Timberland Resource Consultants

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8-29-18
Date

Bob Howard JTMP

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JOINT TIMBER MANAGEMENT GUIDE

1. CURRENT PROPERTY OWNERS

Bob Howard
PO BOX 909
Garberville, CA 95542

2. PROJECT DESCRIPTION

A Joint Timber Management Plans (JTMP) applies to the "division" of land into assessor parcels containing less than 160 acres of Timber Production Zone (TPZ). Parcel is defined as "that portion of an Assessor's parcel that is timberland". Activities that may result in such a division include subdivision, lot line adjustment and conveyances of existing land units (e.g. land patents) underlying an Assessor's parcel zoned TPZ, when any conveyance contains less than 160 acres of TPZ land.

A Lot Line Adjustment/Merger has been submitted that will result in two legal parcels, one of which is less than 160 acres. Since the recognition of the legal parcels will result in a substandard assessor parcel zoned TPZ, a JTMP is required to demonstrate that the resulting management unit (i.e. legal parcels) will be suitable for timber production and harvesting. This includes access for resource management and thus adjacent parcels to substandard TPZ parcels are addressed for such purposes in the JTMP. As such the Bob Howard JTMP is comprised of 2 Management Units (MU) as follows:

Management Unit Identification	
MU 1	90 acres
MU 2	253 acres

This JTMP is therefore being submitted to demonstrate to the County that the resulting substandard TPZ parcel can be jointly managed to maintain viable timber production. This JTMP has been prepared using the assumption that the county will assign APNs based on the counties traditional book and page numbering system, which may result in several APNs for one legal parcel due to parcels overlapping Sections or County lines. Regardless of how APNs are assigned to the management units as described below, only MU1 is less than 160 acres. As such this is the only unit where timber stand statistics are presented. The remaining parcel is addressed for all other required considerations of the JTMP.

The purpose of the Joint Timber Management Plan is to provide a management guide for harvesting timber for all parcels affected by the division of land. This Joint Timber Management Plan includes both a "*Timber Management Plan*" and a "*Timber Management Guide*". The objective of the *"Timber Management Plan"* is to identify joint access, rights-of-ways and the minimum stocking requirements of the Forest Practice Rules required to maintain viable timber producing management units. The objective of the *"Timber Management Guide"* is to provide a descriptive document that describes the property and outlines the management opportunities to the landowners.

3. MANAGEMENT OBJECTIVES

The timber management objectives are to achieve a Maximum Sustained Production of High quality timber products while retaining aesthetic, recreational, watershed, wildlife and fisheries recourses. The JTMP area is stocked with conifers and hardwoods which can be managed using a combination of intermediate, uneven-aged, and/or even aged regeneration methods. The retention of aesthetic, recreational, watershed, wildlife, and fisheries resources shall be met by following the California Forest Practice Rules. The long-term JTMP management objective is to balance growth and harvest over time to obtain a sustainable periodic return.

4. LEGAL DESCRIPTION

Management Unit 1 is located in portions of APN 223-044-003; Section 7, T5S, R4E, Humboldt County, HB&M; on the Garberville 7.5' USGS Quad. The management unit consists of approximately 90 acres of timberland.

Management Unit 2 is comprised of APN 223-044-003, 223-045-001, 223-045-007 and 223-045-008, Sections 7 & 18, T5S, R4E; Humboldt County, HB&M; on the Garberville 7.5' USGS Quad. The management unit consists of approximately 253 acres of timberland.

5. GENERAL LOCATION AND ACCESS

The JTMP is located approximately 3 miles southwest of the town of Benbow. The JTMP area is accessed by a private permanent road, locally known as Reed Mountain Road. A remnant network of seasonal roads and landings exist across both units created during the previous logging entry (circa 1965). See the JTMP map for the location of roads within both Management Units.

Landowners should consult with an RPF prior to the establishment of any new truck roads. Any road construction occurring within the JTMP area should be permitted under an approved THP/NTMP or will be subject to Humboldt County's Grading Ordinance. http://co.humboldt.ca.us/planning/building/documents/grad_ord.pdf. Several potential proposed seasonal roads have been mapped to provide access for timber operations. These routes shall be re-evaluated during future timber harvest plan layout by an RPF.

Beyond roads, cable corridors will be needed to establish tail holds and effectively yard timber. As such both parties are to be granted access for the purpose of timber management activities, non-descript easements for cable corridor construction. When cable corridors are required to be established across management unit boundaries their location should be jointly established by the affected management unit owners to benefit current and future timber operations. Landowners should consult with an RPF prior to the establishment of any cable corridors. Any cable corridor construction occurring within the JTMP area should be permitted under an approved THP/NTMP or equivalent document.

6. HARVEST METHODS

The entire JTMP area can be yarded using a combination of tractor, cable, and helicopter yarding. Ground based yarding generally occurs on slopes less than 50%. The entire JTMP area was logged in the past utilizing ground based methods which established an intricate skid trail network that accesses most of the timbered areas. While many of these skid trails were constructed on steep slopes and in close proximity to watercourses, the main artery skid trails which cover ridges and midslope benches appear to be in good overall condition and will provide sufficient access within tractor yarding areas. Due to the numerous skid trails constructed in the previous entry, it is unlikely that new skid trails will be required. However, some may require reconstruction and/or realignments to avoid environmental impacts which may include newly constructed segments.

Cable based areas are shown on the JTMP Map and generally occur on areas that are not accessible by tractors due to steep topography and watercourses. Although these steep slopes were logged in the past using ground based equipment, today's standards generally favor harvesting using cable or helicopter based systems. Within the areas suitable for cable yarding, roads shall be positioned to provide key cable yarding locations that provide adequate deflection and access to the timbered areas of the JTMP. Within the cable based areas tractor operations should be limited to the use of a few designated skid trails that may be required to access long corners, provide tail holds and bunch logs. Cable areas should be re-evaluated during commercial timber harvest layout, under a THP by an RPF.

As mentioned above, cable yarding corridors may also be required to be established across management unit boundaries. When cable corridors are required to be established across management unit boundaries both owners should consider harvesting concurrently to alleviate the cost of multiple entries and to maximize efficiency. During administration of the THP or NTMP, an RPF will be able to establish cable corridors that provide the greatest access to all affected management units.

7. PHYSICAL DESCRIPTION

The JTMP is located within the northern Coast Ranges Geomorphic Province, southeast of Cape Mendocino. This area is within a transition zone, south of the Mendocino Triple Junction (MTJ), where north-northwest strike-slip faulting of the San Andreas fault system begins to transition to a zone of southwest-northeast contraction associated with the Cascadia Subduction Zone (Csz). The primary drainages and ridges within this area are generally oriented north-northwest consistent with the structural grain of the underlying bedrock and associated faults.

Soils mapped by the California Cooperative Soil-Vegetation Survey within the JTMP area are composed of the 812 Hugo soil series. The Hugo Soil Series is composed of grayish brown loam. The subsoil is comprised of pale brown clay loam originating from a parent material of sandstone and shale. The soil has moderate to rapid permeability with good to excessive drainage. Its suitability for timber production is high to medium.

8. TIMBER HARVEST HISTORY

Based upon aerial photographs, the stand was initially entered in the mid to late 1950s. This first harvest occurred in most of the watershed beginning from the bottom up. By the mid-late 1960s the majority of the watershed had been harvested. Based on aerial photo review, the JTMP appears to have been harvested in stages between the mid 1950s and 1960s with the major road infrastructure being constructed in 1965. It is believed that the initial harvesting utilized the creeks for skidding corridors and most of the timber was yarded down to lower roads through inner gorge skid trails. No major even-aged harvesting has occurred since, however based on stumps and the variance noted within the JTMP, it is believed that selective harvesting has occurred since the first entry. These selective harvests have created an irregular stand type with a lot of variability. Merchantable conifers show many visible signs of defect, from broken and forked tops to logging scars. Tanoak has become established and in some cases is out competing younger conifers.

