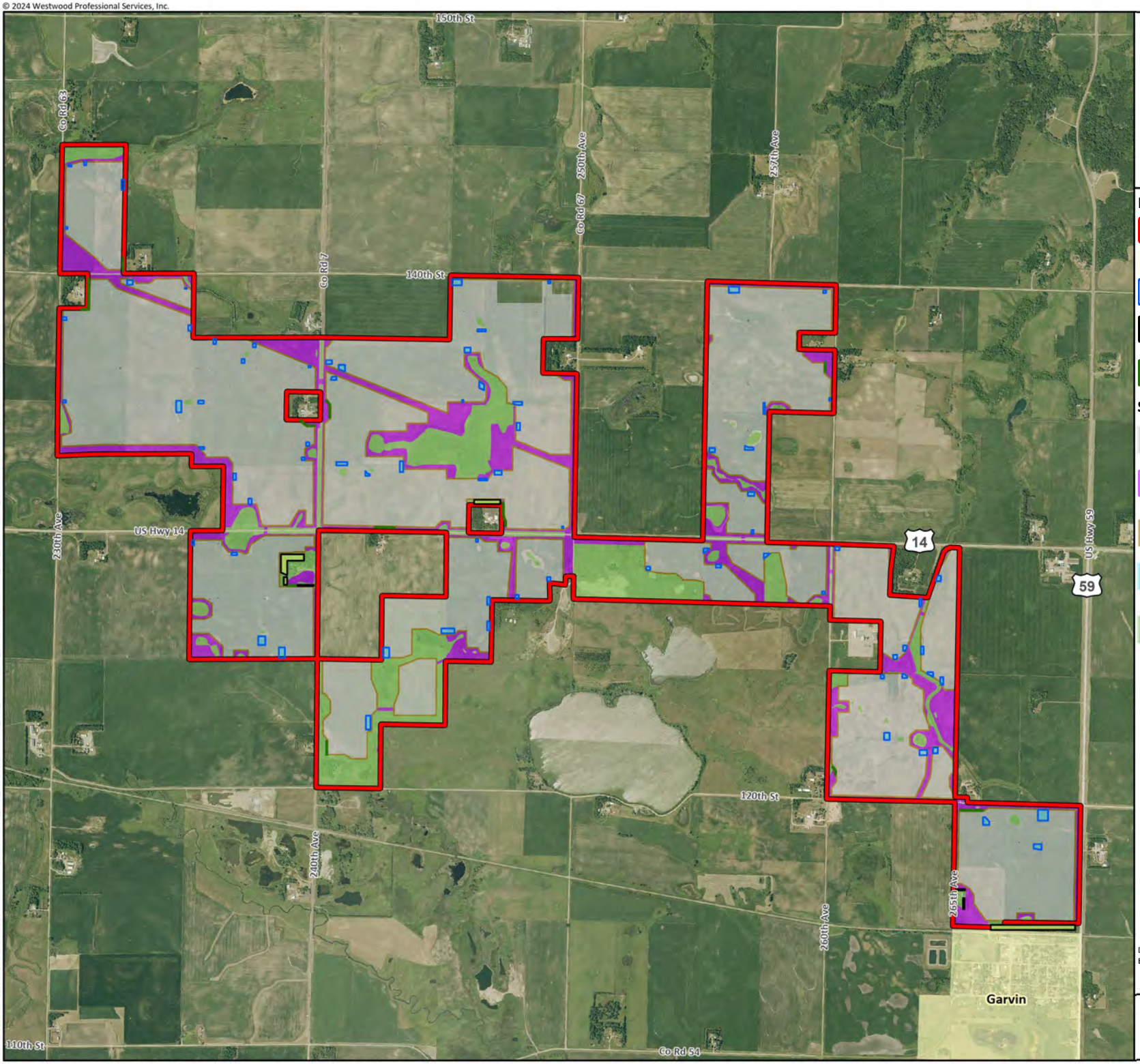

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Coneflower Energy Solar Project

Lyon County, Minnesota

Vegetation Management Units - MISO Scenario

Figure 8a

Legend

- Project Area
- City Boundary
- Stormwater Basin
- Existing Vegetative Buffer
- Proposed Vegetative Buffer

Seed Mix

- Array Mix
- Perennial Mixed Height Mix
- Perennial Short Mix
- Wet Mix
- Existing Vegetation to Remain

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2024).

