Goat Peak Ranch
South Cle Elum, WA

Community Wildfire Risk Assessment
02/29/2016

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WASHINGTON STATE DEPARTMENT OF
Natural Resources

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Introduction

The Firewise Communities/USA program is designed to provide an effective management approach for preserving wildland living aesthetics. The program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following community assessment is intended as a resource to be used by Goat Peak Ranch residents for creating a wildfire protection plan. The plan developed from the information in this assessment should be implemented in a collaborative manner, and updated and modified as needed.

Risk Assessment Process

The risk assessment was completed using the National Fire Protection Association (NFPA) Residential Wildfire Hazard Assessment Form as a template. The risk assessment form is attached (see attachment A). Digital photographs were taken to assist in the documentation process. Since this is done at a community level scores are not given but each area is discussed.

Summary

Goat Peak Ranch is located about 7 miles west of Cle Elum, Washington off of West Side Rd. in Kittitas County. It is an attractive community located within a warm mixed conifer forest type. The community currently consists of 87 lots most of which have stick built homes and average about 5 acres each.

Homeowners within the Goat Peak Ranch contacted the Washington State Department of Natural Resources (DNR) in the winter of 2016. The homeowners were concerned about the wildfire risk and some had already begun fuels reduction work. An initial assessment of the community confirmed the homeowners concerns.

DNR visited with the homeowners on February 13th, 2016 at a homeowner's association meeting. The homeowners indicated that they would like to pursue Firewise Communities USA status. It was determined that a community wide wildfire risk assessment would be the initial step to achieve the objectives. At the meeting, homeowners were asked by the association to volunteer to be part of the Firewise committee. A number of homeowners responded that they would be part of the committee, and it was recorded by the association.

Several observations and recommendations have been made as a result of the assessment. The implication that the wildfire hazard is a shared responsibility with all members of the community is inherent. Several of the hazards that make the community vulnerable to wildfire can be mitigated. These mitigations include:

1. Fuel reduction near homes.
2. Landscape changes and forest thinning.
3. Access improvement.
4. Vegetation management around roads.

Observations & Recommendations

A. Means of Access

1. Ingress and Egress:

Observations-
Access to Goat Peak Ranch is from West Side Rd., a major county road. Turning off of West Side Rd. to the south on to Zreibec Rd. ingress can be made either by continuing on Zreibec, or by turning west onto Big Horn Way (See Cover Photo). Zreibec Rd. is also a county maintained road. Zreibec county road ends in a cul-de-sac about 1.2 miles from Big Horn Way, but continues on as a private road for another 0.5 miles until it ends in a cul-de-sac. Off of the private portion of Zreibec Rd. to the south is another private road called Whitetail Lane that ends in another cul-de-sac at about 0.3 miles.

About 1 mile in on Big Horn Way, turning left onto Nelson Creek Rd. will connect back to Zreibec, forming a loop out to West Side Rd. (See map, Attachment A). Big Horn Way ends in a cul-de-sac about ½ mile from the intersection with Nelson Creek Rd. to the west. There are two short roads that end in cul-de-sacs that head north off of Big Horn way, named Stuart Ridge Rd. on the west end, and Rams End Lane on the east. A short cul-de-sac road named Forest Rd. runs west off of Nelson Creek Lane.

All roads in the community are paved, and are typically very low in gradient. Although there is a loop connection through the community, ultimately it is still a one way in, one way out scenario on Zreibec Rd. There is possible access to a powerline road to the south off the end of the private Zreibec Rd., but could only be used in an emergency by four wheel drive vehicles.

Recommendations-
Consider communicating with other communities in the area to see if connections could be made to their road systems to allow for alternate means of ingress and egress in case of emergency. There are possible connections to FS-4517 off of the end of Big Horn Way, or Whitetail Lane that could allow travel onto Fowler Creek Rd.