9. PRESENT TIMBER STAND DESCRIPTION and VOLUME SUMMARIES

The JTMP area is 343 acres of timberland. Although this JTMP area is broken into two management units, only MU 1 will result in a parcel size of less than 160 acres. As such, timber stand descriptions are presented for this unit.

Management Unit 1: 21% Douglas-fir, 45% liveoak and 34% other hardwoods. Other Hardwoods include tanoak, madrone, California bay-laurel, big leaf maple, and true oak. The average basal area of conifer is 33 square feet per acre and 80 square feet per acre of hardwood. The average age of the stand is 45 years. Conifer diameters range from 0-68" DBH, with an average of 19 inches. The stand structure is best described as single-tiered to two-tiered. Residual trees from original logging or FPR defined predominant trees are found within the management unit and are 80-120 years old. The understory consists of huckleberry, poison oak, fern species, plus grasses & forbs. There is an average of 1 snag >30" DBH and 30' tall and 5 downed logs per five acres.

Management Unit 1	
Average conifer diameter:	19 inches
Average hardwood diameter:	15 inches
Average conifer basal area/acre:	33 square feet
Average hardwood basal area/acre:	80 square feet
Conifer volume/acre:	3,290 board feet
Hardwood volume/acre:	38 green tons

10. CRUISE METHODOLOGY

a. The JTMP area was inventoried using the variable plot sampling system in 2011.
b. Nighty three (93) cruise plots were systematically established on a 200-ft by 200-ft grid throughout Management Unit 1.
c. At every plot, a prism swing was made using a 25 BAF wedge prism and all conifers 10 inches DBH and greater were measured for DBH. Heights were determined on a sub-sample at every other cruise plot. Form class was determined from field measurements and visual estimation.
d. A nested 1/300 acre fixed regeneration plot (6.8') was also employed at each plot center to measure trees 4" or less.
e. The Scribner board foot volumes were calculated using Wensel and Krumland's board foot volume equation coefficients from the publication *Volume and Taper Relationships for Redwood, Douglas-fir, and Other Conifers in California's North Coast* (University of California, Bulletin 1907). A 78 form class was used for Douglas-fir.

11. VOLUME DETERMINATION

The gross Scribner board foot volumes were calculated using Wensel & Krumland's board foot volume equation coefficients from the publication Volume and Taper Relationships for Redwood, Douglas-fir, & Other Conifers in California's North Coast (University of Ca., Bulletin 1907). Equation 3.19. The green ton volumes were calculated using volume tables developed by Richard G. Oderwald. These volumes are in tons to a four-inch top DOB, by DBH and total height, height in feet by five-foot increments. No deductions were made for hidden defects or expected breakage.

12. FUTURE YIELD

The projected growth estimates for the JTMP area are based upon Table 4, Yield in Board Feet (Scribner Rule) for Site Index 110, found on page 27 of *The Yield of Douglas Fir in the Pacific Northwest, Bulletin 201.* (Richard E. McArdle). Growth rates are not adjusted for site occupancy because the tables are purportedly recommended for use without adjustment where stand basal areas per acre are 60% or more of those given in the publication.

MU01 90 acres	2018 (50-60 years old)		2028 (60-70 years old)		2038 (70-80 years old)		2048 (80 years old)	
	Total MBF Volume	BF Vol/Acre	Total MBF Volume	BF Vol/Acre	Total MBF Volume	BF Vol/Acre	Total MBF Volume	BF Vol/Acre
	297	3,300	729	8,100	1,260	14,000	1,890	20,100

This yield scenario assumes no harvesting and that stocking rates remain relatively constant. Harvesting will change future outcomes, as will pre-commercial forest stand improvement projects.

13. SILVICULTURAL RECOMMENDATIONS

The long-term management objective is to maximize the production of high quality forest products.

In order to maximize future timber yields, future harvests will need to ensure adequate stocking is achieved immediately following completion of timber operations. In the past, it appears that harvests relied on natural regeneration in these areas and the species composition has trended towards higher occupancy of Group B species (hardwoods). Rehabilitation is the most appropriate silviculture to consider for immediate harvests within the unit. There could be further stratification as well that could allow for other silviculturual treatments such as transition or group selection. Pre-commercial practices could benefit the stand prior to harvesting. These practices are considered tending phases of forestry and include pre-commercial thinning, pruning, slash treatment and removal, and tree planting. There may also be opportunities for pre-commercial rehabilitations where undesirable hardwood species and brush is removed and treated to prepare for tree planting. The implementation of such practices improve current stocking conditions and significantly increase the long term yield of timber harvests relative to present stocking levels.

14. CONSERVATION AND PROTECTION MEASURES

Roads: The primary road system is in good shape and provides adequate access to the timber stands for future management activities. Portions of the seasonal road system have eroded over time and minor reconstruction may be required along certain segments, particularly at watercourse crossings where road alignments may need to change to comply with applicable regulation. Several proposed roads have been shown on the JTMP map. These roads were considered to be potential seasonal haul roads to provide future access for timber operations. These roads were walked in the field during JTMP layout and will generally have grades of 10% or less, with short, infrequent pitches of up to 20%. These road grades will need to be re-evaluated by an RPF during the development of a timber harvest plan in the future.

Future timber harvesting will require that the roads and crossings be maintained to present standards, which in part, are enforced by the Forest Practice Act (CalFire), Clean Water Act (WQ), and the Endangered Species Act (DFW & USFWS). Roads should be adequately drained using a combination of outsloping, insloping with cross drains, water bars and rocked rolling dips to avoid concentrated runoff that may cause erosion. The landowner is encouraged to consult with a RPF prior to conducting any road maintenance activities that are not associated with a permitted timber operation.

Fire Risk: The RPF did not observe any stand conditions, such as overcrowding or high concentrations of surface fuels, which would make the JTMP area at high risk for a forest fire. However, it is widely recognized that logging and forest management activities can increase the risk and severity of intense forest fires. Commercial logging generally removes the least flammable portion of trees—their main stems or trunks—while leaving behind their most flammable portions—their needles and limbs—directly on the ground. Untreated logging slash can adversely affect fire behavior for up to 30 years following the logging operations. Commercial logging reduces the "over story" tree canopy, which moderates the "microclimate" of the forest floor. This reduction of the tree canopy exposes the forest floor to increased sun and wind, causing increased surface temperatures and decreased relative humidity. This in turn causes surface fuels to be hotter and drier, resulting in faster rates of fire spread, greater flame lengths and fire-line intensities, and more erratic shifts in the speed and direction of fires. Small diameter surface fuels are the primary carriers of fire. Current fire-spread models such as the BEHAVE program do not even consider fuels greater than three inches in diameter, because it is mainly the fine-sized surface fuels that allow the fire to spread. Commercial logging operations remove large diameter fuels, which are naturally fire resistant, and leave behind an increased amount of fire-prone small diameter fuels.

