NOXIOUS WEED MANAGEMENT PLAN

for

Falcon Field Mixed-Use Project
El Paso County, CO

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EXECUTIVE SUMMARY

Bristlecone Ecology, LLC ("B.E.") was retained by Falcon Field, LLC ("Applicant") to prepare a Noxious Weed Management Plan ("Plan") for the proposed Falcon Field mixed-use project ("Project"), in unincorporated El Paso County, Colorado. The Project would develop 20 mixed-use/commercial/retail lots on approximately 58 acres of undeveloped land southeast of the intersection of U.S. Highway 24 and East Woodmen Road.

This Plan is a Project-specific document that has been designed to set forth Project-level regulations to prevent and control the spread of noxious weeds within the Project area and vicinity. Noxious weeds are defined as those non-native plants that aggressively invade and are detrimental to native vegetation communities and ecosystems. The *Colorado State Noxious Weed Act* (Colorado Revised Statute 35-5.5-103) developed a list of plants considered noxious in the state of Colorado that should be targeted for control by various methods dependent on list category (A, B, or C). The Plan shall tier to the requirements set forth by the El Paso County (EPC) Noxious Weed Management Plan (2017a), which contains guidelines for control and treatment of noxious weeds found in the County. EPC requires that residential projects that include ground disturbing activities submit a project-specific noxious weed management plan. This Plan provides methods to prevent and control the spread of noxious weeds at construction and post-construction phases of the Project.

1.0 INTRODUCTION AND PROJECT LOCATION

Falcon Field, LLC ("Applicant") retained Bristlecone Ecology, LLC ("B.E.") to prepare a Noxious Weed Management Plan ("Plan") for the proposed Falcon Field mixed-use project ("Project") located in El Paso County (EPC), Colorado. The Project will consist of 20 mixed-use/commercial/retail lots, open space tracts, arterial roads, utilities, and other associated facilities and infrastructure. The Project is located on a 58-acre parcel southeast of the intersection of U.S. Highway 24 and East Woodmen Road (Figure I: *Project Location Map)*. The site is located in portions of Section 7, Township 13S, Range 64W, and can be found on the U.S. Geological Survey's (USGS) Falcon 7.5-minute quadrangle (USGS 2020). Parcel numbers for the site are 4307000001 and 43072000015. Elevations of the Project area range between approximately 6,800 and 6,870 feet above mean sea level (AMSL). Tributaries to Sand Creek which flow generally north-south through the property support a well-developed complex of wetlands and riparian vegetation.

The Project area is located in the Foothill Grasslands ecoregion near its intersection with the Pine-Oak Woodlands in Colorado (Chapman et al. 2006). Topography of the Project consists of flat to rolling foothills grasslands about four miles from the pine-oak woodlands of the Black Forest to the northwest. The Foothills Grasslands Ecoregion is composed of a mixture of tall and mid-grasses and isolated pine woodlands (Chapman et al. 2006). Dominant species include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and yellow Indiangrass (*Sorghastrum nutans*; Chapman et al. 2006). Several state-listed noxious weeds are present at the site, mostly scattered along wetland edges in low densities or small patches. Total noxious weed cover is approximately three percent east of the gulch and less than one percent west of the gulch. The most common noxious weeds are Canada thistle (*Cirsium arvense*) and Russian olive (*Elaeagnus angustifolia*). Common mullein (*Verbascum thapsus*) and musk thistle (*Carduus nutans*) also occur. Multiple large patches of non-native kochia that cover roughly 10 percent of the site. The kochia patches in uplands along the top of the gulch appear to have grown in areas that were disturbed by stormwater flooding or dumping of manure from the barn. There are also multiple patches farther west; one appears to be growing in an area of dumping and the others could be growing in areas disturbed by feeding cattle or subtle shifts in hydrology.

