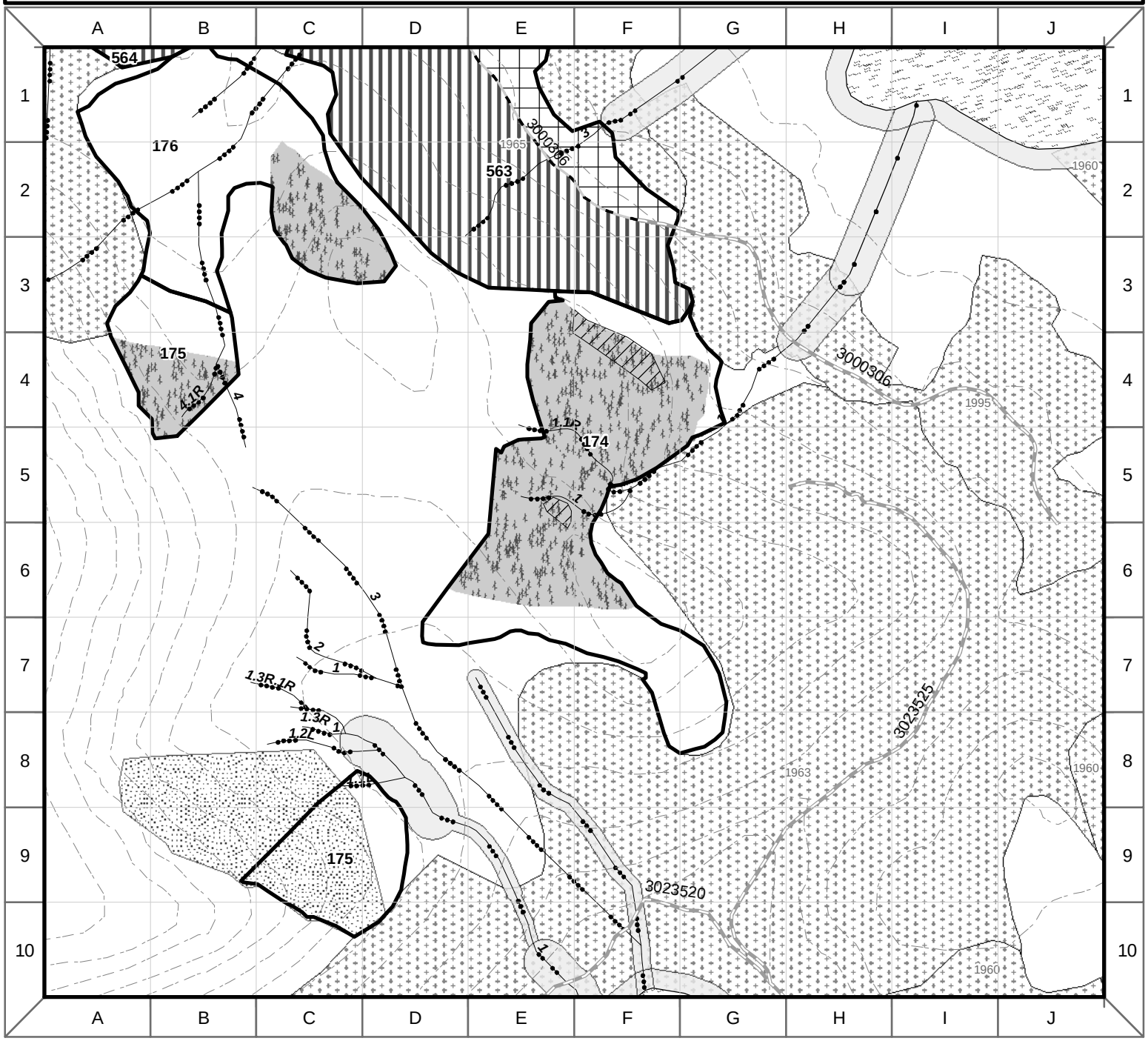
Unit Number 174 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 175	Alternatives: ROD	Total Unit Acres: 4.0	Prescription: Clearcut
VCU Number: 583	Yarding System: Helicopter	Net Harvest Volume (MBF): 109	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with over-mature timber. The overstory consists primarily of western hemlock along with Alaska-cedar and Sitka spruce. Many dead western hemlock are also present throughout the unit. Western redcedar occurs in isolated patches. Physical defects and stem decay were rated high. Mistletoe is moderate and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management
This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. The potential opening is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Helicopter yarding to NFS road 3000306.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3000306, totaling 1,700 feet. This road is also used to access Units 563, 174 and 176. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Harbor

All streams in unit: Class: IV	Flagging: G/W	C- Type: HC or MM
Buffer (RMA): none	Buffer (RAW): no review needed	Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