Because forest management and timber operations have the potential for increasing the risk of fire; it is of utmost importance that all timber harvest operations be conducted in compliance with all State and local fire rules and regulations. The Forest Practice Rules require hazard reduction (treating logging slash) within 100 feet of public roads. In addition, when the option of burning piles or concentrations of slash is chosen to meet the slash treatment requirements as specified in these rules, such burning shall be done as follows: (a) Piles and concentrations shall be sufficiently free of soil and other noncombustible material for effective burning. (b) The piles and concentrations shall be burned at a safe time during the first wet fall or winter weather or other safe period following piling and according to laws and regulations. Piles and concentrations that fail to burn sufficiently to remove the fire hazard shall be further treated to eliminate that hazard. All necessary precautions shall be taken to confine such burning to the piled slash.

Soil Conservation: Soil is the basic resource that allows a forest to grow and measures should be taken now and in the future to protect this resource. Soil erosion potential is increased with concentration of runoff on bare mineral soil. Dispersion of water from roads and landings is the key to limiting erosion after logging. The landowner is encouraged to maintain all existing drainage structures and facilities on truck and skid roads. Most of these erosion control structures and facilities observed are adequately functioning, but nevertheless should still be periodically checked prior to the winter period to ensure that they are functional. Future timber harvesting will likely re-use these existing truck roads and skid roads and their maintenance will be important for successive harvests and future management activities.

Pest and Disease: Phytophthora ramorum (P. ramorum), the pathogen that causes the disease known as Sudden Oak Death (SOD). Sudden Oak Death is a new and virulent disease affecting hardwood forests in coastal California. The pathogen, *Phytophthora ramorum*, has reached epidemic levels in several California forests, killing thousands of trees. The pathogen also colonizes the foliage of several other overstory and understory hosts without killing them.

List of known SOD host species: *Acer macrophyllum (Bigleaf maple), Acer pseudoplatanus (Planetree maple), Adiantum aleuticum (Western maidenhair fern), Adiantum jordanii (California maidenhair fern), Aesculus californica (California buckeye), Aesculus hippocastanum (Horse chestnut), Arbutus menziesii (Madrone), Arctostaphylos manzanita (Manzanita), Calluna vulgaris (Scotch heather), Camellia spp. (Camellia - all species, hybrids and cultivars), Castanea sativa (Sweet chestnut), Cinnamomum camphora (Camphor tree), Fagus sylvatica (European beech), Frangula californica- ≡Rhamnus californica (California coffeeberry), Frangula purshiana- ≡Rhamnus purshiana (Cascara), Fraxinus excelsior (European ash), Griselinia littoralis (Griselinia), Hamamelis virginiana (Witch hazel), Heteromeles arbutifolia (Toyon), Kalmia spp. (Mountain laurel - all species, hybrids and cultivars), Laurus nobilis (Bay laurel), Lithocarpus densiflorus (Tanoak), Lonicera hispidula (California honeysuckle), Magnolia doltsopa = Michelia doltsopa (Michelia), Maianthemum racemosum (False Solomon's seal), Parrotia persica (Persian ironwood), Photinia fraseri (Red tip photinia), Pieris spp. (Andromeda, Pieris - all species, hybrids and cultivars), Pseudotsuga menziesii var. menziesii & all nursery grown P. menziesii (Douglas fir), Quercus agrifolia (Coast live oak), Quercus cerris (European turkey oak), Quercus chrysolepis (Canyon live oak), Quercus falcata (Southern red oak), Quercus ilex (Holm oak), Quercus kelloggii (California black oak), Quercus parvula var. shrevei and all nursery grown Q. parvula (Shreve's oak), Rhododendron spp. (Rhododendron, including azalea – all species, hybrids & cultivars), Rosa gymnocarpa (Wood rose), Salix caprea (Goat willow), Sequoia sempervirens (Coast redwood), Syringa vulgaris (Lilac), Taxus baccata (European yew), Trientalis latifolia (Western starflower), Umbellularia californica (California bay laurel), Vaccinium ovatum (Evergreen huckleberry), Viburnum spp. (Viburnum – all species, hybrids and cultivars).* (http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/downloads/pdf_files/usdaprlist.pdf)

Sudden Oak Death (SOD) is known to be generally located within the region. Confirmed cases have been found within Garberville, Benbow and surrounding areas. Due to the distance of the JTMP area to known occurrences, the JTMP area is assumed to potentially contain infected trees. Future THP/NTMPs will be required to incorporate protection measures designed mitigate potential negative effects of SOD. Mitigation & Management Recommendations are taken from Sudden Oak Death Guidelines for Forestry at http://nature.berkeley.edu/comtf/pdf/ForestryGuideNov2006.pdf.

Wildlife: The JTMP area contains habitat for numerous plant, animal and fish species. Timber operations have the potential to directly or indirectly impact fish, plants, and wildlife species. 14CCR 898.2(d) states that one of the Special Conditions under which the Director can disapprove a THP/NTMP is when "Implementation of the plan as proposed would result in either a "taking" or finding of jeopardy of wildlife species listed as rare, threatened or endangered by the Fish and Game Commission or Fish and Wildlife Service, or would cause significant, long-term damage to listed species. Consequently, any future timber harvesting that has the potential to impact wildlife will require an impact assessment, which may include consultation with the Department of Fish and Wildlife, US Fish and Wildlife Service and National Marine Fisheries Service.

Fish: The JTMP contains unnamed Class II and III watercourses which drain to the South Fork Eel River. In August 2002, the State Fish & Game Commission found that coho salmon from Punta Gorda to the Oregon border warranted listing as threatened. In March 2005 coho salmon were listed under CESA as threatened north of Punta Gorda to the Oregon border. The Board of Forestry has approved rule language for the Forest Practice Rules that will enhance protection of anadromous salmonids and their habitat. The new rule language provides a regulatory procedure for the issuance of incidental take permits for coho salmon that is integrated with the Forest Practice Act and the Forest Practice Rules. Without such an integrated approach, in addition to applying to the Department of Forestry & Fire Protection for approval of timber harvesting plans, timberland owners would have to engage in a lengthy, separate process for obtaining incidental take permits for coho salmon from DFW for any timber operations and activities that would result in take of the species. This would involve separate environmental review processes and related costs to both the permit applicant & DFW.

Plants: The JTMP area contains habitat for numerous special status plants (rare, threatened, and endangered plants) and plant communities. Special status plants are not limited to those that have been listed by state and federal agencies but include any plants that, based on all available data, can be shown to be rare, threatened, or endangered. Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain special status plants. The most current version of the *California Natural Diversity Database's List of California Terrestrial Natural Communities* has been used as a guide to the names and status of communities. Future timber operations will likely require botanical surveys utilizing "*Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2018)".

Water Quality: The JTMP area is located within the South Fork Eel River watershed. The Environmental Protection Agency (EPA) pursuant to the federal Clean Water Act section 303(d) has listed the South Fork Eel as an "impaired" waterbody. The listed pollutants are sediment and temperature. The basis for listing cited by the EPA is impairment due to sediment loading with historic logging, overgrazing, and road building. The EPA contends that the factors listed above have resulted in impairment of fisheries and aquatic habitat. The mechanisms for impairment are large scale, and are associated with numerous past and present activities, both natural and anthropogenic, such as timber harvesting, road building, highway construction, gravel mining, landsliding, flooding, development, and point source pollution. Given the broad pattern of impacting activities, the contribution of any given forest management activity or timber operation toward the impairment cited by the EPA

for the Eel River, appears to be minor. However, the sum of management and harvest impacts over time may exceed an as yet unidentified and unquantified threshold and becomes a significant mechanism of impairment in the future. It is this potential for a cumulative adverse impact, that has led to the adoption of specific forest practice regulations by the Board of Forestry, and appropriate mitigation measures within THP's/NTMP's, designed to lessen the likelihood of impact.

