

Reserve at Hockett Gulch  
JHY Parcel  
Baseline Environmental Conditions Report  
Eagle County, Colorado



December 11, 2015



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*The purpose of this report is to identify the existing (baseline) environmental conditions specifically related to air quality, water resources, wetlands and riparian areas, wildlife and vegetation for a conceptual land use proposal on a parcel of land in consideration of the professional opinions of many parties. Not all specific environmental conditions, physical limitations, design stipulations, regulatory actions or other environmental conditions can be identified or verified as a result of this type of report.*

## **I. Project Introduction:**

BCP-Eagle I LLC, 1601 Arapahoe Street, Floor 11, Denver, Colorado 80202-2038 is the owner of Parcel #2109-053-00-002 near Eagle, Colorado. The property is approximately 29.652 acres, which defines the project site reviewed herein.

Baseline environmental conditions for the following natural resources have been evaluated in preparation for submittal to the Town of Eagle for zoning entitlement:

- Air Quality,
- Water Resources,
- Wildlife,
- Vegetation,
- Soils,
- Wildfire.

The project site is located within portions of Sections 5 and 6, Township 5 South, Range 84 West at an elevation of approximately 6,570 feet above sea level. The parcel is generally rectangular in shape, oriented in an east-west position. The project site is bordered by Highway 6 to the west, by the Green Acres Mobile Home Park to the north, by Town of Eagle open-space and Sylvan Lake Road to the east, and by private property to the south. The project site includes the toe slope of bluffs along the southern boundary, which face north and east towards a former hay field.

Limited existing improvements occur upon the project site. These include: a natural gas pipeline that transects the site, a high pressure gas booster station near the western corner of the parcel along US Highway 6, an active and mostly piped ditch which parallels along the northern boundary, a sewer main line which parallels along the northern boundary, and overhead electric line along the US Highway 6 boundary, and an inactive remnant ditch which runs approximately along the southern boundary, wooden fencing, and several dirt two-track drives that crisscross the site.

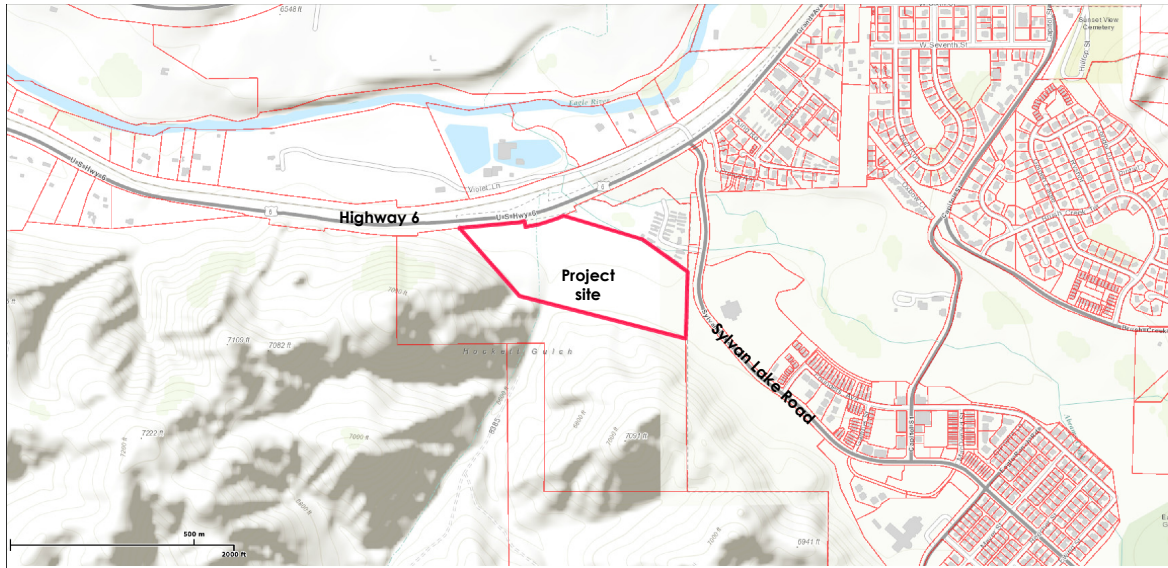


Figure 1. Project site vicinity map.

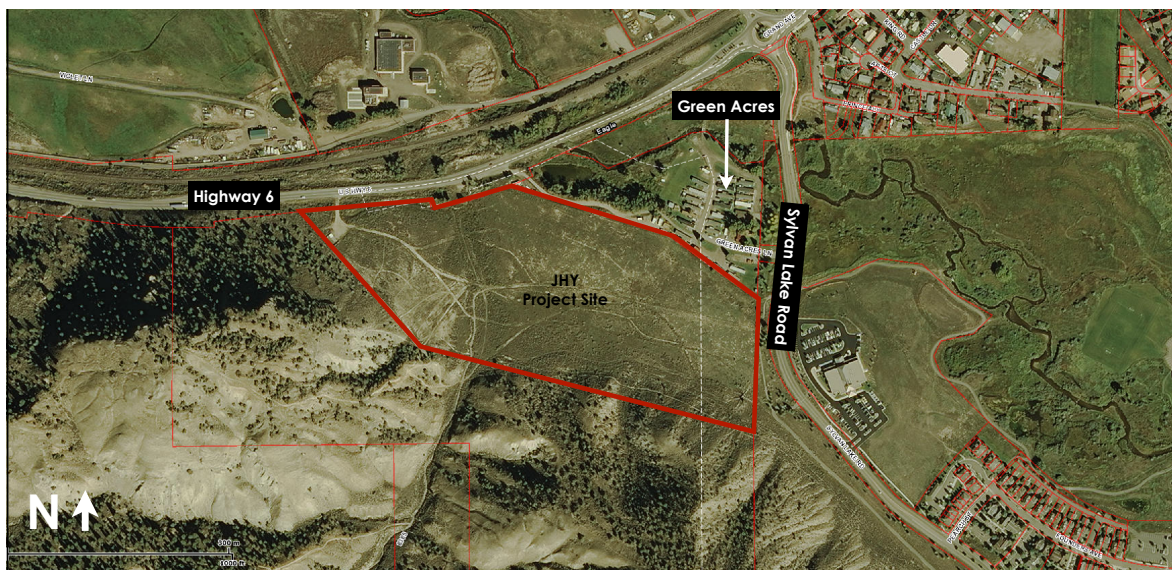


Figure 2. Aerial view of project site.

Climatic data for the project site is unavailable; however, values have been obtained at station EAGLE CO AP, COLORADO – 052454, located at 6,500 feet above sea level, 39°39' latitude and 106°55' longitude. This weather station is located about 4.3 miles west of the project site. The recorded mean annual precipitation is 10.88 inches and the mean annual temperature is 42.6° F, both values were averaged over 111 years of record (Western Regional Climate Center, 2015). Precipitation is relatively evenly distributed throughout the year, with slightly higher amounts occurring in July, August and September.

A site visit was conducted on July 31, 2015. Natural resources were generally characterized on the project site. A literature review was conducted to assist in characterizing the natural resources of the area. Numerous data sources were consulted including but not limited to:

- Colorado Parks and Wildlife (CPW) Natural Diversity Information Source (NDIS) maps,
- Colorado Department of Natural Resources (CDNR), Colorado Division of Water Resources (CDWR) Aqua Maps and permit records,
- U.S. Geologic Survey, Scientific Investigations Reports,
- Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division (APCD),
- CDPHE, Water Quality Control Commission (WQCC),
- U.S. Fish and Wildlife Service (USFWS).

The existing conditions of the natural resources are described based upon mapped data and field verification. Anticipated impacts to natural resources are generally identified; however, the exact development plan of the site is unspecified at this time thus constraining an exhaustive impacts evaluation. A preliminary zoning and development plan and preliminary site plan (included in Appendix A) have been prepared by the project planner and engineer, respectively, in order to generally estimate infrastructure costs and opportunities and constraints of future development of the site.

Therefore, this report based upon the understanding that the site will likely be developed as a mixed-use project including residential as well as commercial uses of up to a maximum of 300 dwelling units and 100,000 square feet of commercial. When preliminary development and site building plans are drafted, additional analysis of resource impacts may be required, as needed.

## **II. Air Quality:**

Although there is no weather station at or near the project site, the location likely experiences seasonal variation in microclimate depending upon area weather. The project site is affected by winds prevailing from the east, as measured at the Avon and Eagle County airport weather stations (Western Regional Climate Center, 2015).

The U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment, Air Pollution Control Division (CDPHE, APCD) has established air quality standards and regulations to protect public health and the environment of the State. The EPA has set standards consistent with the requirements of the National



Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called “criteria pollutants”. The six identified criteria pollutants include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO<sub>2</sub>), Ozone, Particle Pollution, and Sulfur Dioxide (SO<sub>2</sub>).

The project site is located in the ‘Central Mountains’ region for State Air Quality Planning purposes as designated by the APCD and the EPA, where ambient air concentrations of any designated pollutants are less than that specified in the NAAQS. The EPA classifies areas that violate the NAAQS for one or more of the criteria pollutants as non-attainment areas. According to the most recent Criteria Pollutant Area Summary Report, Eagle County is not classified or included in any non-attainment areas (APCD and EPA, 2015). The project site is in attainment for all NAAQS.

Two areas near the project site, Holy Cross Wilderness and Eagles Nest Wilderness, are classified by the EPA as requiring special protection of the air quality. Holy Cross Wilderness is approximately 23 miles from the project site and Eagles Nest Wilderness is approximately 32 miles.

No significant sources of air pollution are being proposed by the development. The air quality related effects of most concern associated with the development include:

1. Dust and equipment exhaust emissions generated during construction activities.
2. Effects due to increases in vehicular traffic.
3. Natural gas combustion associated with increased population.

Impacts associated with fugitive dust generated by construction should be minimized to the greatest extent practical by implementing Best Management Practices (BMP's) for dust suppression techniques during construction. Post-construction, disturbed areas should be reseeded or otherwise vegetated and temporary and/or permanent irrigation should be employed to establish reseeded or other landscaped areas. Operations of the proposed project do not anticipate any permanent impacts to air quality from daily operations.

The anticipated emissions generated by motor vehicles and natural gas combustion includes CO, NO<sub>x</sub>, volatile organic compounds (VOC), Particulate matter with an aerodynamic diameter less than 10 micrometers (PM<sub>10</sub>) and SO<sub>2</sub>. No specific air quality modeling or analyses have been conducted since specific densities and traffic analysis has not been identified for the proposal.

### III. Water Resources:

#### Surface Water

The primary natural hydrologic feature, which exists on the project site, is Hockett Gulch (Figure 3). The contributing drainage basin of Hockett Gulch is approximately 2.14 square miles. The headwaters for Hockett Gulch originate in the North Hardscrabble Mountain Range and are within the Eagle River and Upper Colorado River Drainage Basin (AMEC, 2014). Hockett Gulch flows in a northward direction, enters the project site from the hilly terrain to the south of the site, bisects the project site, and leaves the project site near the northern limits to its confluence with Brush Creek. The Hockett Gulch drainage is ephemeral, flows in response to storm events, and has a slightly defined shallow and broad channel through the site. No water was observed within Hockett Gulch at the time of the site visit.