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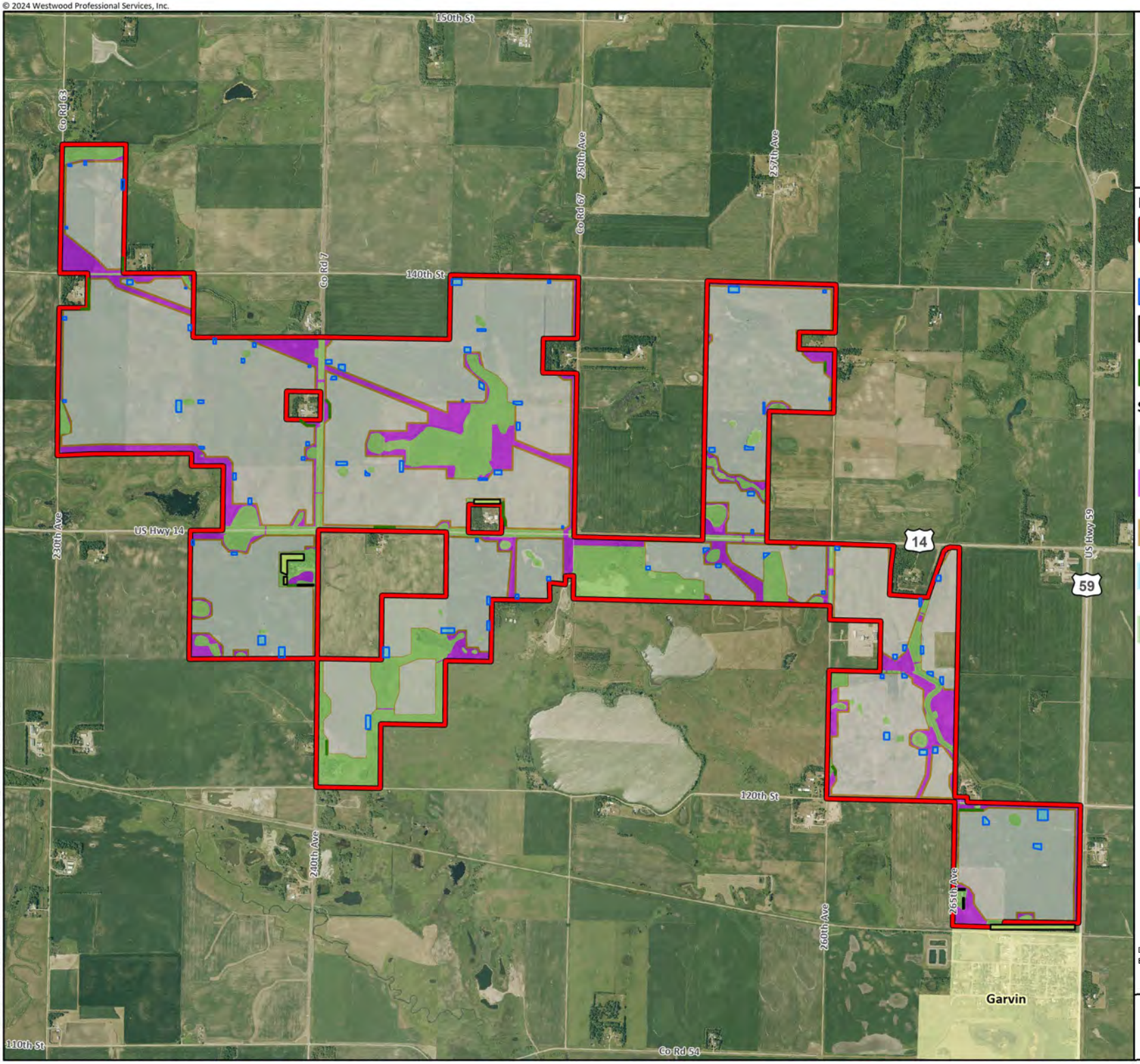

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Coneflower Energy Solar Project

Lyon County, Minnesota

Vegetation Management Units - Garvin Scenario

Figure 8b

Legend

- Project Area
- City Boundary
- Stormwater Basin
- Existing Vegetative Buffer
- Proposed Vegetative Buffer

Seed Mix

- Array Mix
- Perennial Mixed Height Mix
- Perennial Short Mix
- Wet Mix
- Existing Vegetation to Remain

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2023); MnGEO (2024).