2. Road Width:

Observations-
The county maintained portion of Zreibec Rd. averages 30 feet in width and has turnouts and not a lot of vegetation encroachment. The private portion of Zreibec Rd. averages about 18 feet in width, as do almost all the other privately maintained roads in the community. Stuart Ridge Rd. and Rams End Lane average closer to 16 feet in width. Large portions of all the roads have

heavy vegetation encroachment right up to the road edge. One spot on Big Horn Way over a large culvert only measured 16 feet in width.

Recommendations-
Narrow roads with sharp turns are difficult for large fire apparatus, and make it difficult to pass, especially in an emergency situation. These narrow roads add to the difficulties of fire response in the community. Road widening, or at least adding turnouts is highly recommended. Future roads should be designed to be at least 24 feet in width and incorporate a larger turn radius for emergency vehicle access.
The heavy vegetation growth at the road edge adds to the problem by decreasing access and reducing visibility, especially around corners. It is recommended that the brush be removed and trees limbed to at least 15 feet up the tree bole for a minimum of 10 feet from the road edge. This would need to be maintained over time.

3. All-Season Road Condition:

Observations-
All of the roads within Goat Peak Ranch are paved and less than five percent in slope, with a few short runs going over five percent gradient.

Recommendation-
The paved and low slope roads are excellent for emergency vehicle access. It is recommended that future roads be paved and have less than 5 percent slope. Road width is more of a concern.

4. Fire Service Access:

Observations-
Fire service access evaluates driveway length and turnaround ability. There are a number of homes in the community that have short driveways and some turnaround potential for large fire service vehicles. Some of the properties however, have long driveways with not enough room at the home to turn around a large fire service vehicle. There are a couple with fairly steep long gravel driveways which could impede the fires service's ability to defend the home from wildfire. (Figure 1) Driveways 300' or longer with no turnaround are generally considered less safe for fire services in the event of a wildfire. Vegetation encroachment on the driveway is also a concern for access, there is heavy vegetation growing along and over some of the driveways in the community.