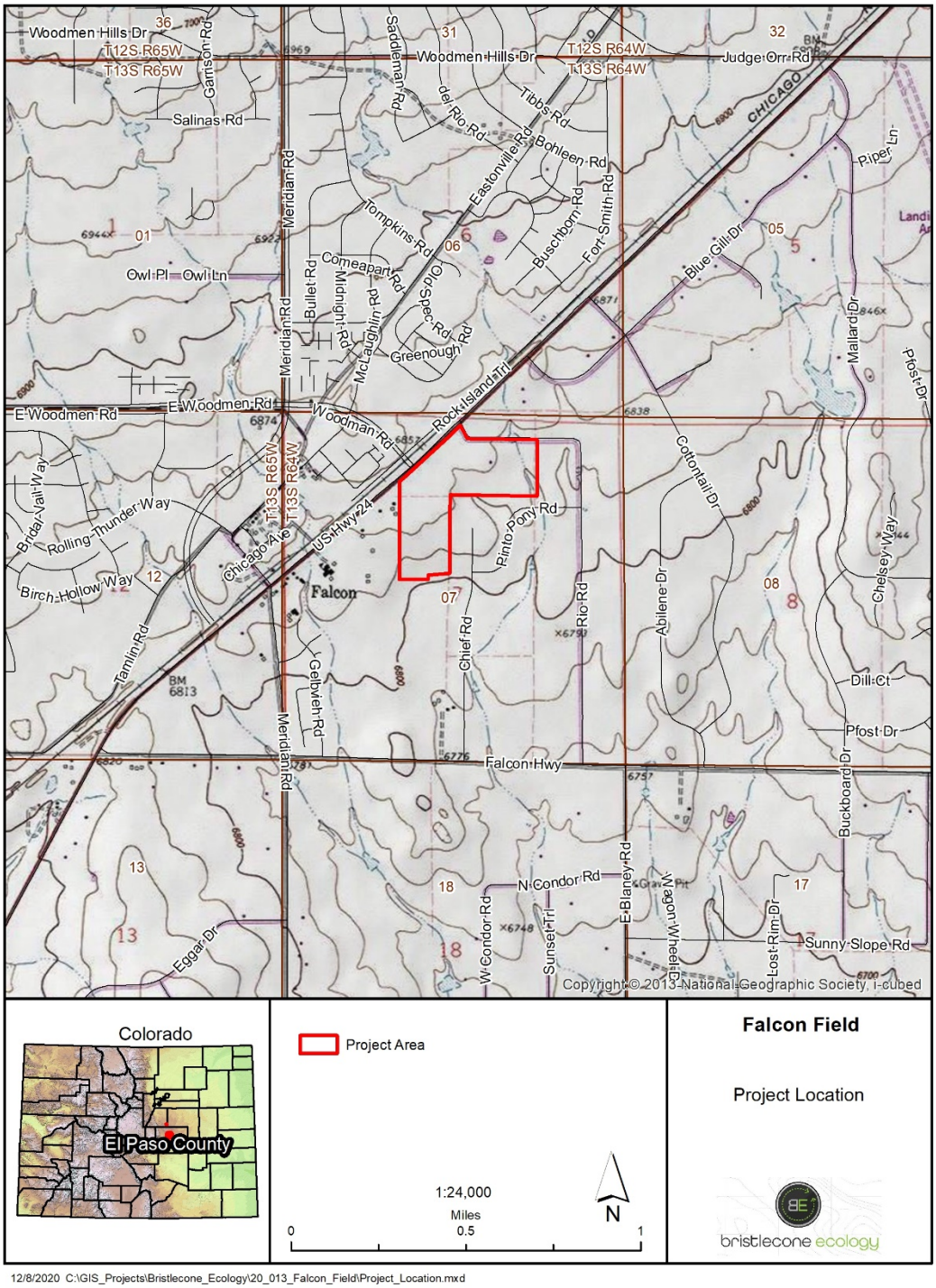

Figure 1: Project Location Map

2.0 NOXIOUS WEED MANAGEMENT BACKGROUND

The spread of invasive species roughly mirrors the rise in human travel and commerce (Mack *et al.* 2000 and Sheley *et al.* 1996). Many noxious weeds have been identified as aggressive, weather resistant, escaped ornamentals from residential landscapes (Westbrooks 1998). *The Federal Noxious Weed Act* (7 U.S.C. 2801 et seq.; 88 Stat. 2148) was enacted in 1975 in an effort to halt the spread of noxious weeds across the country. Following guidelines set forth by the *Federal Noxious Weed Act*, Colorado passed the *Colorado Noxious Weed Act* ("Act"; C.R.S. 35-5.5-103) in 1990. The Act identified noxious weeds particular to the landscape of Colorado. As defined in the Act, noxious weeds are any non-native plant that:

- aggressively invades or is detrimental to economic crops or native plant communities;
- is poisonous to livestock;
- is a carrier of detrimental insects, diseases, or parasites;
- or is detrimental, either by direct or indirect effects, to the environmentally sound management of natural or agricultural ecosystems.