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Appendix A
Proposed Seed Mixes

Coneflower Energy, LLC
August 2024

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Coneflower Solar Array Mix

Lyon Co MN

Date:	8/8/2024
Total Acres:	1500.00
PLS lbs/acre:	20.00
Total PLS lbs:	29212.50

	Scientific Name	Common Name	% of Mix	PLS lbs/ac	Total PLS lbs
Grasses:	Bouteloua curtipendula	Side-oats Grama	23.00	2.30	3450.00
	Bouteloua gracilis	Blue Grama	5.50	0.55	825.00
	Bromus kalmii	Prairie Brome	5.00	0.50	750.00
	Koeleria macrantha	Junegrass	0.50	0.05	75.00
	Elymus hystrix	Bottlebrush Grass	7.75	0.78	1162.50
	Elymus trachycaulus	Slender Wheat Grass	11.00	1.10	1650.00
	Elymus villosus	Silky Wild Rye	10.00	1.00	1500.00
	Elymus virginicus	Virginia Wild Rye	15.00	1.50	2250.00
	Schizachyrium scoparium	Little Bluestem	15.00	1.50	2250.00
Sedges/Rushes:	Carex molesta	Troublesome Sedge	0.75	0.08	112.50
	Carex brevior	Plains Oval Sedge	0.75	0.08	112.50
	Carex sprengelii	Long-beaked Sedge	0.50	0.05	75.00
Fescue:	Fescue	Low Grow Fescue Mix		10.00	15000.00
Forbs:	Aquilegia canadensis	Columbine	0.50	0.05	75.00
	Chamaecrista fasciculata	Partridge Pea	1.00	0.10	150.00
	Dalea candida	White Prairie Clover	1.00	0.10	150.00
	Dalea purpurea	Purple Prairie Clover	1.50	0.15	225.00
	Prunella vulgaris	Self-heal	0.50	0.05	75.00
	Rudbeckia hirta	Black-eyed Susan	0.50	0.05	75.00
	Solidago ptarmicoides	Upland White Goldenrod	0.25	0.03	37.50

Terms:

Down Payment: 25% down payment required to secure order.

Pricing: Prices and availability subject to change at any time without notice.

Terms: Payment due upon receipt for all customers. Approved credit customers Net 30 days.

Freight: All prices are FOB Foley MN. Shipping and/or delivery available.

Warranty: MNL strives to produce the highest quality native seed and plants, but we do not warranty/guarantee our products due to factors outside our control. If an item was damaged in shipping or you have other concerns about quality, please contact MNL Customer Service at info@mnlcorp.com

8740 77th St NE Otsego, MN 55362 Office: (763) 271-1074

Coneflower Solar
Perimeter Short Native Mix (Inside Fence)
Lyon Co MN

Grass PLS lbs/ac:	6.22
Sedge PLS lbs/ac:	0.23
Forb PLS lbs/ac:	2.56
Species Count:	36
Seeds/Sq. Ft:	63
Avg Height Range:	12-40"

	Scientific Name	Common Name	% of Mix	PLS lbs/ac	Bloom Season	Seeds/SF
Grasses:	Bouteloua curtipendula	Side-oats Grama	20.00	1.80		6.58
	Bouteloua gracilis	Blue Grama	4.00	0.36		5.29
	Bromus kalmii	Prairie Brome	4.00	0.36		1.06
	Elymus canadensis	Canada Wild Rye	3.00	0.27		0.52
	Elymus trachycaulus	Slender Wheat Grass	7.00	0.63		1.60
	Elymus virginicus	Virginia Wild Rye	9.10	0.82		1.26
	Schizachyrium scoparium	Little Bluestem	17.00	1.53		8.43
	Sporobolus compositus	Rough Dropseed	5.00	0.45		4.96
Sedges:	Carex brevior	Plains Oval Sedge	1.50	0.14		1.44
	Carex molesta	Troublesome Sedge	1.00	0.09		0.83
Forbs:	Achillea millefolium	Yarrow	0.20	0.02	Summer	1.16
	Agastache foeniculum	Fragrant Giant Hyssop	0.40	0.04	Summer	1.19
	Allium stellatum	Prairie Onion	0.40	0.04	Summer	0.15
	Amorpha canescens	Leadplant	0.75	0.07	Summer	0.40
	Anemone canadensis	Canada Anemone	0.20	0.02	Spring	0.05
	Asclepias syriaca	Common Milkweed	1.50	0.14	Summer	0.20
	Asclepias tuberosa	Butterfly Milkweed	0.50	0.05	Summer	0.07
	Astragalus canadensis	Canada Milk Vetch	1.00	0.09	Summer	0.56
	Chamaecrista fasciculata	Partridge Pea	3.00	0.27	Fall	0.27
	Coreopsis palmata	Prairie Coreopsis	0.50	0.05	Summer	0.17
	Dalea candida	White Prairie Clover	4.00	0.36	Summer	2.51
	Dalea purpurea	Purple Prairie Clover	5.20	0.47	Summer	2.58
	Desmodium canadense	Showy Tick-trefoil	2.00	0.18	Summer	0.36
	Drymocallis arguta	Prairie Cinquefoil	0.75	0.07	Summer	5.70
	Heliopsis helianthoides	Common Ox-eye	1.50	0.14	Summer	0.31
	Monarda fistulosa	Wild Bergamot	0.50	0.05	Summer	1.16
	Penstemon grandiflorus	Large-flower Penstemon	0.40	0.04	Spring	0.19
	Pycnanthemum virginianum	Mountain Mint	0.30	0.03	Summer	2.18
	Ratibida columnifera	Long-headed Coneflower	0.75	0.07	Summer	1.04
	Rudbeckia hirta	Black-eyed Susan	2.00	0.18	Summer	6.08
	Solidago nemoralis	Gray Goldenrod	0.20	0.02	Fall	1.98
	Symphyotrichum laeve	Smooth Blue Aster	0.50	0.05	Fall	0.91
	Symphyotrichum oolentangiense	Sky-blue Aster	0.50	0.05	Fall	1.32
	Tradescantia bracteata	Long-bracted Spiderwort	0.20	0.02	Spring	0.07
	Verbena stricta	Hoary Vervain	0.75	0.07	Summer	0.69
	Zizia aptera	Heart-leaf Golden Alexanders	0.40	0.04	Spring	0.16