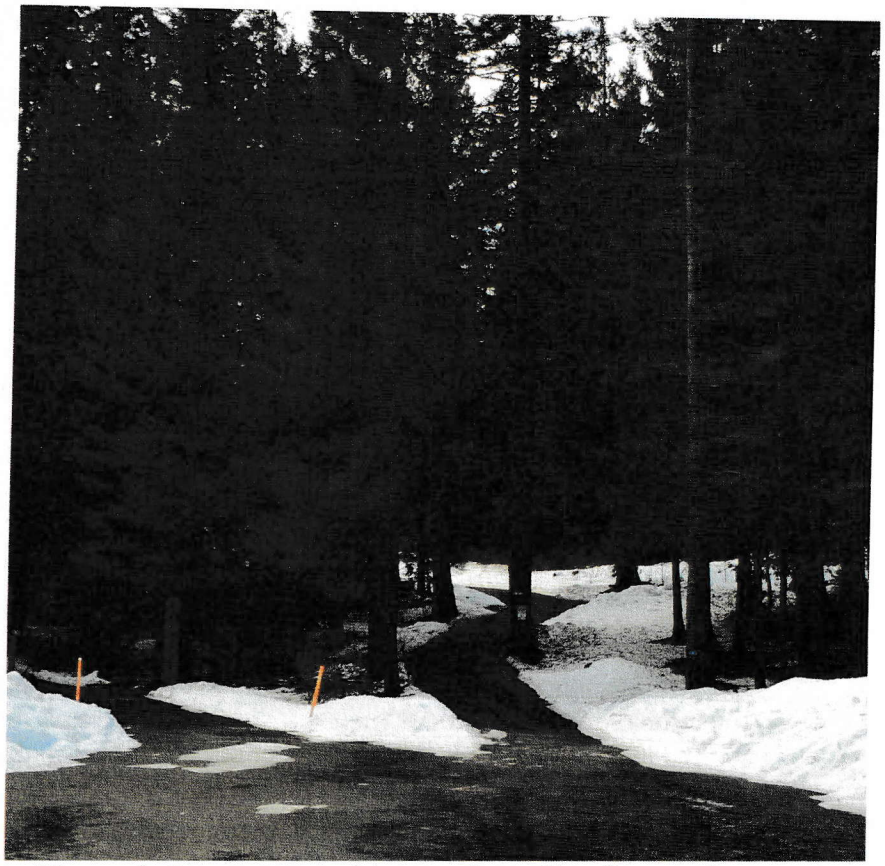


Figure 1- Long narrow driveway impeding fire service access

Recommendation-
The length of the longer driveways is an issue, but can be somewhat mitigated with vegetation treatment, and development of larger turnaround areas at the home. The primary access concern is the dead end roads and cul-de-sacs as identified in A1, Ingress and Egress.

5. Street Signs:

Observations-
Signs identifying Goat Peak Ranch are located at the intersection of Zreibec Rd, and Big Horn Way, and where the county maintained portion of Zreibec Rd. ends. Street names are clearly signed with reflectorized signs, and most of the homes in the community have 4" reflectorized house numbers easily visible from the road. One home on Rams End Lane had a house number on the gate, but it was not reflectorized. About 7 other homes in the community had no signs for home numbers on the street.

Recommendations-
The community is not difficult to find for emergency vehicles since it is located off of a major county road. Interior road labels will assist emergency response vehicles once they arrive at the community. The number signs do

assist in locating individual lots and are very helpful when present. Homes without numbers should install new 4 inch reflective numbers for better identification. Vegetation maintenance around these numbers should be kept up so that the signs remain visible.

B. Vegetation (Fuel Models)

1. Predominate Vegetation

Observations-
The natural vegetation in and around the community varies from warm mixed conifer stands that are very dense, to open grassy pastures on the south end of the community. Most of the surrounding landscape is the same. To the west there was significant logging a short time ago that has resulted in a reproduction stand of trees that looks to be about 20 - 30 years in age. Some properties have significant amounts of down and dead material on the ground. Dwarf Mistletoe is present in some of trees. This increases the torching fire potential in infested trees. Bark beetle activity is present but not epidemic yet. Crown fire potential is high around the community as a result of the overstocked forest. Ladder fuels are significant around the community as well. Heavy brush and regeneration concentrations are the primary ladder fuel component.
A few of the properties have had fuels reduction work completed to thin trees, reduce ground fuels and reduce ladder fuels.

Recommendations-
With the right conditions, the potential for running crown fire in the forest within the community is high given crown closure and ladder fuel concentrations. It is recommended that the forest be thinned to open up the forest canopy. This thinning should incorporate the removal of stressed and diseased trees. Spacing should vary based on the size and age of the trees, but overall should provide at least 5- 10 feet of space between tree crowns. Ladder fuels should also be managed by removing brush and smaller understory trees, as well as pruning lower branches of larger trees to at least 10 feet up the tree bole. These actions will reduce the intensity of wildfires and significantly reduce the risk to the community. Grant assistance may be available and should be pursued. It is recommended that a professional forester assess the forest surrounding the community and write a management plan that identifies long term forest management objectives.

2. Defensible Space

Observations-
The term defensible space refers to that area between a house and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and allow fire fighters to safely operate. There are a few

homes within the community that have already developed some defensible space, and the homes to the south that are not within the forested areas are inherently more defensible. Defensible space is also diminished by other fuel sources such a firewood piles, needle accumulations, railroad ties, landscape timbers and beauty bark.

Recommendations-
Increasing defensible space will lead to the most significant reduction in wildfire risk. Homes that increase their defensible space from less than 30 feet to more than 100 feet will reduce their risk greatly. To increase defensible space, residents need to reduce the overall amount of fuel around the home including; small trees and brush, overhanging branches, wood piles, slash piles, pine needles piles, non-fire resistant trees, shrubs and landscape materials. Block and rock landscape materials can be highly effective. Residents need to keep remaining vegetation lean, clean and green with regular maintenance and watering in the summer months. Future plant material used in landscaping should be fire resistant. Residents should work together to improve defensible space, since what is done on one property can affect the neighboring property.