The THP/NTMP process, which is implemented by CALFIRE, may trigger one or more permits or other entitlements to carry out the project and ensure the protection of water quality. The range of permits needed depends on the type of action. There are also numerous federal requirements that only apply where an action is "federalized" due to funding or the need for a federal permit. All potential permits or entitlements are summarized below.

- A Section 1602 or 1611 Streambed Alteration Agreement is required through the California Department of Fish & Game when an alteration to a bed, channel, or bank of a stream will occur, such as a crossing installation.
- The California Endangered Species Act (CESA) requires consultations with the California Department of Fish and Game to determine if an activity is likely to affect or result in the take of a plant or animal (fish) listed by the State as threatened or endangered. Similar to CESA, the Federal Endangered Species Act (FESA) requires formal or informal consultation with the US Fish and Wildlife Service or the NOAA Fisheries where it is likely that the project could affect federally listed threatened or endangered species.
- Section 401 of the federal Clean Water Act requires that State water quality standards not be violated by the discharge of fill or dredged material into "Waters of the United States." The owner or operator of any facility or activity that discharges, or proposes to discharge, waste that may affect groundwater quality, or from which waste may be discharged in a diffused manner (for example, erosion from soil disturbance), must first obtain waste discharge requirements (WDRs) from the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Act. However, typically THP activities in the North Coast Region are covered either by a categorical waiver or by general WDRs. The most recent NCRWCB orders concerning categorical waivers and general WDRs for non-federal timberlands are orders no. R1- 2009-0038 and R1-2004-0030, respectively. Most water bodies in the North Coast Region are listed as impaired due to either sediment and/or temperature under Section 303(d) of the Clean Water Act. Federal regulations require that a total maximum daily load (TMDL) be established for 303(d) listed water bodies for each pollutant. In the absence of TMDLs in a 303(d) listed water body, coverage under general WDRs must be obtained or specific WDRs must be established.

Archaeology: The project area lies within an area known to be inhabited in the past by local Native American tribes. Archaeological resources are one of the many resources considered significant to California. Native American cultural resources are commonly situated on ridgelines and associated spurs; saddles; midslope terraces; at vegetative ecotones; at confluences of drainages, and areas adjacent to seasonal and perennial watercourses including springs. Given the presence of many of the aforementioned features within the JTMP area it is likely that resources associated with Native Americans may be found within the project area. In addition to Native American resources the FPR also require surveying for the presence of historic resources. The project area had been harvested as early as 1960. Tractors were used primarily at this time. In light of this, one could expect to find artifacts associated with this sort of operation, such as discarded wire rope chokers, tractor parts, oil cans, fuel containers, wedges, drag saw parts, spring boards, saw blades, axes, soda and liquor bottles, or canteens. The FPR require that these resources be surveyed for, disclosed when found and protected from timber operations as appropriate. Currently, these surveys can be conducted by trained resource personnel (Trained RPFs), however in the future these resources may need to be surveyed for by a professional archaeologist. Portions of the JTMP, specifically MU1 were surveyed in association with the NTMP and no prehistoric or historic resources were found.

16. MANAGEMENT PLAN UPDATES

It is highly advised that the Joint Timber Management Guide be updated on a periodic basis, to revise growth predictions and specific changes to the timberland. Updates should include recommendations to improve the current stand conditions such as commercial thinning or salvage operations, and treatments for pre-commercial stands such as pre-commercial thinning and brush control. The forest landowners are advised to retain professional guidance concerning forest management decisions to take advantage of the best information on current practices and markets. Meeting the objectives of the landowners is a necessary function of these updates and their participation is encouraged.

17. MANAGEMENT COST

Cost that will be incurred for management activities could include but are not necessarily limited to the following: road maintenance, surveying, geologic assessment, wildlife surveying, forest protection, tree planting, timber stand improvement and related harvesting costs. These costs will not necessarily coincide with revenues received from harvests. Landowners should be prepared for these costs that are necessary to maintain a productive, healthy forest ecosystem.

18. LEGAL REQUIRMENTS

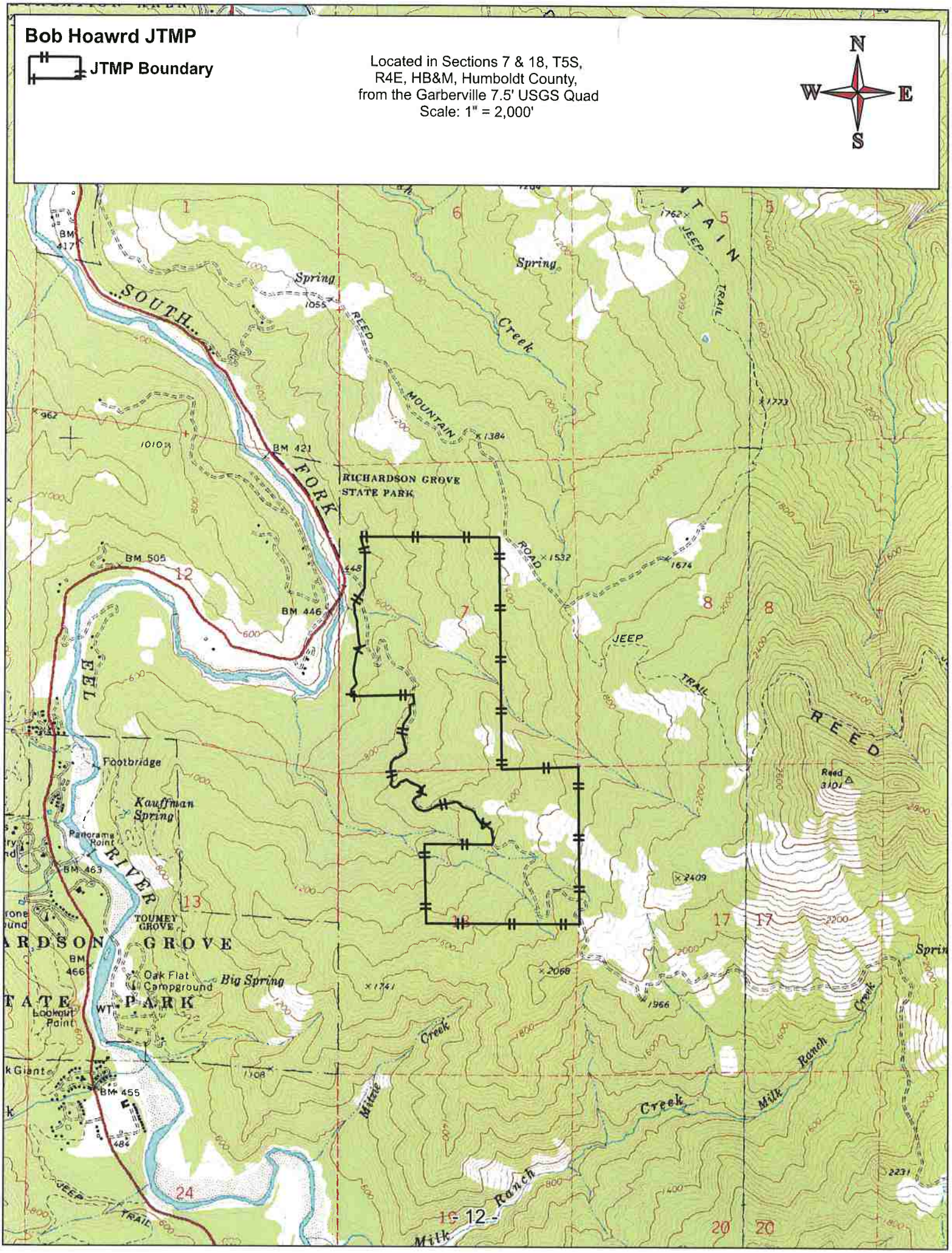
The landowner should be aware that harvest activities will require a State approved Timber Harvest Plan (THP) or equivalent document and that all timber operations are subject to regulations included in the Forest Practice Act and the current California Forest Practice Rules. Other permits that also may be required are Department of Fish and Game Stream Alteration Agreement, US Fish and Wildlife Service Letter of Technical Assistance for impacts that may impact the Northern Spotted Owl and Water Quality Waste Discharge Permit.