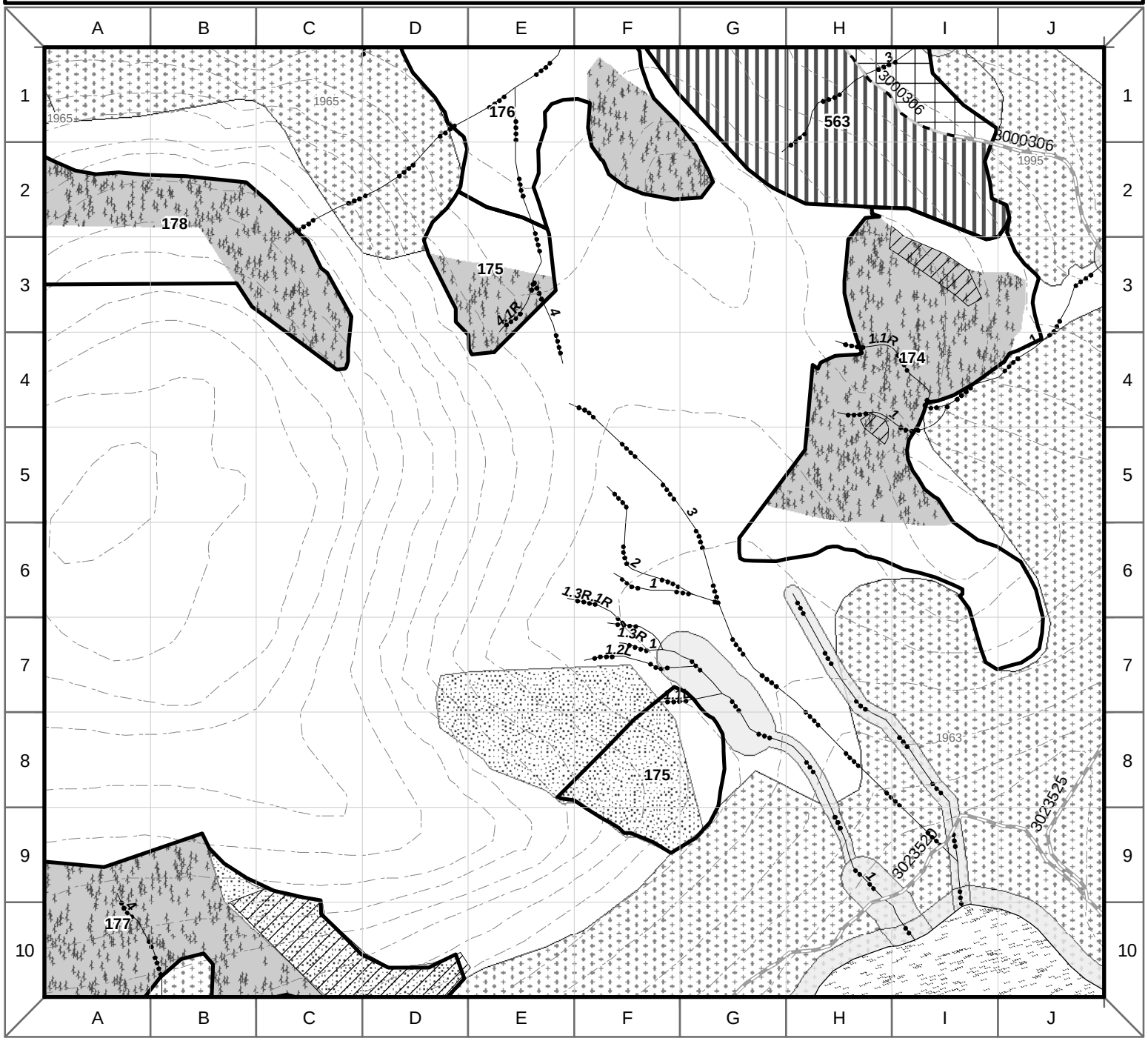
SCENERY: No Concerns

RECREATION: No concerns, but note that the two polygons of the unit are on opposite sides of and border a finger of the Thorne River inventoried roadless area.

SOILS/WETLANDS: Slopes range from 35 to 65%. Approximately 18 acres were excluded due to colluvial activity, steep wet slopes, and active and historic landslides. Forested wetlands occupy about 40% of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 175 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 176	Alternatives: ROD	Total Unit Acres: 5.9	Prescription: Clearcut
VCU Number: 583	Yarding System: Helicopter	Net Harvest Volume (MBF): 162	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with over-mature timber. The overstory consists primarily of western hemlock along with a fairly equal mix of Alaska-cedar and Sitka spruce. Stem rot is the main damage agent affecting tree health and volume. The overall average defect is moderate with some areas having higher ratings. Windthrow risk is moderate. All adjacent even-aged stands have regenerated. There are no adjacent openings.

Silvicultural Prescription: Even-age Management
This stand is mature with heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible. The potential harvest opening is less than 20 acres due to removals for non-merchantable timber. No legacy acreage is required.

TIMBER/YARDING: Helicopter yarding to NFS road 3000306.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3000306, totaling 1,700 feet. This road is also used to access Units 563, 174 and 175. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Harbor

All streams in unit: Class: IV	Flagging: G/W	C- Type: HC or MM
Buffer (RMA): none	Buffer (RAW): no review needed	Protection: Category C

GEOLOGY/KARST:

HERITAGE RESOURCES:

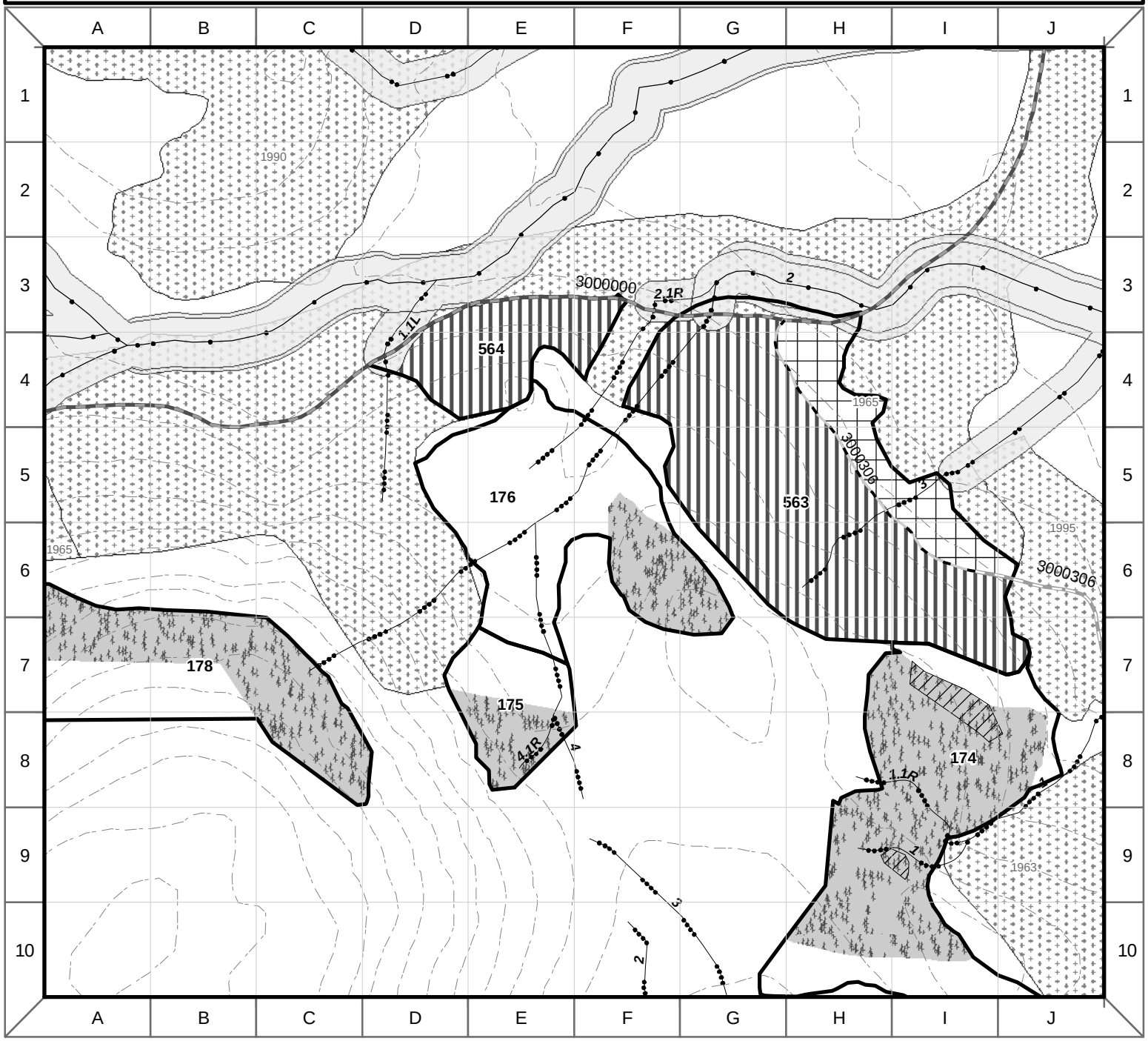
SCENERY:

RECREATION:

SOILS/WETLANDS: In the current unit, slopes range from 10 to 30%. Forested wetlands occupy about 40% of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

WILDLIFE: Legacy VCU however no legacy required due to partial harvest and opening size less than 20 acres.

