Harris Ranch North

WILDLAND-URBAN INTERFACE
FIRE SAFETY PLAN

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INTRODUCTION

The proposed Harris Ranch North Development will be located within the city limits of Boise, Idaho. As an alternative to the current requirements for construction and landscaping in the Wildland-Urban Interface (WUI) areas the following Wildland-Urban Interface Fire Protection Plan (FPP) has been prepared. This plan intends to illustrate that the proposed plan will comply with the current *Boise City Fire Prevention Code 7-01-69, Chapter 49.* Prior to implementation this FPP will be submitted and reviewed by personnel who have the authority and jurisdiction concerning the International Wildland-Urban Interface Code (IWUIC), as required by the City of Boise

Wildland-Urban Interface fire conditions and requirements for the Harris Ranch North Development are as follows:

1. Wildfire Potential
    a. Fuel
    b. Topography
    c. Weather
2. Residential Development
    a. Access
    b. Water Supply
    c. Fire Protection & Equipment
3. Construction
    a. Roof & Elements
    b. Eaves & Soffits
    c. Exterior Walls
    d. Structural Appendages & Projections
    e. Exterior Doors
    f. Vents
    g. Detached Accessory Structures
4. Landscaping
    a. Home Ignition Zones
    b. Defensible Space
5. Vegetation Management
    a. Homeowner Association

Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. If this FPP where different sections specify different materials, methods of construction or other requirements, than the IWUIC, the most restrictive shall govern.

COMPLIANCE ALTERNATIVES

PRACTICAL DIFFICULTIES

An authorized code official may allow changes concerning the carrying out of this code when there are practical difficulties that arise for individual cases. An owner or an

authorized representative may submit a written application to the code official explaining how the modification from the code is necessary due to the impractical nature of this particular situation. The code official will verify that the modification is warranted and is in conformance with this code and still maintains the same level of fire protection. The code official is to document and submit the modifications to the code enforcement agency. The code official may suspend enforcement of the code if it is found that strict compliance to the vegetation control provisions is impractical due to difficult terrain, danger due to erosion, and other safety related or impractical circumstances and reasonable efforts have been made to ensure that the intent of the code has been satisfied.

TECHNICAL ASSISTANCE

The code official is authorized to require a technical opinion and or report, free of charge to the jurisdiction, proof that the products, facilities materials, technologies, systems, and processes are acceptable. The report shall be provided by a licensed engineer, qualified technician or specialist, or a fire safety organization. The report shall meet or exceed all requirements as required by the code and shall analysis the fire safety design in order to identify fire hazards so that the necessary recommendations can be made.

ALTERNATIVE MATERIAL OR METHODS

If alternative materials or methods are proposed to be used for the work, the code official shall coordinate with the building official and fire chief to ensure the alternative materials or methods are complaint with the original materials or methods. The new materials or methods shall be approved equal or better concerning, design, quality, effectiveness, strength, durability fire resistance, and safety as required by the code. When the material or method is regulated by the *International Building Code* the approval is subject to the code official. All approved equals shall be documented accordingly and submitted to regulating agency.

PROJECT DESCRIPTION

The proposed development is 769 acres located in the E ½ of Section 20, Township 3 North, Range 3 East, Boise, Ada County, Idaho. Please see the attached vicinity map, *Appendix A*. The site is found near of the intersection of North Harris Ranch Road and East Barber Drive.

EXISTING SITE CONDITIONS

The existing site consists of undeveloped foothills with wild grass, bushes, and small trees. The proposed development lies within the Wildland-Urban Interface Zone A as designated by the City of Boise. The site contains fire prone wildland fuels and there are 2:1 slopes in portions of the subject property.

PROPOSED SITE CONDITIONS

The proposed project is a relatively low density residential development located within Boise City limits in the northeast area of Ada County. The project will include approximately 173 buildable lots ranging in size from approximately 0.18 to 0.74 acres per lot. Approximately 42.5 of the 769 acres will be developed with this project and 127.5 acres will be dedicated as permanent Open Space. The project is surrounded by foothills to the west, north, and east. Single family residences (R-1C zones) are located to the south.

