

WEED MANAGEMENT AND REVEGETATION PLAN

For

CARRERA COMMONS SUBDIVISION

1. Introduction

The Carrera Commons Subdivision is within the City of Missoula, Montana. The property is located on the west side of South Curtis Street and south of Lovegrove Court and is assigned a physical address of 123 S. Curtis St., Missoula, MT 59801. The subdivision will result in 10 (ten) lots on approximately 1.58 acres and is classified as a major subdivision. A Common Area is proposed around the cul-de-sac of the internal roadway, Pit Lane. This common area will allow for the possibility of connection to adjacent non-motorized facilities. The management of the lotted lands within this subdivision is the responsibility of each respective owner. Until the lots are sold to owners the management of the lots will remain under the developer, Homes for Missoula LLC. This Weed Management and Vegetation Management Plan will be added as Exhibit A to the Covenants, Conditions, and Restrictions for the Carrera Commons Subdivision.

2. Current Condition and Organization of the Site

The property is currently developed, therefore, this weed plan pertains to both the proposed structures and future buildable home sites. The current state of the site shows signs of Common Tansy and Spotted Knapweed.

3. Management Plan Goals

It is important to emphasize that the rehabilitation of any disturbed land is a long-term process, without quick fixes or simple prescriptions. The Missoula County Weed District is a great resource for any questions regarding revegetation or weeds.

A combination of herbicide treatments and hand pulling is recommended for the noxious weeds. Applications for Common Tansy vary and there are more options for successful control when infestations are caught in their small, early stages. Any concentration of weeds at on the project site will need revegetation and treatment by each individual lot owners. Revegetation should be done using a quick establishing grass mix to prevent establishment of weeds after disturbance. Noxious weeds located along the existing Irrigation Ditch should be pulled by hand. The treatments for each weed will be specified in Section 5 Control Actions.

4. Revegetation Goals

The establishment of healthy, use/type appropriate vegetation that will minimize weed invasion is the goal for any revegetation project. Revegetation should be done using a slender grass mix. Further construction of this site will aid in a long-term revegetation and address a weed infestation which will be guided by a landscaping plan. Revegetation goals for this property include the following:

- Re-establish vegetation in disturbed areas as soon as possible to minimize erosion, decrease competition from weeds and improve survival of slender grass mix.
- Restore healthy plant communities.

5. Control Actions

There are several actions that can be used in an integrated approach to weed management, and each must be considered on an area-by-area basis dependent on the species to be managed, the soil/water characteristics of the site and intended use of the area.

Implementation of any of these activities should be coordinated with the Missoula County Weed District.

Common Tansy, *Metsulfuron methyl*

Hand Pulling: Hand pulling is only effective on small infestations if it successfully removes the rhizomes. Multiple treatments will be necessary in order to deplete the seed bank and eradicate the infestation. Make sure to bag and dispose of all flowering plants and root material. This is best if done from April to June.

Mowing: Mowing is not an effective management tool for common tansy unless done before it has gone to seed, and as a precursor to another control method, such as herbicide. Plants will resprout and flower again in the same season as that mowed.

Grazing: Sheep have been used in Montana to graze common tansy, and they are an effective method of removing above ground plant materials, thus reducing seed production. Other forage species should be available and sheep should be taken completely off of common tansy infestations at least four weeks prior to birthing, as common tansy does contain toxins that have been shown to cause abortions in livestock.

Herbicide: The herbicide chart lists approved controls for common tansy. Always consult product labels and read them carefully to ensure correct species/land management usage and chemical application.

Herbicides for Common Tansy, *Metsulfuron methyl*

Herbicide	Rate (per acre)	Application Timing	Comments
Escort	0.5-1 oz per acre	Most effective in bolt or bud stages	Cannot be used near wells, surface water, or shallow groundwater. Hand pull when present along Irrigation Ditch
Telar	0.5-1 oz per acre	Most effective in bolt or bud stages	None.
MSM 60	0.5-1 oz per acre	Most effective in bolt or bud stages	Do not apply to turf less than one year old.