B. Topography

1. Slope

Observations-
The slope around Goat Peak Ranch varies from 0 to about 30 percent. Greatest concern is when homes are located mid slope or near the hilltop. Fires make rapid runs upslope. Homes at the base of slopes or on flat ground are less at risk.

Recommendations-
Slope is difficult to change. Homes that are currently in a poor location relative to slope should mitigate the wildfire risk by increasing defensible space distance downslope from the home. Future development should consider slope location prior to home placement. Avoid placing homes mid-slope or near hilltops.

C. Additional Rating Factors

1. Topography That Adversely Affects Wildland Fire Behavior

Observations-
Overall, the development is located on a relatively flat aspect at the base of South Cle Elum ridge, which has a north aspect. Northern aspects are typically cooler and wetter. Wildfires burning on this ridge with prevailing

winds, have the potential to send hot fire brands into the community igniting fires within Goat Peak Ranch.
Homes on hill slopes and in draws are at more risk, as fire activity increases in these areas.

Recommendations-
Topography is difficult to change. Homes that are currently in a poor topographic location should mitigate the wildfire risk by increasing defensible space distance. Future expansion should consider topographic features.

2. Area With History of High Fire Occurrence

Observations-
Goat Peak Ranch is located near South Cle Elum, Washington. According to DNR statistics there have been at least 10 fire starts in the area since 2008. Several fires have threatened the community in the past, including the South Cle Elum Ridge fire in 2014. Lightning, debris burning, and other human caused starts are the majority. (Figure 2)

Recommendations-
Residents within Goat Peak Ranch can help prevent fire starts by being extra careful during fire season. Information on wildfire prevention can be passed along to community members at board meetings and through mailings from the homeowners association. Community members should follow forest protections rules and regulations.