WILDFIRE POTENTIAL

FUEL

The undeveloped areas surrounding Harris Ranch North subdivision contains the area's wildland fire fuel. This fuel consists primarily of grassland and upland shrub vegetation consisting of sagebrush, bitterbrush, native forbs and flowering plants, native annual and perennial grasses, invasive grasses and noxious weeds. The small diameter vegetative fuels (i.e. brush and grasses) could potentially ignite and carry fire rapidly through the site. Larger diameter vegetative fuels (i.e. trees) are very minimal and only exist along the very eastern edge of the property.

TOPOGRAPHY

The Harris Ranch North development lies on the slopes of the Boise foothills with primarily a southern exposure. Some locations of the project slopes exceed 2:1 with the developed area consisting of slopes 25% or less.

WEATHER

During windy conditions fire fronts can quickly spread through the small diameter vegetative fuels. These fire fronts produce moderate sized flames and embers that can blow in the wind and ignite fuels in other areas. Because of the small diameter, these fuels are consumed quickly. There is minimal adjacent fuels with longer burn times. As a result a wildfire in this area would be relatively short.
Wildland fuel modification areas can reduce the intensity of wildfires by providing improved suppression actions. Properly designed and maintained structures are effective in resisting ignition from these short duration flames and small embers.

RESIDENTIAL DEVELOPMENT

ACCESS

Offsite Access – The primary access to the Harris Ranch North main arterial will be the access connecting to the intersection of North Harris Ranch Road and East Barber Drive. The main access will have a 29 foot paved road, with roadside swales. There will also be a secondary emergency access that will connect to northeast end of South Council Spring Road and follow the existing #12 Homestead Trail path up and eventually tie into the system of proposed roads in the neighborhood. This secondary road will be for emergency access only and will be a 20 foot wide paved access.

Onsite Access – The primary access for the Harris Ranch North residences to the main arterial will be private drives along the main arterial or 29 foot wide paved roads that link the road system together.

WATER SUPPLY

The water supply for Harris Ranch North will be provided by an on-site water storage tank located above the project. The water supply demands will meet the International Fire Code as prescribed by the Boise City Fire Department. All homes will be less than 4,800 square feet in size and the water supply will provide a minimum of 1750 gpm for 2 hours. Fire hydrants will be spaced a maximum of 500 feet apart and 400 feet in the cul-de-sacs. Where required homes will contain interior sprinkler systems.

FIRE PROTECTION & EQUIPMENT

Additional fire prevention measures have been delineated by the Boise Fire Marshal to compensate for the emergency only access. The addition measures include:

- Residential structures will contain interior sprinkler systems where required.
- Additional fire hydrants will be installed.
- Roadway parking will be restricted.
- Additional signage will be installed.
- Fuel breaks will be designed through the common area wildland fuel beds.

CONSTRUCTION

Buildings and structures shall be constructed in accordance with the *International Building Code (IBC)* and the *IWUIC.* The most effective way to prevent wildfire disaster is to focus on specific mitigation actions for the homes themselves and their surrounding vegetation.

ROOF COVERING

Roofing material shall be Class A and / or a noncombustible material. Space between the roof covering and the roof decking, the space at the eave shall be fire stopped to preclude entry of flames or embers or have at least one 72 pound (32.4 kg) mineral surface (non-perforated cap sheet complying with ASTM D3909) installed over the combustible decking.

ROOF VALLEY

Valley flashing shall be installed per plans and consist of corrosion resistant galvanized sheet metal 0.019 inches (No. 26) (0.48mm) or thicker. It shall be installed the full length of the valley and shall be install on top of a minimum of one layer of 72 pound (32.4kg) 36" wide mineral surface (non-perforated cap sheet complying with ASTM D3909).

PROTECTION OF EAVES

Eaves shall be single layer hardie soffit.

GUTTERS & DOWNSPOUTS

Gutters and downspouts shall be composed of noncombustible materials.

EXTERIOR WALLS

Exterior walls of structures shall extend from the top of the foundation to the underside of the roof sheathing and shall be constructed by the following methods:

- Cement siding / stone / brick / stucco

APPENDAGES & PROJECTIONS

Unenclosed accessory structures attached to buildings with habitable space and projections, such as decks, shall be a minimum of one-hour fire resistance-rated construction, heavy timber construction or constructed of one of the following:

- Noncombustible materials

EXTERIOR GLAZING

Exterior windows, window walls and glazed doors, windows within exterior doors and skylights shall be multilayered glazed panels, glass block or have a fire protection rating of not less than 20 minutes.