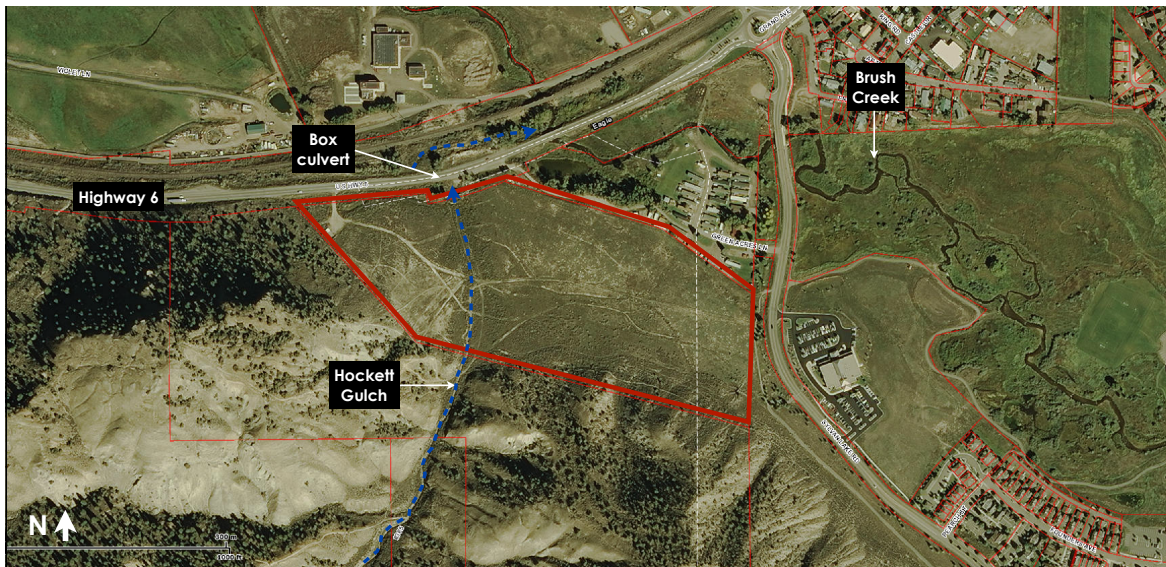


Figure 3. Surface waters in the vicinity of project site.

The U.S. Army Corps of Engineers has not made a jurisdictional determination of Hockett Gulch; however, it is reasonable to assume that it is a jurisdictional Water of the U.S. requiring protection under the Clean Water Act (CWA). The draft zoning and development plan proposes only one roadway crossing of Hockett Gulch for the primary east west collector road. If impacts to Hockett Gulch are proposed, the action will likely require Section 404 of the CWA permitting. No wetlands were identified during the preliminary site visit and the jurisdictional limits of Hockett Gulch have not been identified or flagged in the field. Development will affect natural hydrology and drainage from the site; impacts from urban runoff and stormwater should be clearly detailed through development plans



and provided adequate water quality treatment before infiltration and/or release to downstream areas, including Brush Creek and Hockett Gulch.

### **Groundwater**

The project site overlies the Eagle River watershed valley-fill aquifer (ERWVFA). The ERWVFA is documented by the USGS as having a high tendency for groundwater contamination (Rupert et al., 2009). The major contaminant includes elevated sulfate concentrations, which exceed the EPA National Secondary Drinking Water Regulations in many wells of western Eagle County. The naturally occurring Pennsylvanian aged gypsum deposit (the Eagle Valley Evaporite formation) is the dominant source of elevated sulfate concentrations within the ERWVFA. The Eagle Valley Evaporite is a commonly observed geologic condition associated within the region.

A Colorado Division of Water Resources (CDWR) groundwater well permitting records search was conducted for specific data associated with the parcel. One well permit (#0003313) application designated with municipal use was on record (Appendix C). The permit was denied on June 4, 1980 for numerous reasons including the possible injury to vested water rights as a result of developing the proposed. The proposed development of JHY parcel will utilize the Town of Eagle municipal water supply service as part of the annexation and zoning process.

Specific information regarding groundwater quality of the site was unavailable for review and no site-specific groundwater quality investigation has been performed. Additionally, no environmental site assessment identifying existing or potential contamination to soil or water resources has been conducted on the project site; therefore, groundwater quality cannot be accurately assessed as part of this report.

### **IV. Wildlife:**

The region around the project site is home to many large game wildlife species. Some of the wildlife with greatest implication includes American elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), and mountain lion (*Felis concolor*), among others.

The Colorado Parks and Wildlife (CPW) natural resource inventory maps have identified the entire extent or portions of the project site and vicinity for the following wildlife habitats:

- Bald eagle (*Haliaeetus leucocephalus*) winter range, roost sites, winter forage and limited summer forage,
- Greater sage grouse (*Centrocercus urophasianus*) historic habitat,

- Black Bear overall range,
- Elk summer range,
- Moose (*Alces alces*) overall range,
- Mountain lion overall range and in proximity of human conflict area,
- Mule deer overall range, summer range, limited winter range, and in proximity of highway crossing area.

The large game species wildlife habitat and use maps are included in Appendix D of this report. The mapped wildlife species and others reside in the surrounding area, and may find forage and protection on the project site.

Evaluation of wildlife impacts associated with the preliminary proposal has employed field reconnaissance and examined the current Colorado Parks and Wildlife (CPW) natural resource inventory maps. Specific impact analysis is inconclusive since development details are not available at this time; however, general wildlife impacts based on the preliminary site plan may include a combination of habitat loss, habitat fragmentation, interference with movement patterns, and disturbance from increased human activity or pets.

Anticipated wildlife impacts will be similar to impacts associated with the development of the adjacent Eagle Ranch PUD. A Wildlife Mitigation and Enhancement Plan (Plan) was adopted for the adjacent Eagle Ranch PUD in order to avoid or minimize impacts to the extent practicable and mitigate unavoidable impacts to wildlife. Generally, the Plan includes:

- Setbacks and limits on building envelopes,
- Seasonal use restrictions,
- Reclamation and landscaping,
- Dogs and pet control,
- Practices to minimize human-wildlife conflicts,
- Limits of barriers to wildlife movement,
- Protection of critical wildlife habitat,
- Preservation and management of open-space,
- Mitigation measures,
- Enforcement, and
- Education.

Greatest impacts to wildlife from the JHY proposal are most likely to occur from increased potential for human-wildlife conflict. Several mitigation measures are commonly enacted to reduce the potential for wildlife-human conflict. The following are guidelines utilized by surrounding areas, which can be adopted for the project to lessen the potential for wildlife-human conflict:

- Trash of all kinds, but especially food waste, should be kept in a building or a CDOW-approved bear-proof container.
- Trash should not be left outside overnight prior to collection.
- Pets should only be fed indoors or in a fully enclosed run.
- Composting of food waste should be prohibited.
- Hummingbird feeders should not be accessible from the ground.
- Barbeque grills, if outdoor, should be cleaned of food waste.
- During construction, food waste and construction waste should not be intermingled in the same debris box.
- Food wastes should be disposed of in a bear-proof container.

Further, the confinement or personal supervision of cats, small dogs and the like is recommended. Planting more deer-hardy plant materials is recommended to resist damage by deer and elk to landscape material. These preventative measures are commonly applied to reduce the potential for conflict. In addition, it is suggested that fencing on the project site that might inhibit or obstruct wildlife movement along or through the parcel is limited.

Additional investigation of wildlife impacts and mitigation measures is recommended to occur once a development plan is drafted. The build-out of the JHY parcel should at the minimum comply with the guidelines outlined above and/or develop a site specific Wildlife Mitigation and Enhancement Plan, in consultation with input from Colorado Parks and Wildlife, to avoid or minimize impacts to the extent practicable and mitigate unavoidable impacts to wildlife.

### ***Threatened, Endangered and Sensitive Wildlife***

The only threatened or endangered wildlife species identified as being known or expected to occur on the project site is the bald eagle. Bald eagles are a candidate species, which are known to occur within Eagle County with increased activity in winter months. Wintering bald eagles are likely irregular visitors along Brush Creek but more often frequent areas along the nearby Eagle and Colorado Rivers because they support ice-free conditions in some reaches. The open water allows bald eagles the opportunity to hunt for their preferred prey, fish and waterfowl.

Although the eastern approximately two-thirds of the project site has been mapped for bald eagle roosting sites, no large trees suitable for roosting exist. The potential roosting site is mapped because of the proximity to Brush Creek and the Eagle River. The project area may still be utilized by bald eagles for summer and winter forage. Impacts to forage areas should be assessed once a development plan is available.

## V. Vegetation:

Vegetation of the project site was evaluated by conducting a field survey and observing aerial imagery. General vegetation types of the project site include mixed mountain brush and dry meadow habitat types. The identified habitat types are based upon dominant species composition and structure.

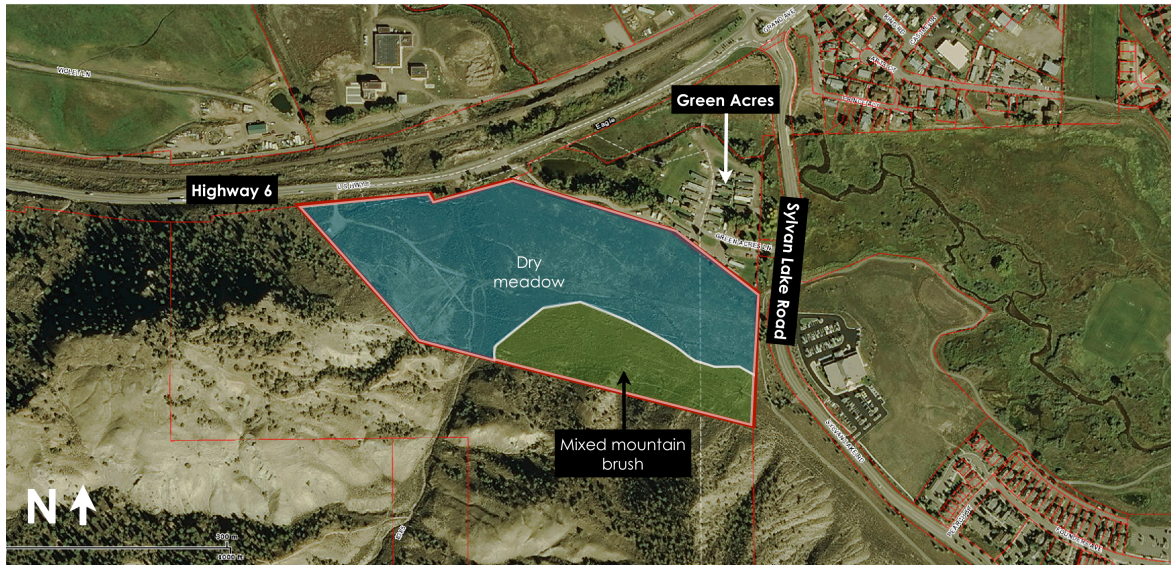


Figure 4. Vegetation types on the project site.

The project site was historically used as irrigated hay and pastureland as evidenced by the remnant ditch along the upper (southern) portion of the site and confirmation of typical hay grasses. Sparse upland grasses and forbs characterize the majority of the area. Shrubs including sagebrush (*Artemisia* spp.) and some juniper (*Juniperus* spp.) become evident along the northern portion of the site. The project site supports a limited variety of plant life and includes some and annual weeds.

A comprehensive list of the dominant plant species observed on the project site is contained in Table 1.

Table 1. Plant Species List, JHY Parcel, near Eagle, Colorado

Scientific Name	Common Name	Family	Origin
<i>Achnatherum hymenoides</i>	Indian ricegrass	Poaceae	Native
<i>Artemisia tridentata</i>	Big sagebrush	Asteraceae	Native
<i>Bromus inermis</i>	Smooth brome	Poaceae	Introduced
<i>Bromus tectorum</i>	Cheatgrass	Poaceae	Native
<i>Elymus elymoides</i>	Bottlebrush squirreltail	Poaceae	Native
<i>Ericameria nauseosa</i>	Rabbitbrush	Asteraceae	Native



Scientific Name	Common Name	Family	Origin
<i>Hesperostipa comata</i>	Needle and thread	Poaceae	Native
<i>Juniperus osteosperma</i>	Utah juniper	Cupressaceae	Native
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	Cupressaceae	Native
<i>Koeleria macrantha</i>	Prairie Junegrass	Poaceae	Native
<i>Pascopyrum smithii</i>	Western wheatgrass	Poaceae	Native
<i>Poa secunda</i>	Sandberg bluegrass	Poaceae	Introduced
<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	Poaceae	Native

### **Threatened, Endangered and Sensitive Vegetation**

The USFWS has identified two federally listed threatened plant species as potentially occurring in Eagle County, the Ute ladies' tresses orchid (*Spiranthes diluvialis*) and Penland alpine fen mustard (*Eutrema penlandii*). The Colorado Natural Heritage Program (CNHP) has documented 14 priority species of plants to occur within Eagle County. None of the identified priority species are federally recognized under the Endangered Species Act (ESA).