JTMP MAPS

Bob Hoawrd JTMP

JTMP Boundary

Located in Sections 7 & 18, T5S,
R4E, HB&M, Humboldt County,
from the Garberville 7.5' USGS Quad
Scale: 1" = 2,000'



Bob Hoawrd JTMP

JTMP Boundary

Located in Sections 7 & 18, T5S,
R4E, HB&M, Humboldt County,
from the Garberville 7.5' USGS Quad
Scale: 1" = 2,000'
2016 DOQ

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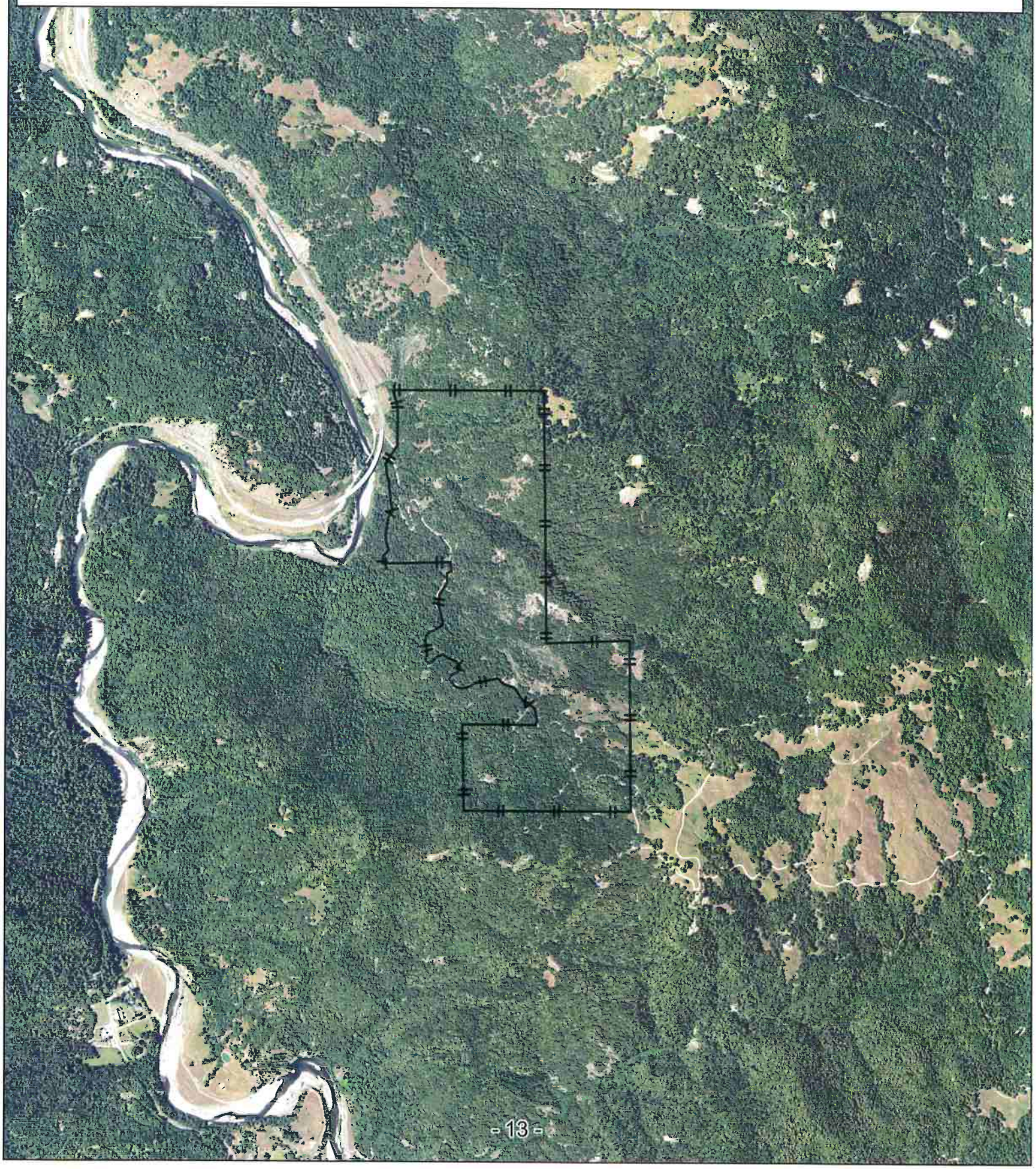

Bob Hoawrd JTMP
APN Map

JTMP Boundary

Located in Sections 7 & 18, T5S,
R4E, HB&M, Humboldt County,
from the Garberville 7.5' USGS Quad
Scale: 1" = 1,000'

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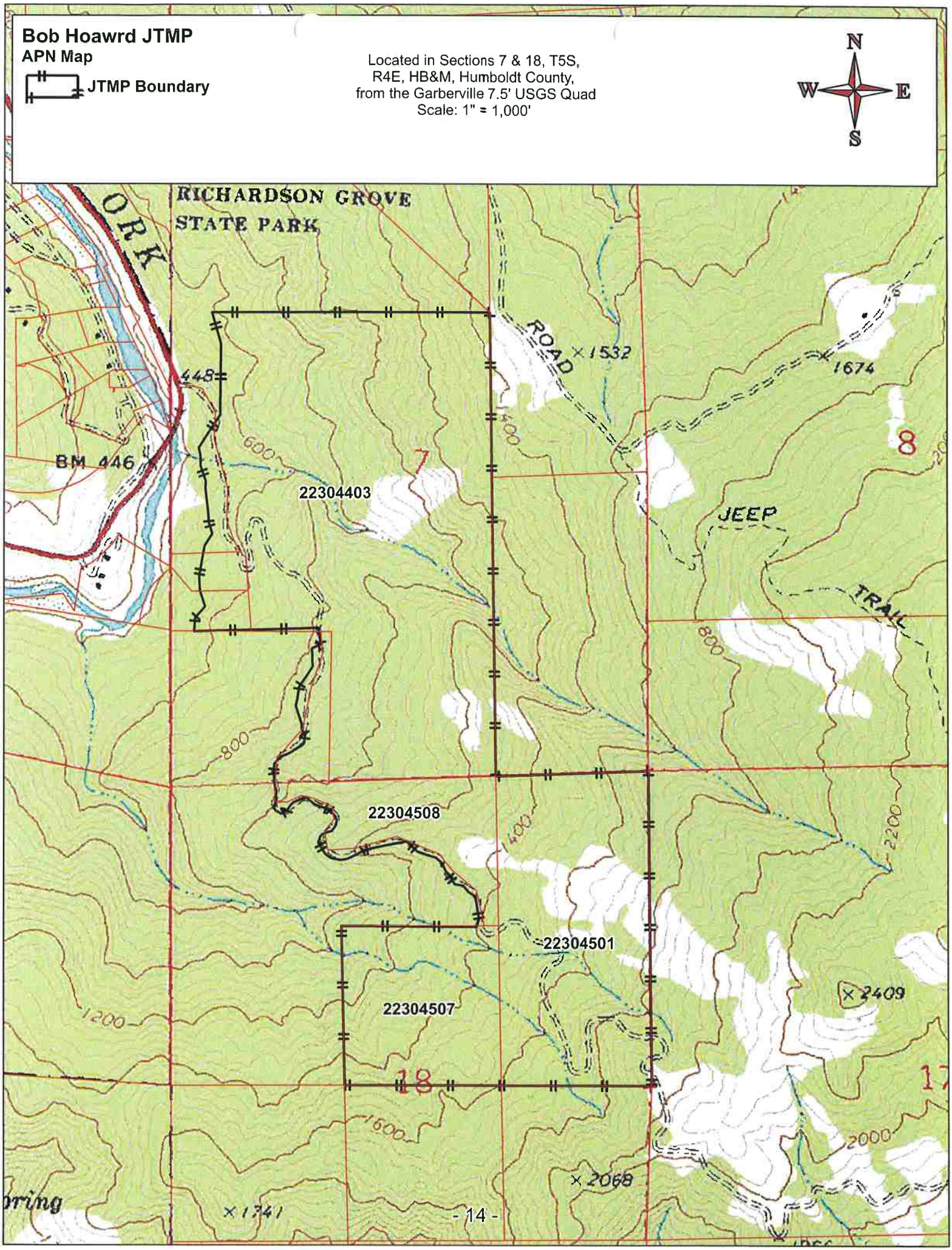