Unit Number 176 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Appendix 1

Unit Number: 177	Alternatives: ROD	Total Unit Acres: 58.6	Prescription: 50% Removal
VCU Number: 583	Yarding System: Helicopter	Net Harvest Volume (MBF): 781	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 177 has old-growth stand structure. Overstory is western hemlock, Sitka spruce and Alaska-cedar with some scattered western redcedar. The stand is high defect due to heavy stem decay and poor stem form. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

A Tongass Wide Young Growth Study site (POW Ratz Experiment #4) is to the southeast of this unit. Protection of this site is required. Contact the Forest Science Lab in Juneau for additional information.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. This system is not optimum for promoting timber production but is being prescribed due to the visibility of the unit. No Legacy acres required under uneven-aged management.

TIMBER/YARDING: Helicopter yarding to the proposed temporary road accessing Unit 557.

ENGINEERING/ROADS: This unit utilizes the proposed temporary road of 2,800 feet constructed into Unit 557 as displayed on the unit card for Unit 557. This entire road will be constructed over decommissioned road bed. Unit is accessed by reconstruction of NFS road 3023500 for 200 feet; and reconstruction of NFS road 3023530 for 4,800 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD- to the top of the side-slope break Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

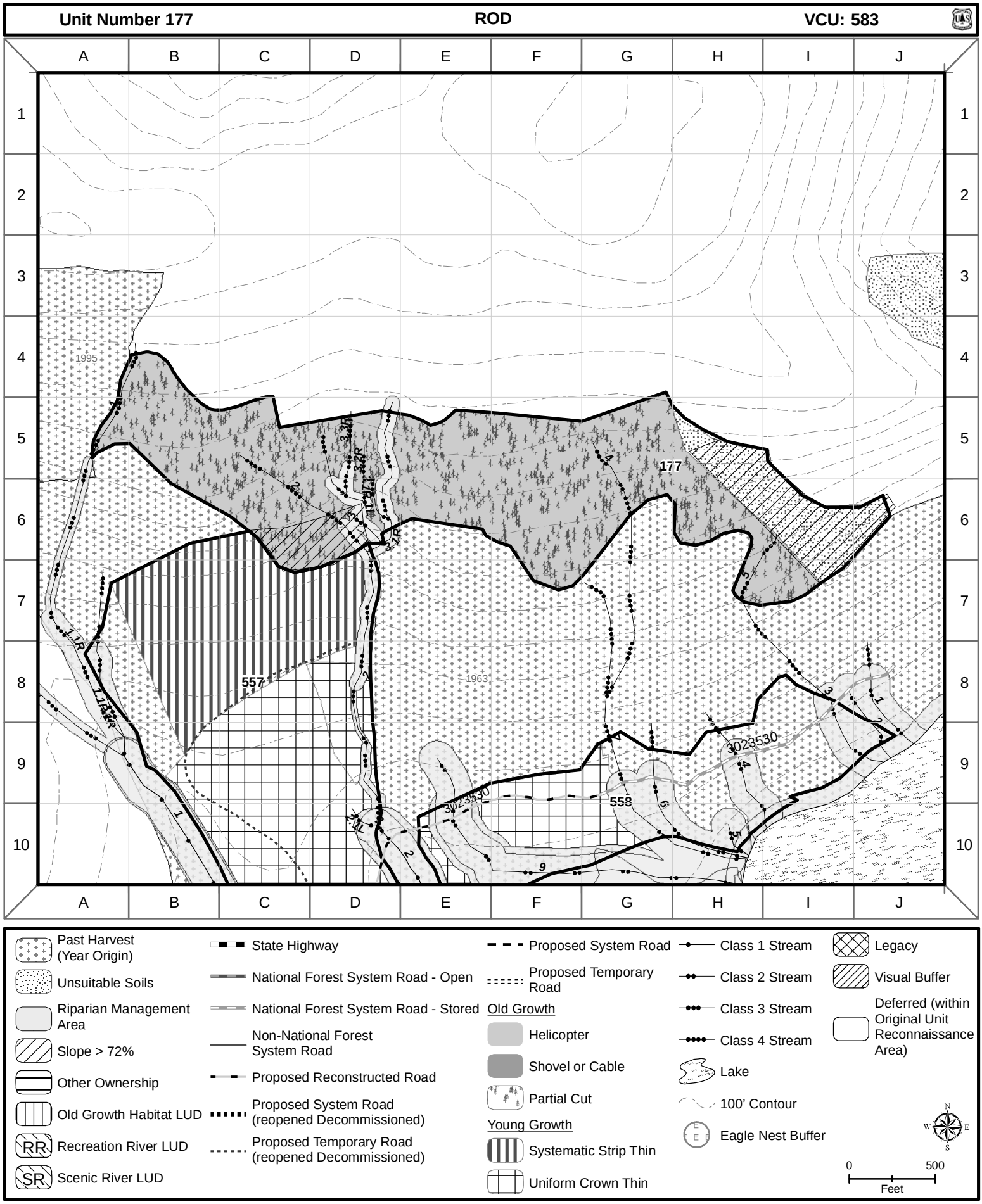
Stream#: 3.1R Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none.
Alternatives: ROD Buffer (RAW): no review needed. Protection: Category B

Stream#: 3.3R Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCM- to the top of the side-slope break Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns, but unit borders the Thorne River roadless area on its northern border.
SOILS/WETLANDS: Slopes range from 30 to 90%. The majority of the slopes average 55 to 70%. About 4 acres slopes greater than 72% is suitable for harvest with full suspension. Approximately 9 acres were excluded due to high landslide potential, colluvial activity, steep slopes, and unstable drainages. Small areas of forested wetlands were identified in the middle of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, a minimum of full suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Appendix 1



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Unit Number: 178	Alternatives: ROD	Total Unit Acres: 26.7	Prescription: Clearcut
VCU Number: 583	Yarding System: Cable, Helicopter	Net Harvest Volume (MBF): 401	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with a western hemlock overstory. Sitka spruce, western redcedar and Alaska-cedar are intermixed in the overstory. The dominant damage agents are heart rot, stem decay and patches of stem deformity (pistol butts). Alaska-cedar are generally poor quality and over-mature with high defect. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 13 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to coincide with deferred IRA areas and along the stream, building off of and providing RAW to the RMA.

TIMBER/YARDING: Cable and helicopter yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,600 feet. Approximately 1,200 feet of this road will be constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek.

