

# OPEN SPACE MANAGEMENT PLAN

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Haymeadow PUD  
Town of Eagle, Colorado



*prepared for:*

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**BIRCH ECOLOGY**

SEPTEMBER 2018

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## 1.0 INTRODUCTION

Abrika Properties, LLC is constructing a residential development on the 660-acre Haymeadow property in the Town of Eagle, located in Sections 2, 3, 4, 9, 10, and 11 of Township 5 South and Range 84 West in Eagle County, Colorado (Figures 1 & 2).

Figure 3 illustrates the approved PUD Development Plan for Haymeadow. The Haymeadow PUD authorizes a total of 837 dwelling units, a public school facility, a fire station, active and passive parks and recreation areas, community facilities, trails, and open space. As shown on the PUD Development Plan, Haymeadow will contain more than 335 acres of open space.

The Final Haymeadow PUD-ADA requires the Developer or the Metropolitan District to submit to the Town of Eagle an Open Space Management Plan for all open space areas within the development concurrently with the application for the first Subdivision Final Plat.

The following plan provides details on the use and management of the open spaces to be dedicated as a part of the Phase I development and provides general guiding principles and practices to be used in the management of future open space dedications throughout the development. It is designed to be an evolving document which will be amended and updated as the specific design and uses of the various open spaces is finalized. In addition, the effectiveness and scope of the plan will be periodically re-evaluated to inform potential revisions and/or additions. Please note, all Figures are in Section 5.0 and Tables are in Section 6.0. Appendix A includes the State of Colorado's Noxious Weed List.

## 2.0 ENVIRONMENTAL SETTING

The 660-acre, irregularly shaped Haymeadow property is located in the Brush Creek Valley. The property is bounded by Brush Creek Road to the south, by undeveloped agricultural property and the Eagle Pool & Ice Rink to the west, by U.S. Bureau of Land Management (BLM) lands to the north, and by agricultural lands on the Adam's Rib property to the east. Elevations of the Haymeadow property range from a high of approximately 6,954 feet on the ridge in the northeastern corner to a low of approximately 6,658 feet along Brush Creek Road at the southern boundary.

The Haymeadow property encompasses a broad, gently sloping valley bottom north of Brush Creek and portions of the steep, south-facing gypsum hills along the northern property boundary. Brush Creek is located just south of the project site across Brush Creek Road. Portions of the historic channel of Brush Creek are located on the Haymeadow property just north of the road, and are used to convey irrigation water.

The project site has an agricultural land use history. For more than 100 years, it has been flood irrigated and used for hay production and livestock grazing. Most of the native vegetation has been replaced by introduced agricultural grasses and forbs in hayfields dissected by an extensive network of irrigation laterals. The laterals are fed by four irrigation ditches, all diversions from Brush Creek. These include the Love and White Ditch, the Mathews Ditch, the Wilkinson Ditch, and the Hernage Ditch (Figure 2). Over time, changed irrigation practices, including the termination of irrigation in some areas, has resulted in the conversion of grassy hayfields to weed-dominated habitats with low vegetation cover. In addition, these areas

have been disturbed by ground squirrels and elk grazing, which further reduced vegetation cover and contributed to topsoil erosion.

### **3.0 HAYMEADOW OPEN SPACES**

The March 25, 2014 Haymeadow PUD Guide identifies the open space tracts and parks to be created within the development; provides the purpose for each and identifies the uses by right. These open spaces are illustrated by the PUD Development Plan (Figure 3).

#### **3.1 Natural Open Space Tracts**

Tracts OS-A, OS-B, and OS-C as identified in the Preliminary Subdivision Plan will be managed as Natural Open Space Tracts. In addition, future open space tracts may be created through re-subdivision of Tract H of the PUD Preliminary Subdivision Plan. The PUD Development Plan (Figure 3) depicts the general location of the future Open Spaces within Tract H. However Figure 3 is a conceptual illustration; these areas have not yet been officially platted.

##### **3.1.1 Purpose**

As stated in the Haymeadow PUD Guide, the purpose of the Natural Open Space Tracts is to provide sites for natural open space, active recreation, agricultural uses, trails, park facilities, water storage and drainage improvements, and landscape improvements.

##### **3.1.2 Uses by Right**

The Haymeadow PUD Guide identifies the following Uses by Right for the Natural Open Space Tracts:

- a) Equestrian, pedestrian, and bicycle trails.
- b) Landscape improvements.
- c) Lakes, ponds, reservoirs and irrigation ditches.
- d) Shade shelters and picnic facilities.
- e) Public or private roads, trailhead parking, restrooms, and utilities including bridges and utility improvements, tanks, lines, mains, pumphouses, facilities, services and buildings.
- f) Agricultural uses and associated facilities.
- g) Community gardens and associated facilities.
- h) Dog parks.
- i) Special events associated with agricultural facilities, community garden facilities, trails and trailheads – such as athletic, entertainment, or cultural events.

##### **3.3.3 Tract A**

Tract OS-A is a small parcel covering 0.66 acre. It is located near the intersection of Brush Creek Road and Sylvan Lake Road. This area will be used for drainage and will be revegetated with a native seed mix.

##### **3.3.4 Tract B**

Tract OS-B is a parcel located adjacent to Brush Creek Road in the Phase I Development Area. Tract B contains most of the wetlands on the Haymeadow project site. The 11.43-acre Wetland A located on this parcel will be enhanced in accordance with the Phase I Wetland Enhancement Plan prepared by Birch Ecology (September 2018). The plan includes specifications to control the noxious weeds, primarily Russian olive (*Elaeagnus angustifolia*)

trees, and a planting plan to increase the cover of native trees and shrubs in and adjacent to the wetland. Specifically, 20 narrowleaf cottonwood (*Populus angustifolia*) trees, 100 5-gallon shrubs, and 500 willow cuttings are to be planted in and adjacent to the wetlands on OS-B (Table 1). The shrub plantings will include river birch (*Betula occidentalis*), choke cherry (*Prunus virginiana* var. *melanocarpa*), golden currant (*Ribes aureum*), Woods' rose (*Rosa woodsii*), sandbar willow (*Salix exigua*) and silver buffaloberry (*Shepherdia argentea*), which are all known to occur along Brush Creek in the Eagle area. In order to establish willow stands that contain the local ecotypes and species, 500 willow cuttings will be collected from local populations and planted in the wetland enhancement area. These will likely include sandbar willow, whiplash willow (*Salix lasiandra* ssp. *caudata*), Bebb willow (*Salix bebbiana*), and mountain willow (*Salix monticola*).

