



March 11, 2019

John Staight
Town of Eagle Open Space Coordinator
P.O. Box 609
Eagle, CO 81631-0609

RE: Haymeadow Restoration Success Criteria

Good Morning John,

Thank you for your careful review of the Restoration Plan for the School Parcel (Tract E), the Integrated Weed Management Plan, the Open Space Management Plan, and the Wetland Enhancement Plan prepared for the Haymeadow PUD. In response to your review comments, we are providing additional details that include a timeline and success criteria for weed management and ecological restoration activities described in these reports.

I). SCHOOL PARCEL - TRACT E

Restoration of the School Parcel, also known as Tract E, is addressed in detail in the September 2018 Ecological Restoration Plan prepared by Birch Ecology. This plan is designed to complement the Integrated Weed Management Plan, which provides specific recommendations for controlling noxious and troublesome weeds that are known to occur at Haymeadow.

TIMELINE. Restoration of the School Parcel will be initiated in the Spring of 2019. Our primary focus during the 2019 growing season will be to eradicate existing stands of state-listed noxious weeds and other undesirable vegetation, while depleting the weed seeds from the soil seed bank. The site will be treated with chemical herbicides, then tilled to induce seed germination, and then sprayed again to kill the germinating weeds. This process will be completed two or three times during the growing season, depending upon rainfall and other environmental factors that will affect the rate of seed germination and weed growth. After the soil has been thoroughly tilled, we will collect soil samples and submit them to a laboratory for agronomic testing. This will determine whether any fertilizer would be applied prior to seeding. In the fall, the seed bed will be prepared with granular mycorrhizae, and fertilized if necessary, then drill seeded with the seed mix contained in Table 4 of the Ecological Restoration Plan. Due to the presence of a weedy seed bank, the initial restoration seeding will include grasses but no forbs (wildflowers) to facilitate weed spraying during the first few growing seasons. After seeding, hydromulch will be applied to the restoration area at a rate of 3,000 pounds per acre.

During the 2020 growing season, we will continue to monitor the restoration area to check for weed growth and germination of the seed mix. Integrated weed management techniques will



be used to kill any noxious or undesirable weeds that either colonize the site or germinate from the soil seed bank. We are planning to minimize the use of herbicides through spot-spraying. However, if there is abundant weed growth, spot-spraying may not be feasible.

If there are areas that show poor germination of the seed mix, they will be overseeded to ensure a good initial grass cover is establishing across the restoration site. Overseeding would most likely occur by the fall of 2020, but could be completed at any time during the 2020 or 2021 growing seasons, as necessary. The Ecological Restoration Plan includes a list of recommended forbs in Table 5 which could be seeded into the site after the weed abundance is reduced, in order to create a more diverse plant community.

MONITORING. At the end of the 2019 growing season, an As-Built Assessment letter will be submitted to the Town to document the restoration and weed management activities completed on Tract E. At the end of the 2020 and 2021 growing seasons, annual reviews would be conducted and a brief monitoring letters would be provided to document the ongoing maintenance and enhancement activities, discuss the condition of the restoration area, evaluate the progress toward achieving the Success Criteria, and provide recommendations. We are proposing a qualitative monitoring program with visual estimates of plant cover and weed abundance, rather than collecting detailed vegetation cover data along quantitative vegetation monitoring transects.

SUCCESS CRITERIA. The following Success Criteria are performance standards designed to measure the initial progress of the restoration site during the first two growing seasons, 2020 and 2021. The criteria are designed to measure a standard that would be reasonably achievable during the first two years of a non-irrigated dryland restoration site in Eagle, Colorado.

The Tract E restoration will be considered successful when the following criteria are achieved:

- 1) There are no State of Colorado List A Noxious Weeds present in the restoration area.
- 2) There are no areas greater than 100 square feet which are dominated by State of Colorado List B and List C Noxious Weeds. Quackgrass (*Elytrigia repens*) will be excluded from this requirement, since it is abundant in the wetlands and irrigated areas of Haymeadow as well as the surrounding properties, and cannot be effectively eradicated. However due to the dry conditions on Tract E, quackgrass is not expected to become established in the restoration area.
- 3) The absolute cover of noxious weeds in the restoration area is less than 10%.
- 4) The seed mix has germinated across the site, producing an even, initial grass cover. There are no bare areas larger than 25 square feet which have not been overseeded by the end of the 2020 growing season.



- 5) There is no detrimental erosion within the restoration area. Any unstable or actively eroding areas have been stabilized with fabric, hydromulch, or other appropriate measures.
- 6) There are no areas greater than 100 square feet which are dominated by kochia (*Kochia scoparia*) or Russian thistle (*Salsola iberica*). These problematic weeds are no longer on the State of Colorado's Noxious Weed List but will be managed as such.

ONGOING STEWARDSHIP. After the 2021 growing season, Abrika Properties will manage the weeds in accordance with these Success Criteria until the Town of Eagle and/or School District take over maintenance as per the Annexation and Development Agreement.

II). PHASE I WETLAND ENHANCEMENT

The Phase I Wetland Enhancement Plan prepared by Birch Ecology documents the existing condition of the wetlands, provides a plan to restore and enhance the large wetland adjacent to the Phase I project area, and includes recommendations to control noxious weeds. The planting plan in Figure 5 of the Wetland Enhancement Plan specifies that 20 nursery-grown narrowleaf cottonwood trees, 100 nursery-grown riparian shrubs, and 500 locally-harvested willow cuttings would be planted in the wetland enhancement area adjacent to Brush Creek Road. The Integrated Weed Management Plan is intended to supplement the Wetland Enhancement Plan, and it provides specific details on controlling the noxious weeds which are known to occur in the wetland enhancement area.