Spotted Knapweed, *Centaurea stoebe*

Hand pulling: Hand pulling is an extremely effective method on small scale infestations of spotted knapweed. Pulling is easiest when soil is moist; allowing you to remove most of the taproot and kill the plant. Any stage from flowering on should be bagged and removed from the site in order to minimize seeds at the site.

Mowing: Mowing will help reduce seed production of Spotted Knapweed; however, repeated mowing will result in knapweed plants flowering and setting seed below the blades of the mower. Mowing should occur during the bud stage but before flower to prevent cut plants from producing viable seed.

Biological control: There are thirteen biological control agents that have been released in Montana to control spotted and diffuse knapweed. Of those species, eight have been shown to affect knapweed populations. The majority of these species are wide spread in Western Montana. Contact the Missoula County Weed District for assistance with monitoring and additional releases.

Herbicide: There are a number of herbicides that provide effective control of Spotted Knapweed. The following herbicides are recommended for control of Spotted Knapweed. Always consult product labels and read them carefully to ensure correct species/land management usage and chemical application.

Herbicides for Common Tansy, <i>Tanacetum vulgare</i>			
Active Ingredient	Rate	Efficacy	Comments
2-4, D	1-2 quarts/ acre	Rapidly growing plants before flowering.	Best results with wiper applications, provides only partial control in most trials. Broadleaf-selective safe on most grasses. Minimal soil activity. Do not apply in 80 degree + weather.
Aminocuclopyrachlor + Chlorosulfuron	4.75-8 oz/ acre	Apply Postemergence, most effective to plants in flower bud stage.	Broad spectrum herbicide for many broadleaf species. Generally safe for grasses, may suppress or injure certain annual/perennial grass species. Avoid root zone; no more than 11oz/year. Add adjuvant.
Aminopyralid + Metsulfuron	2.5-3.3 oz/ acre	Postemergence when plants are at bud or later.	Not registered in California. Do not allow drift to desirable vegetation.
Metsulfuron	1-2 oz/ acre	Postemergence at flower bud stage.	Always use a surfactant. Other premix formulations with metsulfuron can be used at similar application timing.
Chlorosulfuron	1-2 oz/ acre	Postemergence at flower bud stage.	Always use a surfactant. Most established perennial grasses are tolerant.
Glyphosate	1-2 quarts/ acre	Apply to growing thistle after the bud growth stage.	Glyphosate is nonselective and will kill any vegetation it comes in contact with. Spray for uniform coverage, not for runoff.
Picloram	1 pint/ acre	Apply to growing thistle after most leaves emerge but before bud stage.	Do not apply to shallow groundwater areas. Avoid desirable broadleaf plants.

Canada thistle, *Cirsium arvense*

Hand pulling: Hand pulling is only effective on small infestations if done consistently and persistently throughout the growing season and for multiple years. Be sure to wear gloves.

Mowing: Mowing is an inconsistent method of control for Canada thistle, depending on the conditions present at the site. In some instances, mowing two to three times annually for a period of three or more years can eliminate an infestation of Canada thistle, in other situations the same regime will only accomplish a reduced seed crop.

Grazing: Grazing is not a recommended method of control because livestock tend to avoid it because of its spiny stems and leaves.

Herbicide: The following herbicides are recommended for control of Canada Thistle. Always consult product labels and read them carefully to ensure correct species/land management usage and chemical application.

Herbicides for Canada Thistle, *Cirsium arvense*

Herbicide	Rate (per acre)	Application Timing	Comments
Aminopyralid	6 oz per acre	Apply in spring to	Do not exceed 7 fl oz/a per year.