### **3.3.5 Tract C**

Tract C is an open space tract located to the north and east of neighborhood A1. This tract includes the existing Haymaker Mountain Bike Trail in the north and Willow Corridor in the east. The Willow Corridor consists of large, mature crack willow (*Salix fragilis*) trees lining an irrigation ditch that conveys flows from the Mathews ditch. This corridor will be maintained and enhanced as a part of the Haymeadow open spaces. Water will be directed down the willow corridor and will flow through the Trailhead Park on Tract F, and into the wetlands on Tract B before flowing back to Brush Creek.

### **3.3.6 Tract H**

The future uses and management of open spaces within Tract H are yet to be defined. This Open Space Management Plan will be updated with additional details pertaining to the open space parcels of Tract H as the future phases of Haymeadow are platted. Tract H does include the trailhead project area which surrounds the existing residence near the Love and White ditch in the northeastern portion of Haymeadow (Figure 3). The specific design and use of this trailhead area are not yet determined, and the existing residence will likely be repurposed. No earth disturbance is planned until future phases are developed. However, the weeds that surround the house are being controlled and eradicated in accordance with the Ecological Restoration Plan and the Integrated Weed Management Plan prepared by Birch Ecology (September 2018). In addition, a section of the Town of Eagle's Haymaker Mountain Bike Trail crosses the northern portion of Tract H.

## **3.2 Trailhead Park**

The Trailhead Park will be located on Tract F, which covers 20.501 acres (Figure 3). The final park design is not yet complete, however it will be a large community park with both formal and informal park and open space features. The park will be designed and constructed in conjunction with the future phases of Haymeadow. It will be maintained by the Haymeadow Metropolitan District.

### **3.2.1 Purpose**

The Purpose of the Trailhead Park established in the PUD Guide is to provide a site for active park and recreation facilities, formal and informal play fields, open space, ponds and water features, stream corridors and recreation trails, community buildings and facilities.

### **3.2.2 Uses by Right**

The Haymeadow PUD Guide identifies the following Uses by Right for the Trailhead Park:

- a) Indoor and outdoor recreation and entertainment facilities.
- b) Parks and picnic facilities.
- c) Community center.
- d) Cultural and educational buildings and activities.
- e) Concessions, food and beverage service.
- f) Special events, including sports events and tournaments, entertainment and cultural events.
- g) Administration/Maintenance facilities.
- h) Homeowner Association operated or contracted enclosed storage building.
- i) Equestrian, pedestrian and bicycle trails.
- j) Dog park.
- k) Community gardens.
- l) Playgrounds, play equipment and water features.
- m) Temporary structures, tents and trailers associated with special events.
- n) Landscape improvements.
- o) Lakes, ponds, reservoirs and irrigation ditches.
- p) Temporary construction/administration/sales office, public or private roads and utilities including bridges, utility improvements, lines and mains, facilities, services, and buildings.
- q) Agricultural uses.
- r) Additional uses determined by the Town Planner to be similar to uses by right listed above.

### **3.3 Recreation Open Space/School Tract**

The Recreation Open Space/School Tract, known as Tract E, is a 32.733-acre parcel in the northwestern portion of the Haymeadow PUD adjacent to the Eagle Pool and Ice Rink (Figure 3). Due to changed irrigation practices and disturbances caused by elk and ground squirrels, the northern half of Tract E has areas of low vegetation cover and is dominated by state-listed noxious weeds and other invasive non-native plants. As required by the March 2014 Haymeadow PUD-ADA, these weed-dominated habitats are being restored and a weed management plan is being implemented, as described below in Sections 3.3.3 and 3.3.4.

#### **3.3.1 Purpose**

To provide a land area for a recreation site and a school site to be dedicated to the Town of Eagle.

#### **3.3.2 Uses by Right**

- a) Indoor and outdoor recreation and entertainment facilities.
- b) Parks and picnic facilities.
- c) Community center.
- d) Cultural and educational buildings and activities.
- e) Concessions, food and beverage service.
- f) Special events, including sports events and tournaments, entertainment and cultural events.
- g) Public Administration building.



- h) Administration/Maintenance facilities.
- i) Equestrian, pedestrian and bicycle trails.
- j) Dog park.
- k) Community gardens.
- l) Playgrounds, play equipment and water features.
- m) Temporary structures, tents and trailers associated with special events.
- n) Landscape improvements.
- o) Lakes, ponds, reservoirs and irrigation ditches.
- p) Public and/or Private School and related ancillary facilities, which may include, but not be limited to, classrooms, common areas, gymnasiums, cafeterias, theatres, offices, meeting rooms, parking, and outdoor recreation and athletic facilities. A stand-alone bus barn or overnight vehicle storage area would not be considered a use-by-right.
- q) Special events utilizing either indoor or outdoor facilities of the school, including sporting, cultural, or entertainment events.
- r) Temporary construction/administration office.
- s) Agricultural uses.
- t) Public or private roads and utilities including bridges, utility improvements, lines and mains, facilities, services and buildings.
- u) Additional uses determined to be similar to uses by right listed above.

### **3.3.3 Ecological Restoration**

In accordance with the Haymeadow PUD-ADA, the weed dominated portions of Tract E are being restored and revegetated. The Ecological Restoration Plan for the Haymeadow Phase I Open Space Dedication prepared by Birch Ecology provides detailed specifications for pre-project weed control, seedbed preparation, seeding, hydromulching, maintenance and monitoring of the restoration area on Tract E, and includes a restoration seed mix to be drill seeded at the site in the fall of 2019 (Table 2). In addition it provides a list of recommended forb species to be overseeded once the weed abundance has been reduced, in order to increase the species diversity and habitat value of the restored area (Table 3).

