WILDFIRE MITIGATION PLAN
For Thomas and Brenda Geers
9507 Sugarloaf Road
Docket: SPR - 05-087
Inspection date: 7/14/2006
Prepared for:
Thomas and Brenda Geers
265 Bellvue Drive
Boulder, CO 80302
Phone: 303-939-8636

## PURPOSE OF A WILDFIRE MITIGATION PLAN

The purpose of a Wildfire Mitigation Plan is to give guidelines for reducing wildfire hazards around a home or other structures through fuels reduction. It is a document to inform urban interface home owners of the dangers and responsibilities of living in the interface. This plan will help outline the initial and ongoing fuels reduction needed to create and maintain an effective wildfire defensible space. However, having a wildfire mitigation plan, implementation of a defensible space thinning, and following all the recommendations as outlined in this plan does not guarantee that your home will survive a wildland fire; however, in combination they will give your home the best potential probability to survive a wildland fire.

## SITE LOCATION AND PROPERTY DESCRIPTION

The property is located in Section 5, Township 1S, and Range 72W, Boulder County. The property is located within the Nederland Fire Protection District (303-258-9161). A 4,700 sq.ft residence with a 650 sq.ft.detached garage are proposed for the site. The lot is 10.2 acres in size and has a modest $\sim 13 \%$ percent slope with a south aspect. The site is at $\sim 8,150$ feet in elevation and located on a midslope which is relatively dry. The main road to the northwest and a few rock outcoppings scattered throughout the property create a small natural barriers that may help slow the spread of a surface fire on the site.

## CONSTRUCTION DESIGN AND MATERIALS

The proposed house will have a moderately complex design with a moderately complex roofline and will be oriented with an south aspect. The overall design of the structure greatly influences how it will withstand a wildfire. Complex building forms create heat traps, areas where the walls and roof members intersect on another where eddies form and hot air and embers from a fire can collect. It is important to keep these areas clear of combustibles such as needles and brush.

The roofing material will consist of class-A asphalt shingles. Falling embers and fire brands from a wildfire can land on a roof and ignite the roof, either by directly heating the roofing material, or by igniting light fuels (pine needles) that have collected on the roof. It is recommended to place screening over gutters and/or make a yearly check to keep them clear of leaves and needles.

The exterior wall material is to be a combination of cement board, stone veneer, and stucco with wood/timber accents. Soffits and fascia are to be $1 / 4^{"}$ thick composite wood. The structure will have many medium to large sized windows with the primary viewing direction being toward the southwest side of the structure. Windows will be double glazed with Low-E coating and tempered glass where required. Frames are to be made of wood. Exterior doors will be $13 / 4 \mathrm{n}$, fire-rated, and made of wood. All operable windows must be provided with screening that is constructed of either aluminum, galvanized steel, copper or of an approved material that when exposed to flame for 15 seconds, will not burn through or melt, and remains intact. Windows are one of the weakest parts of a structure with regards to wildfire. They often crack and fail before the structure itself ignites, providing a direct path for embers and radiant heat to reach the interior. It is best to minimize the number of windows, especially on the downhill side of the structure. Fire typically burns up hill faster and will create a great deal of radiant heat.

## UTLITIES

The propane tank is to be set on a pad of crushed rock overlaying a polyester weedbarrier located $\sim 25 \mathrm{ft}$ to the northwest of the residence and $\sim 50 \mathrm{ft}$ to the east of the cistern. Utilities for the property will be buried from a pole located to the northwest of the residence. The septic field will be located $\sim 48 \mathrm{ft}$ to the south of the residence. A well be located $\sim 114 \mathrm{ft}$ to the northeast of the residence.

## DRIVEWAY ACCESS FOR EMERGENCY VEHICLES

The property is accessed directly via Sugarloaf Road from Highway 119.
The proposed driveway will create a significant amount of site distrubance and soil compaction and will require the removal of few trees. The driveway will be $\sim 12$ feet wide with a vertical clearance of $13^{\prime} 6$ " and a grade that is less than 12 percent. The driveway will be approximately 150 feet long and 2 hammerhead or " $Y$ " turn-arounds will be created 50 feet from the proposed house and the proposed garage. Since the driveway is less than 400 ft ., no pull-outs are required along the driveway.

## EMERGENCY WATER SUPPLY FOR FIRE FIGHTING

The water source will be from a 1,800 to 2,500 gallon individual cistern and will be located $\sim 50$ feet to the northwest of the residence The cistern will be located a minimum of 50 feet from the front of the house and no further than 150 ft from the rear of the structure. The cistern will have a dry hydrant connection with a 6 inch NH threaded connection and cap (note that a $2-1 / 2^{\prime \prime}$ adaptor may be needed, depending upon the requirements of your fire protection district). Since the residence is greater than 3,600 sq. ft . in size, an NFPA 13-D residential sprinkler system will also be installed. Alternatively, a contribution may be made to the fire protection district community cistern fund (if available). Contact the Nederland Fire Protection District (303-258-9161) for more information and specific details.

## FUELS REDUCTION

All trees to be removed are flagged with orange flagging. All trees that are to remain within zones 1 and 2 will be unmarked and need to be pruned to a height of 8 ft or $1 / 3$ the height of the tree, whichever is less. If the property is less than 1 acre it may not have zones marked due to boundary interference. Harvested wood that remains on site will be stacked at least 30 feet from the house and at the same elevation when possible. Slash from the harvest will be chipped and hauled off site. Note that if you decide to burn piles, you must obtain a valid Open Burning Permit from the Boulder County Environmental Health Department (303-441-1180) and notify your local fire protection district Nederland Fire Protection District (303-258-9161).