The Act was amended in 2002 to require counties to establish individual management plans relevant to local municipalities. EPC developed the *El Paso County Noxious Weed Management Plan* in 2003 (updated in 2017) to identify county-level noxious weed management practices that would preserve the economic and environmental value of EPC lands (EPC 2017a).Disturbed areas are vulnerable to infestation from noxious weeds due to the aggressive nature by which noxious weeds can spread. Construction activities including clearing, grading, and excavation promote the establishment of noxious weed species before native vegetation can reestablish within the cleared area. As such, the *EPC Noxious Weed Management Plan* requires integrated management plans for any activities requiring dirt moving activities within El Paso County (EPC 2017a). Project-specific integrated management plans should include methods to prevent, control, and monitor the spread of noxious weeds and should take into account the multiple methods by which noxious weeds germinate. Annuals typically reproduce through seed which can easily attach to equipment during construction activities. Perennials often propagate through an extensive root system. Ground disturbing activities have the potential to redistribute root sections that could quickly propagate in other areas. Because of the multiple methods by which noxious weeds spread and propagate, integrated management plans should outline education and native revegetation methods, in addition to chemical control methods (EPC 2017a).

3.0 NOXIOUS WEED MANAGEMENT PLAN

3.1 Purpose and Goals

Construction of Project facilities will occur over several months. Upon completion of construction, the Project will consist of 20 mixed use/commercial/retail lots, open space tracts, arterial roads, utilities, and other associated facilities and infrastructure. It is anticipated that noxious weeds will concentrate along road medians and highly trafficked areas within the development areas. As such, this integrated management plan includes construction and maintenance methods to prevent, control, and monitor the spread of identified noxious weed populations within the Project. It will be the responsibility of the Applicant to establish regulations or covenants to prevent and control the spread of noxious weeds. Typically, a developer will contract a licensed herbicide applicator to seasonally survey and spray for noxious weeds throughout the development as necessary. Additionally, communal landscaped areas should be regularly mowed and treated for noxious weeds. Integrated management methods shall include the following:

- surveys to inventory and map established noxious weed populations;
- sharing of data with EPC to aid in county-level inventory;
- chemical treatment of all identified noxious weed populations;
- and periodic post-construction treatment as needed and as determined by the Applicant or other controlling entity.

Management methods identified within this Plan will comply with *Chapter 6: General Development Standards of the EPC Land Development Code* (EPC 2017b), the *EPC Noxious Weed Management Plan* (EPC 2017a) and the Act (Colorado Revised Statutes 35-5.5-103). Biological control methods are not included due to the prohibition of their use on plants targeted for eradication by the Colorado Weed Management Association (CWMA) (2015). Noxious weed species targeted would be those identified in the Act, with special consideration for those species listed in the *EPC Noxious Weeds and Control Methods* (EPC 2018).

3.2 Regulated Species

The Act identifies three levels of priority for control of noxious weeds throughout the State of Colorado ("State"). The CWMA maintains an updated list of noxious weeds known to occur in the State. CWMA also maintains a "watch list" of noxious weeds that occur in proximity to State borders and/or those species with a distribution that is not yet understood (**Appendix I**: *Colorado State Noxious Weed List*). List A noxious weeds are those species targeted for eradication. List A noxious weed populations are typically isolated in nature or rare throughout much of the State (*Colorado Revised Statutes 35-5.5-103*). Eradication and reporting of List A populations is required by law (Colorado Department of Agriculture [CDA] 2006). List B species are discretely distributed throughout the State and must be eradicated, contained, or suppressed (*Colorado Revised Statutes 35-5.5-103*). EPC requires control of all List B noxious weed populations located within the Project area (EPC 2017a). List C noxious weed populations are widespread and well established. EPC requires control of List C species through education of the public and/or chemical control (EPC 2017a).

3.3 Construction

Noxious weed management protocols during construction include prevention and treatment. Prevention and treatment shall be accomplished at the Project through surveys of construction easements, followed by primary chemical treatment. Initial inventory surveys shall occur separately from treatment, but both shall be completed before initial ground disturbing activities commence.