### **3.3.4 Weed Management**

The Haymeadow Integrated Weed Management Plan and the Ecological Restoration Plan for the Haymeadow Phase I Open Space Dedication contain detailed specifications for establishing an integrated weed management program on this parcel. The goal of integrated weed management will be to implement a combination of cultural, mechanical, chemical and biological controls to effectively control weeds, focusing on the unique ecology of each weed species. Over time, the combined approach is designed to reduce the need for chemical herbicides. Weed management will be an ongoing process throughout the Haymeadow development which will require adaptive management techniques.

## **3.4 Trails**

Trails will be common in the Haymeadow PUD. Trails have been designed for various uses and will include asphalt bike paths, crusher fines nature trails, and an existing mountain bike trail. The mountain bike trail is maintained by the Town of Eagle, however maintenance of the other trails will be the responsibility of the Haymeadow Metropolitan District.



### **3.4.1 Neighborhood A1 Core Trail**

The Haymeadow PUD Guide specifies that a 10-foot-wide asphalt trail will be constructed to serve as a main route for school children to access the school site at a location close to the north side of the school's vehicular access system (Figure 3). The trail will be configured to encourage use by children and designed in such a manner that provides direct views of the school site where possible. The trail should place a strong emphasis on safety at roadway crossings.

### **3.4.2 Tract OS-B Wetland Nature Trail**

A four-foot-wide crusher fines trail will be constructed on Tract OS-B, extending east from the Sylvan Lake Road roundabout along the Wetland A Enhancement Area, past two ponds to connect to Trailhead Park (Figure 3). The trail will be field-located to avoid or minimize any potential impacts to wetlands, and small 4-foot-wide bridges and boardwalks will be used where necessary.

### **3.4.3 Haymaker Mountain Bike Trail**

The Town of Eagle's Haymaker Mountain Bike Trail crosses the open space lands along the northern boundary of Haymeadow, including the northern part of Tracts E, C and H. The Town has a 10-foot-wide easement for the trail, and it is maintained by the Town of Eagle.

### **3.4.4 Tract H Trails**

In accordance with the Haymeadow PUD-ADA, the design and placement of recreation trails adjacent to the eastern wildlife corridor and open space on Tract H shall minimize the impact of trail users upon wildlife.

## **4.0 MANAGEMENT POLICIES AND GUIDING PRINCIPLES**

### **4.1 Vegetation**

#### **4.1.1 Weed Management**

Weeds throughout the Haymeadow Open Spaces will be managed using Integrated Weed Management techniques. Integrated Weed Management differs from traditional weed management in that it uses an ecological approach to address the ultimate causes of weed infestation, and considers the biological and ecological characteristics of individual weeds to determine effective means of control. One important objective of Integrated Weed Management is to use a combination of techniques to reduce the need for chemical herbicides over the long-term. However, herbicides are still an important management tool and will be necessary for effective weed management at Haymeadow.

Appendix A contains the State of Colorado's Noxious Weed List, and Table 4 is a summary of the List A, B, and C noxious weeds and other problematic introduced plants known to occur within Haymeadow. The Haymeadow Integrated Weed Management Plan (Birch Ecology, 2018) provides a detailed discussion of the ecology of these species and provides recommendations for ongoing management throughout the Haymeadow project site. It is recommended that a GIS-based Weed Map be prepared for the Haymeadow Open Spaces to facilitate monitoring and to identify targeted areas for weed management activities.

#### **4.1.2 Disturbance of Open Space Areas**

The Haymeadow PUD-ADA specifies that disturbances from underground utility construction shall be permitted in open spaces and unplatted areas of the development, but the disturbances must be revegetated to a natural condition subject to Town approval. In addition, any designated public or private open space areas within the Property that are disturbed during construction of the development shall be promptly graded and successfully revegetated to a natural looking condition.

#### **4.1.3 Maintenance of Agricultural Areas**

The Haymeadow PUD-ADA specifies that the unplatted areas that are not contained within an approved Subdivision Final Plat shall be maintained in their present natural state or agricultural production and irrigated as necessary. The areas within the property that are presently in agricultural use and production shall be entitled to remain in any form of agricultural use and/or production until such time as such areas are developed. In addition, the wildlife corridor described below in Section 4.2.1 will be maintained in agricultural use.

### **4.2 Wildlife**

#### **4.2.1 Wildlife Movement Corridor**

The Haymeadow PUD has been designed to maintain a wildlife movement corridor from the Brush Creek valley bottom to the pinyon-juniper woodlands and sagebrush shrublands located north of the proposed development. The Haymeadow PUD Development plan illustrates this movement corridor, located at the eastern end of the development adjacent to the Adam's Rib property (Figure 3). As specified in the Haymeadow PUD Guide, the final width of this corridor will be determined by future land uses in the area. Specifically, at the time of the first subdivision plat for Neighborhood D, a 500-foot-wide wildlife corridor shall be established on the adjacent open space to the east of Neighborhood D, as indicated on the approved PUD Development Plan (Figure 3). If at this time a corresponding 500-foot-wide wildlife corridor has not been provided or committed on the adjacent Adam's Rib Ranch Property, then a 1,000-foot-wide corridor will be required on the Haymeadow Planned Unit Development. As the time of this final plat, a deed restriction shall be placed on this wildlife corridor to guarantee its protection. This corridor shall be maintained in agricultural production.

#### **4.2.2 Wildlife Screening Berm**

As specified in the PUD Guide and illustrated by Figure 3, a Wildlife Screening Berm will be constructed along the eastern edge of Neighborhood D to provide a visual screen along the wildlife movement corridor described above in Section 4.2.1. The construction of the landscape screening berm shall be included in the public improvements for Neighborhood D. The purpose of the landscape screening berm is to provide a visual buffer between the animals using the wildlife corridor and the activity associated with Neighborhood D. The final plat or deed restriction will include language that ensures this berm is a permanent landscape feature. Figure 4 provides a conceptual graphic of the wildlife screening berm, which will be approximately two feet wide and four feet tall, with 3:1 side slopes. The native plantings will be established on top of and adjacent to the berm.