## FOREST COMPONENT AND HEALTH

The site has a dominant overstory consisting of ponderosa pine (Pinus ponderosa) with a lodgepole pine (Pinus contorta), ponderosa pine (Pinus pondersoa), and Douglas-fir (Pseudotsuga menziesi) component. The understory consists of a dense cover of native grasses, forbs and shrubs. The forested area is best represented by Fuel Model 2. Fuel model 2 consists of open grown pine stands. Trees are widely spaced with few understory shrubs or regeneration. Ground cover consists of mountain grasses and/or needles and small woody litter. This model occurs in open grown and mature ponderosa pine stands, in the foothill to montane zone.

Dwarf mistletoe (Arceuthbium vaginatum) is heavily infested in a number of trees on the property. There were also signs of mountain pine beetle present at the time of inspection..

## DEFENSIBLE SPACE MANAGEMENT

There are three defensible space zones to be created around the structure(s) on the site. Please note that it is possible that one or more of these zones will cross over the subject property onto adjacent properties. Property boundaries must be respected; mitigation work is not required beyond immediate boundaries. However, landowners are encouraged to contact and work with neighbors if property lines limit the ability to mitigate within the prescribed area. Defensible space is a benefit, not only to the individual but also to the community as a whole.

Zone 1 - Starts at the foundation and extends out 15 feet in all directions from the outside edge of the structure(s). Zone 1 is broken down into three segments:

Zone 1A - Consists of the structure(s) themselves and the area immediately adjacent to and surrounding the structure(s) on all sides. A five-foot wide, non-flammable strip should be created using crushed gravel over a polyester weed barrier material. This strip will also extend back under, and out to, two feet past the drip line of any decks.

Zone 1B - Extends out from Zone 1A. In this zone, all highly flammable vegetation should be removed. Any large dead woody material on the ground should also be removed. Firewise plants should be used for landscaping and re-vegetation. Grasses should be irrigated when possible and mowed to a maximum height of 6 to 8 inches twice per growing season to a distance of 30 feet from the structure.

Zone 1C - This zone extends out from Zone 1B to 15 feet from the house. All understory trees (ladder fuels) should be removed as marked. These are small seedling and sapling size trees that can be ladders for fire to get in the crowns of the larger trees. A few of the larger, healthy trees can to be retained for screening. All remaining trees in this zone should be pruned to a height of 10 feet. They must be well spaced so that the crowns are not touching ( 10 foot minimum crown spacing). No trees should overhang the house or decks, unless approved by Boulder County or CSFS as "part of the structure" with additional fuels reduction around those trees to insure the defensible space integrity. Trees should be at least 15 feet away from the house on all sides, and a minimum of 20 feet from chimneys.

Zone 2 - This zone extends out from Zone 1C, and acts as a transition zone between the heavily thinned areas near the house to the existing forest setting. It extends down slope between 100-170 feet depending upon slope steepness. Zone 2 also extends on either side of the structure a minimum of 100 feet and behind the house between 70-100 feet assuming no boundary restrictions. Tree spacing begins as in Zone 1C and gradually decreases as you approach the outer edge of the zone. Thinning and crown spacing becomes greater in areas of steep slopes. Ladder fuels and poor quality, suppressed and/or diseased trees, 6 to 8 inches in diameter, make up the majority of the removals. The remaining mature trees should be pruned to a height of 10 feet at the intersection of Zones 1 and 2 with limbing reduced in height to 6 feet as you approach Zone 3. If there are any questions pertaining to slope and the changes in thinning spacing and distance regulations please refer to http://www.ext.colostate.edu/pubs/natres/pubnatr.html and find the Quick Facts 6.302 Creating Wildfire Defensible Space.

Zone 3 - This zone extends out from Zone 2 to the edge of the property. It may extend out to areas that are not part of the immediate mitigation efforts. In this zone, a few thicker clumps of trees are acceptable, as well as some unpruned trees near the outer edge. Thinning in this zone adds some protection, but is aimed more at forest health. Trees that are of poor quality or form, or have insect or disease infestations, should be removed. Slash in this zone can be lopped and scattered and/or piled for wildlife use.

- Thin suppressed trees and trees with disease and insect infestations and retain the larger, healthier trees.
- Snags can be retained for wildlife.
- Some slash in this zone can be lopped and scattered and/or piled for wildlife enhancement and shelter.
- Large amounts of slash should be disposed of by chipping, hauling to an approved site, or burning.
- For burning permits, check with your local fire protection district.


## MAINTENANCE AND RECOMMENDATIONS

As detailed in fact sheet 6.302 , Creating Wildfire Defensible Zones, an important factor that determines a structure's ability to survive wildfire is defensible space. Defensible space is a maintained area around a structure where fuels (flammable materials) are modified to slow the possible spread of wildfire to the structure, as well as from the structure to the surrounding areas. Defensible space provides a place where structure protection and fire suppression operations may occur. Wildfire hazard mitigation work breaks up fuel continuity, potentially decreasing a wildfire's intensity, and for more effectiveness should be completed beyond a home's defensible space, zone 1 and 2, area into zone 3.