No search of CNHP database for global, federal and state threatened, endangered, and candidate plant species for the project site was conducted; however, the project site was evaluated for potential suitable habitat for the Ute ladies' tresses orchid and Penland alpine fen mustard by employing USFWS Survey Procedures.

Potential suitable habitat for Ute ladies' tresses orchid includes wide floodplains with associated wetlands. The project site does not contain suitable habitat for Ute ladies' tresses orchid. No Ute ladies' tresses orchid plants were identified during field survey conducted on July 31, 2015.

Potential suitable habitat for Penland alpine fen mustard includes alpine environments centered near the Mosquito Range. The project site does not contain suitable habitat for Penland alpine fen mustard and no plants were identified during field survey.

Harrington's penstemon (*Penstemon harringtonii*) is not listed as an endangered or threatened species under the Federal Endangered Species Act, although both the U.S. Forest Service and the U.S. Bureau of Land Management designate it as a sensitive species. As such, this plant is a tracked species by the CNHP. It is known to occur on dry sagebrush dominated communities and sometimes in association with pinyon-juniper

slopes near Eagle. No Harrington's penstemon plants were identified on the project site during field survey on July 31, 2015.

## **VI. Soils:**

The Natural Resource Conservation Service (NRCS) has mapped the soils of the toe slopes of bluffs along the southern portion of the site as Gypsum land-Gypsiorthids complex, 12 to 65 percent slopes. The Gypsum land-Gypsiorthids complex is composed of about 65 percent Gypsum land and 20 percent Gypsiorthids. This complex includes small areas of Torriorthents and Camborthids. The included areas compose about 15 percent of the total acreage. This soil type is typically found on hills, canyon side slopes, and along dissected drainageways. The parent material is gypsum and residuum and colluvium derived dominantly from mixed material with a very high content of gypsum. These soils are shallow to moderately deep and well drained with a moderate permeability. These soils are not included on the Hydric Soils of Colorado list.

The NRCS has mapped the soils within the majority of the site as Yamo loam, 6 to 12 percent slopes. The Yamo loam unit includes small areas of Forelle and Mussel soils and small areas of Gypsiorthids. The included areas compose about 20 percent of the total acreage. This soil type is typically found on fans and toe slopes. The parent material of the Yamo soil is colluvium derived dominantly from sandstone, shale, and gypsum. These soils are deep and well drained with a moderate permeability. These soils are not included on the Hydric Soils of Colorado list.

The NRCS has mapped the soils within a limited area along the northern boundary of the site as Redrob loam, 1 to 6 percent slopes. The Redrob loam unit includes small areas of Fluvaquents and Atencio, Axeltine, Showalter, and Morval soils. The included areas compose about 15 percent of the total acreage. This soil type is typically found on alluvial valley floors, low terraces, and floodplains. The parent material of the Redrob soil is alluvium derived dominantly from sandstone and shale. These soils are deep and somewhat poorly drained with a moderate permeability. These soils are included on the Hydric Soils of Colorado list.

H-P Geotech (2015) conducted a Preliminary Geotechnical Study for the JHY parcel in order to evaluate the general geologic and subsurface conditions with respect to the proposed construction and their potential impacts. cursory field reconnaissance and exploratory borings were conducted to obtain information on site and subsurface conditions. The subsoil samples were tested in order to determine their classification, compressibility or swell and other engineering characteristics. Potential geologic hazards that could impact the site include debris flow and



flooding from Hockett Gulch, hydro-compressive alluvial fan and colluvial deposit soils, and the potential for sinkhole development from possible voids in the underlying evaporite bedrock. Preliminary recommendations, which consider the potential geologic hazards, have been made. The preliminary recommendations included foundation, floor slabs, drainage system, site grading, and roadway pavement design. Site-specific subsoil studies are recommended for individual subdivision, lot and/or building development. A swale or berm is indicated on the preliminary site plan prepared by Alpine Engineering (Appendix A) to mitigate small debris flows, which may require further study and design by the geotechnical engineer.

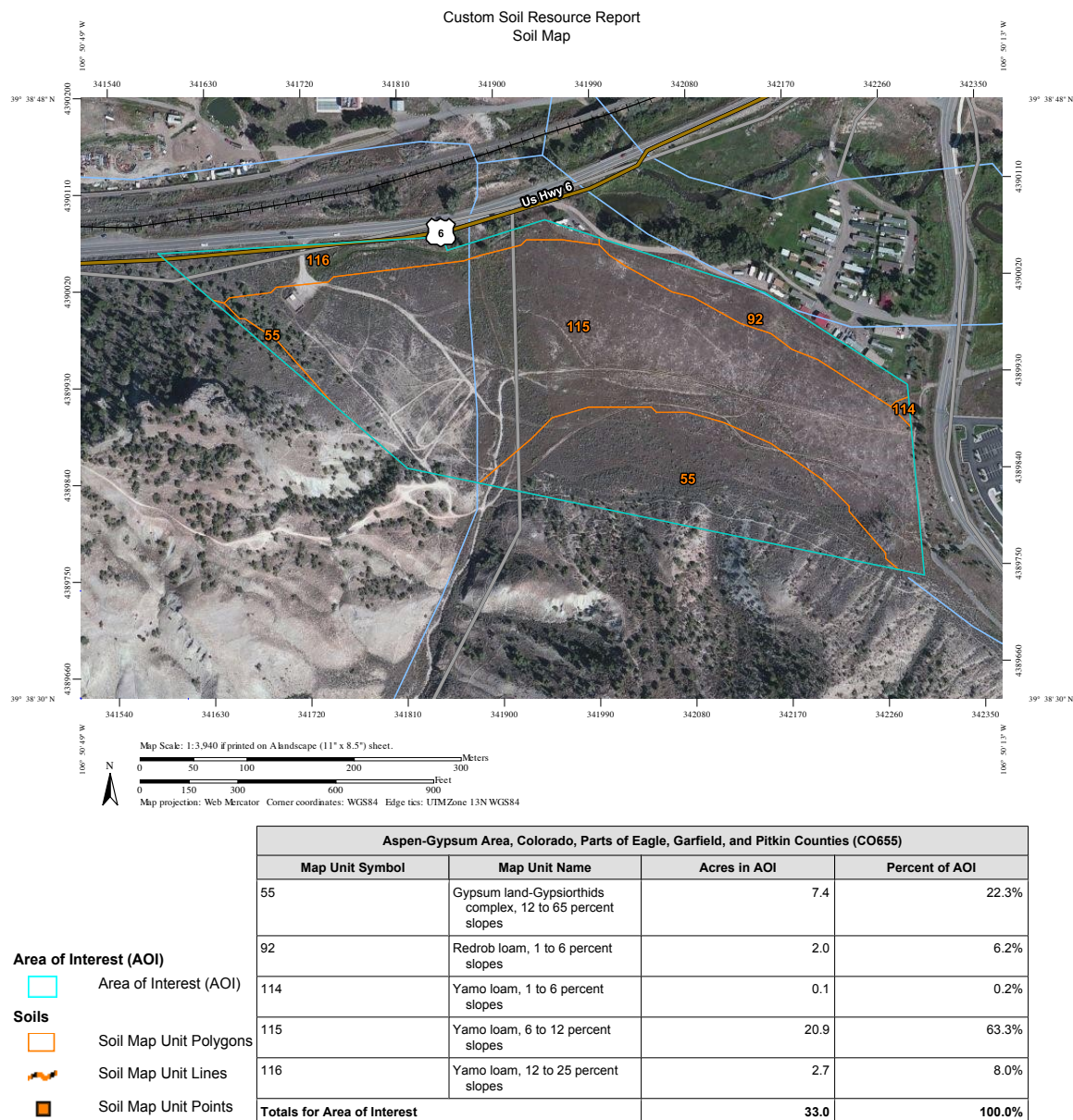


Figure 5: Soils map (NRCS, 1992).

## **VII. Wildfire:**

During the summer of 2015, Eagle County contracted a company to map the wildfire hazard on all private lands in unincorporated Eagle County. The entire extent of the JHY parcel was mapped as Moderate Hazard (Appendix E). The fuels that are located on the parcel, which contribute to the Moderate Hazard rating consists of dense sagebrush ranging for about 3 to 5 feet in height.

The County has adopted construction guidelines for wildfire hazard areas. It is recommended that the project incorporate guidelines to minimize the risk of wildfire hazard once a site development plan is established for construction. Fire safety should be taken into consideration and the developer should coordinate any wildfire mitigation (as may be required) with the Greater Eagle Fire Protection District and Town of Eagle.

## **VIII. References:**

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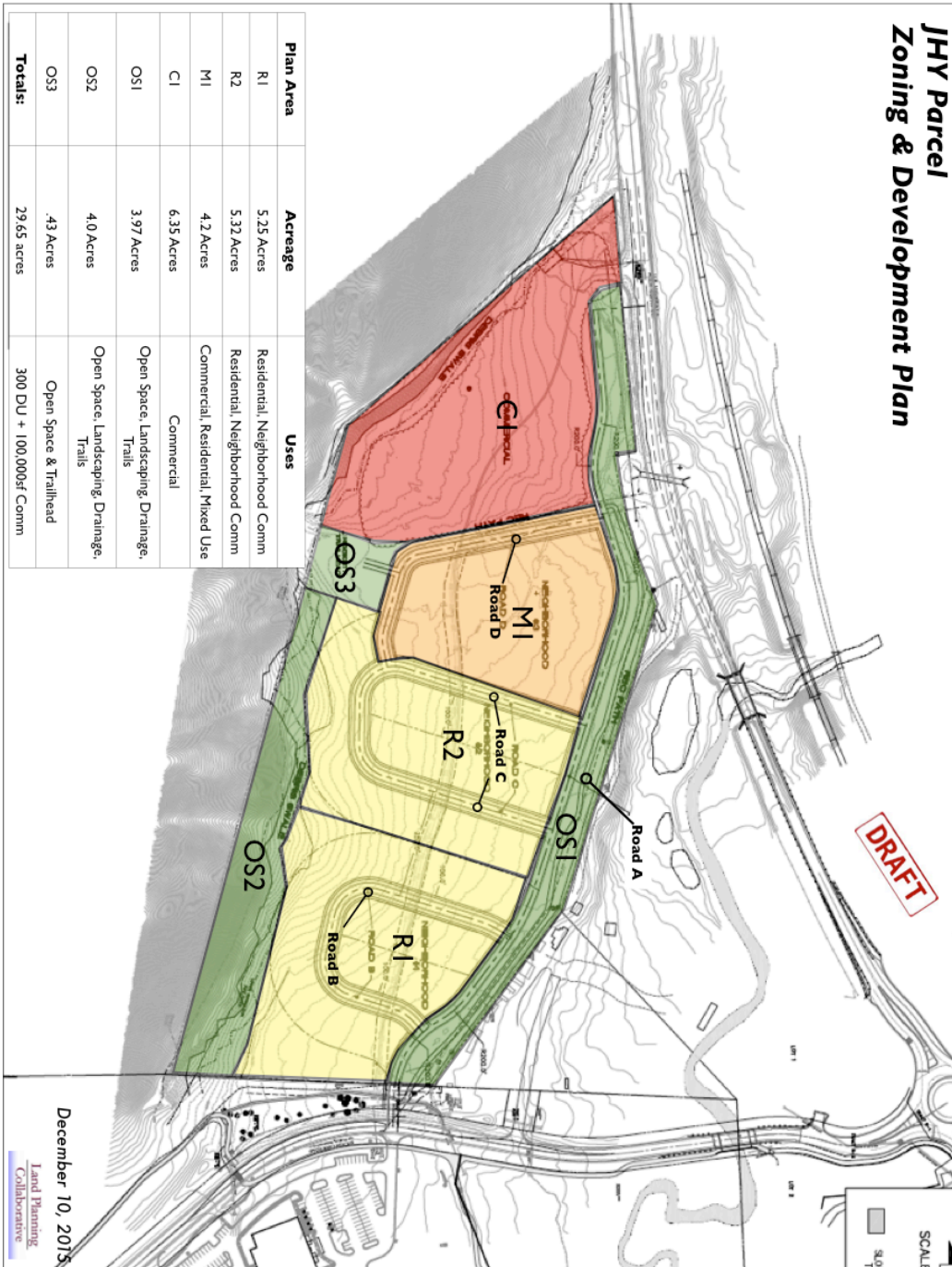
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- USDA, NRCS 2000. Hydric Soils of the United States (<http://www.statlab.iastate.edu/soils/hydric/>). Iowa State University Statistical Laboratory.
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- Western Regional Climate Center 2015. ([www.wrcc.dri.edu](http://www.wrcc.dri.edu)). 2215 Raggio Parkway Reno, Nevada 89512.