TIMELINE. Willow cuttings must be planted in the early spring before the buds break and initiate growth for the year. It is anticipated that the willow planting for the Haymeadow Phase I wetland enhancement would occur in the spring of 2020, and the nursery-grown trees and shrubs would be planted later that summer in May or June. The nursery-grown trees and shrubs would be provided supplemental irrigation water during the first one or two growing seasons to ensure successful establishment. Once they are rooted in, irrigation should not be required.

MONITORING. At the end of the first growing season in the fall of 2020, an As-Built Assessment and first-year monitoring letter will be submitted to the Town. The letter will document the plantings and weed management activities completed in the restoration area and any required maintenance activities completed during the first growing season. The report will include an evaluation of the health and initial establishment rate of the willow cuttings and the nursery-grown trees and shrubs. The site will also be evaluated in accordance with the Success Criteria outlined below. Another annual review and accompanying letter report would be provided to the Town at the end of the 2021 growing season to document the survival rate for the wetland enhancement plantings and achievement of the other success criteria. A final assessment would be provided two years following planting, in the spring of 2022.



SUCCESS CRITERIA. The following Success Criteria are performance standards designed to measure the initial establishment of the wetland enhancement during the first two growing seasons, 2020 and 2021. Accordingly, the Success Criteria are geared towards measuring the two-year survival rate for the wetland enhancement plantings.

The Phase I Wetland Enhancement Plan will be considered successful when the following criteria are achieved:

- 1) There are no State of Colorado List A Noxious Weeds present in the restoration area.
- 2) There are no areas greater than 100 square feet which are dominated by State of Colorado List B and List C Noxious Weeds. Quackgrass (*Elytrigia repens*) will be excluded from this requirement, since it is abundant in the wetlands and irrigated areas of Haymeadow and cannot be effectively eradicated from the area.
- 3) Excluding quackgrass, the absolute cover of noxious weeds in the restoration area is less than 5%.
- 4) Existing Russian olive (*Elaeagnus angustifolia*) trees have been eliminated.
- 5) The survivorship of nursery-grown cottonwood trees is at least 90% two years after planting.
- 6) The survivorship of nursery-grown shrubs is at least 90% two years after planting.
- 7) The initial establishment rate of willow cuttings is at least 90% two years after planting.
- 8) There is no detrimental erosion within the restoration area. Any unstable or actively eroding areas have been stabilized with fabric, hydromulch, or other appropriate measures.

ONGOING STEWARDSHIP. After the Success Criteria are achieved, the riparian enhancement area will be maintained by the Haymeadow Metropolitan District and noxious weed management will continue in accordance with the Integrated Weed Management Plan.

III). WEED MANAGEMENT IN OPEN SPACES TO BE DEEDED TO THE TOWN

The Integrated Weed Management Plan prepared by Birch Ecology provides a detailed framework for managing the noxious weeds and other undesirable species that are known to occur on the Haymeadow Project Site.

TIMELINE. In order to develop a more specific list of priorities, an updated assessment and Weed Map will be prepared during the 2019 growing season. This inventory will result in a detailed GIS-based map which can be used to identify priority areas for treatment and the species of concern.



In addition, it can be a tool for ongoing weed management at the site, as a way to track treatment areas and measure their effectiveness.

Weed management will begin in the spring of 2019 and will continue throughout the growing season. Ongoing weed management activities will be completed in accordance with the recommendations contained in the Integrated Weed Management Plan and the updated weed inventory. It is expected that herbicide will be necessary to control existing stands of well-established weeds; however, through the effective use of integrated weed management techniques, the need for chemical herbicides should diminish over time. As overall weed abundance is reduced to a more manageable level, mechanical and cultural methods will play a more important role.

MONITORING. The Haymeadow Open Space Tracts will be regularly monitored to identify new stands of weeds and to evaluate the effectiveness of weed control treatments. As discussed above, the GIS-based Weed Map prepared during the weed inventory will be an important tool for managing weeds at Haymeadow. This map can be updated over time to track the effectiveness of weed control treatments and identify new and ongoing priority areas.

WEED MANAGEMENT OBJECTIVES. The following Weed management objectives are performance standards designed to measure the effectiveness of weed management techniques. They can be used to identify when more intensive management may be warranted. These standards will apply to Tracts OS-A, OS-B, E, and F. In addition, the level drainage bottoms and the toeslope and flat topography of Tracts OS-C and H would be included. Please note, it is not the intent of this plan to commit to controlling all of the existing weeds on the hilly topography of Tracts OS-C and H.

Weed Management Objectives for Haymeadow Open Space Tracts:

- 1) There are no State of Colorado List A Noxious Weeds present in the open space tracts when deeded to the Town of Eagle.
- 2) There are no areas greater than 100 square feet which are dominated by State of Colorado List B and List C Noxious Weeds. Quackgrass (*Elytrigia repens*) will be excluded from this requirement, since it is abundant in the wetlands and irrigated areas of Haymeadow and cannot be effectively eradicated from the area.
- 3) The absolute cover of noxious weeds in the open space dedications specified above is less than 5%.

ONGOING STEWARDSHIP. Once a parcel is deeded to the Town of Eagle, and the above three criteria are met for such parcel, weed management would become the responsibility of the Town.



SUMMARY

We hope these additional details will help to clarify the plan and intent of the restoration and weed management activities outlined in the Ecological Restoration Plan for the School Parcel (Tract E), the Phase I Wetland Enhancement Plan, and the Integrated Weed Management Plan for the Haymeadow PUD.

Please let us know if you require any further clarification.

Sincerely,

A handwritten signature in blue ink, appearing to read "Heather Houston", is positioned above the typed name.

Heather Houston
President and Senior Ecologist