EXTERIOR DOORS

Exterior doors shall be noncombustible construction, solid core wood not less than $1^{3}/_{4}$ inches thick (45 mm), or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with *IWUIC, Section 504.8.* ***Exceptions:*** Vehicle access doors.

VENTS

Attic ventilation openings or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches (0.0929 m^2) each. Such vents shall be covered with *noncombustible* corrosion-resistant mesh with openings not to exceed $^{1}/_{4}$ inch (6.4 mm).

VENT LOCATIONS

Attic ventilation openings shall not be located in soffits, in eave overhangs, between rafters at eaves, or in other overhang areas. Gable end and dormer vents shall be located at least 10 feet (3048 mm) from lot lines. Underfloor ventilation openings shall be located as close to grade as practical.

LANDSCAPING

The Home Ignition Zone (HIZ) includes the home and the surrounding area extending out to 100 to 200 feet from the home. Vegetative fuels within the immediate vicinity (within approximately 30 feet of the home) can have a significant impact on the potential of a home to ignite. Because of this impact the landscape design and materials are critical in reducing the potential for structural ignitions. The landscaping in Harris Ranch North Development will be natural vegetation designed to reduce the likelihood of producing firebrands that can ignite the residential structure and the ability to produce long flame lengths and intense radiant energy.

HOME IGNITION ZONE CONCEPT

This refers to the concept of first mitigating the structure from ignition and then working outward to provide ignition resistant landscape features and vegetation. Harris Ranch North Development HIZs include the home, associated structures and the surrounding area.

LANDSCAPING DESIGN AND MAINTENANCE

Landscape features and plantings will be resistant to ignition from blowing embers and designed to stop advancing wildfires within 30 feet of structures.

All single family residential units of the Harris Ranch North Development will permanently maintain vegetative clearance in accordance with the HIZ plan identified in Figure 1. However, nothing herein will require any landowner to maintain property that they do not own and/or that falls outside the Harris Ranch North Development. These requirements are intended to establish and maintain standards that when implemented and maintained can reduce the probability of wildfire loss.