#### **4.2.3 Trail Design**

The Haymeadow PUD-ADA specifies that the design and placement of recreation trails adjacent to the wildlife corridor and open space shall minimize the impact of trail users upon wildlife.

#### **4.2.4 Wildlife-Friendly Fencing**

As specified in the Haymeadow PUD Guide, any fencing separating a residential lot from adjacent natural open space shall be required to meet the wildlife-friendly fencing guidelines of Colorado Parks and Wildlife (Hanophy, 2009). The Haymeadow Metro District and/or Homeowners Association shall be responsible for maintaining a fence at appropriate perimeter sections of the PUD to keep cattle grazing on adjacent lands from entering the Haymeadow PUD.

#### **4.2.5 Dogs and Pet Control**

Controlling dogs and other pets will be an important part of mitigating potential impacts to wildlife in and around Haymeadow. The Haymeadow PUD Guide specifies regulations for dogs and pet control. At no time will dogs be permitted to run freely, other than within designated leash-free dog parks. Haymeadow is subject to any and all leash laws and other pet regulations as adopted by the Town of Eagle. Stray dogs may also be controlled by the Town and/or County and Colorado Department of Parks and Wildlife (CPW). Contractors, subcontractors, and other construction-related visitors are prohibited from bringing dogs onto the Haymeadow PUD.

#### **4.2.6 Ground Squirrels**

Ground squirrels will be managed in accordance with applicable laws and regulations in the natural open space areas and developed parks. Ground squirrel control will be completed by a licensed contractor. Control options will be evaluated on a case-by-case basis, depending on the location and density of ground squirrels.

### **4.3 Best Management Practices for Household Chemicals, Herbicides and Pesticides**

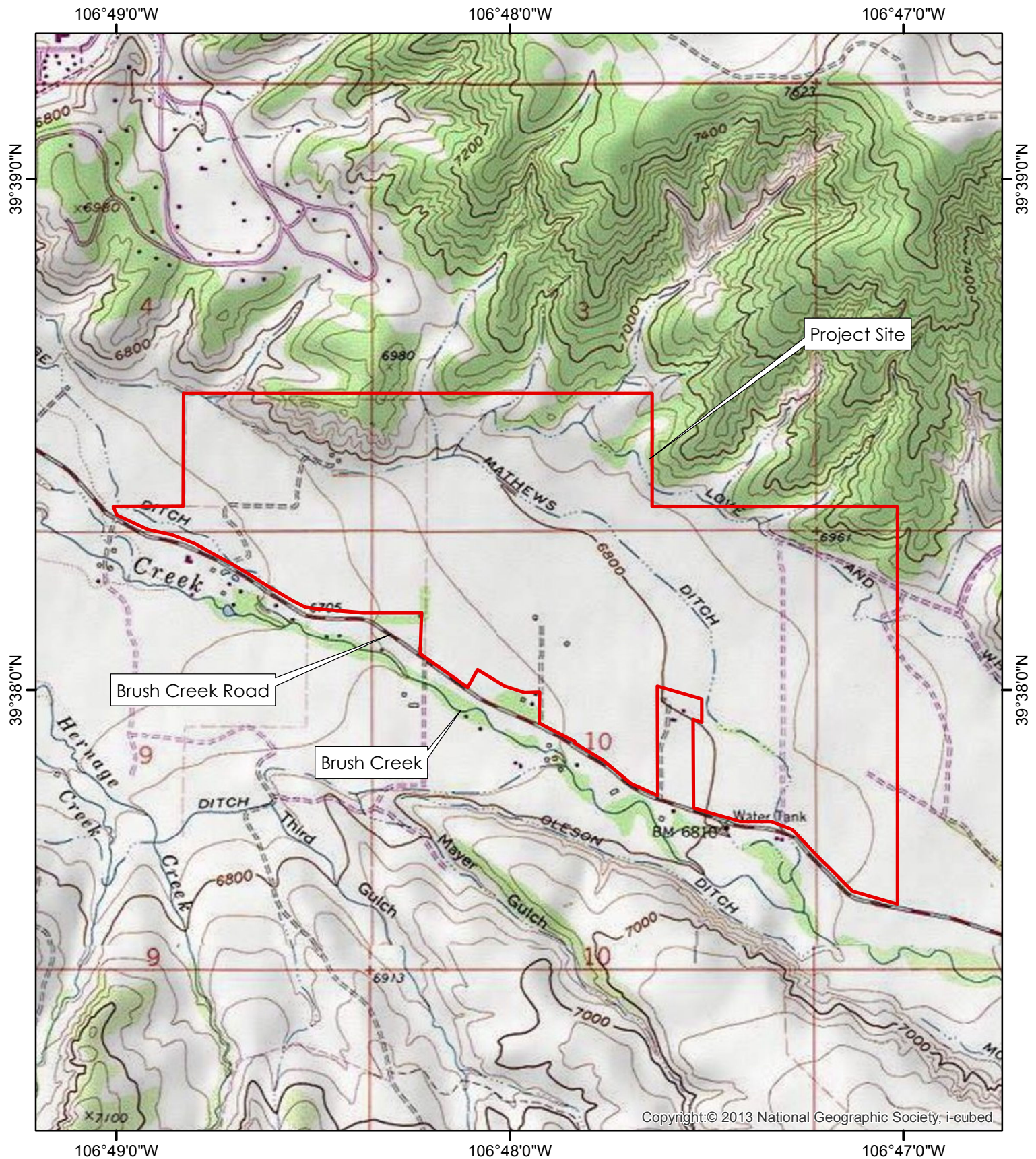
The Haymeadow PUD-ADA requires the Developer to submit a plan to minimize the use of chemicals harmful to the environment, including pesticides, herbicides, and other chemicals. However, it should be noted that the ADA states "Notwithstanding any provision of this Section 22, Developer or its tenants, agents, or other occupants of any portion of the Property that is put to agricultural use or production should be entitled to use any legal chemicals upon such portion of the Property, including pesticides and herbicides." The Chemical management plan is to include weed management in the weed-infested areas, and the revegetation of these areas.