Appendix A  
Zoning and Development Plan &  
Preliminary Site Plan

# JHY Parcel Zoning & Development Plan

**DRAFT**









Appendix B  
Colorado Division of Water Resources  
Well Permit

Well Permit 8682 - AD -

Receipt: 0003313

Well Location: S 5 S 84 W 5 SW NW

Owner: JHY ASSOCIATES

Receipt



0003313

Permitno



8682

permitsuf



AD

permitrpl



-999

gw\_controller\_num



27423



99999999

Page Number: 8380

WRJ-5-74

**APPLICATION DENIED; FILE NO. AD-8682**  
**COLORADO DIVISION OF WATER RESOURCES**  
 101 Columbine Bldg., 1845 Sherman St., Denver, Colorado 80203

**RECEIVED** 3FK  
 APR 07 1980

**PERMIT APPLICATION FORM**

Application must be complete where applicable. Type or print in **BLACK INK**. No overstrikes or erasures unless initialed.

( ) A PERMIT TO USE GROUND WATER  
 (X) A PERMIT TO CONSTRUCT A WELL  
 FOR: ( ) A PERMIT TO INSTALL A PUMP

( ) REPLACEMENT FOR NO. \_\_\_\_\_

( ) OTHER \_\_\_\_\_

**WATER RESOURCES**  
**DIVISION**  
**OFFICE**

**(1) APPLICANT - mailing address**NAME JHY AssociatesSTREET P.O. Box 2041CITY Vail, Colorado 81657  
(State) (Zip)TELEPHONE NO. 949-4824**(2) LOCATION OF PROPOSED WELL**County Eagle

NW 1/4 of the SW 1/4, Section 5  
 Twp. 5 S, Rng. 84 W, 6th P.M.

**(3) WATER USE AND WELL DATA**Proposed maximum pumping rate (gpm) 1,000Average annual amount of ground water to be appropriated (acre-feet): 60Number of acres to be irrigated: 15Proposed total depth (feet): 10

Aquifer ground water is to be obtained from:

Alluvium of Brush CreekOwner's well designation JHY Assoc. Well No. 1**GROUND WATER TO BE USED FOR:**

( ) HOUSEHOLD USE ONLY - no irrigation (0)  
 ( ) DOMESTIC (1) ( ) INDUSTRIAL (5)  
 ( ) LIVESTOCK (2) ( ) IRRIGATION (6)  
 ( ) COMMERCIAL (4) (X) MUNICIPAL (8)  
 ( ) OTHER (9) \_\_\_\_\_

**(4) DRILLER** Infiltration gallery adjacent to Brush Creek to be constructed by JHY Assoc. personnel or a contractor retained by JHY Assoc. No drilling is anticipated.

Street \_\_\_\_\_

City \_\_\_\_\_  
(State) (Zip)

Telephone No. \_\_\_\_\_ Lic. No. \_\_\_\_\_

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. 3213 25

Basin \_\_\_\_\_ Dist. \_\_\_\_\_

**CONDITIONS OF APPROVAL**

This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of the permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.

**APPLICATION DENIED; FILE NO. AD-8682**  
**APPLICATION APPROVED** 5-18-85

PERMIT NUMBER \_\_\_\_\_

DATE ISSUED \_\_\_\_\_

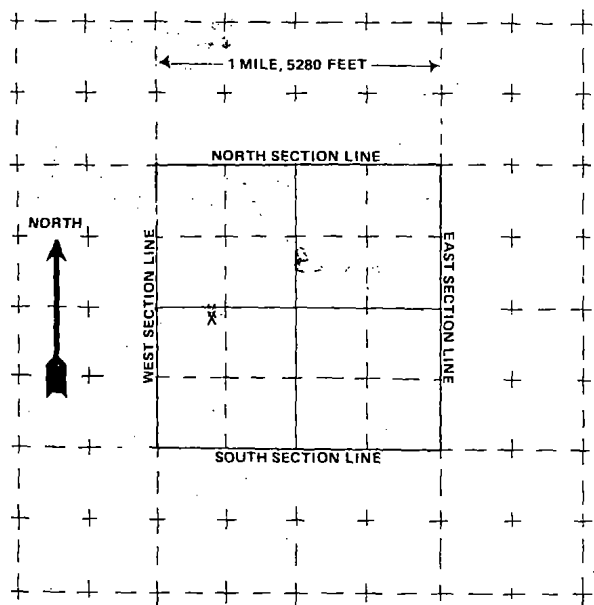
EXPIRATION DATE \_\_\_\_\_

(STATE ENGINEER)

BY \_\_\_\_\_

I.D. 5-37 COUNTY 19

(5) **THE LOCATION OF THE PROPOSED WELL** and the area on which the water will be used must be indicated on the diagram below. Use the **CENTER SECTION** (1 section, 640 acres) for the well location.



The scale of the diagram is 2 inches = 1 mile  
Each small square represents 40 acres.

**WATER EQUIVALENTS TABLE (Rounded Figures)**

- An acre-foot covers 1 acre of land 1 foot deep
- 1 cubic foot per second (cfs) . . . 449 gallons per minute (gpm)
- A family of 5 will require approximately 1 acre-foot of water per year.
- 1 acre-foot . . . 43,560 cubic feet . . . 325,900 gallons.
- 1,000 gpm pumped continuously for one day produces 4.42 acre-feet.

(6) **THE WELL MUST BE LOCATED BELOW** by distances from section lines.

2,840 ft. from North sec. line  
(north or south)  
1,140 ft. from West sec. line  
(east or west)  
LOT \_\_\_\_\_ BLOCK \_\_\_\_\_ FILING # \_\_\_\_\_  
SUBDIVISION \_\_\_\_\_

(7) **TRACT ON WHICH WELL WILL BE LOCATED** Owner: Stephen E. Greenlaw

No. of acres 8.716 Will this be the only well on this tract? no

(8) **PROPOSED CASING PROGRAM**

Plain Casing  
8 in. from 0 ft. to 8 ft.  
in. from ft. to ft.  
Perforated casing  
infiltration pipe with laterals  
8 in. from 8 ft. to 10 ft.  
in. from ft. to ft.

(9) **FOR REPLACEMENT WELLS** give distance and direction from old well and plans for plugging it:

(10) **LAND ON WHICH GROUND WATER WILL BE USED:**

Owner(s): JHY Associates No. of acres: 30  
Legal description: NW 1/4 of SW 1/4 of S5 and NE 1/4 of SE 1/4 of S6, T5S, R84W, 6th P.M.

(11) **DETAILED DESCRIPTION** of the use of ground water: Household use and domestic wells must indicate type of disposal system to be used.  
See attached sheet

(12) **OTHER WATER RIGHTS** used on this land, including wells.

Type or right	Used for (purpose)	Description of land on which used
0.5 cfs of Ditch No. 3	Irrigation	same as (10) above
to be used in plan for augmentation		

(13) **THE APPLICANT(S) STATE(S) THAT THE INFORMATION SET FORTH HEREON IS TRUE TO THE BEST OF HIS KNOWLEDGE.**

J.H.Y. Associates Stephen E. Greenlaw Bill York J.H.Y. Associates  
SIGNATURE OF APPLICANT(S)

Use additional sheets of paper if more space is required.

RECEIVED

APR 07 1980

WATER RESOURCES  
ENGINEER  
COLORADO

(11) DETAILED DESCRIPTION

The well (infiltration gallery) will be used as a water supply for 70 housing units consisting of single and multiple family dwellings to be constructed on the JHY Associates property. Water will be pumped from the well adjacent to Brush Creek to a treatment facility and storage tank. The water will be supplied for in-house use, lawn and greenbelt irrigation, and fire fighting purposes. The total lawn and greenbelt area is estimated to be 15 acres or less. A sewer line will be installed to the Eagle Sanitation District sewage treatment plant.

DIVISION OF WATER RESOURCES  
STATE ENGINEER'S OFFICE  
DENVER, COLORADO

Received of JHY Associates  
Address (W. W. Wheeler Drive)  
Amount Received \_\_\_\_\_ Dollars \$ 25.00

Date 4-7, 1988 RECEIPT NO 03313

PLEASE REFER TO RECEIPT NO. WHEN MAKING INQUIRY			
Other	License	Sale of Book or Map	Livestock Application
<input checked="" type="checkbox"/> Replace. & Reloc.	<input type="checkbox"/> Rig	<input type="checkbox"/> Copy of Records	<input type="checkbox"/> Erosion Application
<input type="checkbox"/> Construction	<input type="checkbox"/> Change of Record	<input type="checkbox"/> Micro-Film Copy	<input type="checkbox"/> Plans & Specifications
<input type="checkbox"/> Late Registration	<input type="checkbox"/> Objection	<input type="checkbox"/> Computer Services	<input type="checkbox"/> Dam Inspector Fee
<input type="checkbox"/> Final			

State Engineer \_\_\_\_\_  
By Alene Check No. 2906 Cash \_\_\_\_\_ M.O. \_\_\_\_\_  
RECEIPT COPY



RICHARD D. LAMM  
Governor



J. A. DANIELSON  
State Engineer

**DIVISION OF WATER RESOURCES**

Department of Natural Resources  
1313 Sherman Street - Room 818  
Denver, Colorado 80203  
Administration (303) 839-3581  
Ground Water (303) 839-3587

June 4, 1980

J. H. Y. Associates  
P.O. Box 2041  
Vail, CO 81657

FILE NO: AD-8682

Gentlemen:

The subject application for a permit to construct a well has been denied and enclosed is the Order of the State Engineer as well as a copy of the denied application.

In making inquiries regarding this denial, please contact Mr. Ralph Stallman of this office and refer to the file number shown above.

Very truly yours,

Bruce E. DeBrine  
Deputy State Engineer  
Ground Water Section

BED/RAS:ew  
Encls.

BEFORE THE STATE ENGINEER  
DIVISION OF WATER RESOURCES  
STATE OF COLORADO

FILE NO: AD-8682

IN THE MATTER OF AN APPLICATION OF J. H. Y. ASSOCIATES FOR A PERMIT TO CONSTRUCT A WELL (INFILTRATION GALLERY) IN THE ALLUVIUM OF BRUSH CREEK IN WATER DIVISION NO. 5, EAGLE COUNTY, COLORADO	} } } } } }	} REPORT, FINDINGS, AND ORDER } } OF THE STATE ENGINEER
--	----------------------------	---

REPORT

On April 7, 1980, J. H. Y. Associates, P.O. Box 2041, Vail, Colorado, 81657, filed an application for a permit to construct a well (infiltration gallery) in the NW 1/4 of the SW 1/4 of Section 5, Township 5 South, Range 84 West of the 6th Principal Meridian, for the purpose of diverting ground water at a rate of 1,000 gallons per minute from the alluvium of Brush Creek to irrigate 15 acres and for municipal purposes, with an estimated average annual appropriation of 60 acre-feet.

INFORMATION PROVIDED BY THE APPLICANT

1. The well is proposed for a site in Eagle County consisting of 8.716 acres.
2. The well will be an infiltration gallery adjacent to Brush Creek to be constructed by J. H. Y. Associates. No drilling is anticipated.
3. The well will be constructed as a infiltration pipe with laterals to a depth of 8 feet to 10 feet and will produce water from the alluvium of Brush Creek.
4. The proposed water supply would be used to serve 70 housing units consisting of single and multiple family dwellings.
5. A letter of explanation was attached to the application and is a part of this denial. See attached.
6. The applicant owns 0.5 cfs of ditch No. 3 rights which is to be used in a plan for augmentation.