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Coneflower Solar
Perimeter Mixed Height Native Mix (Outside fence)
Lyon Co MN

Grass PLS lbs/ac:	6.48
Sedge PLS lbs/ac:	0.09
Forb PLS lbs/ac:	2.43
Species Count:	40
Seeds/Sq. Ft:	60
Avg Height Range:	24-48"

	Scientific Name	Common Name	% of Mix	PLS lbs/ac	Bloom Season	Seeds/SF
Grasses:	Andropogon gerardii	Big Bluestem	7.00	0.63		2.31
	Bouteloua curtipendula	Side-oats Grama	15.00	1.35		4.93
	Bouteloua gracilis	Blue Grama	4.50	0.41		5.95
	Bromus kalmii	Prairie Brome	5.00	0.45		1.32
	Elymus canadensis	Canada Wild Rye	6.00	0.54		1.03
	Elymus trachycaulus	Slender Wheat Grass	5.00	0.45		1.14
	Elymus virginicus	Virginia Wild Rye	6.00	0.54		0.83
	Panicum virgatum	Switchgrass	3.00	0.27		1.39
	Schizachyrium scoparium	Little Bluestem	10.00	0.90		4.96
	Sorghastrum nutans	Indian Grass	7.00	0.63		2.78
	Sporobolus compositus	Rough Dropseed	3.50	0.32		3.47
Sedges:	Carex brevior	Plains Oval Sedge	1.00	0.09		0.96
Forbs:	Achillea millefolium	Yarrow	0.20	0.02	Summer	1.16
	Agastache foeniculum	Fragrant Giant Hyssop	0.40	0.04	Summer	1.19
	Allium stellatum	Prairie Onion	0.40	0.04	Summer	0.15
	Amorpha canescens	Leadplant	0.25	0.02	Summer	0.13
	Anemone canadensis	Canada Anemone	0.25	0.02	Spring	0.07
	Asclepias incarnata	Swamp Milkweed	0.50	0.05	Summer	0.08
	Asclepias syriaca	Common Milkweed	1.50	0.14	Summer	0.20
	Astragalus canadensis	Canada Milk Vetch	0.55	0.05	Summer	0.31
	Boltonia asteroides	False Aster	0.50	0.05	Fall	2.64
	Chamaecrista fasciculata	Partridge Pea	3.00	0.27	Fall	0.27
	Dalea candida	White Prairie Clover	4.00	0.36	Summer	2.51
	Dalea purpurea	Purple Prairie Clover	5.00	0.45	Summer	2.48
	Desmodium canadense	Showy Tick-trefoil	1.00	0.09	Summer	0.18
	Drymocallis arguta	Prairie Cinquefoil	0.30	0.03	Summer	2.28
	Eryngium yuccifolium	Rattlesnake Master	0.50	0.05	Summer	0.12
	Heliopsis helianthoides	Common Ox-eye	1.00	0.09	Summer	0.21
	Liatris pycnostachya	Prairie Blazing Star	1.00	0.09	Summer	0.36
	Monarda fistulosa	Wild Bergamot	0.50	0.05	Summer	1.16
	Penstemon grandiflorus	Large-flower Penstemon	0.50	0.05	Spring	0.23
	Pycnanthemum virginianum	Mountain Mint	0.40	0.04	Summer	2.91
	Ratibida pinnata	Yellow Coneflower	0.75	0.07	Summer	0.74
	Rudbeckia hirta	Black-eyed Susan	2.00	0.18	Summer	6.08
	Solidago rigida	Stiff Goldenrod	0.40	0.04	Fall	0.54
	Symphyotrichum laeve	Smooth Blue Aster	0.40	0.04	Fall	0.73
	Symphyotrichum oolentangiense	Sky-blue Aster	0.40	0.04	Fall	1.06
	Tradescantia bracteata	Long-bracted Spiderwort	0.20	0.02	Spring	0.07
	Verbena stricta	Hoary Vervain	0.70	0.06	Summer	0.65
	Zizia aurea	Golden Alexanders	0.40	0.04	Spring	0.15