- The Haymeadow Metropolitan District will be responsible for the management of most of the open spaces within the PUD. The principles and best management practices contained in this report will be adopted and included in the Operating Manuals for the Metropolitan District.
- Integrated weed management techniques will be used throughout the Haymeadow open spaces in order to reduce the need for chemical herbicides.

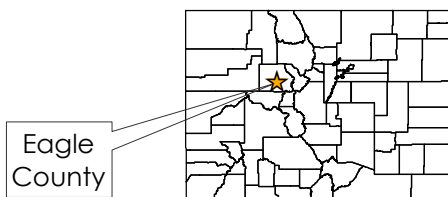
- The Haymeadow Integrated Weed Management Plan (Birch Ecology, 2018) provides detailed recommendations for controlling the state-listed noxious weeds and other problematic weeds known to occur at Haymeadow.
- Integrated Pest Management will be used to reduce the dependence on pesticides.
- Use of pesticides with the potential to impact pollinators will be minimized.
- Stormwater runoff will be treated in three stormwater detention ponds before it is released to Wetland A and then to Brush Creek. The ponds will retain flows up to the 25-year volume, which will pool in the bottom and will infiltrate back into the groundwater system. Flows above the 25-year event will be held in the ponds and released slowly through an orifice plate that emulates historic discharge rates. The pond bottoms will be revegetated with native grasses.
- A sediment and erosion control plan has been developed for the project to limit the transport of sediments and contaminants to Brush Creek during construction. Devices to be used during construction to prevent sediment-laden runoff from leaving the site include stabilized construction entrances, silt fence, wattles, straw bales, perimeter ditches, stone outlet structures and inlet protection. In addition, the detention ponds will have their outfalls modified so they can be used as sediment traps during construction.

## 5.0 FIGURES





BASE: USGS 7.5' Eagle Quadrangle, Colorado



COLORADO



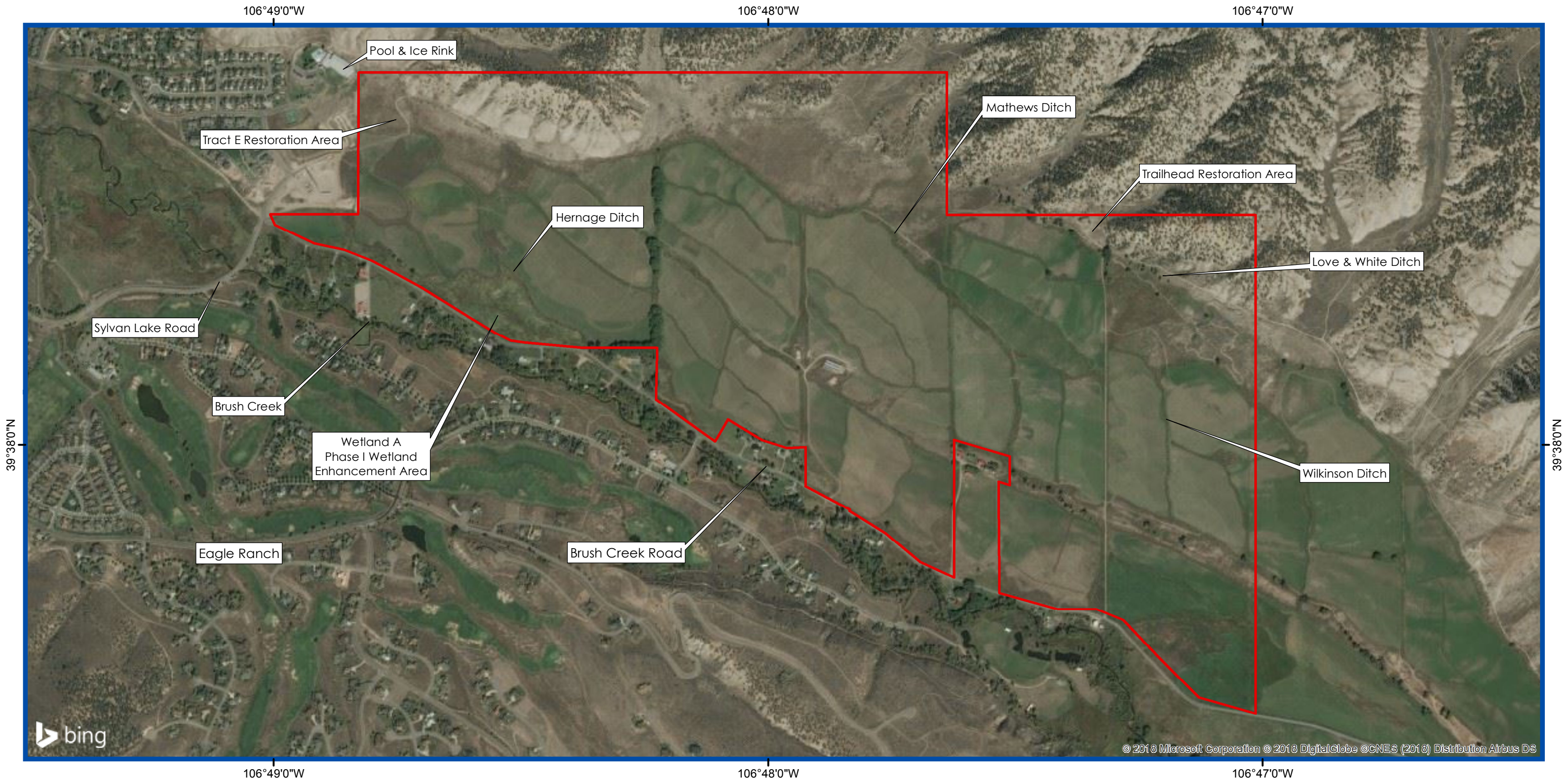
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**Figure 1. Project Location Map  
Haymeadow**