Noxious weed surveys shall be conducted within all construction easements prior to any ground disturbing activities. Surveyors shall use GPS units to collect data on noxious weed populations. Data collected for List C populations shall include species and general coordinates of the population; data collected for List A and List B populations shall include species, coordinates for the approximate center of each identified population, and the approximate radius of the infestation. EPC shall receive a map of identified noxious weed populations within the Project. Should surveyors locate List A species, the specific data collected shall be sent to EPC. Treatment type shall be selected depending on the priority rank of the noxious weed species (List A, B, or C), and the location and density of the infestation. Chemical treatment shall include herbicide application; the suggested chemical treatment protocol is described below.

List A species must be eradicated by law (USDA 2006). Should surveyors identify List A species, a plant sample shall be collected for positive identification through EPC's Environmental Division. Upon positive confirmation of a List A species, hand pulling of the population shall be performed to remove the mechanism for creation of a seed-bank. Chemical treatment shall be applied to the area and shall be selected in compliance with the *EPC Noxious Weeds and Control Methods* (EPC 2018).

List B species shall be chemically treated with an herbicide selected in compliance with the *EPC Noxious Weeds and Control Methods* (EPC 2018). Herbicide selection may vary depending upon the time of year and the life cycle of the plant. All herbicide application shall occur concurrent with initial ground disturbing activities. The herbicide applicator shall treat noxious weed populations with EPC recommended chemicals (EPC 2017a).

B.E. recommends not treating List C noxious weeds; List C noxious weeds are well established and difficult to treat since many have hardy seed beds that are not affected by herbicide application. Rather than completely eradicating List C populations, herbicide applicators manage populations with continued seasonal treatments. A more efficient protocol would be to avoid List C weeds to the greatest extent possible during construction. It is anticipated that the Applicant will treat all noxious or weedy species within development areas post-construction, including List C species, and will maintain a weed-free landscape within the Project.

Additional construction phase noxious weed management protocols shall include prevention and maintenance. Contractors shall prevent the spread of noxious weeds through the use of clean equipment and through treatment of all List A and List B populations concurrent with initial ground disturbing activities. Heavy equipment used on the site shall be washed and sprayed before mobilization on the Project. Doing so shall ensure that soils and seeds are not transported from other sites. Noxious weed treatment shall occur to areas slated for ground disturbance or immediately after initial ground disturbance activities. Doing so will ensure that active List A and

List B noxious weed populations will become inactive and/or effectively managed throughout the construction phase of the Project.

It is anticipated that portions of the Project will be landscaped, including open spaces. Top-soil sources for landscaped areas shall be provided from native, on-site top-soil. Any salvaged top-soil piles shall be treated for noxious weeds and maintained and protected from erosion and/or noxious weed establishment during construction through Best Management Practices (BMPs) identified in the Project's Grading, Erosion, and Sediment Control (GESC) Plan.

3.5 Post-Construction

Post-construction noxious weed management protocols shall be limited to maintenance treatment, as needed, and as determined by the Applicant or controlling entity. It is anticipated that the landscaped areas of the Project, including private lots, will require seasonal noxious weed treatment and maintenance. B.E. notes that any existing List A and List B noxious weed populations should be treated concurrent with construction. Treatment of the site concurrent with initial ground disturbing activities may halt the spread of List A and List B noxious weeds in the immediate vicinity of the Project. However, noxious weed populations may persist on the Project's periphery. It shall be the Applicant's responsibility to identify and treat any persistent noxious weed populations on the Project site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Noxious weeds are present on the Project site in several areas but in generally limited quantities. There were no large concentrations of noxious weeds, but scattered noxious weeds were found throughout various portions of the site. List B and List C Species that were detected during the site reconnaissance included:

List B

- Canada thistle
- Russian olive
- Musk thistle

List C

- Common mullein

It is possible that additional noxious weed populations may be present on the site. A site inventory to identify and map noxious weeds during the growing season would be required to accurately catalogue all populations on the site.