DATA DETERMINED BY THIS OFFICE

1. The application was submitted pursuant to Section 37-90-137, C.R.S. 1973.
2. That the water produced from this well would be hydraulically connected to and would influence the rate or direction of movement of water in the Brush Creek and Eagle River system.
3. The Brush Creek and Eagle River system is over-appropriated and is administered at this time.
4. No evidence of nor augmentation plan was submitted by the applicant to remedy possible injury to vested water rights.

#### FINDINGS

Having reviewed the proposed well permit application and the general area involved, the State Engineer finds as follows:

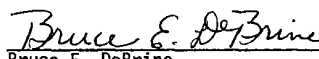
1. That the proposed location of the subject well in the NW 1/4 of the SW 1/4 of Section 5, Township 5 South, Range 84 West of the 6th Principal Meridian, is outside of a designated ground water basin and the State Engineer has jurisdiction.
2. That the Brush Creek and Eagle River system is over-appropriated and is administered at this time.
3. That ground water produced by the proposed well will be hydraulically connected to and can influence the rate or direction of movement of water in the Brush Creek and Eagle River system.
4. No approved augmentation plan was submitted by the applicant to remedy possible injury to vested water rights.
5. The list of water rights indicates that sufficient surface water rights may exist to exchange for underground rights. However, this office does not have the authority to consider an exchange.
6. That pursuant to Section 37-90-137, C.R.S. 1973, the State Engineer has made a determination that the exercise of the requested permit would divert water hydraulically connected to the Brush Creek and Eagle River systems and would therefore materially injure the senior vested water rights of others.

#### ORDER

NOW THEREFORE IT IS ORDERED that the application of J. H. Y. Associates to construct an infiltration gallery in the NW 1/4 of the SW 1/4 of Section 5, Township 5 South, Range 84 West of the 6th Principal Meridian, is hereby denied.

Ordered this 7<sup>th</sup> day of June, 1980.