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## LEGEND

Haymeadow Property

**Figure 2. Aerial Photograph  
Haymeadow  
Eagle County, CO**



1:14,000  
Date: September 2018

Prepared by:



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### LAND USE SUMMARY

Parcel	Acreage	MF Units	SF/Duplex	Total
A1	41.7	146 (64%)	82 (36%)	228
A2	46.4	86 (45%)	103 (55%)	189
B	61.0	48 (23%)	161 (77%)	209
C	47.1	64 (40%)	97 (60%)	161
D	58.6	0 (0%)	50 (100%)	50
<b>Subtotal:</b>	<b>254.8</b>	<b>344 (41%)</b>	<b>493 (59%)</b>	<b>837</b>

	Tract	Acreage	Use
T.O.E Recreation / School	E	32.733	
Community Park	F	20.501	Recreation Open Space
Fire Station	G	1.675	Fire Station
<b>Subtotal:</b>		<b>54.83</b>	

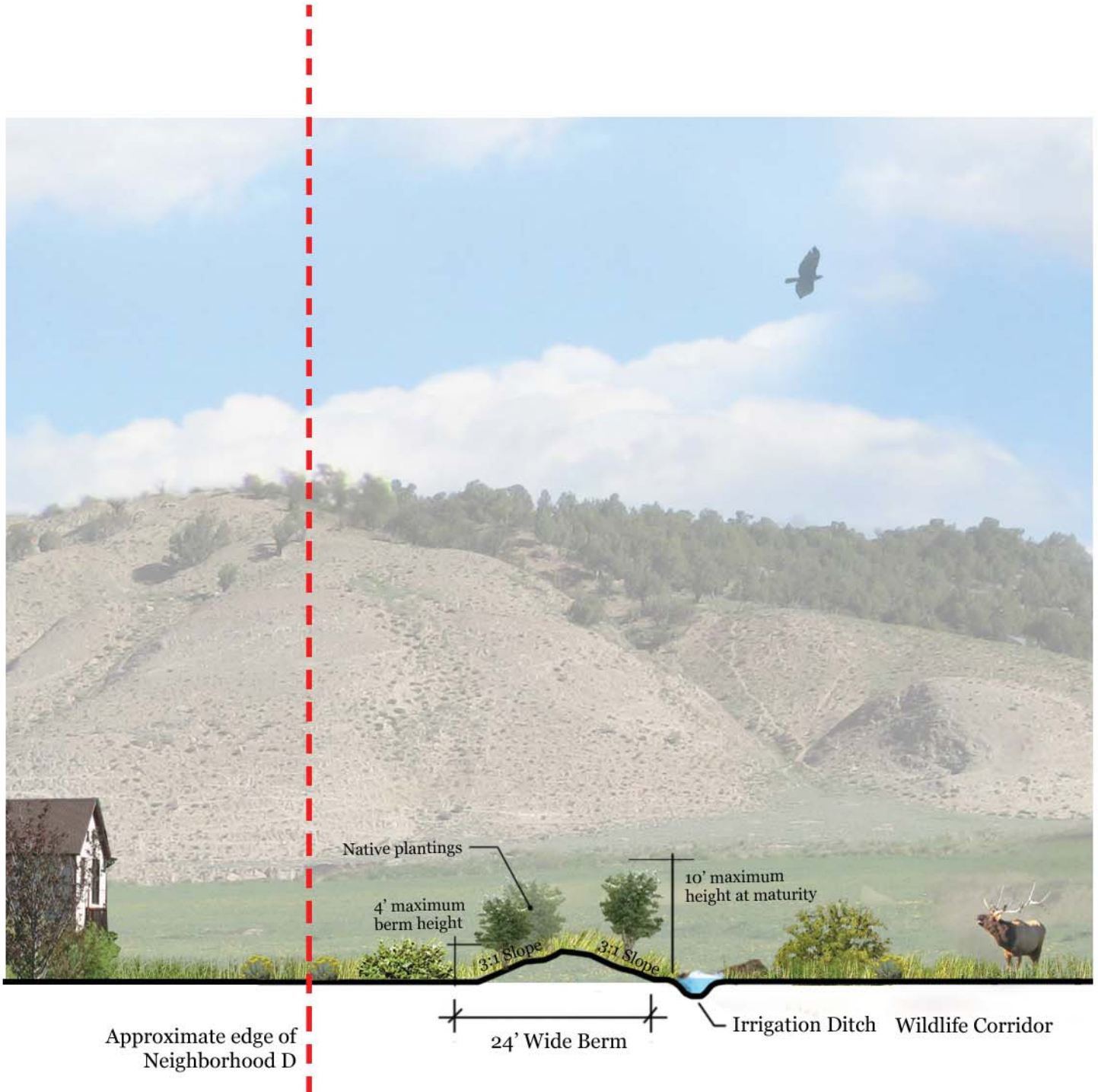
Road ROW	15 Ac.
----------	--------

Development Parcels	254.8 Ac.
Tracts	54.83 Ac.
ROW	15.00 Ac.
Open Space	335.37 Ac.
<b>Total:</b>	<b>660.00 Ac.</b>