In addition to the above recommendations, several other measures can be taken to make your home more fire safe and add an additional measure of safety for your family. While not required through site plan review, the following measures should be undertaken to maintain the home and defensible space in the future.

- Maintain your defensible space yearly; contact your local forester for a 5 -year maintenance inspection
- Establish an escape route and safety zone with the aid of your local fire protection district
- Keep firewood at least 30 feet away from buildings; clear weeds and grass from around pile
- Do not stack fresh cut wood against live trees - this could invite unwanted insects
- When possible, maintain an irrigated green space; mow grasses 6 " to 8 " high
- Connect, and have available, a minimum of 50 feet of garden hose with an adjustable nozzle
- Have an emergency evacuation plan in place (included in wildfire mitigation plan)
- Be aware of fire danger; your nearest fire danger sign is located at your fire station or check the Boulder Fire Weather website at www.crh.noaa.gov/bou
- Keep driveways and property address marked with reflective easy to see signs
- Maintain screens on foundations, soffit vents, roof vents, and attic openings
- Get rid of unnecessary accumulations of debris and trash from yards
- Keep tools such as shovels, rakes, ladders, and axes available and ready for use
- Clean debris from the roof and gutters at least two times annually
- Check screens and maintain spark arresters on chimneys annually
- Avoid storing combustibles under decks such as wood piles, scrap lumber, and fuels


## DEFINITIONS

Aspect - Exposure. The direction a slope faces.
Canopy - The cover of branches and foliage formed collectively by crowns of adjacent trees.
Crown - Branches and foliage of a tree.
Dominant fuel type - Matter that would carry a fire, found on the ground.
Duff - a layer of accumulated dead organic matter (pine needles).
Eddies - Small wind occurrences that are separate from normal wind flows.
Fuel Model - A number system that identifies the types of fuels found on the property that will directly influence fire behavior.

Fire danger - An assessment of both fixed and variable factors of the fire environment, which determine the ease of ignition, rate of spread, difficulty of control, and the fire impact.

Fire hazard - The potential fire behavior for a fuel type, regardless of the fuel type's weather-influenced fuel moisture content or its resistance to fireguard construction. Assessment is based on physical fuel characteristics, such as fuel arrangement, fuel load, condition of herbaceous vegetation, and presence of elevated fuels.

Fire management - The activities concerned with the protection of people, property and forest areas from wildfire and the use of prescribed burning for the attainment of forest management and other land use objectives, all conducted in a manner that considers environmental, social and economic criteria.

Fire risk - The probability or chance of fire starting determined by the presence and activities of causative agents.
Fuel continuity - The proximity of fuels to each other. Helps determine if a fire can sustain itself.
Forest health - A forest condition that is naturally resilient to damage; characterized by biodiversity, it contains sustained habitat for timber, fish, wildlife, and humans, and meets present and future resource management objectives.

Ladder fuels - Fuels that provide vertical continuity between the surface fuels and crown fuels in a forest stand, thus contributing to the ease of torching and crowning.

Limb (verb) -To remove the branches from a tree.
Noxious weeds - Any weed so designated by the Weed Control Regulations and identified on a regional district noxious weed control list.

Overstory - The tree species that forms the uppermost forest layer (dominant and co-dominant).
Slash - The residue left on the ground as a result of forest and other vegetation being altered by forest practices or other land use activities.

Snag - Standing dead tree, often used by wildlife such as woodpeckers, owls, and other various mammals.
Understory - Plants that grow underneath the overstory species.
Wildland urban interface - a popular term used to describe an area where various structures (most notably private homes) and human developments meet or are intermingled with forest and other vegetative fuel types.


## Annual fire safety checklist

- Thin trees and brush properly within defensible space.
- Remove trash and debris from defensible space.
- Remove needles and pine cones from window wells.
- Remove trees growing through a porch or other portions of a structure.
- Clear leaves and debris from the roof and gutters of structures.
- Remove branches that overhang a chimney or roof.
- Stack firewood uphill from a home or on a contour away from the home.
- Use noncombustible roof materials.
- Place shutters, fire curtains or heavy drapes on windows.
- Place screens on foundation and eave vents.
- Enclose sides of stilt foundations and decks.
- Remove any combustibles from under decks, porches or entrances ways.
- Use a chimney screen or spark arrester in fireplaces.
- Clear vegetation from around fire hydrants, cisterns, propane tanks, etc.
- Place placards on garages if storing flammable materials inside.
- Make sure that an outdoor water supply is available with a hose, nozzle and pump.
- Post address signs that are clearly visible from the street or road.
- Make sure that driveways are wide enough for fire trucks and equipment.
- Check with appropriate highway agencies to make sure load limits are posted on bridges and for the appropriate protocol for posting load limits for bridges on private property.
- Install and test smoke detectors.
- Practice a family fire drill and evacuation plan.


## Evacuation tips

- If a wildfire is threatening your area, listen to the radio for updated reports and evacuation information.
- Confine pets to one room and make plans to take care of them in the event of evacuation.
- Arrange for temporary housing with a friend or relative whose home is outside the threatened area. Leave a note in a prominent place in your home that says where and how you can be contacted.
- If your home is threatened by wildfire, you will be contacted and advised by law enforcement officers to evacuate. If you are not contacted or you decide to stay and help defend your home, evacuate pets and family members who are not needed to protect your home.
- Remove important documents, mementos, etc. from the possible fire area.
- Choose an evacuation route away from the fire if possible. Watch for changes in the speed and direction of the fire and smoke.