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Coneflower Solar
Wetland and Stormwater Basin Mix
Lyon Co MN

Grass PLS lbs/ac:	5.48
Sedge PLS lbs/ac:	0.57
Forb PLS lbs/ac:	1.94
Species Count:	35
Seeds/Sq. Ft:	167
Avg Height Range:	36-60"

	Scientific Name	Common Name	% of Mix	PLS lbs/ac	Bloom Season	Seeds/SF
Grasses:	Andropogon gerardii	Big Bluestem	9.00	0.72		2.64
	Calamagrostis canadensis	Blue-joint Grass	0.30	0.02		2.47
	Elymus virginicus	Virginia Wild Rye	18.00	1.44		2.22
	Glyceria grandis	Reed Manna Grass	3.50	0.28		8.21
	Leersia oryzoides	Rice Cutgrass	10.00	0.80		9.99
	Panicum virgatum	Switchgrass	4.75	0.38		1.95
	Sorghastrum nutans	Indian Grass	16.00	1.28		5.64
	Spartina pectinata	Prairie Cordgrass	7.00	0.56		1.36
Sedges:	Carex hystericina	Porcupine Sedge	1.00	0.08		0.88
	Carex stipata	Awl-fruited Sedge	2.00	0.16		2.00
	Carex vulpinoidea	Fox Sedge	3.00	0.24		7.14
	Scirpus atrovirens	Green Bulrush	0.65	0.05		8.79
	Scirpus cyperinus	Woolgrass	0.50	0.04		24.98
Forbs:	Acorus americanus	Sweet Flag	1.00	0.08	Summer	0.19
	Asclepias incarnata	Swamp Milkweed	4.50	0.36	Summer	0.63
	Bidens cernua	Nodding Beggarstick	1.50	0.12	Summer	1.54
	Boltonia asteroides	False Aster	1.00	0.08	Fall	4.70
	Desmodium canadense	Showy Tick-trefoil	1.00	0.08	Summer	0.16
	Eutrochium maculatum	Joe-pye Weed	0.50	0.04	Summer	1.77
	Eupatorium perfoliatum	Boneset	0.75	0.06	Fall	5.51
	Helenium autumnale	Sneezeweed	0.75	0.06	Fall	2.87
	Liatris pycnostachya	Prairie Blazing Star	1.00	0.08	Summer	0.32
	Lythrum alatum	Winged Loosestrife	0.50	0.04	Summer	13.88
	Mimulus ringens	Monkey Flower	0.50	0.04	Summer	33.79
	Monarda fistulosa	Wild Bergamot	0.50	0.04	Summer	1.03
	Ratibida pinnata	Yellow Coneflower	1.50	0.12	Summer	1.32
	Silphium perfoliatum	Cup Plant	1.50	0.12	Summer	0.06
	Solidago rigida	Stiff Goldenrod	1.00	0.08	Fall	1.20
	Sparganium eurycarpum	Giant Burreed	2.00	0.16	Summer	0.03
	Symphyotrichum novae-angliae	New England Aster	0.75	0.06	Fall	1.45
	Thalictrum dasycarpum	Purple Meadow Rue	0.75	0.06	Summer	0.44
	Verbena hastata	Blue Vervain	2.00	0.16	Summer	5.47
	Vernonia fasciculata	Ironweed	0.30	0.02	Summer	0.21
	Veronicastrum virginicum	Culver's Root	0.50	0.04	Summer	11.75
	Zizia aurea	Golden Alexanders	0.50	0.04	Spring	0.16

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