- Put on our website

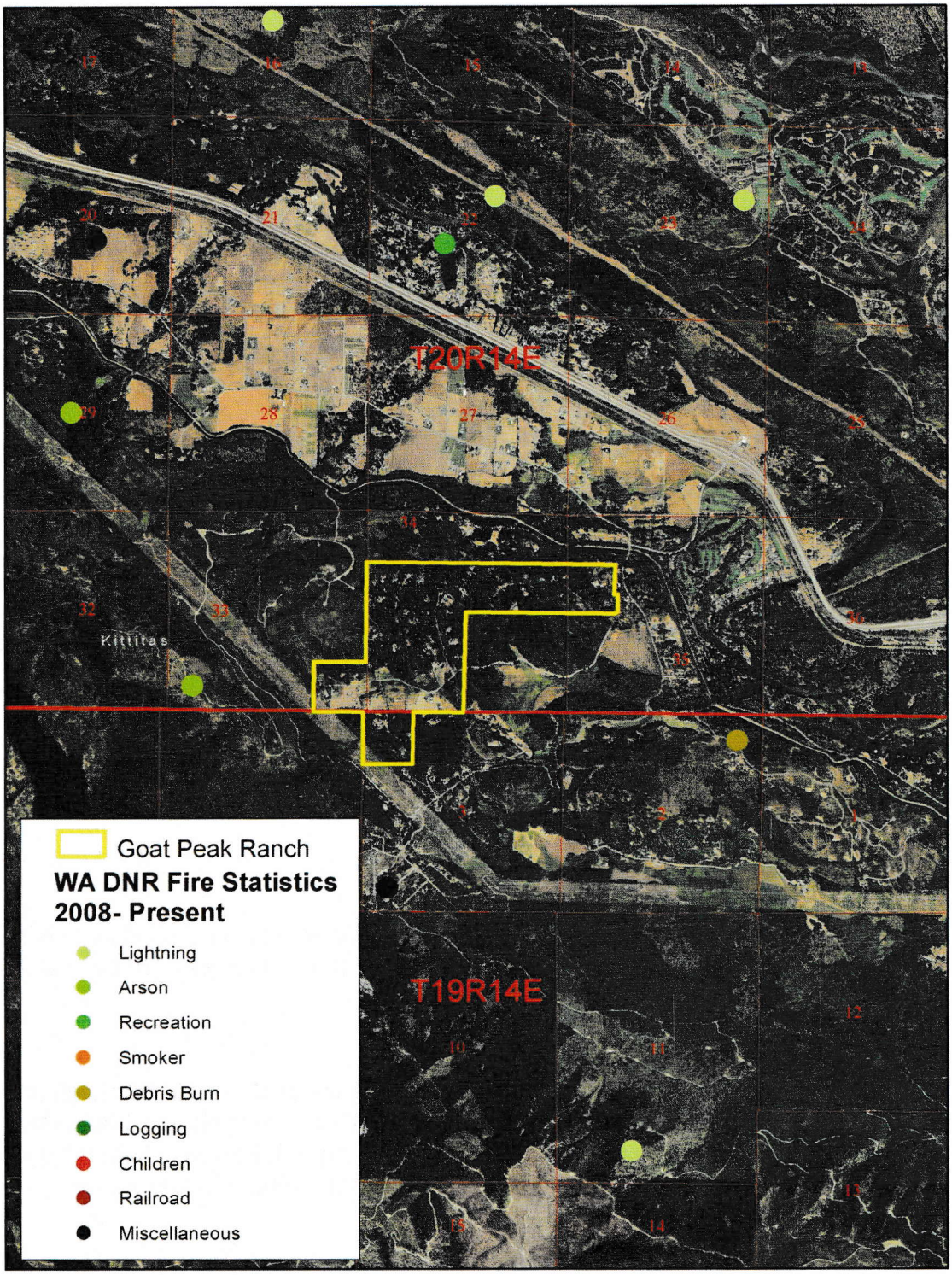

T20R14E
T19R14E
Kittitas
Goat Peak Ranch
WA DNR Fire Statistics
2008- Present
Lightning
Arson
Recreation
Smoker
Debris Burn
Logging
Children
Railroad
Miscellaneous

Figure-2

3. Area of Unusually Severe Fire Weather and Wind

Observations-
Lightning storms are common in the area and have started fires in the past. The Kittitas valley is well known for strong winds that usually come from the west/southwest, and can drive fire behaviour. Cold fronts that bring strong and erratic winds are common in Eastern Washington.

Recommendation-
The weather cannot be controlled. Unfortunately, major catastrophic fires quickly overwhelm local fire resources. By increasing home survivability, property owners within the community won't have to depend upon these resources.

4. Separation of Adjacent Structures

Observations-
Lots in Goat Peak Ranch are typically around 5 acres which allows for separation from adjacent homes in most cases. There are numerous outbuildings, barns and other structures that with a lack of defensible space could ignite and threaten the home.

Recommendation-
Separation of structures is not a major concern due to the large lot size. Outbuildings that are close together require defensible space as well, to reduce the chances of igniting and threatening homes and fire service safety.

D. Roofing Material

1. Construction Material

Observations-
Roofing materials are mostly metal with a few composition shingle within this community. Concentrations of dead needles and leaves were noticed on some homes.

Recommendations-
Continue to use non-combustible roofing material. Residents should clean off the roof and gutters in the spring, and it should be maintained throughout the summer to reduce the chance of ignition from fire brands. Removing some of the overstocked trees can reduce the amount of needles and leaves that are cast onto homes and into yards.

E. Existing Building Construction

1. Materials

Observations-
Homes and outbuildings within Goat Peak Ranch have mostly wood siding materials. Decking materials identified within the community are wood and/or metal. Skirting of decks and screening of open vents and soffits was not noticed during initial assessment, as some of the homes were not clearly visible from the assessor's vantage point.