Stream#: 1 Class: III Flagging: O/W C- Type: HCD Concerns: Blowdown
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 2 Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: Blowdown and active erosion
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break Class III for HCM- to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 2.1R Class: II Flagging: B/W C- Type: HCO Concerns: Blowdown and active erosion
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed. Protection: Category C

Temporary roads for Unit 178: One Class III stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads, implement BMPs 12.17, 13.10, 13.11, 13.6, 14.3, and 14.5.

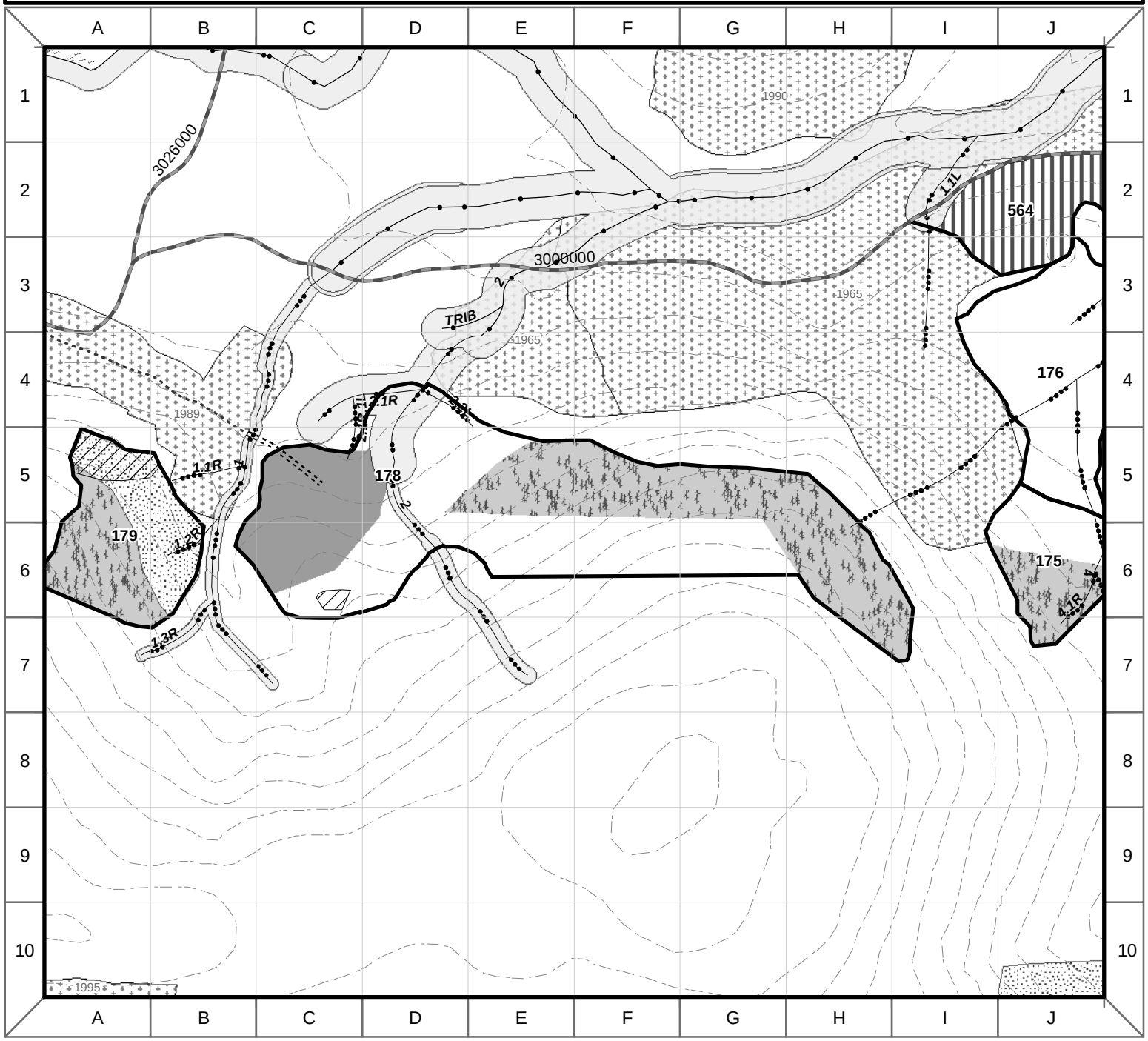
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns

RECREATION: No Concerns, but unit abuts the Thorne River inventoried roadless area on the south.
SOILS/WETLANDS: Slopes range from 30 to 65%. Intermittent forested wetlands are found in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding, and helicopter yarding should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. The proposed temporary road does not cross any wetland. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 178 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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Appendix 1

Unit Number: 179	Alternatives: ROD	Total Unit Acres: 6.1	Prescription: Clearcut
VCU Number: 583	Yarding System: Helicopter	Net Harvest Volume (MBF): 190	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 179 has old-growth stand structure with a western hemlock overstory with Sitka spruce, western redcedar and Alaska-cedar intermixed. The dominant damage agents are heart rot, stem decay and patches of stem deformity (pistol butts). Alaska-cedar is generally poor quality and over-mature with high defect. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. The potential opening is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Helicopter yarding to the proposed temporary road accessing Unit 178.

ENGINEERING/ROADS: This unit is utilizing the proposed temporary road of 1,600 feet accessing Unit 178. Approximately 1,200 feet of this road will be constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1 Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 1.3 Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