PROJECT NOTES

1) The map illustrates a proposed Lot Line Adjustment between APNs 223-044-003, 223-045-001, 223-045-008 and 223-045-007 as shown hereon. APNs 223-044-003, 23-045-001 and 223-045-008 are one legal parcel as the result of a Lot Line Adjustment, LLA-14-016, with the resultant parcel described in Document 2017-12414 as noted hereon. The new lot line will follow the centerline of an existing creek. This creek has been approximately located using aerial imagery for this application.

2) Boundary lines for the subject parcels and existing easements of record are based on Title Reports prepared by Humboldt Land Title Company, Order No. 00162253-001-SM dated 12/8/2017 and ______. Boundary lines were determined by ties to record monuments from the map recorded in Book 46 of Surveys, Pages 109-114, Humboldt County Records. ***All plottable easements of record are shown on this Plot Plan.*** See "Easement Notes" on this sheet for additional information.

LOT AREAS & INFORMATION

EXISTING PARCELS

APNs 223-044-003 (portion), 223-045-001 & 223-045-008
Existing Area: 302 acres
General Plan Designation: AG
Zoning Designation: TPZ

APN 223-045-007
Existing Area: 41.0 acres
General Plan Designation: AG
Zoning Designation: TPZ

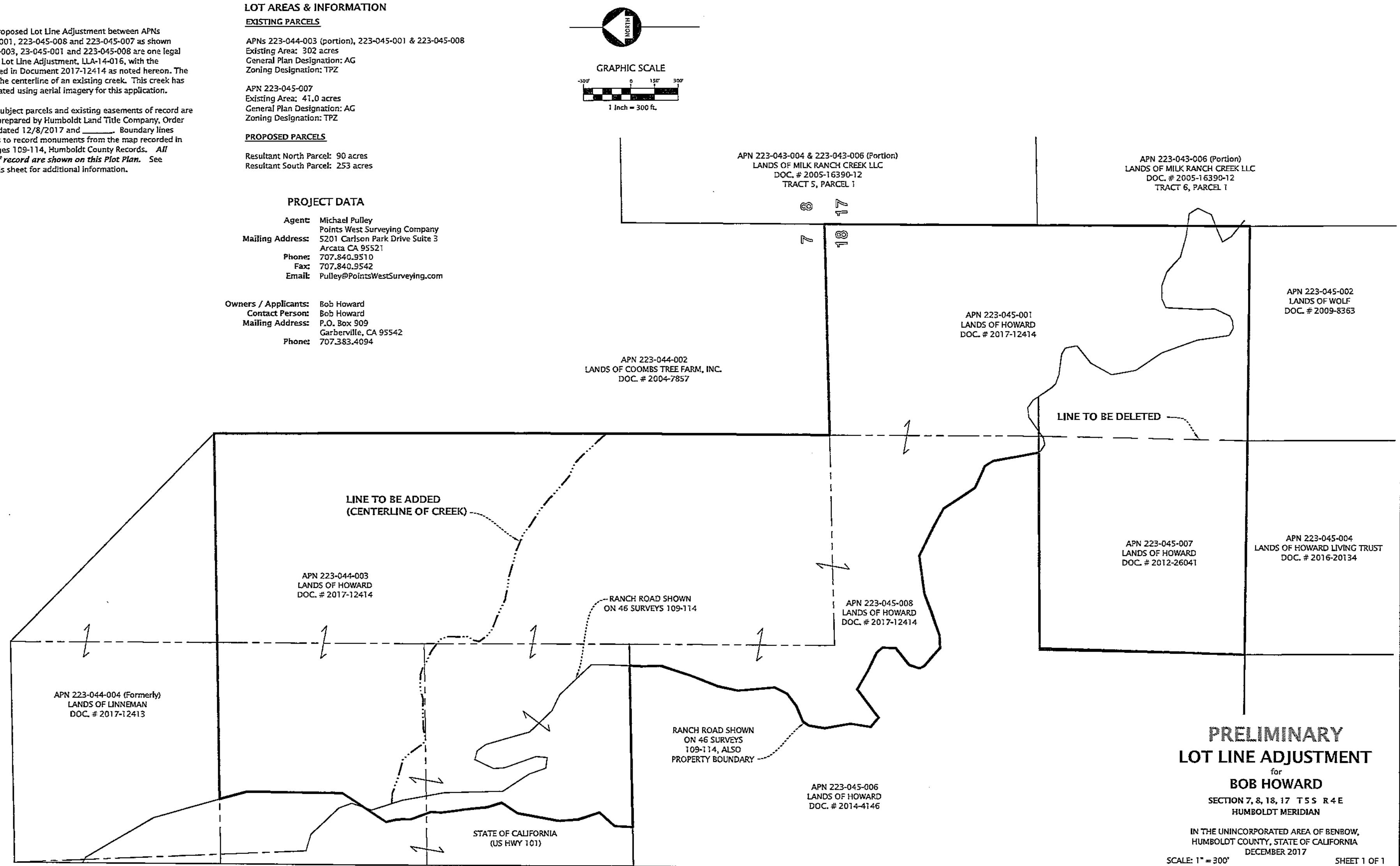
PROPOSED PARCELS

Resultant North Parcel: 90 acres
Resultant South Parcel: 253 acres

PROJECT DATA

Agent: Michael Pulley
Points West Surveying Company
Mailing Address: 5201 Carlson Park Drive Suite 3
Arcata CA 95521
Phone: 707.840.9510
Fax: 707.840.9542
Email: Pulley@PointsWestSurveying.com

Owners / Applicants: Bob Howard
Contact Person: Bob Howard
Mailing Address: P.O. Box 909
Garberville, CA 95542
Phone: 707.383.4094