Take a disaster supply kit containing:

- Drinking water.
- A change of clothing and footwear for each family member.
- Blanket or sleeping bag for each person.
- First-aid kit and prescription medications.
- Emergency tools including a battery-powered radio, flashlight and extra batteries.
- Extra set of car keys and credit cards, cash or traveler's checks.
- Extra pairs of eyeglasses or other special items for infants, elderly or disabled family members.


## Defending your home

Whether you choose to stay to defend your home or to evacuate, complete as many of the following preparations as possible.

- DO NOT JEOPARDIZE YOUR LIFE. NO MATERIAL ITEM IS WORTH A LIFE.
- Wear fire-resistant clothing and protective gear.
- Remove combustible materials from around structures.
- Close or cover outside vents and shutters.
- Position garden hoses to reach the entire house, but do not turn the water on until it is needed. Hoses should have an adjustable nozzle.
- Place large, full water containers around the house. Soak burlap sacks, small rugs or large rags in the containers.
- Place a ladder against the roof of the house on the opposite side of the approaching wildfire. Place a garden hose near the ladder, prepared as described previously.
- Place portable pumps near available water supplies, such as pools, hot tubs, creeks, etc.
- Close all windows and doors. Do not lock them.
- Close all inside doors.
- Turn on a light in each room and all outside lights. Leave them on even during daylight hours.
- Fill tubs, sinks and similar containers with water.
- Shut off gas supplies to structures at outside meters. Shut of propane supplies at the outside meter of the tank.
- Remove curtains made of lace, nylon or other light materials. Close blinds, heavy drapes and fire resistant window covers.
- Move overstuffed furniture into the center of the house, away from windows and sliding doors.
- Cars should be parked in the garage, facing out. Close the windows of the vehicle but do not lock the doors. Leave the keys in the ignition.
- Close the garage door but leave it unlocked. Disconnect automatic garage door openers.

For additional copies of these checklists, visit www.colostate. edu and search for wildfire, view the Colorado State Cooperative Extension fact sheet on Forest Home Fire Safety, or contact the local Cooperative Extension office usually listed under the county government section of your local phone book.
(Information provided by Colorado State University Cooperative Extension and the Colorado State Forest Service.)

## Safety Zone Guidelines

A Safety Zone is an area that in the event of a wildland fire you could survive the passing fire without the aid of a fire shelter. A natural safety zone could be an area already burned clean by the fire (in the black), rock areas where flashy fuels are absent, or large bodies of water. A manmade safety zones could be pre-constructed sites such as clear cuts. It should be close enough to your home to consider escape time to reach the safety zone. They should not be located upslope or downwind of the fire or in heavy fuels.

1. Avoid locations that are downwind from the fire.
2. Avoid locations that are in chimneys, saddles, or narrow canyons.
3. Avoid locations that require a steep uphill escape route.
4. Take advantage of heat barriers such as lee side of ridges, large rocks, or solid structures.
5. Burn out safety zones prior to flame front approach.
6. For radiant heat only, the distance separation between you and the flames must be at least four times the maximum flame height. This distance must be maintained on all sides, if the fire has ability to burn completely around the safety zone. Convective heat from wind and/or terrain influences will increase this distance requirement.

## Calculations Assuming No Slope and No Wind

| Flame Heights | Distance separation |  |
| :--- | :--- | :--- |
| 10 feet | 40 feet | $1 / 10$ acrea in Acres |
| 20 feet | 80 feet | $1 / 2$ acre |
| 50 feet | 200 feet | 3 acres |
| 75 feet | 300 feet | 7 acres |
| 100 feet | 400 feet | 12 acres |
| 200 feet | 800 feet | 50 acres |

Note: Distance separation is the radius from the center of the safety zone to the nearest fuels. When fuels are present that will allow the fire to burn on all sides of the safety zone this distance must be doubled in order to maintain effective separation in front, to the sides, and behind the person.

Area in Acres is calculated to allow for distance separation on all sides for a three person family and a vehicle. One acre is approximately the size of a football field or exactly 208 feet $\times 208$ feet.

Example: Given a fire with 10 foot flame heights (no wind or slope). You would need a minimum of 40 feet between you and the flames. So your total safety zone should be 80 feet $x 80$ feet. If you are settled into the middle of the safety zone you will have a minimum distance of 40 feet to each edge of the zone.




## DIRECTIONS FOR FILLING OUT FORM:

Please fill out as complete as possible and fax to Nicole Palestro at 303-823-5768

## Wildfire Mitigation Plan FIELD DATA FORM

Inspection Date: 7-14-06
Landowner name: Thomas \& Brenda Seers
Mailing address: 265 Bellevue Arwe
City, State, Zip: Boulder, Co 80302
Site address:
9507 Sugenloat Rd
Phone number: $\quad 303-939-8636$
Road access:
(Directions from main access road)
Docket Number
SpR-05-0870
(SPR, LU, Etc.)
Section: $\qquad$
5

Township: $\qquad$
5
Range:
$2 w$.