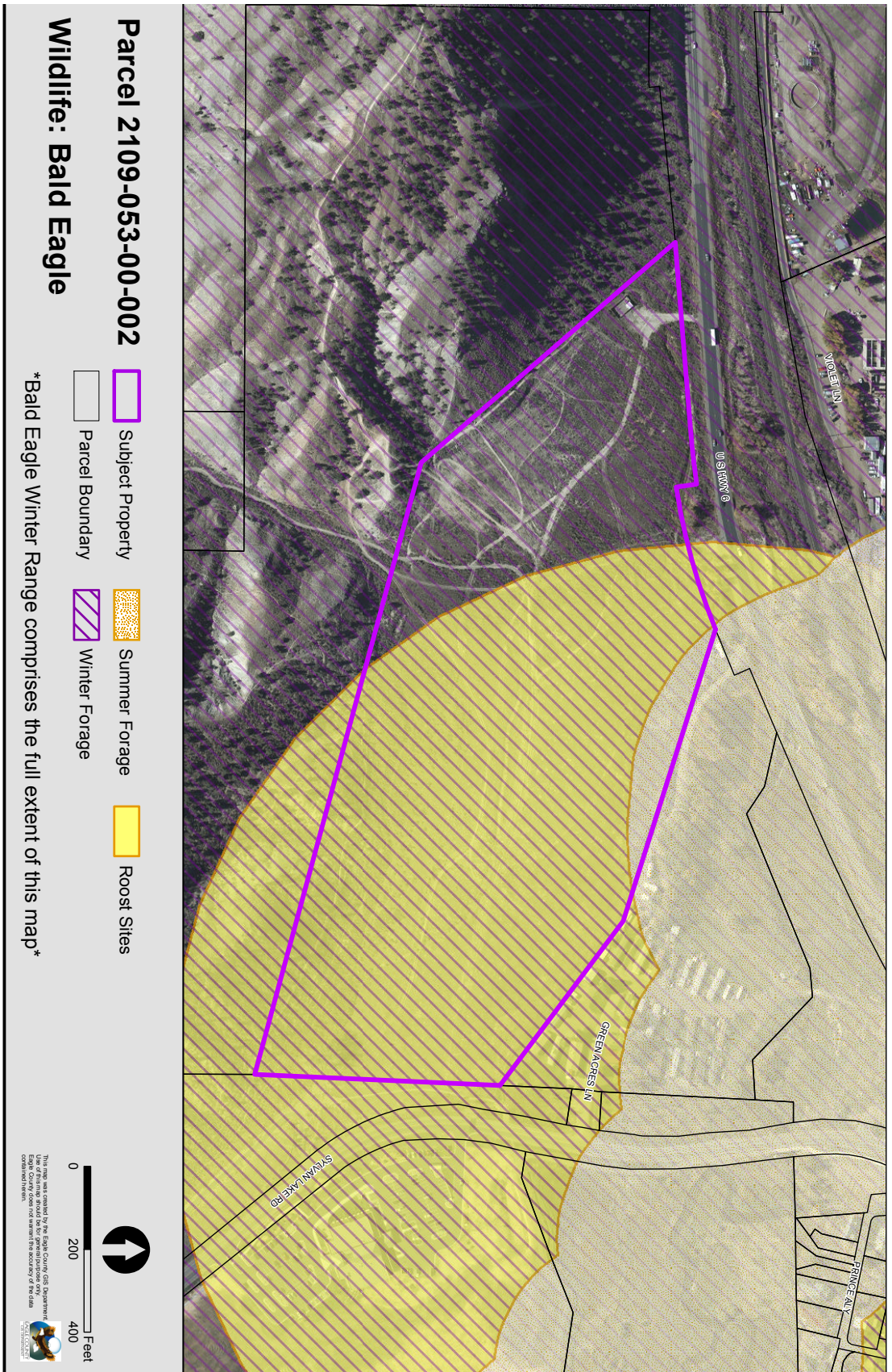
  
Jeris A. Danielson, P.E.  
State Engineer

By:   
Bruce E. DeBrine  
Deputy State Engineer

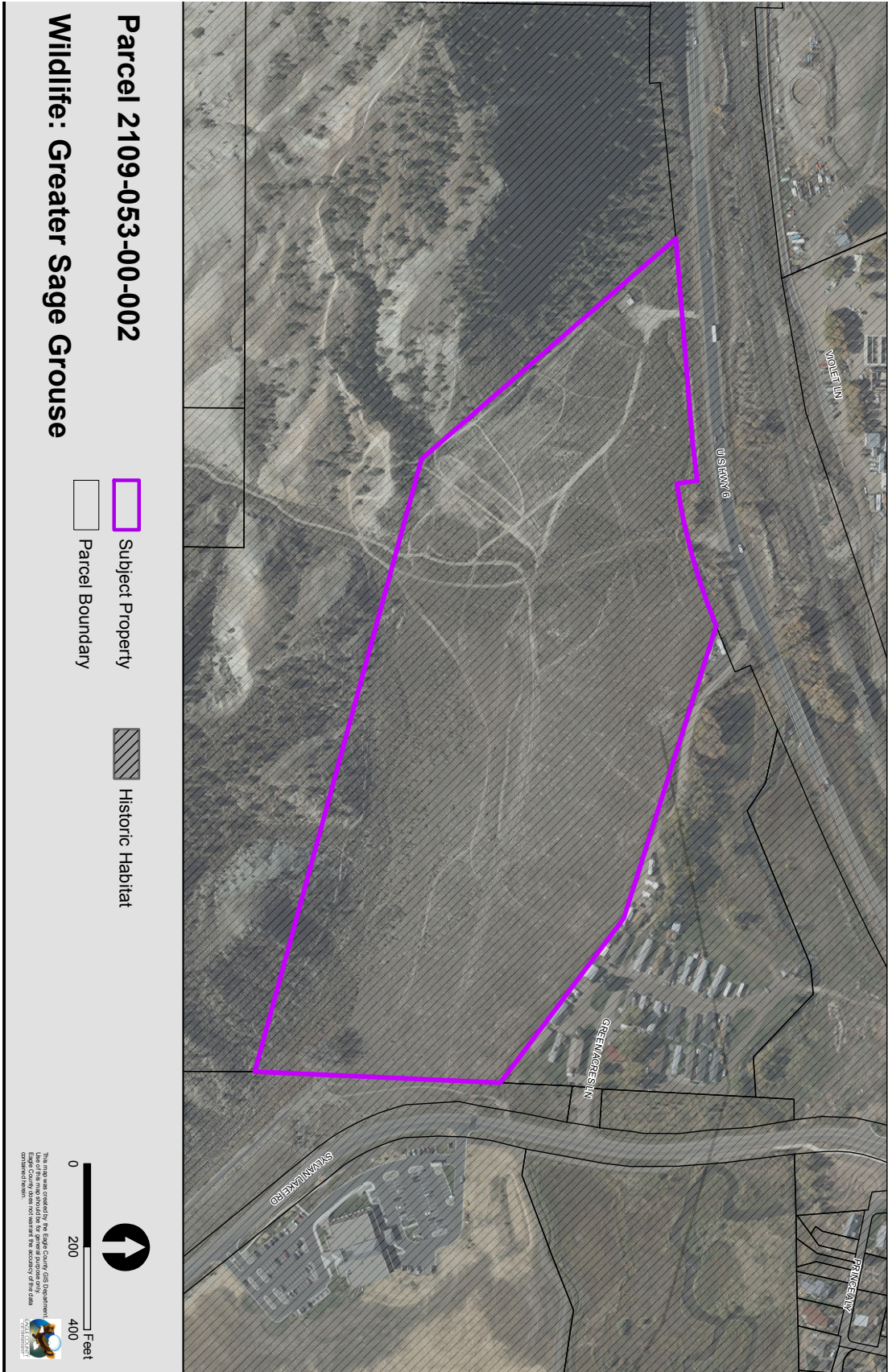
## Appendix C

### Colorado Parks and Wildlife Large Game Species Wildlife Maps

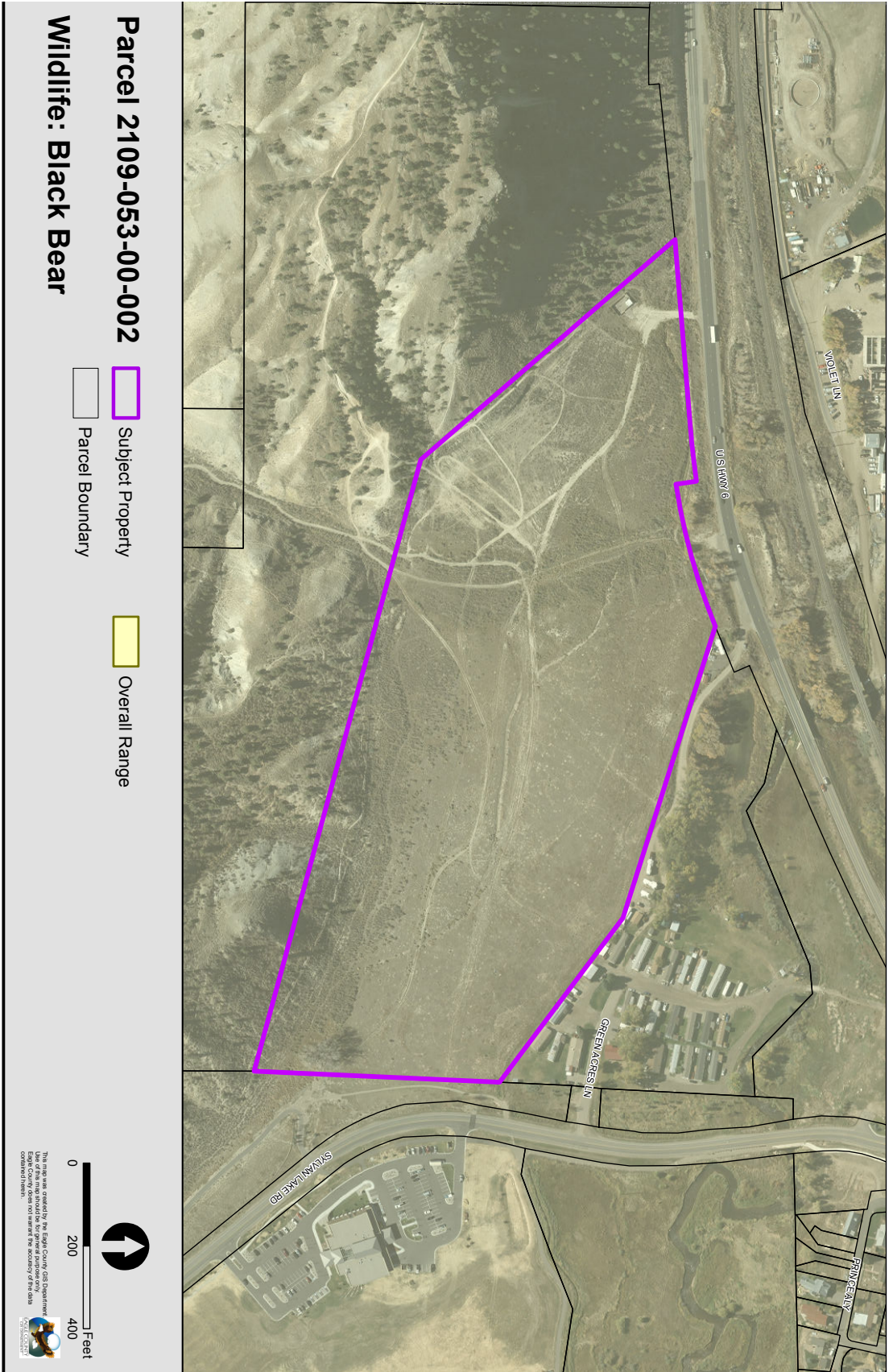




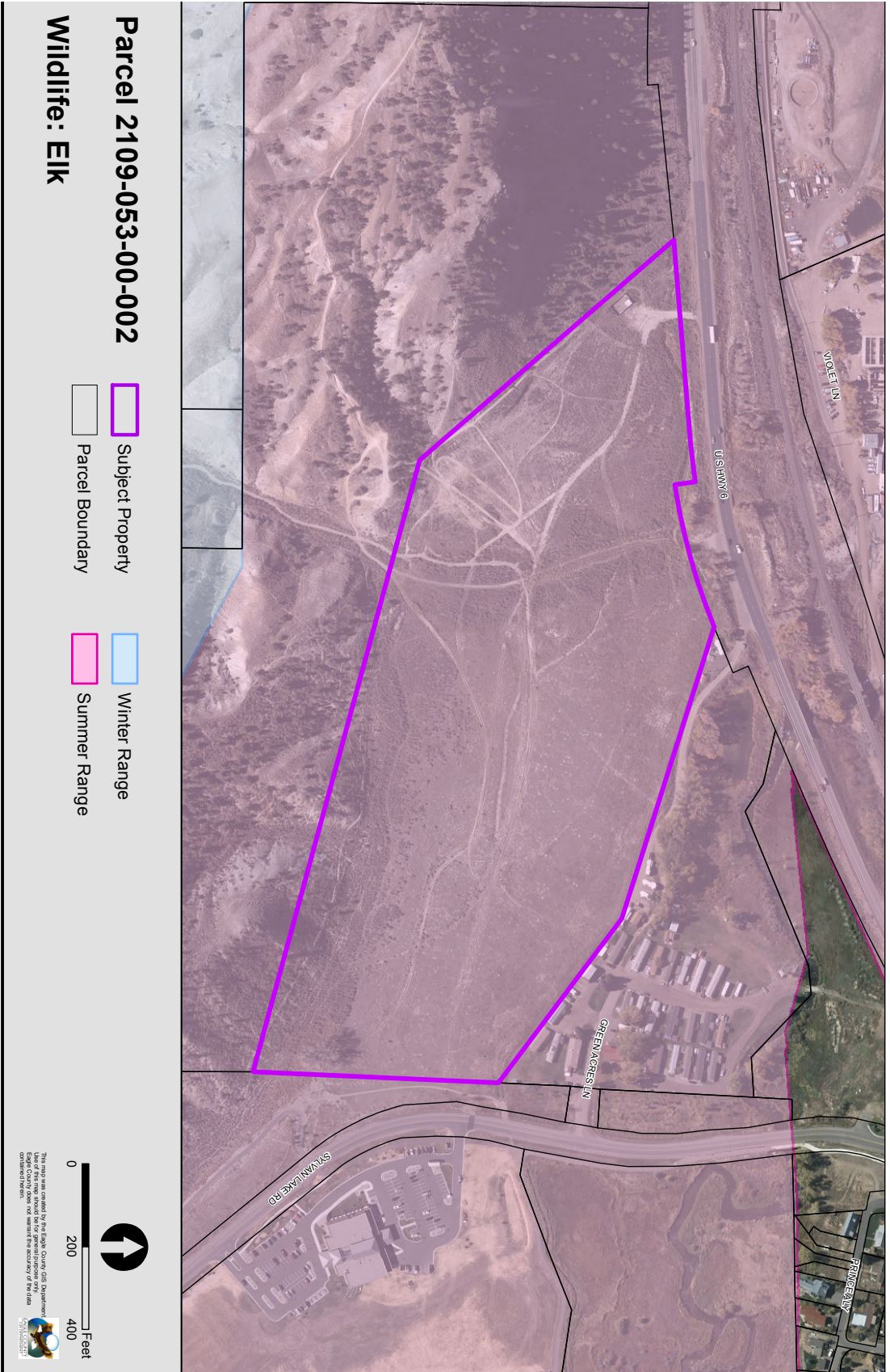




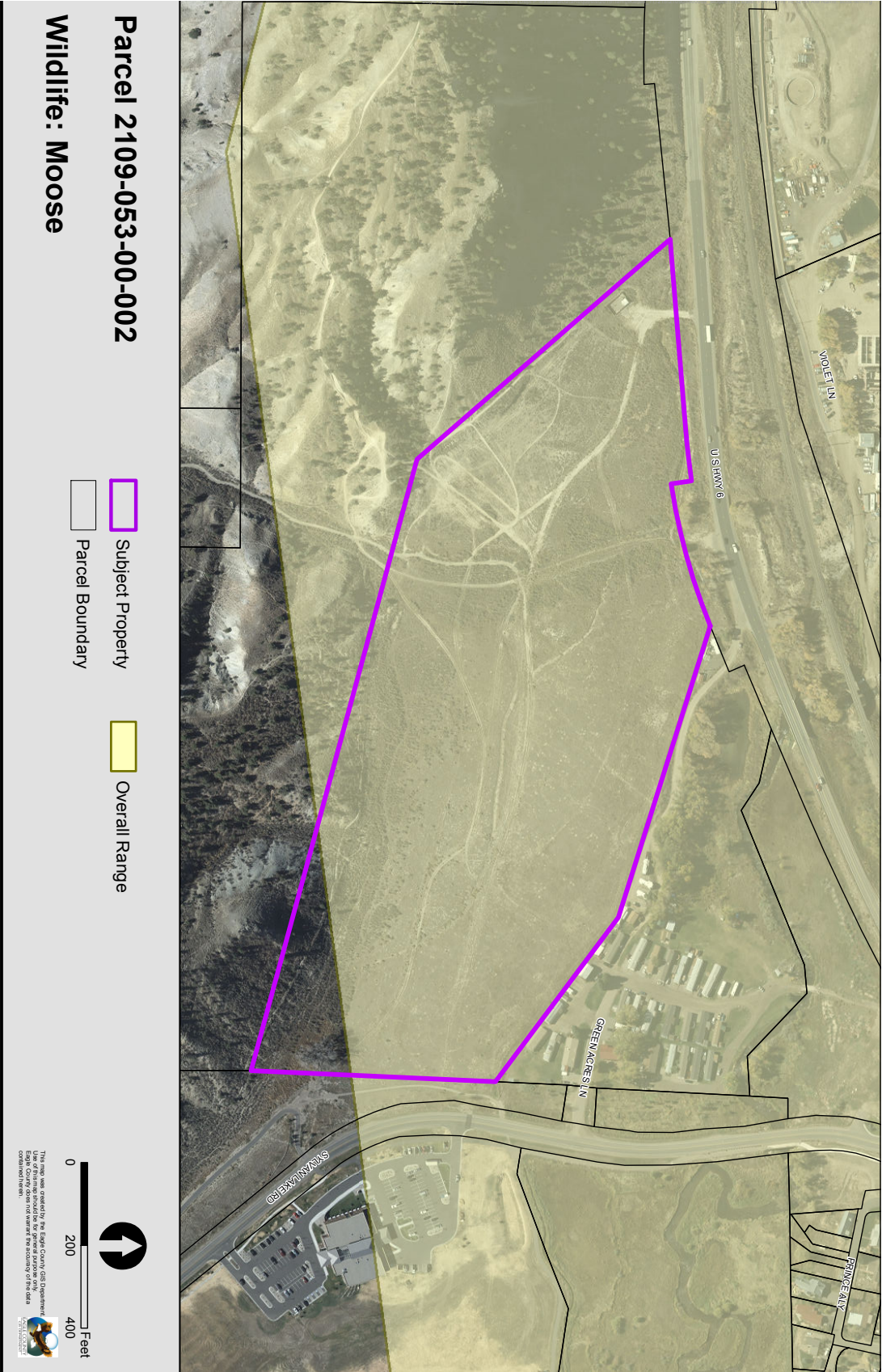




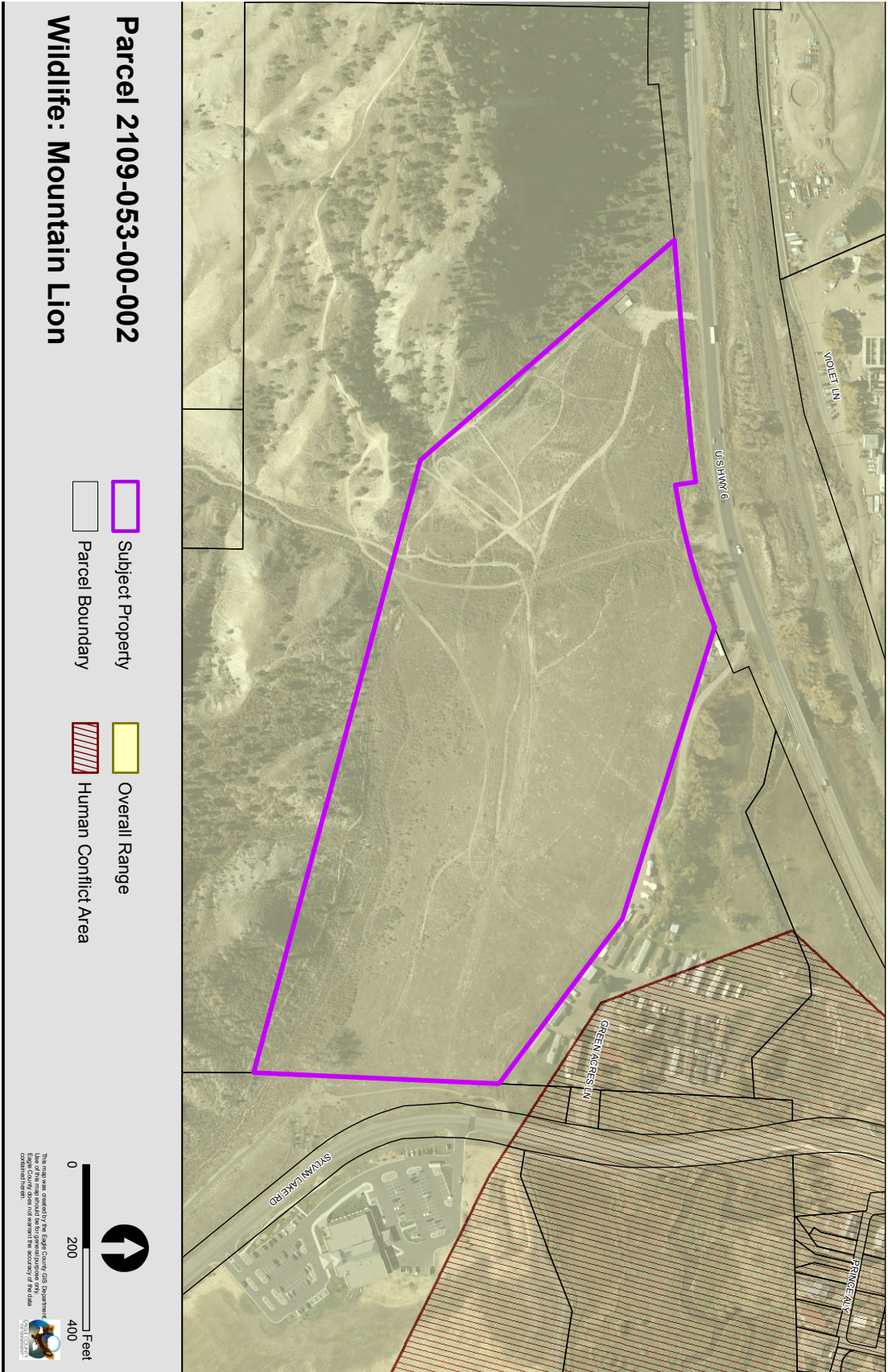




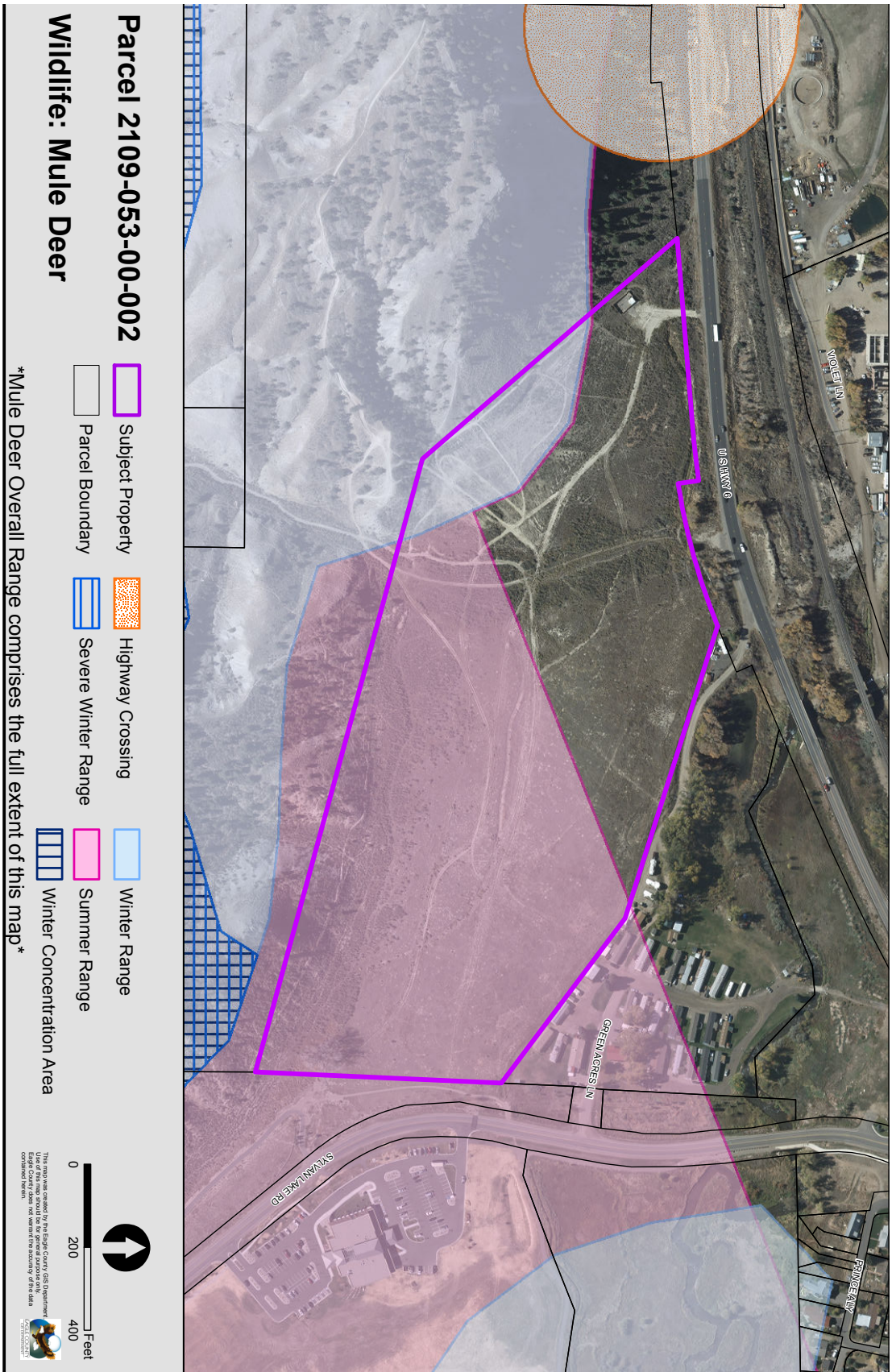












Appendix D

Wildfire Hazard Rating

### Eagle County Wildfire Hazard Rating



#### Property Information:

Parcel ID: 2109-053-00-002

Address: 16186 HWY 6

Owner Name: BCP Eagle

Date Completed: 12/11/15

OVERALL  
Defensible

**OVERALL WILDFIRE HAZARD RATING:** Moderate

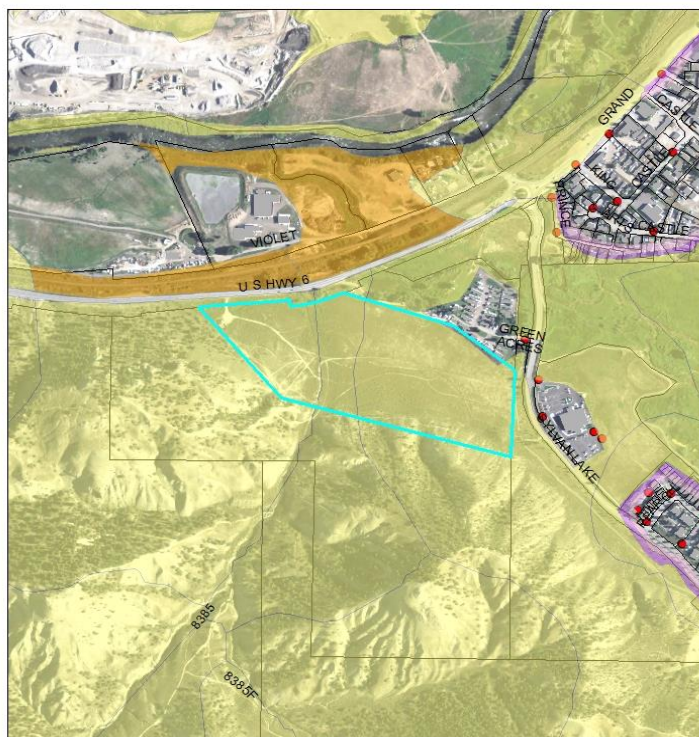
**Defensible Space Assessment:** (Pass / **Action Needed**)

Completed by: Eric Lovgren , Wildfire Mitigation Specialist





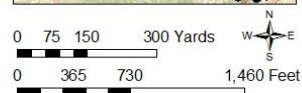
## Eagle County Wildfire Hazard Rating



### Eagle County Wildfire Hazard Map

#### HazDesc

- WUI Buffer - Tier 1
- WUI Buffer - Tier 2
- WUI Buffer - Tier 3
- FireShed Very High
- FireShed High
- FireShed Moderate
- FireShed Low
- Parcels
- Building Locations
- Fire Hydrants



This map was created by the Eagle County Environmental Health Department.  
Use of this map should be for general purposes only.  
Eagle County does not warrant the accuracy of the data contained herein.

Completed by: Eric Lovgren , Wildfire Mitigation Specialist



## Eagle County Wildfire Hazard Rating

### Predominant Vegetation Type

(within 200 foot radius of proposed structure)

### Low Density Fuels or Low Combustion Potential

#### (Points)

- 0 L1 no vegetative cover
- 0 L2 irrigated pasture, manicured lawn, golf course
- 5 L3 riparian zone/wetland grasses, shrubs, trees (willow, alder, dogwood, aspen cottonwood, etc), no coniferous trees
- 10 L4 dryland native grasses and forbs < 2 feet, no shrubs or trees
- 15 L5 dryland native grasses, forbs < 2 feet + dispersed shrubs < 4 feet w/ crown spacing > 2x ht., no trees
- 20 L6 dryland native grasses, forbs < 2 feet + dispersed shrubs < 4 feet and isolated coniferous trees, crown spacing > 3x ht.
- 10 L7 native grasses, forbs < 2 feet + isolated healthy aspen, little dead wood, no shrubs or widely dispersed deciduous shrubs.