PRELIMINARY
LOT LINE ADJUSTMENT
for
BOB HOWARD

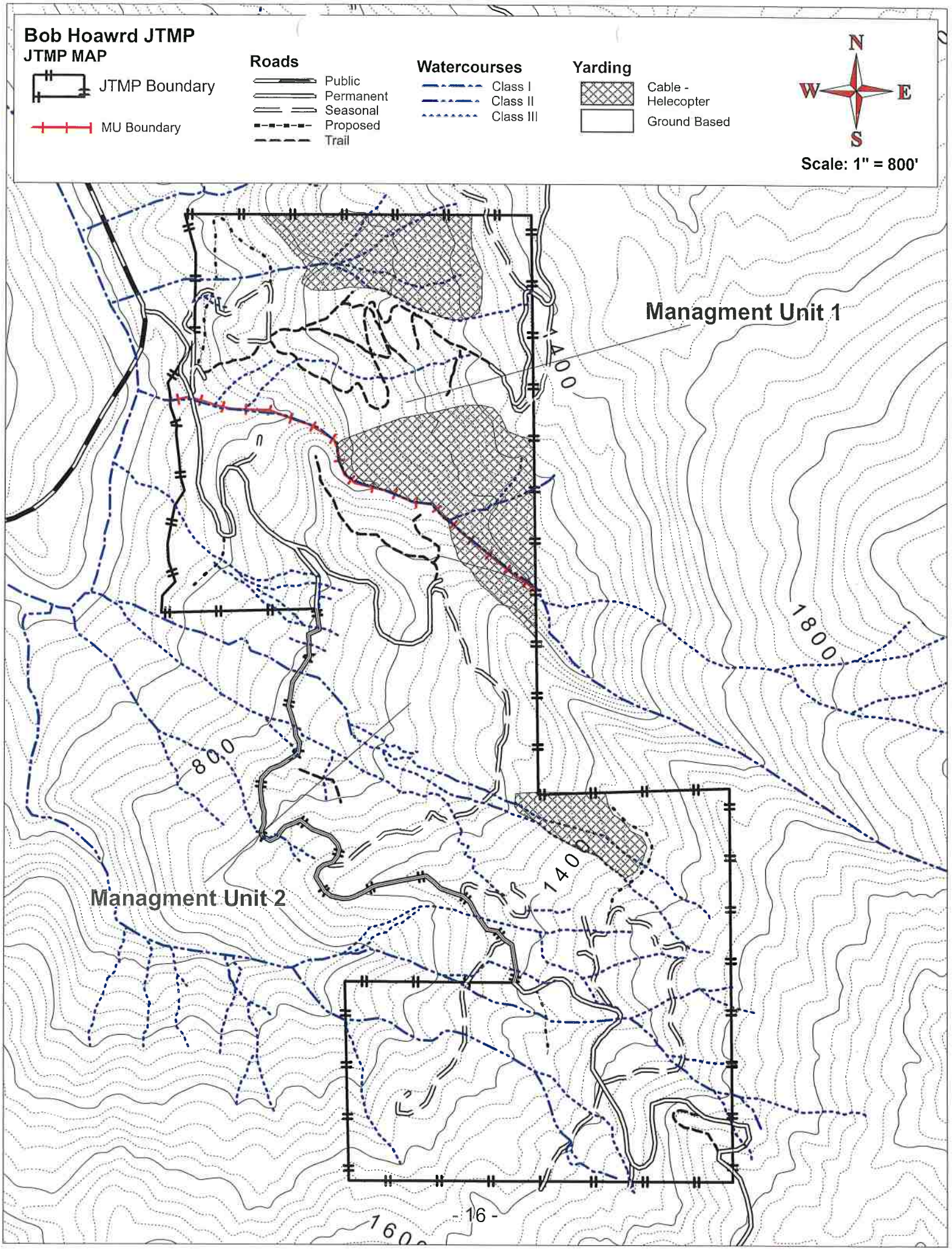
SECTION 7, 8, 18, 17 T5S R4E
HUMBOLDT MERIDIAN

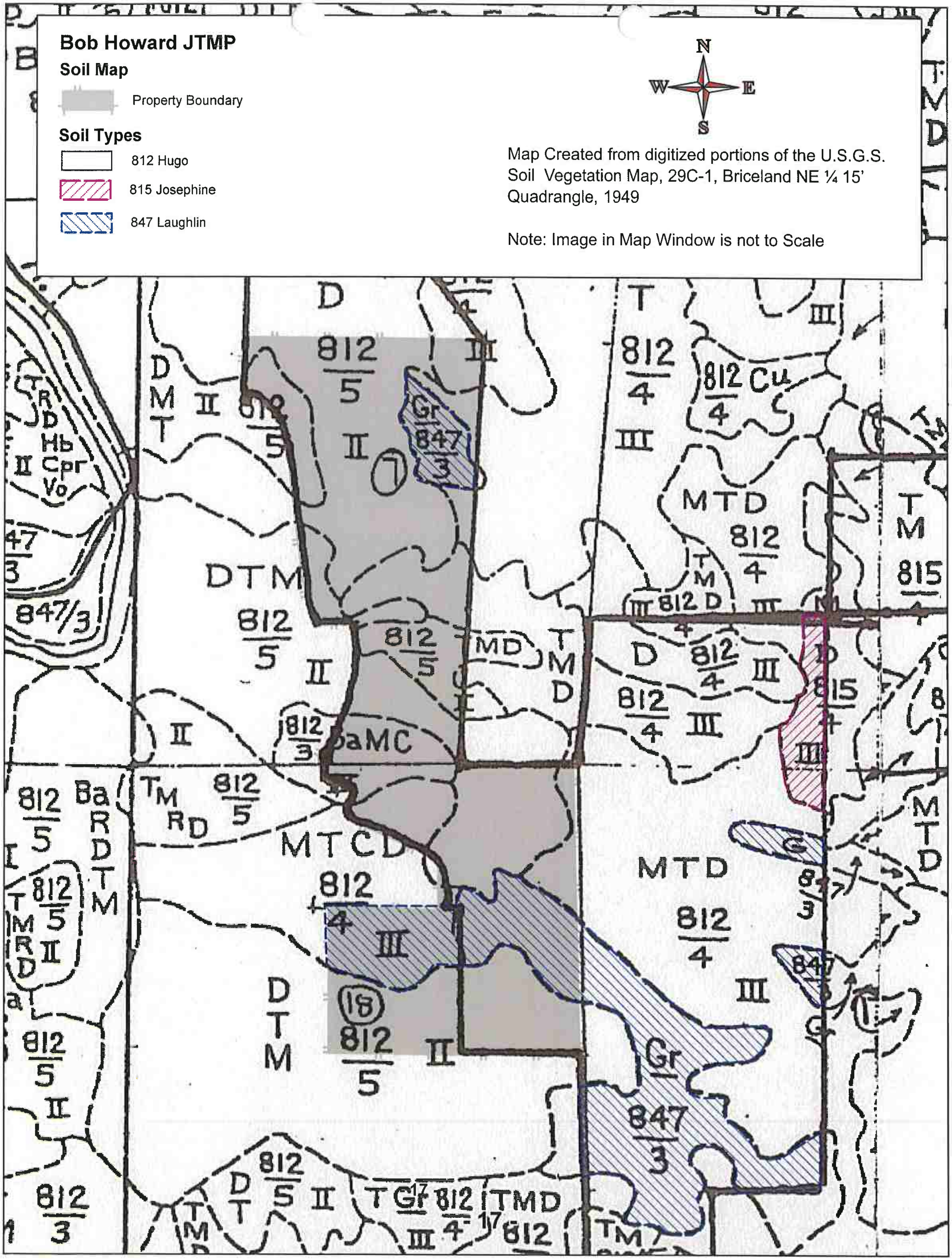
IN THE UNINCORPORATED AREA OF BENBOW, HUMBOLDT COUNTY, STATE OF CALIFORNIA
DECEMBER 2017