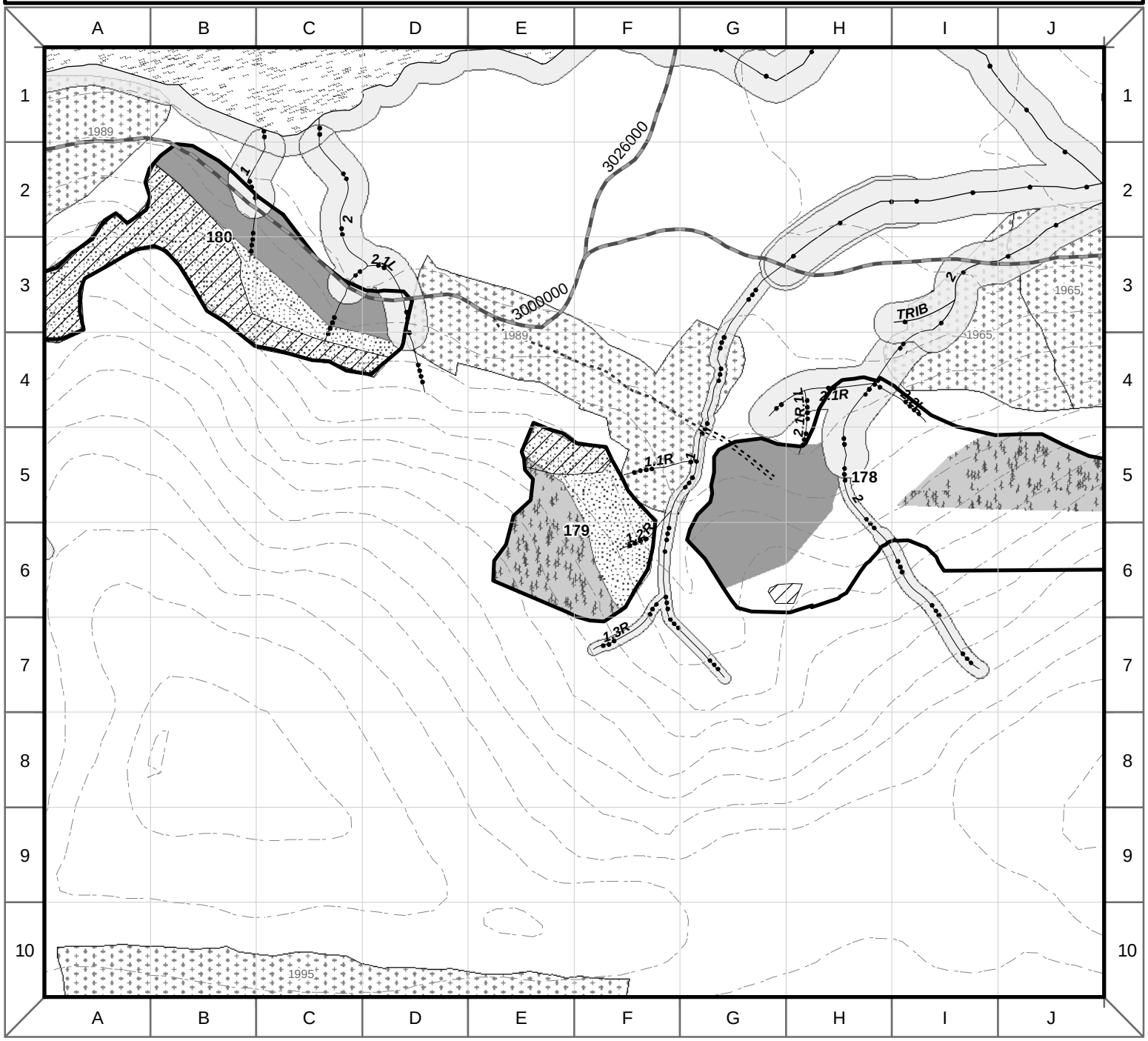
SCENERY: No Concerns

RECREATION: No Concerns, but unit abuts the Thorne River inventoried roadless area on the south.

SOILS/WETLANDS: Slopes range from 50 to 105%. All slopes greater than 72% are excluded from harvest. Approximately 6 acres were excluded due to colluvial activity, extremely steep slopes, and active and historic landslides. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). No wetlands were identified.

WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 179 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Appendix 1

Unit Number: 180	Alternatives: ROD	Total Unit Acres: 5.9	Prescription: Clearcut
VCU Number: 583	Yarding System: Cable	Net Harvest Volume (MBF): 120	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 180 has old-growth stand structure with western hemlock, Sitka spruce, western redcedar and Alaska-cedar common in the overstory. The dominant defects are stem decay and stem deformity (pistol butts). Lower bole damage is common. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is partially within the moderate SIO foreground area; however, this area only covers approximately 1 acre and is therefore not a concern. The rest of the unit has a low SIO. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. The potential opening is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Cable yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: An orange hawkweed infestation is known along the NFS road 3000000. Monitoring is recommended to ensure that the infestation does not spread as a result of this project.

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1 Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2 Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated with wetland fens. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or the side-slope break Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

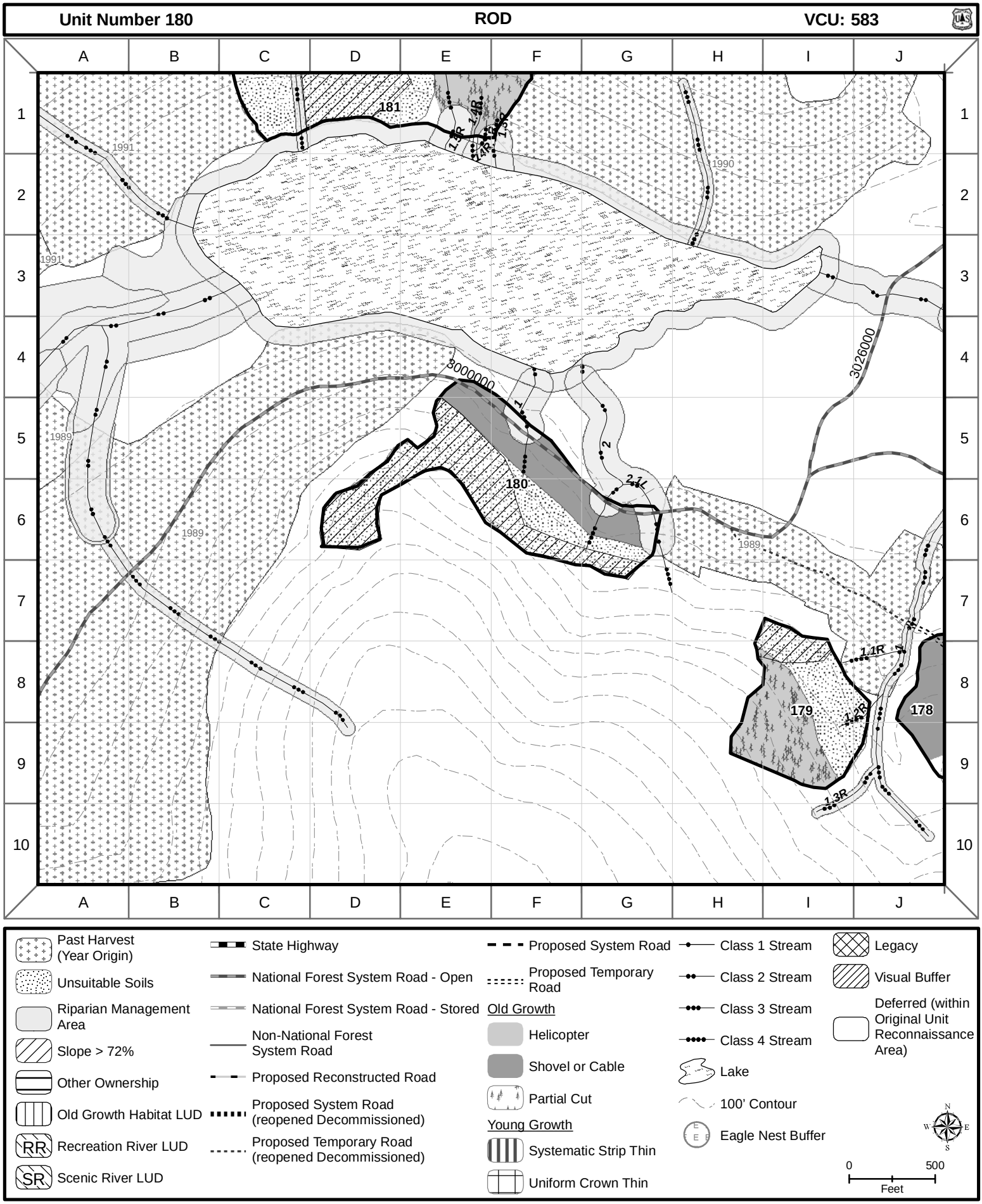
SCENERY: Unit is only 6 acres in size, but does occur along NFS Road 3000000. It consists mostly of Low SIO but includes 1 acre of Moderate SIO as well. Views are partially screened by riparian buffers which overlap road. Moderate SIO with Intermediate VAC have a typical opening size allowed by the Forest Plan of 15 to 40 acres. No concerns.