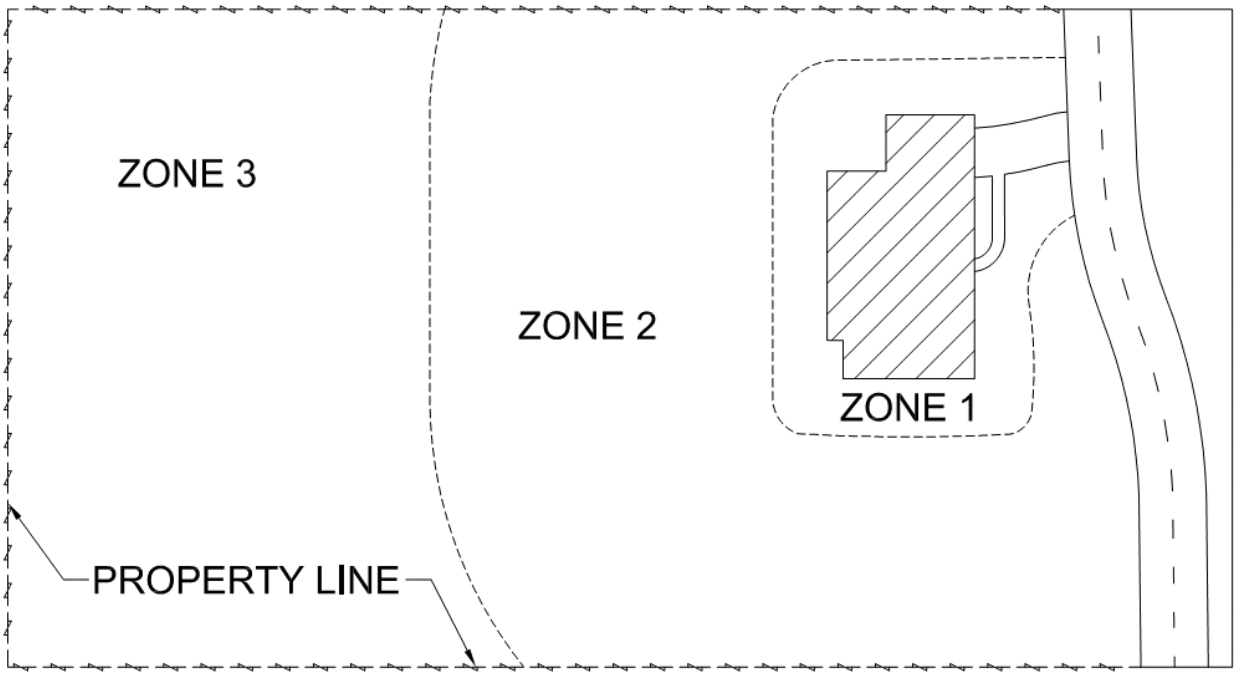


FIGURE 1: HOME IGNITION ZONE

The Home Ignition Zone includes residential structures, structural attachments, associated structures and wildland/landscape vegetation in the surrounding zones, as depicted above and described below.

ZONE 1

Zone 1 is the area of maximum fuel modification and treatment (see Figures 1 & 2) and is designed to prevent surface flames from reaching the structure. It consists of a minimum area of 30-feet around the structure in which vegetation (wildland and landscape) prone to ignition and fire is modified or removed from the landscape features. This area will normally consist of irrigated lawns and other fire-resistive landscaping vegetation and feature. This zone is measured outward from the base of the structure's foundation or any attachments, such as decks. This area will be developed and maintained by the homeowner in accordance with the requirements identified below. In the event that the homeowner's property is less than the required Zone 1 distance of 30 feet, but still within the boundaries of the development, and property is adjacent to common/open space or other entity, the Harris Ranch North Development Homeowners Association (HOA) will be responsible for the development and maintenance of the remaining portion of Zone

1. The HOA will also make a good faith effort to work in collaboration with adjacent land owners to address the amount and connectivity of wildland fuels directly adjacent to these lots.

FUEL-FREE ZONE

A 4 foot buffer around structures will be restricted to low growing shrubs or other fire-resistive plants (see Appendix B) to provide a non-flammable fuel break directly adjacent to structures. Fire-prone plants, combustible mulches, and other fuels will not be located in this 4 foot area. To reduce ignition potential from airborne embers, plants will be annually pruned and maintained by property owners.

During periods of wildfire conditions, storage of firewood or other combustible materials will be prohibited in Zone 1, unless in an enclosed noncombustible storage structure. This includes storage of materials under attached decks.

Adjoining surface and aerial fuels (flammable tree canopies) will be restricted so the placement of fire-prone trees and shrubs does not create contiguous fuel connections in Zone 1. Fire-prone trees and tree clumps within Zone 1 will be isolated from each other and lower branches pruned to approximately 6 feet above ground or approximately 1/3 tree height, whichever is less. In addition, these trees and shrubs will be restricted from contacting exterior siding, the roof, and must be separated at least 10 feet from the structure. Fire-prone trees shall be placed away from the structure at least the distance of the trees full height at maturity. Trees may be placed closer with the approval from the authorized Building Official or designee. The HOA will work with homeowners to identify site-appropriate species and planting locations, and educate residents on wildfire hazards and effective Firewise mitigation concepts.