Recommendations-
The building materials utilized within the community are generally fire resistant. Continued use of fire resistant materials is recommended. Avoid use of cedar siding materials. Enclosing openings under homes and decks will reduce the potential for firebrand ignitions. Screening off vents and other openings will prevent firebrands from entering the home.
Individual home assessments are recommended to identify areas of concern and mitigation.

2. Setbacks from Slopes

Observations-
The homes that are located on slopes generally have less than thirty foot setbacks. Homes that are not adequately set back from slopes are subject to greater radiant, conductive and convective heating.

Recommendations-
The homes on the edge of the slopes have greater risk. 30 foot or greater setbacks are recommended for future home locations. If possible, increase setbacks for existing homes by re-contouring property in front of homes. An increase in defensible space distance down slope from the home will help mitigate the lack of set back and should be considered.

F. Available Fire Protection

1. Water Source Availability (On Site)

Observations-
No pressurized hydrants were identified during initial assessment. There are some irrigation hydrants on the individual properties, but availability for fire protection and gallons per minute is unknown.
At least one landowner has a pond that may be used for drafting and/or dipping site, but they are small and fed from a creek that has less flow during the summer months.

There is also an irrigation canal that can be used for a firefighting water source within about 0.5 miles from the community.

Recommendation-
Irrigation hydrants should be kept clear and visible and marked with water availability information if possible. Contact local fire district and have them assess pond for water source use and possibly construct a sign letting firefighting resources know that it can be used. Remember, a good water source doesn't guarantee homes will be safe from wildfire. As stated earlier, homes need to be survivable because fire protection resources may not be available.

2. Organized Response Resources

Observations-
Goat Peak Ranch is located within the protection boundary of Kittitas County Fire Protection District Seven. Fire District Seven, Station 73, is 3 miles from the farthest point in Goat Peak Ranch. The station is staffed by volunteer firefighters and has no permanent staffing. Although the station is closer than 5 miles to the community, the additional response times of volunteer firefighters reduces its effectiveness some.

Recommendation-
Given limited funding, Fire District Seven does not provide full time or residential staffing at station 73. To improve fire district protection, it is recommended that the Goat Peak Ranch residents support future fire district actions that increase staffing ability.

3. Fixed Fire Protection

Observations-
Fixed fire protection that meets NFPA 13, 13R and 13D refers to exterior fire sprinklers systems for structural protection from wildfire. No homes within Goat Peak Ranch were identified as having an exterior sprinkler system for structural protection.

Recommendation-
Exterior sprinkler systems for structures may reduce the risk to homes that are composed of combustible roofing, combustible siding materials or have combustible debris on the roofs. The system must operate correctly to be effective. For example, the system must turn on automatically when a fire is approaching. This type of system is not necessary when homes are composed of fire resistant exterior building materials. Many of the homes within the community have fire resistant roofs and siding. This is the preferred option because sprinklers and hoses may reduce the capacity of the water system to provide water to fire fighting resources.