RECREATION: No Concerns; however, yarding activities will need to coordinate with recreational and other use of the mainline NFS Road 3000000.

SOILS/WETLANDS: Slopes range from 50 to 85%. All slopes greater than 72% are excluded from harvest.

Approximately 14 acres were excluded due to colluvial activity, extremely steep slopes, and active and historic landslides. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). No wetlands were identified.
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Appendix 1



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Unit Number: 181	Alternatives: ROD	Total Unit Acres: 5.8	Prescription: 25% Removal
VCU Number: 583	Yarding System: Helicopter	Net Harvest Volume (MBF): 39	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 181 has old-growth stand structure with significant recent windthrow. The overstory consists of western hemlock, Sitka spruce and Alaska-cedar. Distribution is patchy due to windthrow. The dominant defect agent is weather related breakage. Light mistletoe infection is throughout. There are standing Sitka spruce and salvable Alaska- cedar in the unit that would carry logging costs. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. This system is not optimum for promoting timber production but is being prescribed due to the proximity of the unit to Little Lake and windthrow risk.

The legacy standard and guide applies in this VCU. Units 181 and 182 combine to form a potential opening of 65 acres. This requires that approximately 19 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 181/182 potential opening. Legacy required for the adjacent 182 opening is planned to coincide with unsuitable soil areas in unit 181.

TIMBER/YARDING: Helicopter yarding on NFS road 3026000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Little Lake

Stream#: 1.3R Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: blowdown
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.5R Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: A1 Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: Lake-A1 (Little Lake) Class: I Flagging: B/W C- Type: L Concerns: none
Buffer (RMA): Class I for Lake-1- greater of 100 horizontal feet or to the extent of the flood plain, riparian vegetation or soils, riparian associated wetland fens, or one site-potential tree height.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Appendix 1

SCENERY: Unit contains 6 acres of Low SIO. Even with Low VAC, typical unit openings allowed by the Forest Plan are 15 to 40 acres. No concerns.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 55 to 100%. All slopes greater than 72% are excluded from harvest. Approximately 43 acres were excluded due to colluvial activity, extremely steep slopes, and active and historic landslides. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). No wetlands were identified.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southern 1/2 of unit). Eagles and loons observed at Little Lake. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 181 | **ROD** | **VCU: 583**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Appendix 1

Unit Number: 182	Alternatives: ROD	Total Unit Acres: 33.8	Prescription: Clearcut
VCU Number: 583	Yarding System: Cable, Shovel, Helictopter	Net Harvest Volume (MBF): 697	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 182 has old-growth stand structure comprised of western hemlock, Sitka spruce and Alaska-cedar. The dominant defect is stem decay with an overall average defect rating of moderate. Windthrow risk is high. The unit rated low for mistletoe. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 181 and 182 combine to form a potential opening of 65 acres. This requires that approximately 19 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 181/182 potential opening. Legacy required for the unit 182 opening is planned to coincide with unsuitable soil areas in unit 181.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary roads and NFS road 3026000.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 2,800 feet. Approximately 1,500 feet of this road will be constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1.1L Class: II, III Flagging: B/W, O/W C- Type: MMS, HCM Concerns: none known
Buffer (RMA): Class II for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM- to the top of the side-slope break.
Alternatives: ROD5 Buffer (RAW): no review needed Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 182: One Class IV stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads, implement BMPs 12.17, 13.10, 13.11, 13.6, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

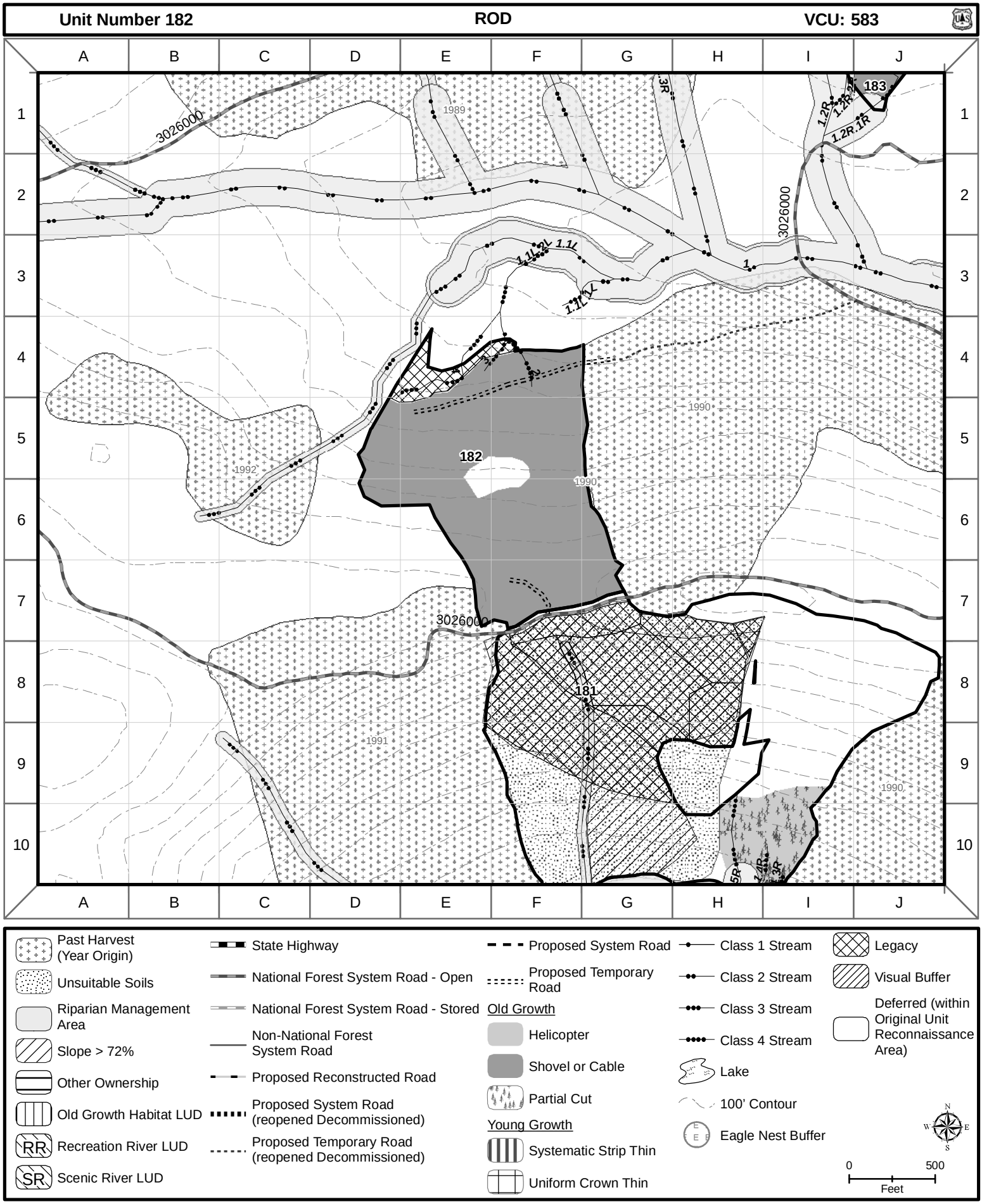
RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 40 to 65%. Intermittent forested wetlands are found throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed temporary roads traverse about 2 acres of forested wetland. Wetland avoidance is not feasible due to existing road locations and slopes. Provide adequate cross drainage, remove drainage structures, and close road