- Multi-Family
- Single Family / Duplex Lots

Figure 3. Haymeadow PUD Development Plan





## HAYMEADOW

### WILDLIFE CORRIDOR BERM CROSS SECTION

dhm design | berglund architects | pylman assoc. | alpine engineering  
08.15.13

Figure 4. Wildlife Screening Berm

## 6.0 TABLES

**TABLE 1**  
**Wetland Planting**  
**Haymeadow Phase I Wetland Enhancement**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Wetland Status*</u>	<u>Size</u>	<u>Quantity</u>
<b>Trees</b>				
<i>Populus angustifolia</i>	Narrowleaf cottonwood	FACW	2" caliper	20
<b>Total Trees</b>				<b>20</b>
<b>Shrubs</b>				
<i>Betula occidentalis</i>	River birch	FACW	#5	15
<i>Prunus virginiana</i> var. <i>melanocarpa</i>	Choke cherry	FACU	#5	15
<i>Ribes aureum</i>	Golden currant	FAC	#5	20
<i>Rosa woodsii</i>	Woods' rose	FACU	#5	20
<i>Salix exigua</i>	Sandbar willow	FACW	#5	20
<i>Shepherdia argentea</i>	Silver buffaloberry	FACU	#5	10
<b>Total Nursery Grown Shrubs</b>				<b>100</b>
<b>Willow Cuttings*</b>				
<i>Salix bebbiana</i>	Bebb willow	FACW	cuttings	100
<i>Salix lasiandra</i> var. <i>caudata</i>	Whiplash willow	FACW	cuttings	100
<i>Salix monticola</i>	Mountain willow	OBL	cuttings	100
<i>Salix exigua</i>	Sandbar willow	FACW	cuttings	200
<b>Total Willow Cuttings</b>				<b>500</b>

\*Willow cuttings will be harvested from local populations to establish the local ecotypes. At least 500 cuttings will be installed from the four species listed. The precise quantities of each species may vary based on the composition of the source populations.

**TABLE 2**  
**Restoration Seed Mix**  
**Haymeadow Tract E**  
**Ecological Restoration Area**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Origin*</b>	<b>PLS Seeding Rate (Lbs/Ac)*</b>
<b>Shrubs</b>			
<i>Artemisia tridentata</i> var. <i>tridentata</i>	Big sagebrush	N	.25
<b>Total Shrubs</b>			<b>.25</b>
<b>Perennial Grasses</b>			
<i>Elymus elymoides</i>	Squirrel tail	N	2
<i>Elymus trachycaulus</i>	Slender wheatgrass	N	4
<i>Koeleria macrantha</i>	Junegrass	N	0.125
<i>Oryzopsis hymenoides</i>	Indian ricegrass	N	4
<i>Leymus cinereus</i>	Basin wildrye	N	4
<i>Pascopyrum smithii</i>	Western wheatgrass	N	5
<i>Poa fendleriana</i>	Muttongrass	N	0.125
<i>Poa secunda</i>	Sandberg bluegrass	N	0.25
<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	N	2
<i>Hesperostipa comata</i>	Needle-and-thread grass	N	2
<b>Total Perennial Grasses</b>			<b>23.5</b>
<b>GRAND TOTAL</b>			<b>23.75</b>

\* Corresponds to a seeding rate of ~105 seeds per square foot.

**TABLE 3**  
**Recommended Native Forbs for Overseeding**  
**Haymeadow Tract E Ecological Restoration Area**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family</b>
<b>Perennial Forbs</b>		
<i>Achillea millefolium</i>	Yarrow	Asteraceae
<i>Artemisia frigida</i>	Fringed sage	Asteraceae
<i>Erysimum capitatum</i>	Western wallflower	Brassicaceae
<i>Hedysarum boreale</i>	Utah sweetvetch	Fabaceae
<i>Ipomopsis aggregata</i>	Scarlet gilia	Polemoniaceae
<i>Lupinus argenteus</i>	Silvery lupine	Fabaceae
<i>Oenothera caespitosa</i>	Tufted evening primrose	Onagraceae
<i>Oxytropis lambertii</i>	Purple locoweed	Fabaceae
<i>Penstemon strictus</i>	Rocky Mountain penstemon	Scrophulariaceae
<i>Sphaeralcea coccinea</i>	Scarlet globemallow	Malvaceae

**TABLE 4**  
**State-Listed Noxious and Troublesome Weeds**  
**Haymeadow PUD**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Colorado Noxious Weed Status</b>
<b>Trees</b>		
<i>Elaeagnus angustifolia</i>	Russian olive	List B
<b>Perennial Grasses</b>		
<i>Elytrigia repens</i>	Quackgrass	List C
<b>Perennial Forbs</b>		
<i>Acroptilon repens</i>	Russian knapweed	List B
<i>Cardaria draba</i>	White top	List B
<i>Cirsium arvense</i>	Canada thistle	List B
<i>Lepidium latifolium</i>	Broadleaf pepperweed	List B
<i>Rumex crispus</i>	Curly dock	---
<i>Sonchus arvensis</i>	Perennial sowthistle	List C
<b>Annual/Biennial Graminoids</b>		
<i>Bromus tectorum</i>	Cheatgrass	List C
<b>Annual/Biennial Forbs</b>		
<i>Arctium minus</i>	Common burdock	List C
<i>Carduus acanthoides</i>	Plumeless thistle	List B
<i>Carduus nutans</i> <i>ssp. macrolepis</i>	Musk thistle	List B
<i>Chorispora tenella</i>	Purple mustard	---
<i>Cynoglossum officinale</i>	Houndstongue	List B
<i>Descurainia sophia</i>	Flixweed	---
<i>Kochia scoparia</i>	Kochia	---
<i>Melilotus albus</i>	White sweet clover	---
<i>Melilotus officinalis</i>	Yellow sweet clover	---
<i>Salsola australis</i> <i>(S. iberica)</i>	Russian thistle	---
<i>Sisymbrium altissimum</i>	Tumble mustard	---



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## **APPENDIX A. STATE OF COLORADO NOXIOUS WEED LIST**

## Colorado Department of Agriculture Noxious Weed List

### List A species

List A species in Colorado that are designated by the Commissioner for eradication.

### List B species

List B weed species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, develops and implements state noxious weed management plans designed to stop the continued spread of these species.

### List C species

List C weed species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.

### Watch List species

Watch List weed species that have been determined to pose a potential threat to the agricultural productivity and environmental values of the lands of the state. The Watch List is intended to serve advisory and educational purposes only. Its purpose is to encourage the identification and reporting of these species to the Commissioner in order to facilitate the collection of information to assist the Commissioner in determining which species should be designated as noxious weeds.