SCALE: 1" = 300' SHEET 1 OF 1

POINTS WEST SURVEYING CO.
5201 Carlson Park Dr., Suite 3 - Arcata, CA 95521
707-840-9510 - Phone 707-840-9542 - Fax

D:\Land Projects\846-15 Howard\dwg\846_Howard Base.dwg 10/19/2016 PDF


Bob Hoawrd JTMP
JTMP MAP
JTMP Boundary
MU Boundary
Roads
Public
Permanent
Seasonal
Proposed
Trail
Watercourses
Class I
Class II
Class III
Yarding
Cable - Helecopter
Ground Based
N
W
E
S
Scale: 1" = 800'
Managment Unit 1
Managment Unit 2
400
800
1400
1600
1800


Bob Howard JTMP
Soil Map
Property Boundary
Soil Types
812 Hugo
815 Josephine
847 Laughlin
N
W
E
S
Map Created from digitized portions of the U.S.G.S. Soil Vegetation Map, 29C-1, Briceland NE ¼ 15' Quadrangle, 1949
Note: Image in Map Window is not to Scale

Bob Howard JTMP

TIMBER MANAGEMENT PLAN

Table of Contents

TIMBER MANAGEMENT PLAN

1. CURRENT PROPERTY OWNER

Bob Howard
PO BOX 909
Garberville, CA 95542

2. PROJECT DESCRIPTION

A Joint Timber Management Plans (JTMP) applies to the "division" of land into assessor parcels containing less than 160 acres of Timber Production Zone (TPZ). Parcel is defined as "that portion of an Assessor's parcel that is timberland". Activities that may result in such a division include subdivision, lot line adjustment and conveyances of existing land units (e.g. land patents) underlying an Assessor's parcel zoned TPZ, when any conveyance contains less than 160 acres of TPZ land.

3. MANAGEMENT PLAN OBJECTIVES

The objective of the Timber Management Plan is to identify access, rights-of-ways & minimum stocking standards of the Forest Practice Rules required to maintain viable timber producing parcels. For the management units to maintain their ability to be managed for timber they will require access as described below for the purpose of timber management. Additionally, to more efficiently harvest the management units; cable corridors may need to be constructed across management unit boundaries.

4. ACCESS AND ROADS APPURTENANT TO THE JTMP MANAGEMENT UNITS

The JTMP is located approximately 3 miles southwest of the town of Benbow. The JTMP area is accessed by a private permanent road, locally known as Reed Mountain Road. This road crosses management units via bridge just south of the main gate. No other roads, or proposed roads were identified as necessary between management units. In addition to the aforementioned access for the purpose of timber management activities, non-descript access for cable corridor construction is required to maintain viable timber management units. When cable corridors are required to be established across management unit boundaries their location should be jointly established by the affected management unit owners to benefit current and future timber operations. Landowners should consult with an RPF prior to the establishment of cable corridors. Any cable corridor construction occurring within the JTMP area should be permitted under an approved THP/NTMP or equivalent document.

5. TIMBER MANAGEMENT GUIDE

The information presented above shall be considered the "*Timber Management Plan*" portion of this JTMP. Please see "*Timber Management Guide*" portion of the JTMP on pages 1-19. The "*Timber Management Guide*" describes and demonstrates how the individual JTMP management units can be managed to maintain their viability as TPZ parcels.

6. MIMIMUN STOCKING STANDARDS

912.7, 932.7, 952.7 Resource Conservation Standards for Minimum Stocking [All Districts, note (b)(1)(D)]
The following resource conservation standards constitute minimum acceptable stocking in the Coast Forest District after timber operations have been completed.

(a) Rock outcroppings, meadows, wet areas, or other areas not normally bearing commercial species shall not be considered as requiring stocking and are exempt from such provisions.

(b) An area on which timber operations have taken place shall be classified as acceptably stocked if either of the standards set forth in (1) or (2) below are met within five (5) years after completion of timber operations unless otherwise specified in the rules.

(1) An area contains an average point count of 300 per acre on Site I, II and III lands or 150 on site IV and V lands

to be computed as follows:

(A) Each countable tree [Ref. PRC § 4528(b)] which is not more than 4 inches d.b.h. counts 1 point.
(B) Each countable tree over 4 inches and not more than 12 inches d.b.h. counts 3 points.
(C) Each countable tree over 12 inches d.b.h. counts as 6 points.
(D) [Coast] Root crown sprouts will be counted using the average stump diameter 12 inches above average ground level of the original stump from which the sprouts originate, counting one sprout for each foot of stump diameter to a maximum of 6 per stump.

(2) The average residual basal area measured in stems 1 inch or larger in diameter, is at least 85 square ft. per acre on Site I lands, and 50 square ft. per acre on lands of Site II classification or lower. Site classification shall be determined by the RPF who prepared the plan.

(3) To the extent basal area standards are specified in the rules in excess of 14 CCR § 912.7(b)(2) [932.7(b)(2), 952.7(b)(2)], up to 15 square feet of basal area of those standards higher than the minimum may be met by counting snags, and decadent or deformed trees of value to wildlife in the following sizes:

(A) 30 inches or greater dbh and 50 feet or greater in height on site I and II lands;
(B) 24 inches or greater dbh and 30 feet or greater in height on site III lands; and
(C) 20 inches or greater dbh and 20 feet or greater in height on site IV and V lands.

(c) The substitution provided for in 14CCR § 912.7(b)(3) [932.7(b)(2), 952.7(b)(2)] may only be done when the potential spread of insects and diseases will not have a significantly adverse impact on long term productivity or forest health.

(d) The resource conservation standards of the rules may be met with Group A and/or B commercial species. The percentage of the stocking requirements met with Group A species shall be no less than the percentage of the stand basal area they comprised before harvesting. The site occupancy provided by Group A species shall not be reduced relative to Group B species. When considering site occupancy, the Director shall consider the potential long term effects of relative site occupancy of Group A species versus Group B species as a result of harvest. If Group A species will likely recapture the site after harvest, Group B species do not need to be reduced. The time frames for recapturing the site shall be consistent with achieving MSP. The Director may prohibit the use of Group A and/or B commercial species which are non-indigenous or are not physiologically suited to the area involved. Exceptions may be approved by the Director if the THP provides the following information & those exceptions are agreed to by the timberland owner:

(1) Explain and justify with clear and convincing evidence how using Group A non-indigenous, or Group B species to meet the resource conservation standards will meet the intent of the Forest Practice Act as described in PRC § 4513. The discussion shall include at least:

(A) The management objectives of the post-harvest stand;
(B) A description of the current stand, including species composition and current stocking levels within the area of Group B species. The percentage can be measured by using point-count, basal area, stocked plot, or other method agreed to by the Director.
(C) The percentage of the post-harvest stocking to be met with Group B species. Post harvest percentages will be determined on the basis of stocked plots. Only the methods provided by 14 CCR §§ 1070-1075 shall be used in determining if the standards of PRC § 4561 have been met.
(D) A description of what will constitute a countable tree, as defined by PRC § 4528 for a Group B species and how such a tree will meet the management objectives of the post-harvest stand.

The Director, after an initial inspection pursuant to PRC § 4604, shall approve use of Group B species, as exceptions to the pre-harvest basal area percentage standard, if in his judgment the intent of the Act will be met, and there will not be an immediate significant and long-term harm to the natural resources of the state.