after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (northern and southern ends of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres protects some deer winter range.

Appendix 1



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Unit Number: 183	Alternatives: ROD	Total Unit Acres: 27.8	Prescription: Clearcut and 25% Removal
VCU Number: 583	Yarding System: Shovel, Helicopter	Net Harvest Volume (MBF): 574	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with overstory species composition consisting of a mix between western hemlock, Alaska-cedar and mountain hemlock. The dominant defects are stem decay and weather breakage. The overall average defect rating is high. In general there are mixed values in over-mature timber of overall low quality. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management (Settings as shown on unit card maps)
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 183 and 184 combine to form a potential opening of 111 acres. This requires that approximately 33 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 183 and 184 potential opening. Legacy is planned to coincide with areas of unsuitable soils. Units 183 and 184 have a combined mapped legacy of approximately 46 acres.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Settings as shown on unit card maps)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. This system is not optimum for promoting timber production but is being prescribed to mitigate economic, wildlife and watershed concerns.

TIMBER/YARDING: Shovel and helicopter yarding to NFS road 3026000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1.1R Class: II, III Flagging: B/W, O/W C- Type: HCM, HCL, AFH, HCD
Concerns: blowdown and active erosion
Buffer (RMA): Class II for HCM- greater of 100 feet or to the top of the side-slope break. Class III for HCL, HCM, and HCD- to the top of the side-slope break. Class III for AFH- greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): Buffer (RAW): no review needed Protection: Category A and B

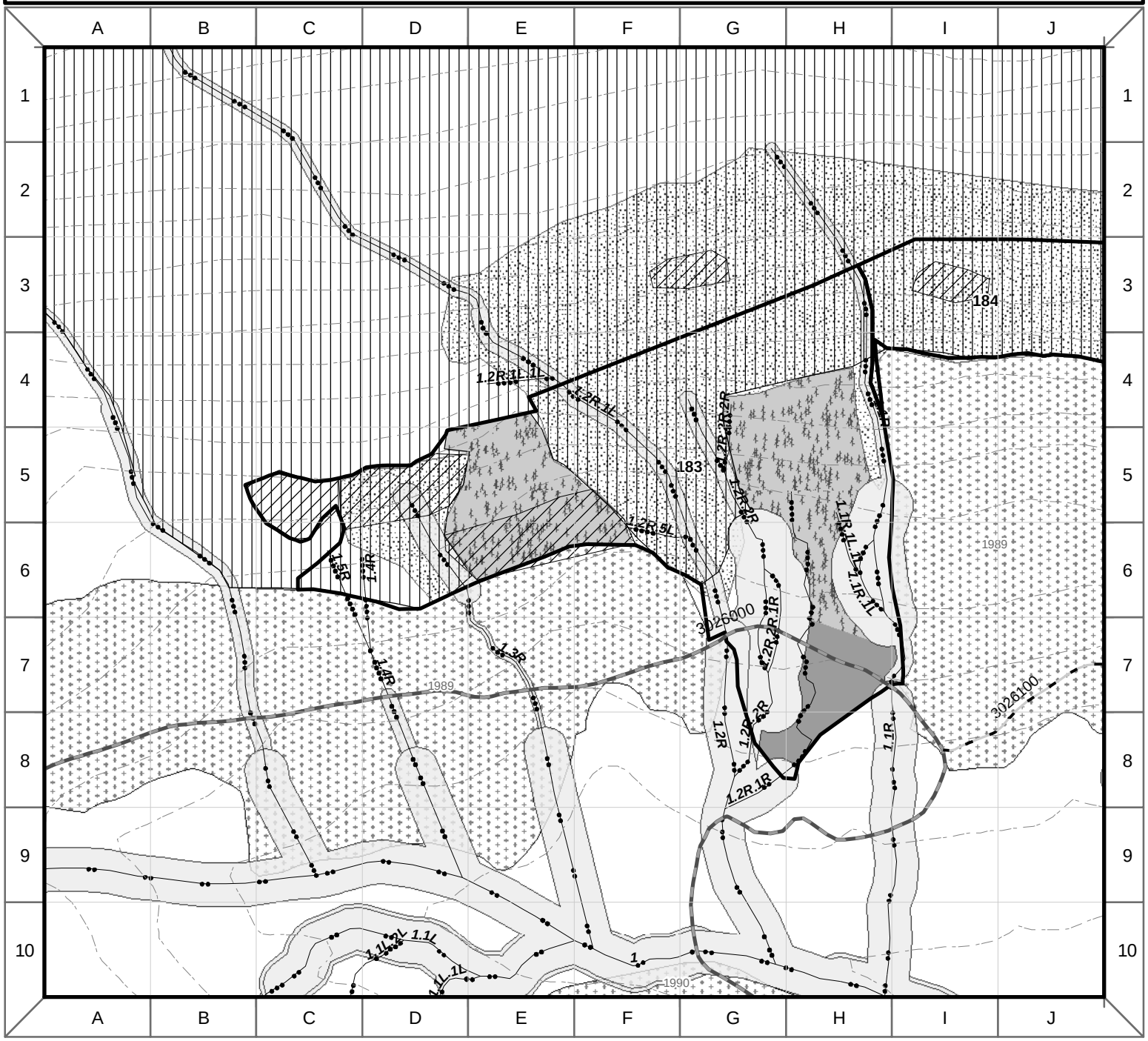
Stream#: 1.1R.1L Class: III Flagging: O/W C- Type: HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCO- to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 1.2R Class: II, III Flagging: B/W, O/W C- Type: HCL
Concerns: blowdown and active erosion
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCL- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.2R.1R Class: II, IV Flagging: B/W, G/W C- Type: HCO