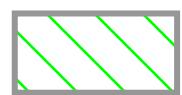
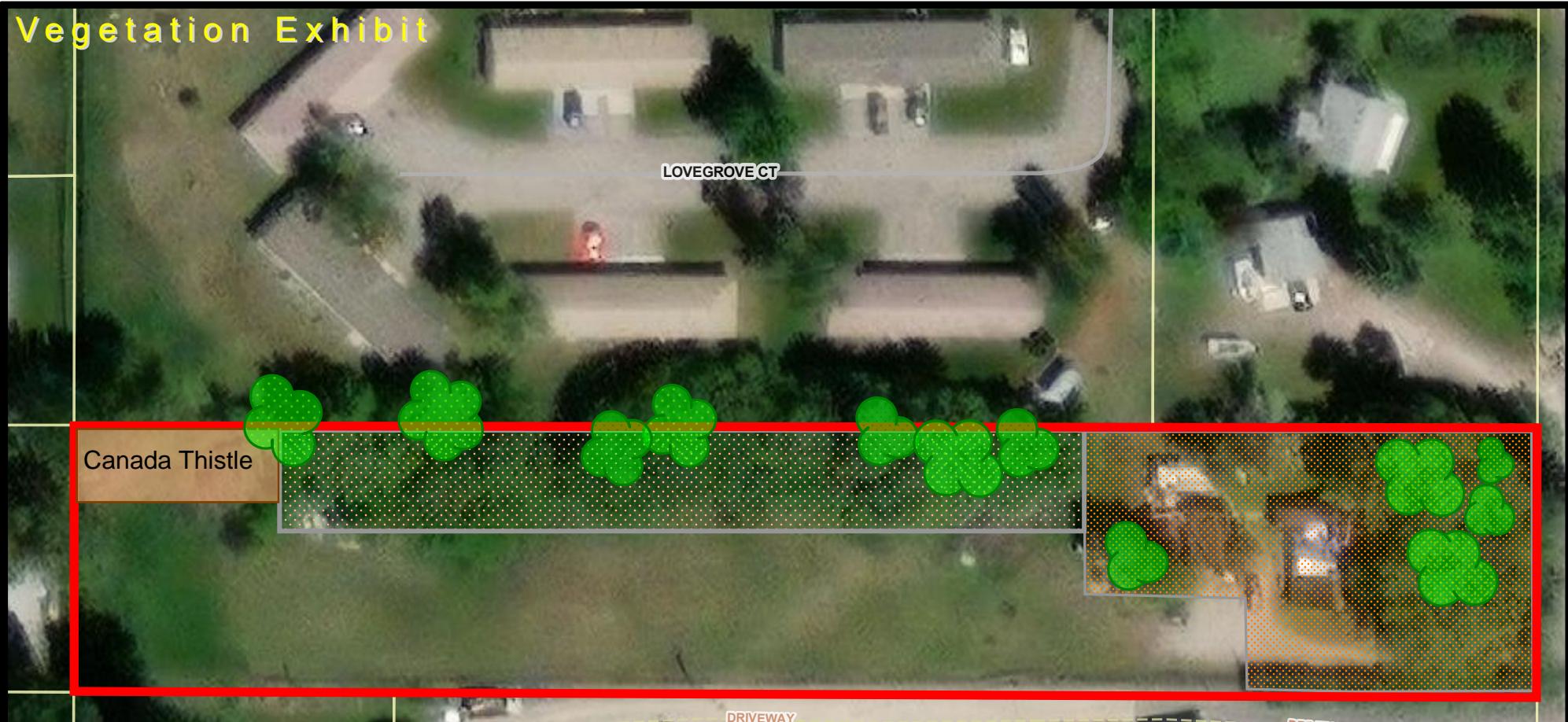
		plants in pre-bud stage.	Desirable broadleaf plants will be seriously injured, do not allow drift.
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6. Appropriate Revegetation with Desired Species