Legal Description: $\qquad$
Elevation: 81500 ..... (feet)
Lot size (acres): $\quad 10.2$ ..... (Acres)
Number of Structures:

$\qquad$
(All structures to be present
Existing Structures:
$\qquad$ (House/barn/garage/etc.)
New Structure: House w/detached garage (House/Barn/new addition/etc..)
Structure SQR. FT.:
$\qquad$ (Total square feet of structure)
Structure aspect:
$\qquad$ (Dominant facing direction/view)Garage if detached:
$\qquad$ 650
(Dominant facing direction/view) (Total square feet)
Out buildings:
0 (Total square feet of sheds,cabins,ect...)
Driveway length:
$\qquad$
Driveway trees removed: Few (few/many/none)
House design: $\qquad$ (simple complex)
Home buffer material: $\qquad$ (Stone/crushed gravel/decorative stone)
Roof Design: $\qquad$ (simple/gomplex)
Roof material: $\qquad$ Asphalt (Asphalt shingles/concrete tiles/metal)
Soffit type: (Actual length in feet from road to home)
$\square$ (Plywood/hardboard/cement board)
Siding material: cematboand, Stone $r$ $\frac{\text { stucco/woud timber }}{\text { accents }}$ eel
Windows (\#): ___ (approximate number of windows)
Windows Size: Mud-lange (On average: small/medium/large)
Windows Frames: wood (Wood/aluminum/aluminum clad)
Windows Aspect: $\qquad$ (Dominant viewing direction)
Window Construction: $\square$ (Tempered glass -coating/etc.)
Window wells: $\qquad$ (Number and location if present)
Gutters w/ screens
Sliding Glass Doors:

$\qquad$
(Location and Number)
Door Material:
$\square$Wood(Wood/steel/fiberglass/composite)
Deck material:
$\qquad$ (Wood composite materials)
Deck Description:
$\qquad$ (Enclosed/open underneath or overhead)Deck support type:
$\qquad$ (Timber postslogs/steel/concrete/stone)
Deck buffer material: $\qquad$ Crushed rock/gravel)
Deck weed barrier: $\qquad$ (Fiberglass polyester)
Utility Location:
$\square$ (Pole/buried: Direction from structure)
Leach field: 48 Ft South (Distance from house, and direction)
Cistern:
Cistern Type: Fndiv.dual Fire (Domestic Cistern or Fire Cistern)
$1800-2500 \mathrm{gal}$ (gallons) Cistern size: ..... (gallons)
Making a donation to community cistern :
$\qquad$ (Yes or No)
Have you talked to the local fire department :

$\qquad$
(Yes or No)
Are you required to have a sprinkler system :

$\square$
(Yes or No)
Water supply: well (Well or main line)
Well (if applicable):

$\qquad$
(Distance from house, and direction)
Propane or natural gas: $\qquad$
25 From truck Cistern
Propane Tank location: 25 Ft so feet from Constance from house and direction)
Slash disposal: $\qquad$ (Chipped/hauled/burned/lop-scatter)
Can you provide a copy of a map with locations : $\qquad$ (Yes or No)

This part will be filled out by the inspecting forester

FAD: $\qquad$
Dominant fuel type: $\qquad$ Grass/forbs shrubsslash/etc)

Dominant overstory: $\qquad$ Ponderosa
Co-dominant overstory: Dong for Lodqefole
Fuel model type:


Aspect:

(Direction of slope)
Slope:


Building site: $\qquad$ m.dSlupe (Chimney/saddle/valley/ridge/mid-slope)

Site moisture:


Natural fire barrier: $\qquad$ load Recto

Insect \& Disease Diagnosis:


## DRIVEU,AY ACCESS FOR EMERGENCY VEHICLES

THE PROPERTY IS ACCESSED DIRECTLY VIA SUGARIOAF
ROAD FROM HGHWUY II9. THE NEW DRIVEWAY UILL CREAT SOME ADDITIONAL
SITE DISTURBANCE AND SOIL COMPACTION. IT WILL REQUIRE THE REMOVAL
CF A FEW TREES AND LIMBING OF SEVERAL OTHERS. THE DRIVEWAY WL BE
DESIGNED AND BUILT TO MEET BOULDER COUNTY PRIVATE ACCESS
STANDARDS. IT UILL BE 12 FEET WIDE UITH A VERTICAL CLEARANCEOF
13'-6\% IT WILL BE $0 \%-\sigma 4 \%$ GRADE, (UITH $\triangle$ ONE-SEC $\dagger$ ION M $A X I M U M$ OF $14 \%$ ).
AS THE FROPOSED DRIVEWAT IS (LESS THAN/GREATER THAN) (150'/400') IN
LENGTH (NO TURN-AROUND IS NEEDED/A HAMMERHEAD OR 'Y' TURN-ARQUND
WILL BE CREATED 50 FEET FRCM THE PROPOSED HOUSE) AND (NO
PULLOUT(S) (IS/ARE) (NEEDED/PULL-OUTS WILL BE CREATED AT NO
GREATER TH.AN 400 FOOT INTERVALS AS SHOUN CN THESSITE PLAN).

## EMERGENCY WUTER SUPPLY FOR FIREFIGHTING

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## MTAINTEN,ANCE

IN ADDITION TO THE ABOVE RECOMMENDATIONS, SEVERAL OTHER MEASURES CAN BE TAKEN TO MAKE YOUR HOME MORE FIRE SAFE AND ADD AN ADDITIONAL MEASUFE OF SAFTY FOR YOUR FAMILY. UHLE NOT REQUIRED THROUGH SITE PLAN REVIEU, THE FOLLOUING MEASURES SHOULD BE UNDERTAKEN TO MAINTAIN THE HOME AND DE IENSIBLE SPACE IN THE FUTURE.
-MAINTAIN YOUR DEFENSIBLE SPACE YEARLY: CONTACT HAYES TREE SERVICE FOR A 5-YEAR MAINTENANCE INSFECTICN.
-KEEP FIREWOOD AT LEAST 30 FEET AUAY FROM BUILDINGS: CLEAR UEEDS AND GRASS FROM AROUND THE PILE.