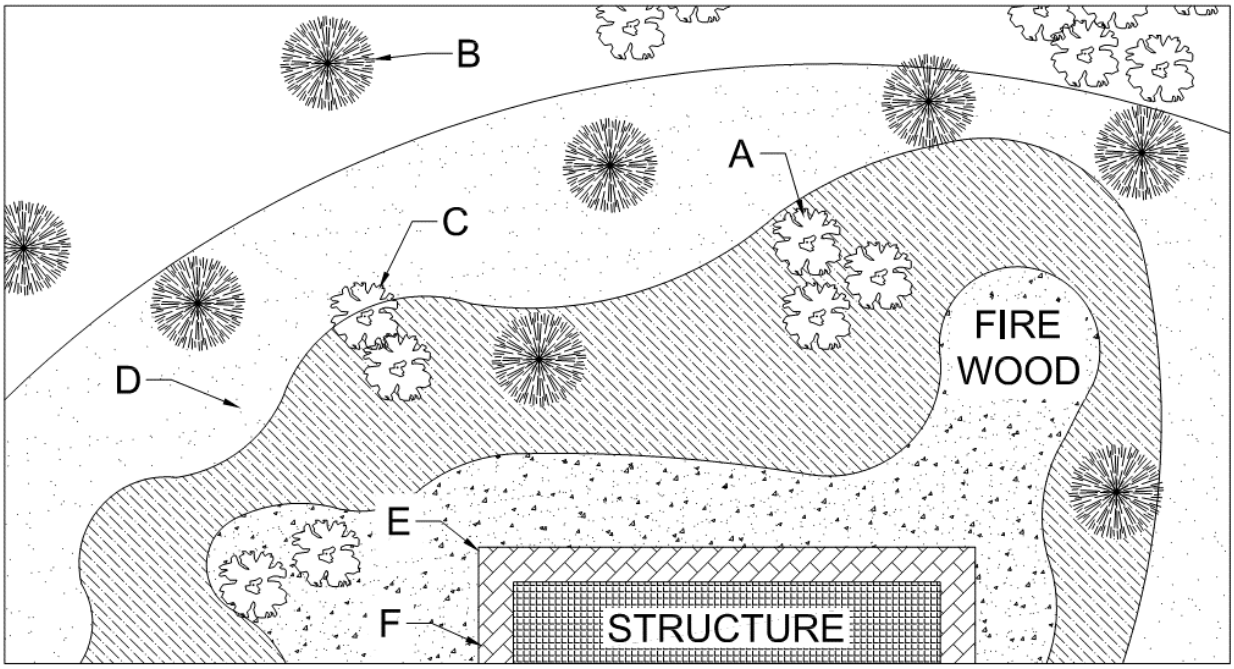


FIGURE 2: LANDSCAPING IN ZONE 1

A. Space and maintain clumps of trees and shrubs to resist ignition from adjacent flames and windborne firebrands/embers.
B. Plant naturally occurring tree species on or near the site (see Appendix C) and eliminate ladder fuels.
C. Locate combustible mulches at least 4 feet away from structures.
D. Keep lawn and dry grass in Zone 1 mown to a maximum of 4 inches.
E. Use only fire-resistive plants near structures but away from windows and vents.
F. Maintain a 4 foot noncombustible zone around structures by using fire-resistive plants and hardscape features such as rock mulches, pavers, concrete, etc.

ZONE 2

Zone 2 is an area of modified fuels designed to reduce the intensity of a fire approaching the structure. Depending upon slope, this zone will extend from 50 to 100 feet from the structure. Within this zone, the continuity and arrangement of vegetation will be based on a modified natural community emphasizing native species that are not highly flammable. Diseased, dead, or dying trees and shrubs will be modified or removed to prevent their ability to provide continuous fuels reaching Zone 1. This area forms a fuel buffer and provides a transition between Zone 1 and 3. In the event that the homeowner property boundary extends beyond Zone 1, the homeowner will be responsible for landscaping and maintaining the Zone 2 area. This area can also be managed and maintained by the homeowner in coordination with the HOA. In the event that the area associated with Zone 2 lay outside the development boundary, the HOA will make a

good faith effort to work in collaboration with adjacent land owners to address the amount and connectivity and wildland fuels directly adjacent to these lots.

ZONE 3

Zone 3 extends beyond Zone 2 as needed in severe fire hazards areas. Fuels and community composition will generally be managed by the HOA to the extent possible. In the event that the homeowner's property boundary includes Zone 3, the homeowner will work collaboratively with the HOA to develop and maintain the area based on the requirements to reduce large flames in this zone. In the event that the area associated with Zone 3 lay outside the development boundary, the HOA will make a good faith effort to work in collaboration with adjacent land owners to address the amount and connectivity of wildland fuels directly adjacent to these lots.

VEGETATION

Managing vegetation in common areas and adjacent to residences and path/trails provides several benefits;

- Fire behavior in wildland vegetation is mitigated by reducing the density and continuity of volatile brush, grasses and forbs in common areas directly adjacent to residential landscaping and structures. By limiting fuel connectivity between common areas and residences the probability of wildfire igniting structures can be significantly reduced.
- Designing the maintaining paths/trails as breaks in expanses of flammable wildland vegetation reduces the connectivity of these fuels and can assist suppression efforts in controlling fires before they reach homes and improvements. This can limit the size and spread of wildfires reducing losses to landscaping and property in the area.