- 15 L8 native grasses, forbs < 2 feet + clustered or dispersed healthy aspen, little dead wood, no shrubs or widely dispersed deciduous shrubs.
- 20 L9 native grasses, forbs < 2 feet + continuous healthy aspen, little dead wood, no shrubs or widely dispersed deciduous shrubs
- 25 L10 native grasses, forbs < 2 feet under continuous healthy aspen stand, little dead wood, no shrubs or widely dispersed understory deciduous shrubs, with widely dispersed single coniferous trees, crowns spaced > 3x ht.

### Medium Density Fuels

- 30 M1 sage / desert shrub, < 4 feet, dispersed or clustered with native grasses.
- 35 M2 sage / desert shrub, < 4 feet, discontinuous with native grasses.
- 40 M3 sage / desert shrub, < 4 feet, uniform/continuous (many branches touching).
- 40 M4 continuous sage / desert shrub, < 4 feet, with isolated tall shrub (> 4 feet).
- 45 M5 continuous sage / desert shrub with isolated tall shrub + isolated coniferous.
- 30 M6 isolated tall shrub, crown spacing > 3x ht, with native grass/forb understory.
- 35 M7 mixed tall shrub / aspen, with native grass.
- 35 M8 continuous aspen stand, dense, poor condition, dead branches, dead fall, few shrubs.
- 35 M9 continuous healthy aspen stand with spreading juniper understory.
- 45 M10 mixed coniferous / deciduous stand.
- 45 M11 uniformly dispersed pinion/juniper.
- 45 M12 uniformly dispersed spruce/fir.

Completed by: Eric Lovgren , Wildfire Mitigation Specialist





## Eagle County Wildfire Hazard Rating

### Heavy Fuels

<u>50</u> H1	mixed desert/tall shrub, continuous.
<u>50</u> H2	mixed desert/tall shrub, continuous, with isolated coniferous.
<u>60</u> H3	continuous dense tall shrub.
<u>60</u> H4	continuous dense tall shrub with isolated coniferous.
<u>70</u> H5	mixed tall shrub / coniferous.
<u>70</u> H6	pinion/juniper, continuous.
<u>70</u> H7	spruce/fir/mixed conifer, continuous.
<u>60</u> H8	lodgepole with deadfall, little or no ladder fuels.
<u>70</u> H9	lodgepole with significant ladder fuels.

### Average Slope

(of lot, 1 acre or less in size or, on larger lots, slope of area defined as within 200 foot radius of proposed structure)

<u>5</u>	less than 8%.
<u>15</u>	8% to 20%.
<u>20</u>	21% to 30%.
<u>30</u>	31% or greater.