- WHEN POSSIBLE, MAINTAIN AN IRRIGATED GREENSPACE AROUND THE HOME: MOW GRASSES 6 TO 8 INCHES HIGH.
-CONNECT, $\triangle N D$ HAVE $\triangle V A I L \triangle B L E, ~ \triangle M I N I M U M ~ O F ~ 5 O ~ F E E T ~ O F ~ G A R D E N ~ H O S E ~$ WITH AN ADJUSTABLE NOZZLE.
-BE AWARE CF FIRE DANGER: FIRE DANGER SIGNS ARE POSTED AT THE ENTRANCE CF MOST MAJOR CANYONS.
-CHECK THE SCREENS ON FOUNDATIONS, SO\#IT VENTS, ROCF VENTS, AND ATTIC OPENINGS.
-GET RID OF UNNECESSARY ACCUMULATIONS OF DEBRIS AND TRASH FRCM YARDS.
-KEEP TOOLS SUCH AS SHOVELS, RAKES AND AXES, AVAILABLE AND READY FOR USE.
-CLEAN DEBRIS FRCM THE ROOF AND GUTTERS AT LEAST TWO TIMES A YEAR -CHECK SCREENS AND MAINTAIN SPARK ARRESTERS ON CHINMNEYS -CHECK TO MAKE SURE ADDRESS MARKERS ARE CLEARLY VISIBLE -AVOID STORING COMBUSTIBLES UNDER DECKS


## SITE LOC,ATION AND PROPERTY DESCRIPTION:

LOCATED IN THE NORTHUEST $1 / 4$, SECTION 5, TOUNSHPP I SOUTH, RANGE T2 UEST OF THE 6TH PM. BOULDER COUNTY, COLORADO
LOT SIZE: 10.2 ACRES
THEIRE ARE CURREENTLY NO EXISTING STRUCTURES ON SITE.
THE FROPOSED BUILDING SITE HAS $\triangle$ MODEST SLOPE (13\%) UITH A SOUTHERN ASFECT.
IT IS LOCATED ON A MID SLOPF AND IS A REI ATIVELY XERIC SITE.
NATURAL BARRIERS TO THE SFREAD CF A SURFACE FIRE NCLUDE SEVERAL MID SIZED ROCK OUTCROFPINGSS. A MAJCR DIRT ROAD ALSO PROVIDES A BARRER TO SUIFFACE FRE SPREAD.
BECAUSE OF THE TOFOGRAPHY AND FUEL TYFE, THS SITE HAS A MODERATE UILDFIRE HAZARD.

## CONSTRUCTION DESIGN , AND M,ATERI,ALS:

AS A RESULT OF THE OVERALL UILDFIRE HAZARD FOR THS SIIE, THE PROPOSED STRICTURE WILL BE CONSTRUCTED TO MEET IGNITION-RESISTANT (IR) REQUIREMENTS. THE STRUCTURE IS TO ORENT TO THE NORTH- SOUTH AND RUNS EAST-WEST ALONG A MAJOR AXIS. IT HAS A EEIATIVELY SMMPLE DESIGN AND A SMPLE ROCFLINE.
THE ROCFING MATERIAL UILL BE CLASS A ASFHALT SHINGLES.
PAINTED GALV SIEL GUTIERS UITH SCREENS UILL BE USED TO COLECT RUNOF WATER FROM THE ROCF.
THE FINISHED EXTERICR UALL SURFACE MATERIAI UILL BE A COMBINATION OF CEMENT BOARD, STCNE VENEER, AND STUCCO W/ WOOD TMBER ACCENTS. TRIM WILL UTLIIE WOOD COMPOSITE,

THEEP ARE MANY LARGE UNDOUS ON THE SOUTH SIDE OF THE STRUCTURE WINDCUS UILL BE

 REQUIRED BY BUIIDING CODE EXTERIOR DOORS ARE TO BE FIRE RATED, I-3/4' THICK AND MADE OF WOOD WITH A TEMPERED GLASS SIDEIITE.
THE DECKS WHLL BE MADE WITH COMPOSITE MATERIAL AND SUPPORTIED BY HEAVT TMBER POSTS. THE DECKS WILI BE OPEN $\triangle N D$ ISCLATED FROM THE SURROUNDING LANDSCAPE WITH CRUSHED ROCK OVER POLYESTER WEED BARRIER MATERIAL.
UTLITIES ULLL BE BURIED IN A TRENCH. THE WEL IS LOCATED 114 FEET NE OF THE HOUSE, THE SEPTIC FIELD IS LOCATED 48' SCUTH OF The HCUSE.

THE FROPANE TANK UUL BE AT LEAST 50 \#I TFOM THE FIRE CISTERN AND MORE THAN 25 FT FROM THE HOUSE. THE TANK WLLL BE SET ON A PAD OF CRUSHED ROCK NO TREE BRANCHES UILL OVERHANG THE TANK AND VEGETATION WITHIN 10 FT OF THE TANK UILL KEPT CLEARED.