HOMEOWNERS ASSOCATION

The Harris Ranch North Development Homeowners Association (HOA) will be responsible for the control, management and maintenance of fire prone vegetation on the common property within the Harris Ranch North Development boundary. These areas are primary sites for flammable vegetation and invasive and noxious weed species that increase fire behavior and connect these wildland fuels to residential landscapes and structures.

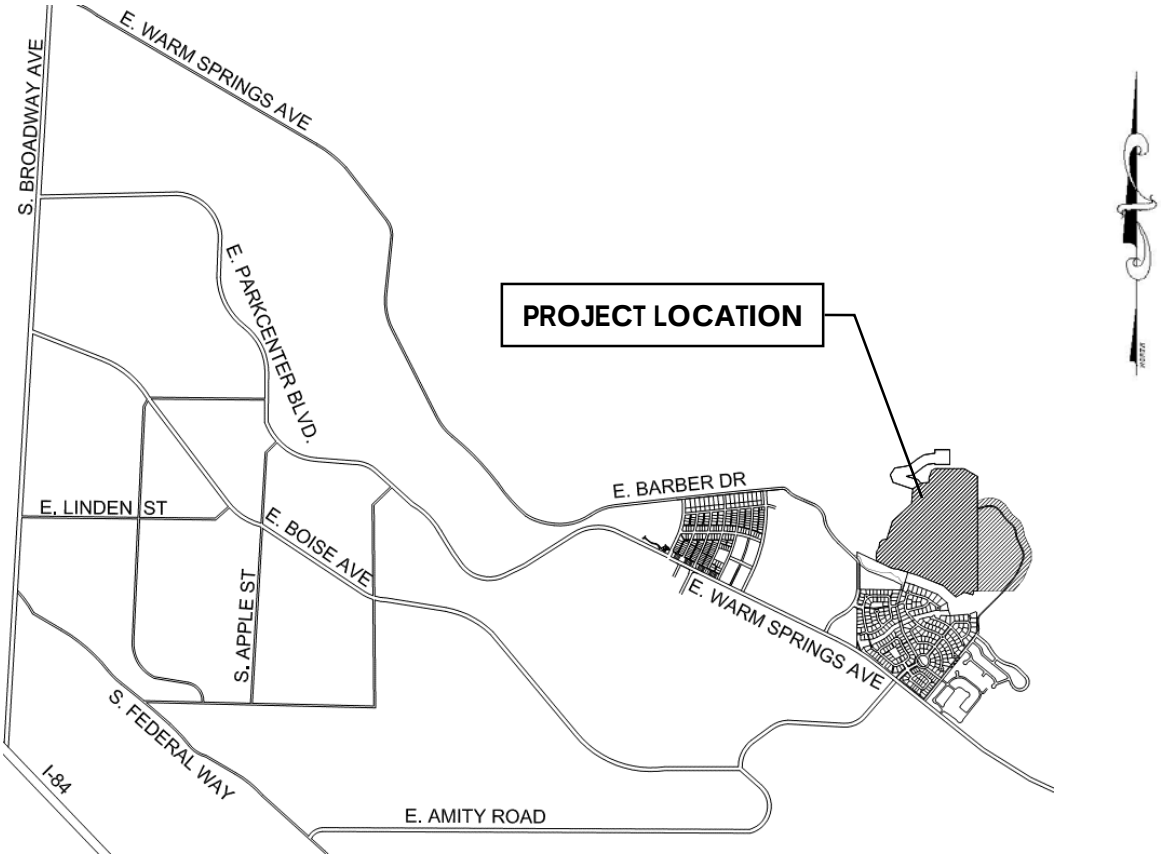
The intent of controlling fuels and/or reestablishing natural vegetation adjacent to private property and paths/trails is important to reducing wildlife risk. These areas function as fire breaks in areas of open space and reduce the overall connectivity of highly flammable fuels. This can limit the size and spread of wildfires in the area. Vegetation area these path/trails is the primary connection between expanses of common area fuels and residences. By limiting fuel connectivity in common areas the probability of wildfire reaching or affecting structures can be significantly reduced. *Minimum widths of the paths/trails and their associated fuel modification area shall total 8 feet.*

In order or reduce wildfire danger and improve the health and diversity of plant communities, the HOA will work in coordination with residents, private land owners, the Boise Fire Department, the City of Boise, adjacent HOA and other agencies to facilities fuels modification and maintenance, and native vegetation restoration project on common area within the development.