The Falcon Field Noxious Weed Management Plan was written to comply with guidelines in the Colorado Noxious Weed Act (Colorado Revised Statutes 35-5.5-103) and the EPC Noxious Weed Management Plan. B.E. recommends that the Applicant conduct surveys for all noxious weed populations and treat any List A and List B noxious weed populations located within the Project area. The Applicant (or other controlling entity should the responsibility for the Project change hands) shall be responsible for maintaining a weed-free property following construction. Typically, chemical treatment is applied between late spring and early fall depending on the recommended treatment protocols for each noxious weed species (EPC 2017a).

Should you have any questions regarding this or any other matter, please feel free to contact our office at (971) 237-3906.

Sincerely,
Bristlecone Ecology, LLC

Daniel Maynard
Owner/Ecologist

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APPENDIX I

COLORADO STATE NOXIOUS WEED LIST

Colorado Noxious Weeds (including Watch List), effective March 31, 2017

List A Species (25)

Common	*Scientific*
African rue	*(Peganum harmala)*
Bohemian knotweed	*(Polygonum x bohemicum)*
Camelthorn	*(Alhagi maurorum)*
Common crupina	*(Crupina vulgaris)*
Cypress spurge	*(Euphorbia cyparissias)*
Dyer's woad	*(Isatis tinctoria)*
Elongated mustard	*(Brassica elongata)*
Flowering rush	*(Butomus umbellatus)*
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 nigrescens)*
Mediterranean sage	*(Salvia aethiopis)*
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)*
Yellow starthistle	*(Centaurea solstitialis)*

List B Species (40)

Common	*Scientific*
Absinth wormwood	*(Artemisia absinthium)*
Black henbane	*(Hyoscyamus niger)*
Bull thistle	*(Cirsium vulgare)*
Bouncingbet	*(Saponaria officinalis)*
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, broad-leaved	*(Linaria dalmatica)*
Dalmatian toadflax, narrow-leaved	*(Linaria genistifolia)*
Dame's rocket	*(Hesperis matronalis)*
Diffuse knapweed	*(Centaurea diffusa)*

List B Species (40) continued

Common	Scientific
Eurasian watermilfoil	*(Myriophyllum spicatum)*
Hoary cress	*(Cardaria draba)*
Houndstongue	*(Cynoglossum officinale)*
Jointed goatgrass	*(Aegilops cylindrica)*
Leafy spurge	*(Euphorbia esula)*
Mayweed chamomile	*(Anthemis cotula)*
Moth mullein	*(Verbascum blattaria)*
Musk thistle	*(Carduus nutans)*
Oxeye daisy	*(Leucanthemum vulgare)*
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	*(Tripleurospermum perforata)*
Scotch thistle	*(Onopordum acanthium, O. tauricum)*
Spotted knapweed	*(Centaurea stoebe)*
Spotted x diffuse knapweed hybrid	*(Centaurea x psammogena = C. stoebe x C. diffusa)*
Sulfur cinquefoil	*(Potentilla recta)*
Wild caraway	*(Carum carvi)*
Yellow nutsedge	*(Cyperus esculentus)*
Yellow toadflax	*(Linaria vulgaris)*
Yellow x Dalmatian toadflax hybrid	*(Linaria vulgaris x L. dalmatica)*

List C Species (16)

Common	Scientific
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	*(Elymus repens)*
Redstem filaree	*(Erodium cicutarium)*
Velvetleaf	*(Abutilon theophrasti)*
Wild proso millet	*(Panicum miliaceum)*

Watch List Species (24)

Common	*Scientific*
Asian mustard	*(Brassica tournefortii)*
Baby's breath	*(Gypsophila paniculata)*
Bathurst burr, Spiney cocklebur	*(Xanthium spinosum)*
Brazilian egeria, Brazilian elodea	*(Egeria densa)*
Common bugloss	*(Anchusa officinalis)*
Common reed	*(Phragmites australis)*
Garden loosestrife	*(Lysimachia vulgaris)*
Garlic mustard	*(Alliaria petiolata)*
Himalayan blackberry	*(Rubus armeniacus)*
Hoary alyssum	*(Berteroa incana L.)*
Japanese blood grass/cogongrass	*(Imperata cylindrica)*
Meadow hawkweed	*(Hieracium caespitosum)*
Onionweed	*(Asphodelus fistulosus)*
Purple pampas grass	*(Cortaderia jubata)*
Scotch broom	*(Cytisus scoparius)*
Sericea lespedeza	*(Lespedeza cuneata)*
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)*