### Additional Hazards

(pre-determined by GIS and/or site visit, add points to above)

<u>10</u>	Lot/home-site is within 50 feet of chimney feature, v-canyon or ridge top.
<u>10</u>	Home-site/structure within 200 feet of heavy density fuel zone.
<u>10</u>	Poor access to home-site/structure (no emergency ingress/egress)
<u>10</u>	Home-site/structure within 50ft of adjacent structures, vacant lot or open space parcel with heavy fuel loading

**Total Points - Wildfire Hazards (Vegetation+Slope) 50**

Completed by: Eric Lovgren , Wildfire Mitigation Specialist



## Eagle County Wildfire Hazard Rating

### IMPROVEMENTS (*Existing Structures*)

#### D. Access

- 4 A1 two or more primary roads, in and out, 20 foot + width.
- 3 A2 two or more primary roads, in and out, <20 foot width.
- 2 A3 one primary road, one emergency access (limited capacity).
- 1 A4 one primary road, 20 foot + width.

#### E. Access Surface

- 5 AS1 paved.
- 3 A2 maintained road base, gravel.
- 2 AS3 poorly maintained, weathered surface.
- 0 AS4 primitive, 4 wheel drive.

#### F. Access Grade

- 5 AG1 0% to 5%.
- 4 AG2 6% to 8%.
- 2 AG3 9% to 12%.
- 0 AG4 over 12%.

#### G. Electric Service Lines

- 3 ES1 all underground.
- 2 ES2 mixed above/below (may be below within subdivision, but above along primary access).
- 0 ES3 all above ground.

#### H. Water supply

- 5 WS1 250 gpm - 31 + minutes.
- 4 WS2 250 gpm - 21 to 30 minutes.
- 3 WS3 250 gpm - 10 to 20 minutes.
- 0 WS4 < 250 gpm or 250 gpm for less than 10 minutes.

Total Points – Improvements 12

Completed by: Eric Lovgren , Wildfire Mitigation Specialist



### **Eagle County Wildfire Hazard Rating**

**Overall Hazard Rating Points:** (*subtract IMPROVEMENTS from WILDFIRE HAZARDS*) =

38

### **Hazard Rating**

< 20 points      **LOW**

**21 to 45 points MODERATE**

46 to 65 points **HIGH**

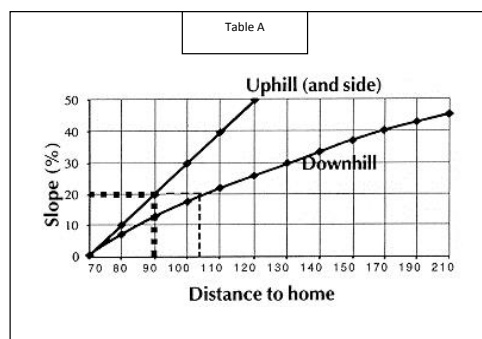
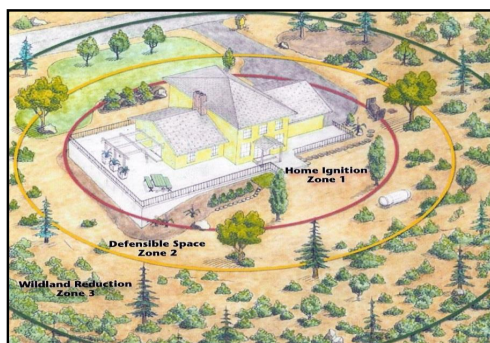
> 65 points      **EXTREME**

Photo: \_\_\_\_\_

Completed by: Eric Lovgren , Wildfire Mitigation Specialist



## Eagle County Wildfire Hazard Rating



**Defensible Space Requirements:** *A pre-construction meeting may be required, contact EC Wildfire Mitigation upon issuance of building permit*

**Zone 1:** Is the area of maximum modification and treatment. The intent of Zone 1 is to reduce fuels that are immediately adjacent to flammable elements of the structure and to provide a clear access area for firefighting operations. Zone 1 is an area measured 30 feet from the edges of the structure. Ideally, all trees within Zone 1 should be removed to reduce the fire hazard. If a tree or cluster of trees must remain, it will be considered as an integral part of the structure and **Defensible Space** pursuant to Table A will be measured from the drip line of the tree or tree cluster. Decorative rock or irrigated, mowed grass creates an attractive, easily maintained nonflammable ground cover. If the house has noncombustible siding, widely spaced foundation plantings of low growing shrubs or other fire resistant plants are acceptable. All branches that interfere with the structure's roof or chimney must be removed. All ladder fuels (small shrubs, trees, tree limbs and other materials that allow fire to climb into the tree crown) must be removed from beneath the tree or tree cluster.

**Zone 2:** Is an area of fuel reduction. The size of Zone 2 depends on the slope of the ground where the structure is built (Reference Table A). Within this zone, the continuity and arrangement of vegetation is modified to reduce the intensity of any fire approaching the structure. Trees and shrubs must be thinned so that there is a minimum of 10 feet between crowns. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree. All ladder fuels from under these trees must be removed. All trees must be pruned to at least 10 feet above the ground, but no more than 1/3 the overall height of the tree (Aspen trees, individual spruce, fir and pine specimens are exempt). The inner portions of Zone 2 must be more heavily thinned than the outer portions. Isolated shrubs may remain provided they are not under tree crowns. These shrubs must be pruned and maintained for vigorous growth. Dead stems and shrubs must be removed. Dead trees, which can fall onto a structure or block an access, must be removed.

Completed by: Eric Lovgren, Wildfire Mitigation Specialist



## **Eagle County Wildfire Hazard Rating**

### **Construction Guidelines for Wildfire Hazard Areas**

**Low Hazard** - No limitations, any material allowed by the Building Code.

#### **Moderate Hazard**

##### **Roofing**

- Roof assembly - must have a Class B fire rating at minimum.
- Roof venting – any roof venting in the soffit shall be in the outer 1/3, with non-combustible vent covers and metal screening with openings less than 1/4".

##### **Decking**

- Decks > 30" above finished grade shall use fire-resistive construction for beams, posts, joists, and decking (trim, fascia, guards and handrails are exempt). Materials shall be rated Class B or better (ASTM E-84 flame spread ratio of 26-70) and listed for exterior use.

##### **Soffits/Eaves**

- Any soffit, eave, or roof-extension projecting over 48" from the structure shall be of fire resistive construction.

##### **Siding**

- No limitations, any material allowed by the Building Code.

#### **High Hazard**

##### **Roofing**

- Roof assembly - must have a Class A fire rating at minimum.
- Roof venting – any roof venting in the soffit shall be in the outer 1/3, with non-combustible vent covers and metal screening with openings less than 1/4".

##### **Decking**

- Decks > 30" above finished grade shall use fire-resistive construction for beams, posts, joists, and decking (trim, fascia, guards and handrails are exempt). Materials shall be rated Class A or better (ASTM E-84 flame spread ratio of 0-25) and listed for exterior use.

##### **Soffits/Eaves**

- Any soffit, eave, or roof-extension projecting from the structure shall be of fire resistive construction.

##### **Siding**

- The exterior of the structure is to be of non-combustible or fire resistive material (excluding trim).

Completed by: Eric Lovgren , Wildfire Mitigation Specialist





## Eagle County Wildfire Hazard Rating

**Building Inspection Process** - *New Building Construction / Exterior Modification / Additions* – for all properties in unincorporated Eagle County

- ✓ **Initial Site Inspection (Wildfire 1)** – In areas of *moderate, high, and extreme wildfire hazard* you will need to have *defensible space* established around the new or existing structure. An initial site inspection by the Eagle County wildfire mitigation specialist will determine the parameters for the creation of *defensible space* on your property. This must be completed prior to footing or foundation inspections. You will need the following prior to this site-visit:
  - *Approved field set of site plans available.*
  - *Building corners marked with stakes outlining the approximate footprint of any new structures, drive-way, septic, etc.*
- ✓ **Second Site Inspection (Wildfire 2)** – A second visit to your construction site by the wildfire mitigation specialist may be required during the building process. This visit is to confirm that defensible space around the structure is in place prior to adding combustible material to the site. All vegetation marked for removal during the initial site visit must be gone in order to move on to the next step in the mitigation process.
- ✓ **Final wildfire inspection (Wildfire Final)** – Prior to issuance of Temporary Certificate of Occupancy (TCO) or Certificate of Occupancy (CO), you must be approved by the wildfire mitigation specialist during your final wildfire inspection. The following will be examined to ensure:
  - *That any new landscaping complies with requirements for defensible space (must have approved landscaping plans on site if not complete)*
  - *That construction meets requirements for site's hazard rating.*
  - *That information about the building, location of water for fire suppression, access, and defensible space boundaries are captured and entered into countywide database of wildland-interface properties with mitigation completed.*
  - *That no new factors contribute to the overall wildfire hazard of the site*

Completed by: Eric Lovgren , Wildfire Mitigation Specialist



## Eagle County Wildfire Hazard Rating

### Definitions

- FireShed-** Product of GIS wildfire hazard model - mapping polygons that display several data fields relating to hazard and risk associated with wildfire that provide an overall hazard/risk rating with adjective descriptions of the hazard/risk rating.
- WUI Buffer-** Product of GIS wildfire hazard model –mapping polygons give an indication of the type of fire impacts an area close to (but not “in”) wildland fuel might experience in the event of a fire.
- Tier 1-** WUI Buffer indicating an area close to (but not “in”) wildland fuel that might experience direct flame impingement, ember exposure and smoke impacts in the event of a fire.
- Tier 2-** WUI Buffer indicating an area close to (but not “in”) wildland fuel that might experience direct ember exposure and smoke impacts in the event of a fire.
- Tier 3-** WUI Buffer indicating an area close to (but not “in”) wildland fuel that might experience some negative impacts in the event of a fire.
- Forbs -** Herbaceous perennial plants other than grasses (wildflowers).
- Crown -** The edge of a tree or shrub=s outer most growth, a tree or shrub=s "drip line\_"
- "x ht" -** Indicates a spacing between shrubs and trees based on the average anticipated mature height of the specific plant. "3x ht" for a shrub with average anticipated mature height of 4 feet indicates a crown spacing of  $3 \times 4 = 12$  feet.
- Ladder Fuel -** Live or dead plant material that facilitates or supports the movement of fire from the surface of the ground into the canopy or crown of larger shrubs or trees.
- Isolated -** A single plant with significant spacing ( $> 4x$  ht) from other similar plants. Very low density.
- Dispersed -** Widely spaced individual shrub or trees (crowns spaced  $> 2x$  ht) or widely spaced small clusters of plants, evenly distributed across the site. Low to medium density.

Completed by: Eric Lovgren , Wildfire Mitigation Specialist



## **Eagle County Wildfire Hazard Rating**

- Clustered** - Two or more plants (maximum number allowed per cluster would be relative to the size of the site) growing in close proximity to one another, but significantly spaced from other similar plants or clusters of plants. Low to medium density.
- Discontinuous**-Plants touching but in "bands" separated by significant spaces, resulting in a "patterned" rather than uniform coverage on the site. Medium density.
- Continuous** - Plants touching or in very close proximity to one another, resulting in uniform coverage of the site. High density.
- Understory** - Plants or mix of plants growing below a stand of taller plant species.
- Desert shrub** - Rabbit brush and other woody xeric species commonly found with sage, < 4 feet tall.
- Tall shrubs** - Sage (>4 feet), oak, service berry, choke cherry, mountain mahogany, skunk bush (sumac), bitter brush, etc.
- Mixed shrub** - Sage, desert shrubs within and beneath tall shrub species, 50/50.
- Mixed coniferous stand** - Lodgepole pine mixed with spruce and sub alpine fir, or Douglas fir (often in understory).

### **Contact Information**

**Eric Lovgren**  
**Wildfire Mitigation Specialist**  
**Eagle County Environmental Health**  
**(970) 328-8742**  
[Eric.Lovgren@eaglecountv.us](mailto:Eric.Lovgren@eaglecountv.us)

Completed by: Eric Lovgren , Wildfire Mitigation Specialist

Appendix E

Photographs of Project Site



Figure 6: View southwest of the project site.



Figure 7: View northwest of the project site.





Figure 8: View southeast of the project site.



Figure 9: View northeast of the project site.





Figure 10: Gas booster station near western boundary of the project site.



Figure 11: View south of Hockett Gulch.