APPENDIX

A. VICINITY MAP

HARRIS RANCH NORTH DEVELOPMENT
BOISE, IDAHO



VICINITY MAP
(NOT TO SCALE)

B. FIREWISE LANDSCAPING INFORMATION

Every landscape has plants and every plant, if dry enough, will burn. Fire-resistive plants are those that have characteristics that make them less-flammable than others. That being said, the selection of fire-resistive plant materials is usually far less important than how those plants features are configured and how well the landscape is maintained.

With a few exceptions, plant condition is more important that plant species. Depending on factors such as growth form, access to water and nutrients, the same plant may be fire-resistive in one environment and combustible in another. Summer irrigation can make the difference between an extremely flammable plant and one that will not burn readily.

FIRE-PRONE PLANTS

Fire-prone plants, should NOT be planted within 30 feet of structures;

- Accumulate fine, twiggy, dry, or dead material
- Are not drought tolerant
- Have leaves and/or wood containing volatile waxes, fats, terpenes, or oils
- Are typically aromatic (crushed leaves have strong odors)
- Have gummy, resinous sap with a strong odor
- Are usually blade-leaf or needle-leaf evergreens
- May have loose or papery bark
- Are plants that flame (not smolder) when preheated and ignited with a match

FIRE-RESISTIVE PLANTS

Fire-resistive plants that CAN be planted/maintained near structures;

- Have high moisture content in stems and leaves
- Are drought tolerant
- Have little or no seasonal accumulation of dead vegetation
- Have a low volume of total vegetation
- Have non-resinous woody material
- Have an open, loose branching habit
- Are slow growing

C. FIRE HAZARD SEVERITY FORM

APPENDIX C

FIRE HAZARD SEVERITY FORM

This appendix is to be used to determine the fire hazard severity.

A. Subdivision Design

1. Ingress/Egress

Two or more primary roads	1 X
One road	10
One-lane road in, one-lane road out	15

2. Width of Primary Road

20 feet or more	1 X
Less than 20 feet	5

3. Accessibility

Road grade 5% or less	1
Road grade 5-10%	5
Road grade greater than 10%	10 X

4. Secondary Road Terminus

Loop roads, cul-de-sacs with an outside turning radius of 45 feet or greater	1 X
Cul-de-sac turnaround	5
Dead-end roads 200 feet or less in length	8
Dead-end roads greater than 200 feet in length	10

5. Street Signs

Present and approved	0 X
Present but unapproved	3
Not present	5

B. Vegetation (IUWIC Definitions)

1. Fuel Types

Surface

Lawn/noncombustible	1 X
Grass/short brush	5
Scattered dead/down woody material	10
Abundant dead/down wood material	15

Overstory

Deciduous trees (except tall brush)	3 X
Mixed deciduous trees and tall brush	10
Clumped/scattered conifers and/or tall brush	15
Contiguous conifer and/or tall brush	20

2. Defensible Space

70% or more of lots completed	1
30% to 70% of lots completed	10 X
Less than 30% of lots completed	20

C. Topography

Located on flat, base of hill or setback at crest of hill	1
On slope with 0-20% grade	5
On slope with 21-30% grade	10 X
On slope with 31% grade or greater	15
At crest of hill with unmitigated vegetation below	20

D. Roofing Material

Class A Fire Rated	1 X
Class B Fire Rated	5
Class C Fire Rated	10
Non-rated	20

E. Fire Protection—Water Source

1000 GPM hydrant within 600 feet	1 X
Hydrant farther than 600 feet or draft site	5
Approved water source 20 min or less round trip	10
Approved water source farther than 20 min, and 45 min or less round trip	15
Approved water source farther than 45 min round trip	20

F. Siding and Decking

Noncombustible siding/deck	1 X
Combustible side/no deck	5
Noncombustible siding/combustible deck	10
Combustible siding and deck	15

G. Utilities (gas and/or electrical)

All underground utilities	1 X
One underground, one aboveground	3
All aboveground	5

Total for Subdivision or Site	41
Moderate Hazard	50-75
High Hazard	76-100
Extreme Hazard	101+

Owner Name: _____

Building Address: _____