## DEFENSIBLE SP,ACE AND FOREST M,AN,AGEMENT:

THE SITE IS BEST REPRESENTED BY FUEL MODEL 2. THE FROPERTY IS COVERED WITH A SPARSE OFIN CANOFY STAND OF FONDEROSA PINE AND LODGEPCLE PINE WITH A DOUGL AS FIR COMPCNENT. THE UNDERSTORY CONSISTS CF A SPARSE COVER CF NATIVE GRASSES, FORBS, AND SHRUBS ( $40 \%$ ) AND/ OR DUF, OLD ROTIEN LOGS, AND ROCK (60\%), SOTE CF THE PINE TRES ARE LGGHTLY INHCTED UITH DUARF MISTLETOE. THERE IS SOME INDICATION CF THE PRESENCE CF MOUNTAIN PINE BEEILE

THERE ARE THR\#EDEONSIBLE SPACE ZONES TO BE CREATED AROUND THE STRUCTURES. PLEASE NOTE THAT IT IS POSSIBLE THAT ONE OR MORE OF THESE ZONES UILL CROSS OVER THE SUBUECT PROPERTY ONTO ADJACENT PROPOEETES. FROPERTY BOUNDARES MUST EE RESPECTED, MITIGATION WOFK IS NOT REQURED BEYOND THE MMMEDIATE FROFERTY BOUNDARES. HOUEVER, LANDOUNERS ARE ENCOURAGED TO CONTACT NEIGHBORS IF PROFERTY LINES LIMIT THE ABLITY TO MITGATE UITHIN THE PRESCRIBED AREA. DEENSIBLE SPACE IS A BENEFI NOT ONLY TO THE INDIVIDUAL, BUT ALSO TO THE COMMMIT AS A UHOLE.

ZONE I- STARTS AT THEE FOUNDATION AND EXIENDS OUT 5 FEET IN ALL DIRECTIONS FROM THE STRUCTURE(S). ZONE I IS BRCKEN DWON INTO 3 SEGMENTS:

THE SIIE IS BEST REPRESENTED BY RUEL MODEL 2. THE FROPERTY IS COVERED UITH A SPARSE OFEN CANOPY STAND CF PONDEROSA PINE AND LODGEPCLE PINE WITH A DOUGLAS FIR COMPCNENT. THE UNDERSTORY CONSISTS OF A SPARSE COVER OF NATIVE GRASSES, FORBS, AND SHRUBS (40\%) AND/ OR DLHF, OLD ROTIEN LOGS, AND ROCK (60\%). SCTE OF THE PINE TR\#S ARE LIGHTLY INECTED UITH DWARF MISTLETCE. THERE IS SOME INDICATION CF THE FRESENCE CF MCUNTAIN FINE BEILE

THER $\triangle R E$ THRI D PLEASE NOTE THAT IT IS POSSIBLE THAT ONE OR MCRE OF THESE ZONES WILL CROSS OVER THE SUBUECT FROPERTY ONTO ADJACENT PROFOERTES. PROPERTY BOUNDARES MUST BE RESFECTED, MITGGATION WOFK IS NOT REQUIRED BEYOND THE MMEDIATE FROFERTY BCUNDARES. HOUEVER, LANDOUNERS ARE ENCOURAGED TO CONTACT NEIGHBORS IF PROFERTY LINES LIMIT THE ABLITY TO MITIGATE UITHIN THE PRESCRIBED AREA. DEIENSIBLE SPACE IS A BENEFT NOT ONLY TO THE INDIVIDUAL, EUT ALSO TO THE COMMMNIY AS A UHOLE.

ZONE I- STARTS AT THE FOUNDATION AND EXTENDS OUT 5 FEET IN ALL DIRECTIONS FROM THE STRUCTURE(S). ZONE I IS BROKEN DWON INTO 3 SEGMENTS:

ZONE IA- CONSISTS CF THE STRUCTURES THEMSELVES AND THE IMMEDIATELY ADJACENT TO AND SURREOUNDING THE STRUCTURES ON ALL SIDES. A THREE FOOT WDE, NON-FLAMAELE STRP WLLL BE CREATED USING (CRUSHED ROCK/GRAVEL) OVER A (FIBERGLASS/ POLYESIER) WEED BARRIER MATERIAL. THS STRIP WL ALSO EXTEND BACK UNDER ALL DECK AREAS, AND CUT
 FIREWOOD) MAY BE STCRED IN THS AREA.

ZONE IB- EXTĐNDS OUT FROM ZONE I. IN THIS ZONE, AL HGHLY FL.AMABLE VEGETATION IS TO BE REMOVED. ANY LAEGE DEAD WOODY MATERIAL ON THE GROUND WLLL ALSO BE REMOVED. FIREUISE FLANTS UILLL BE USED FOR LANDSCAPING. GRASSES FLANTED FOR REVEGETATICN UILL BE KEPT MOUED TO A MAXIMUM HEGHHT CF 6-8 NCHES TWICE FER GROUING SEASCN TO A DISTANCE OF 15 FROH THE STRUCTUFE. NOTE THAT GRASS SHOULD BE IRRIGATED UHEN POSSIELE).