The establishment of healthy, use/type appropriate vegetation is the most effective way to minimize weed invasion in the long term. The two most common preps that must be undertaken for a project are 1) dealing with compacted soil and 2) preparing the seed bed to increase establishment and survival. Revegetation will be done with the following mixes:

Native Plant Recommendations by Type for Western Montana			
Name	Soil Type	Minimum Precipitation	Notes
Dry, Warm Site: Typically open grassland at low elevations and on south- and west-facing slopes at higher elevations			
Grasses			
Slender wheatgrass	Sandy to Clayey	16"	Has moderate drought tolerance. Rapid establishment in a wide range of sites, including site with high salinity. Short-lived species.
Thickspike wheatgrass	Sandy to Clayey	8"	Drought-tolerant and fairly easy to establish. Long-lived.
Bluebunch wheatgrass	Silty-loamy to	10"	Drought-tolerant and moderately easy to establish. Adapted to most sites, including nutrient poor soils.
Beardless wheatgrass	Silty-loamy	13-15"	Fair establishment and intolerant of poor drainage, high water tables and spring flooding.
Big bluegrass	Silty-loamy to	8"	Easy to establish, but intolerant of poor drainage or high water tables. Can take mildly saline soils.
Canada wildrye	Sandy	12"	Quick establishment and short-lived. Prefers moist but well-drained sites
Prairie junegrass	Sandy	12"	Drought-tolerant with moderate establishment.
Sandberg bluegrass	Sandy to Clayey	8"	Drought-tolerant and does well on nutrient poor soils.
Needle and thread	Sandy to silty-	10"	Drought-tolerant and long-lived. Does well on disturbed sites.
Idaho fescue	Silty-loamy to	10"	Moderately drought-tolerant with slow establishment.
Forbs			
Common yarrow	Sandy to loamy	10"	Drought-tolerant and aggressive. Good for erosion prevention.
Blanketflower	Sandy to silty-	10"	Fairly drought-tolerant and good for erosion prevention mixes.
Rocky Mountain beeplant	Silty-loamy to	16"	Annual good for short-term establishment.
Hairy evening primrose	Sandy	12"	Does well in disturbed areas.
Prairie flax	Sandy to silty-	10"	Drought-tolerant and easy to establish. Does very well in well-drained sites.
Sulfur flower	Sandy to silty-	10"	Requires well-drained sites.
Prairie coneflower	All-types	16"	Drought-tolerant and does well on well-drained sites.
Arrowleaf balsamroot	Silty-loamy	12"	Drought-tolerant, but slow to establish
Lupine spp.	Silty-loamy to	12-16"	Found in a wide variety of sites and conditions
Penstemon spp.	Sandy to silty-	10-14"	Widely adaptable and drought-tolerant
Fringed sage	Silty-loamy	6"	Does well on nutrient poor, dry soils
Trees and Shrubs			
Trees: Ponderosa pine, Douglas fir		Shrubs: snowberry, woods rose, bitterbrush, sumac, mountain mahogany, mockorange, chokecherry	

Vegetation Exhibit



Intermittent Grasses & Weeds (0.76 acres)



Mature Trees

0 0 0.01 0.01 0.02 0.03 0.04 Miles



Immature Trees and Low-lying shrubs (0.82 acres)



Concentration of Canada Thistle



Date: 10/14/23



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Vegetation Exhibit Carrera Commons Subdivision

Located in Lot 5, Of Curtis and Major Addition a Platted Subdivision in Missoula County, Montana.

Project #:23-2731
Tab: Veg
Drafter: TR
Date: 10/2023
Sheet: 1 of 1

7. Response Monitoring and Re-evaluation

This Weed Management Plan is not all-inclusive regarding methods, products, or techniques to control weeds and to revegetate the ground. Management plans should be reviewed as needed by the property owner/developer, the Vegetation Management Committee, and the Missoula County Weed District.

This plan has been approved by the Missoula County Weed District.

Layne Von Lanken

Signature

10/19/2023

Date