G. Utilities (Gas and Electric)

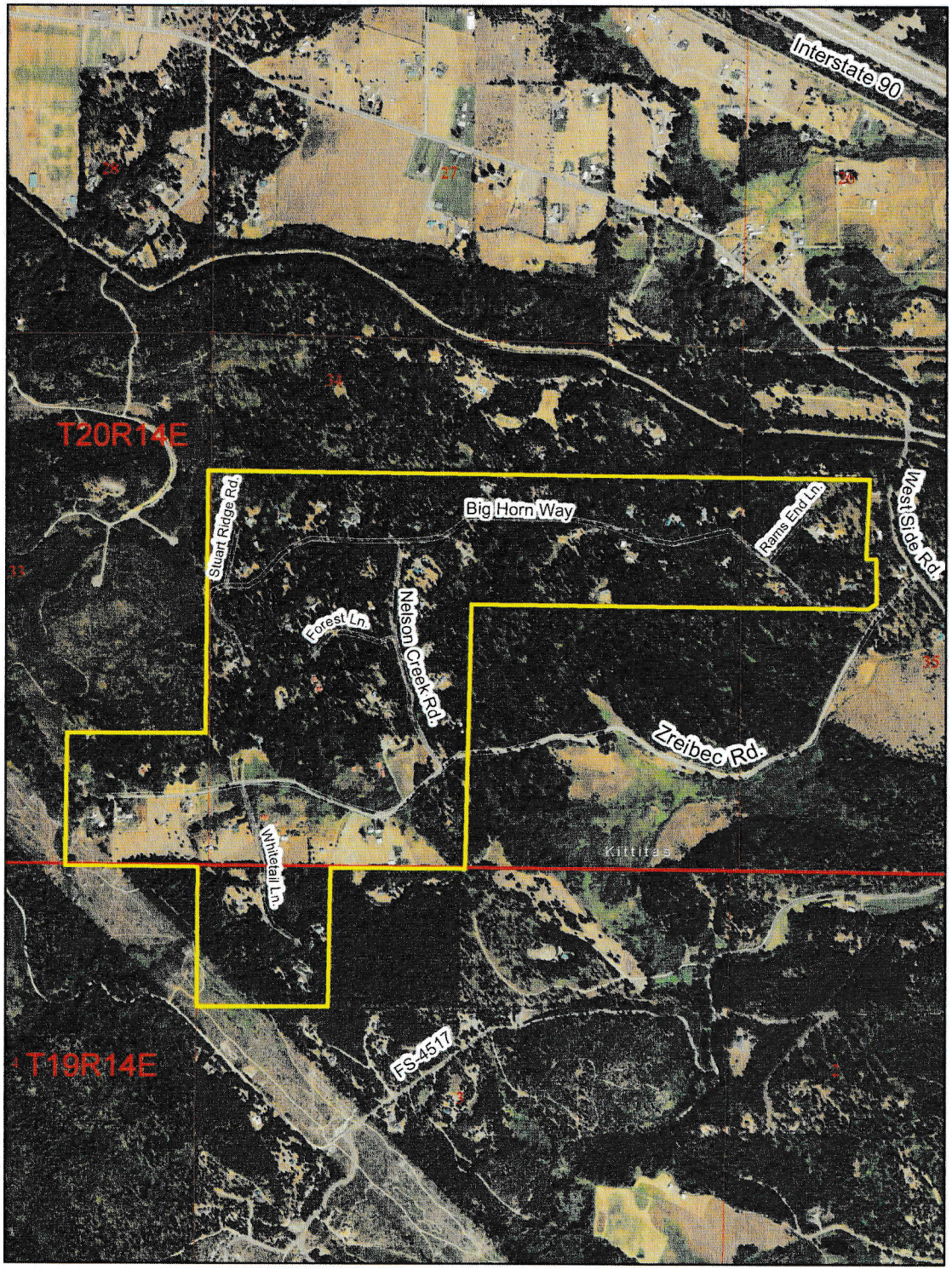
Observations-

Electrical and communication lines within Goat Peak Ranch are underground. Liquid Propane Gas tanks are located adjacent to multiple structures in the community. In some instances there is no break between the forest fuels and the tank.

Recommendations-

Underground electrical lines reduce wildfire ignition potential immediately within the community. Electrical lines should be located underground with future development. LPG tanks should be located at least 30 feet from structures and have fuel breaks around the tanks to prevent direct flame contact during a wildfire.