ZONE IC. THIS ZONE EXTENDS OUT FROM ZONE IB TO 15 FET TROM THE HOUSE. ALL UNDERSTORY TRFIS (LADDER FUELS) WH BE REMOVED AS MARFED. THESE ARE SMALI SEEDLING AND SAPLING SIZE TRES THAT CAN EE LADDERS FORFIRE TO GET INTO THE CROUNS OF THE

LARGER TIES．$\triangle$ FEW OF THE LARGER，HEALTHY TREES ARE TO BE RETAINED FOR SCREENNG （SHCUN ON THE PLANS）$\triangle L \perp$ REMANNG TRES IN THS ZONE WILL BE PRLNED TO $\triangle$ HELGHT CF 10 年EI．THEY MLST BE WELL SPACED SO THAT THE CROUNS ARE NOT TOUCHNG（ 10 F $\dagger$ CROUN SPACING）． ALL TREES SHOULD BE AT LEAST 15 FEET AUAY ПROM THE HCUSE ON THE DOUNHILL SIDE AND $\triangle M I N M M$ OF 20 FEET $\triangle U U Y$ FRCM CHIMNEYS．NO TRFS UILL OVERHANG THE HOUSE OR DECKS， UNLESS THEY ARE TO BE CONSIDERED AS＇PART OF THE STRUCTURE＇．IN THIS CASE，ADDITIONAL FLEELS REDUCTION AROUND THOSE TREES MUST BE DONE TO ENSURE THE INTEGRITY OF THE DEFENSIBLE SPACE．

ZONE 2－THS ZONE EXIENDS OUT FROM ZONE IC，AND ACTS AS A TRANSITION ZONE BETUEEN THE HEAVILY THINNED AREA NEAR THE HOUSE TO THE EXISTING FOREST SETTING．IT EXTIENDS DOUN
 （50／75／25）FEET，ASSUMING NO BOUNDARY RESTRICTIONS．TREE SPACING BEGINS AS IN ZONE IC AND GRADUALLY DECREASES AS ONE APPROACHES THE OUTER EDGE OF THE ZONE．ALL LADDER FUELS $A N D$ POOR GUALITY，SUFPRESSED AND／OR DISE ASED TREES，6－8 INCHES IN DIANETER，MAKE UP THE MAUORITY CF THE REMOVALS．THE REMAINING MATURE TREES UILL BE PRUNED TO A HEGGHT CF 8 FEET AT THE INTERSECTION OF ZONES I AND 2，UTH LIMBING REDUCED IN HEKGHT TO 6 FEET AS ONE APPROACHES ZONE 3.

ZONE 3－THS ZONE EXTENDS OUT FROM ZONE 2 TO THE EDGE OF THE FROFERTY．IT MAY EXTEND OUT TO AREAS THAT ARE NOT PART OF THE IMMEDIATE MTIGATION ETORTS．N THS ZONE，A FEW THICKER CLUMPS CF TREES AFE ACCEPTABLE，AS WELL AS SOME UNPRWNED TREFS NEAR THE OUTER EDGE．THINNING IN THIS ZONE ADDS SOYE PROTECTION，BUT IS AMED MORE AT FCREST HEALTH．TREES THAT ARE OF POOR GUALITY OF FGRM，CR HAVE INSECT OR DISEASE INFESTATICNS， SHOULD BE R円MOVED．SLASH IN THS ZONE CAN BE LOFPED AND SCATIERED AND／OR PILED FOR WILDL 䊉 USE

ALL TREEGTO BE REMOVED ARE MARKED UTH（BLUE TREE MARKING PAINT／FLAGGING）．ALL TRES UTTHN ZONE I AND 2 THAT $A R E$ TO REMAN FOR SCREENNG ARE（UNMARKED／MARKED UITH＇DO；NOT CUT＇FLAGGING）．JWOOD GヨNERATED BY THE CUTTING OPERATION WILL BE BUCKED UP $\mathbb{N T O} / F \mid R E U O C D / P O L E S / L O G S$ ）$A N D$ UILL BE（CHIPPED $A N D$ SPREAD／HAULED O\＃SITE／， PLED AND BURNED）（NOTE THAT BEFORE BURNNG PILES，YCU MUS $\dagger$ OBTANA VALID CFPN BUIFNING RERMIT FROM THE BOULDER CONTY ENVIRONMENTAL HEALTH DEPARTITENT ANK CHECK WTH YOUR LOCAL FIIE PROTECTION DISIRICT）．




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[^0]:    -AT MINIMUM, $A$ ( 1800 -G,ALLON/2.500-GALLON) INDIVIDUAL FIRE PROTECTION CISTERN WILL BE INSTALLED. THE CISTENN WILL BE LOCATED A MINIMUM OF 50 FEET FROM THE HOUSE AND NO FURTHER THAN 150 FEET FROM THE REAR OF THE STFUCTURE. THE CISTERN WILL HAVE A SCHEDULE $4 \varnothing$ PVC DRY HYDRANT CONNECTION WITH A 6' NH THREADED CCNNECTION AND CAP.
    -AL TERNATIVELY, A CONTRIBUTION WILL BE MADE TO THE FIRE PROTECTION DISTRICN COMMUNITY CISTERN FUND (IF AVAILABLE).
    -A MUNICIPAL HYDRANT SYSTEM IS AVAILABLE, AND THE OUNER WILL AFPLY TO BE ADDED TO THAT SERVICE.

    - $\triangle$ DRY HYDRANT (IS/WILL BE) LOCATED TO UTILIZE WATER FROM THE NEARBY (STRE AM/POND/OTHER WATER SOURCE).
    -SINCE THE RESIDENCE IS GREATER THAN 3,600 SQUARE FEET, AN NFPA I3-D RESIDENTIAL SPRINKLER SYSTEM UILL ASLO BE INSTALLED.