### List A Species



[African rue](#)  
*Peganum harmala*



[Bohemian knotweed](#)  
*Polygonum x bohemicum*



[Camelthorn](#)  
*Alhagi pseudalhagi*



[Common crupina](#)  
*Crupina vulgaris*



[Cypress spurge](#)  
*Euphorbia cyparissias*



[Dyer's woad](#)  
*Isatis tinctoria*



[Elongated mustard](#)  
*Brassica elongata*



[Flowering rush](#)  
*Butomus umbellatus*

## List A Species



Giant knotweed  
*Polygonum*  
*sachalinense*



Giant reed  
*Arundo donax*



Giant salvinia  
*Salvinia molesta*



Hairy willow-herb  
*Epilobium hirsutum*



Hydrilla  
*Hydrilla verticillata*



Japanese knotweed  
*Polygonum cuspidatum*



Meadow knapweed  
*Centaurea pratensis*



Mediterranean sage  
*Salvia aethiops*



Medusahead  
*Taeniatherum caput-*  
*medusae*



Myrtle spurge  
*Euphorbia myrsinites*



Orange hawkweed  
*Hieracium aurantiacum*



Parrotfeather  
*Myriophyllum*  
*aquaticum*



Purple loosestrife  
*Lythrum salicaria*



Rush skeletonweed  
*Chondrilla juncea*



Squarrose knapweed  
*Centaurea virgata*



Tansy ragwort  
*Senecio jacobaea*

## List A Species



[Yellow starthistle](#)  
*Centaurea solstitialis*



## List B Species



[Absinth wormwood](#)  
*Artemisia absinthium*



[Black henbane](#)  
*Hyoscyamus niger*



[Bouncingbet](#)  
*Saponaria officinalis*



[Bull thistle](#)  
*Cirsium vulgare*



[Canada thistle](#)  
*Cirsium arvense*



[Chinese clematis](#)  
*Clematis orientalis*



[Common tansy](#)  
*Tanacetum vulgare*



[Common teasel](#)  
*Dipsacus fullonum*



[Corn chamomile](#)  
*Anthemis arvensis*



[Cutleaf teasel](#)  
*Dipsacus laciniatus*



[Dalmatian toadflax](#)  
*Linaria dalmatica & genistifolia*



[Dame's rocket](#)  
*Hesperis matronalis*



[Diffuse knapweed](#)  
*Centaurea diffusa*



[Eurasian watermilfoil](#)  
*Myriophyllum spicatum*



[Hoary cress](#)  
*Cardaria draba*



[Houndstongue](#)  
*Cynoglossum officinale*

## List B Species



Hybrid knapweed

*Centaurea x  
psammogena*



Hybrid toadflax

*Linaria vulgaris x  
Linaria dalmatica*



Jointed goatgrass

*Aegilops cylindrica*



Leafy spurge

*Euphorbia esula*



Mayweed chamomile

*Anthemis cotula*



Moth mullein

*Verbascum blattaria*



Musk thistle

*Carduus nutans*



Oxeye daisy

*Chrysanthemum  
leucanthemum*



Perennial pepperweed

*Lepidium latifolium*



Plumeless thistle

*Carduus acanthoides*



Russian knapweed

*Acroptilon repens*



Russian-olive

*Elaeagnus angustifolia*



Salt cedar

*Tamarix chinensis, T.  
parviflora, and  
T. ramosissima*



Scentless chamomile

*Matricaria perforata*



Scotch thistle

*Onopordum acanthium*



Spotted knapweed

*Centaurea maculosa*



## List B Species



[Sulfur cinquefoil](#)  
*Potentilla recta*



[Wild caraway](#)  
*Carum carvi*



[Yellow nutsedge](#)  
*Cyperus esculentus*



[Yellow toadflax](#)  
*Linaria vulgaris*

## List C Species



[Bulbous bluegrass](#)  
*Poa bulbosa*



[Chicory](#)  
*Cichorium intybus*



[Common burdock](#)  
*Arctium minus*



[Common mullein](#)  
*Verbascum thapsus*



[Common St. Johnswort](#)  
*Hypericum perforatum*



[Downy brome](#)  
*Bromus tectorum*



[Field bindweed](#)  
*Convolvulus arvensis*



[Halogeton](#)  
*Halogeton glomeratus*



[Johnsongrass](#)  
*Sorghum halepense*



[Perennial sowthistle](#)  
*Sonchus arvensis*



[Poison hemlock](#)  
*Conium maculatum*



[Puncturevine](#)  
*Tribulus terrestris*



[Quackgrass](#)  
*Elytrigia repens*



[Redstem filaree](#)  
*Erodium cicutarium*



[Velvetleaf](#)  
*Abutilon theophrasti*



[Wild-proso millet](#)  
*Panicum miliaceum*

## Watch List Species



Asian mustard  
*Brassica tournefortii*



Baby's breath  
*Gypsophila paniculata*



Bathurst burr /  
Spiny cocklebur  
*Xanthium spinosum*



Brazilian elodea  
*Egeria densa*



Common bugloss  
*Anchusa officinalis*



Common reed  
*Phragmites australis*



Garlic mustard  
*Alliaria petiolata*



Garden loosestrife  
*Lysimachia vulgaris*



Himalayan blackberry  
*Rubus armeniacus*



Hoary alyssum  
*Berteroa incana*



Japanese blood grass /  
Cogongrass  
*Imperata cylindrical*



Meadow hawkweed  
*Hieracium caespitosum*



Onionweed  
*Asphodelus fistulosus*



Purple pampasgrass  
*Cortideria jubata*



Scotch broom  
*Cytisus scoparius*



Sericea lespedeza  
*Lespedeza cuneata*



### Watch List Species



Swainsonpea  
*Sphaerophysa salsula*



Syrian beancaper  
*Zygophyllum fabago*



Water hyacinth  
*Eichhornia crassipes*



Water lettuce  
*Pistia stratiotes*



White bryony  
*Bryonia alba*



Woolly distaff thistle  
*Carthamus lanatus*



Yellow flag iris  
*Iris pseudacorus*



Yellow floatingheart  
*Nymphoides peltata*