Attachment A
Goat Peak Ranch Vicinity Map



Attachment B

Wildland Fire Risk Assessment Form

(Circle the most appropriate element in each category and total the points)

Homeowner:_____ County:_____

Address:_____ City:_____ Zip:_____

Element	Assessed Points
A. Means of Access (County Rd/ Main Rd access)	
1. Ingress and egress	
a. Two or more roads in/out	0
b. One road in/out	7
2. Road width	
a. ≥ 24 ft.	0
b. 20 to 24 ft.	2
c. < 20 ft.	4
3. All-season road condition	
a. Surfaced road, grade < 5%	0
b. Surfaced road, grade > 5%	2
c. Non-surfaced road, grade < 5%	2
d. Non-surfaced road, grade > 5%	5
e. Other than all-season	7
4. Fire Service Access (Driveway)	
a. ≤ 300 ft. with turnaround	0
b. > 300 ft. with turnaround	2
c. < 300 ft. with no turnaround	4
d. ≥ 300 ft. with no turnaround	5
5. Street signs and home address numbers	
a. Present: 4 in. in size and reflectorized	0
b. Not present	5
B. Vegetation	
1. Characteristics of predominate vegetation within 300 ft.	
a. Light (grasses, forbs, sawgrasses and tundra)	5
b. Medium (light brush and small trees)	10
c. Heavy (dense brush, timber and hardwoods)	20
d. Slash (timber harvesting residue)	25
2. Defensible space	
a. More than 100 ft. of vegetation treatment from the structure(s)	0
b. 71 – 100 ft. of vegetation treatment from the structure(s)	3
c. 30 – 70 ft. of vegetation treatment from the structure(s)	10
d. <30 ft. of vegetation treatment from the structure(s)	25
C. Topography within 300 ft. of structure(s)	
1. Slope < 9%	1
2. Slope 10% to 20%	4
3. Slope 21% to 30%	7
4. Slope 31% to 40%	8
5. Slope > 41%	10

Hazard Rating	Total Points
1. Low hazard	< 40
2. Moderate hazard	40 - 69
3. High hazard	70 - 112
4. Extreme hazard	> 112

Source: NFPA 1144 Standard for the Protection of Life and Property from Wildfire, 2002 edition, NFPA, Quincy, MA

Element	Assessed Points
D. Additional Rating Factors (rate all that apply)	
1. Topographical features that adversely affect wildland fire behavior	0 1 2 3 4 5
2. Areas with a history of higher fire occurrence than surrounding areas due to special situations (e.g. Heavy lightning, railroads, escaped debris burning, malicious burning)	0 1 2 3 4 5
3. Areas that are periodically exposed to unusually severe fire weather and strong dry winds	0 1 2 3 4 5
4. Separation of adjacent structures that may contribute to fire spread	0 1 2 3 4 5
E. Roofing Assembly	
1. Class A roof (rated in good condition)	0
2. Class B roof (rated in fair condition)	3
3. Class C roof (rated in poor condition)	15
4. Nonrated (wood shake shingles)	25
F. Building Construction	
1. Materials (predominate)	
a. Noncombustible/fire-resistive siding, eaves and decks	0
b. Noncombustible/fire-resistive siding, combustible deck	5
c. Combustible siding and deck	10
2. Building setback relative to slopes > 30%	
a. ≥ 30 ft. to slope	0
b. < 30 ft. to slope	5
G. Available Fire Protection	
1. Water source availability	
a. Pressurized water source availability	
(1) 500 gpm hydrants ≤ 1000 ft. apart	0
(2) 250 gpm hydrants ≤ 1000 ft. apart	1
b. Non-pressurized water source availability (off site)	
(1) ≥ 250 gpm continuous for 2 hours	3
(2) < 250 gpm continuous for 2 hours	5
c. Water unavailable	10
2. Organized response resources	
a. Station ≤ 5 mi. from structure	0
b. Station > 5 Mi. from structure	3
3. Fixed fire protection	
a. NFPA 13, 13R, 13D sprinkler system	0
b. None	5
H. Placement of Gas and Electric Utilities	
1. Both utilities underground	0
2. One underground and one aboveground	3
3. Both aboveground	5
Totals for Home or Subdivision (Total of circled points)	_____

Hazard Rating:_____

Raters:_____

Fire Department:_____

Date:_____