Concerns: blowdown, active erosion, very steep side-lopes, very shallow soils, and exposed bedrock. Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.2R.2R Class: III Flagging: O/W, G/W C- Type: HCL, AFH, HCD Concerns: blowdown, active erosion, very steep side-lopes, very shallow soils, and exposed bedrock. Buffer (RMA): Class III for HCL and HCD- to the top of the side-slope break. Class III for AFH- greater of 140 feet or active portion of the alluvial fan. Alternatives: ROD Buffer (RAW): review required on east side Protection: Category B Stream#: 1.2R.1L Class: III Flagging: O/W C- Type: HCD Concerns: none Buffer (RMA): Class III for HCD- to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B Stream#: 1.3R Class: III Flagging: O/W C- Type: HCO Concerns: blowdown, active erosion, very steep side-lopes, very shallow soils, and exposed bedrock. Buffer (RMA): Class III for HCO- to the top of the side-slope break. Alternatives: ROD Buffer (RAW): review required on east side Protection: Category B All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns.
RECREATION: The northern portions of the unit are within about 150 ft of the Ratz inventoried roadless area.
SOILS/WETLANDS: Slopes range from 10 to greater than 120%. Approximately 5 acres of slopes greater than 72% are suitable for harvest with full suspension. About 24 acres were excluded from harvest due to very high landslide potential, colluvial activity, steep slopes, and unstable drainages. Small areas of forested wetlands were identified (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).
WILDLIFE: Unit includes average snow deer winter range (northern 1/2 of unit). Legacy standard and guideline applies in this VCU, see silviculture section. <u>Old-growth Reserve (OGR) Boundary</u> OGR acres added along northern boundary of VCU to the north of unit.

Unit Number 183 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 184	Alternatives: ROD	Total Unit Acres: 36.6	Prescription: Clearcut and 25% Removal
VCU Number: 583	Yarding System: Cable, Helicopter	Net Harvest Volume (MBF): 1003	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with overstory species composition consisting of a mix between western hemlock, Alaska-cedar and mountain hemlock. The dominant defects are stem decay and weather breakage. The overall average defect rating is moderate. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management (Cable settings)
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 183 and 184 combine to form a potential opening of 111 acres. This requires that approximately 33 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 183 and 184 potential opening. Legacy is planned to coincide with areas of unsuitable soils. Units 183 and 184 have a combined mapped legacy of approximately 46 acres.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter settings)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. This system is not optimum for promoting timber production but is being prescribed to mitigate economic, wildlife and watershed concerns.

TIMBER/YARDING: Cable and helicopter yarding to NFS road 3026100.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3026100, totaling 1,800 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1.1R Class: III Flagging: O/W C- Type: HCM Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM- to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed. Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

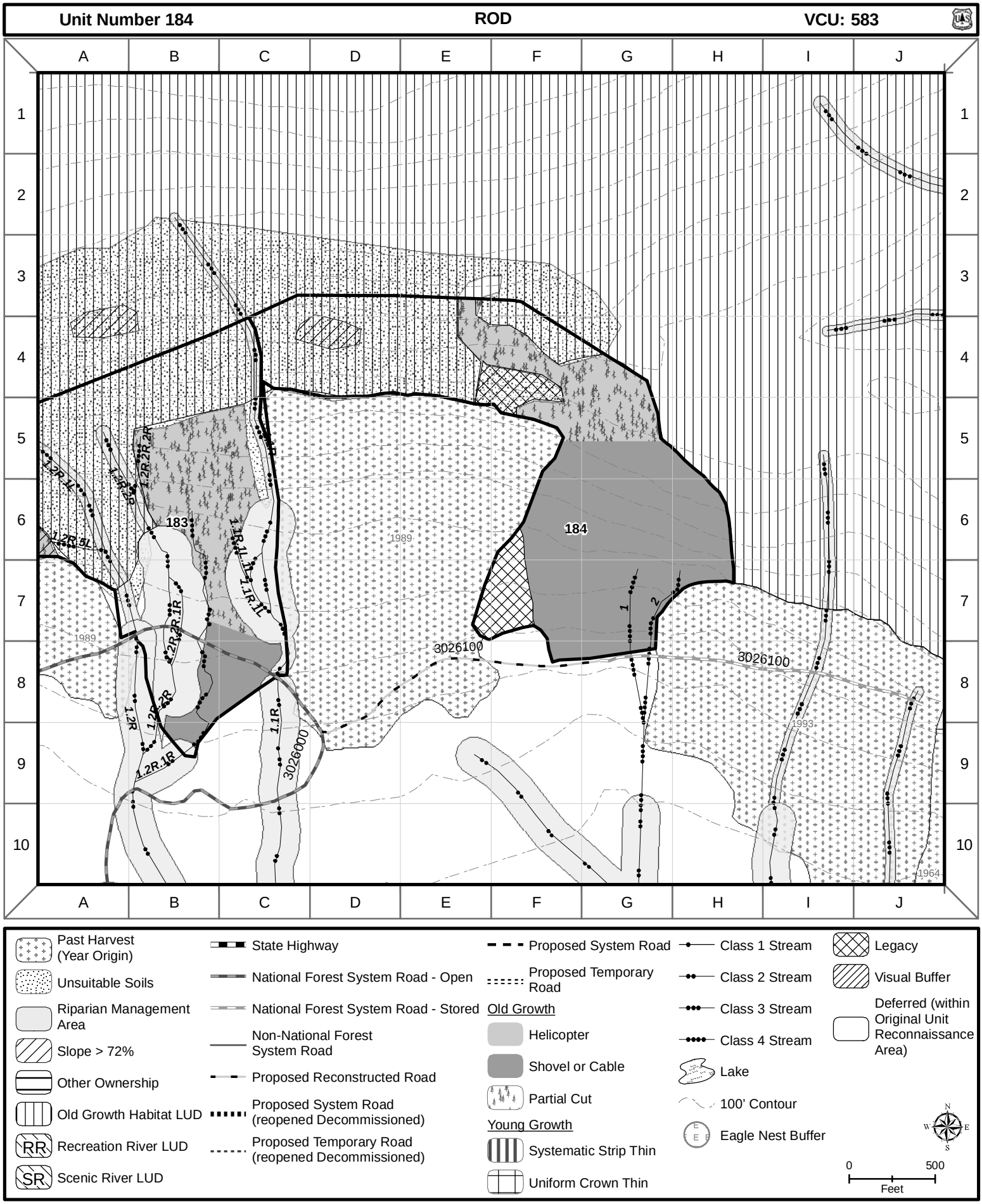
SCENERY: No Concerns.

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 10 to greater than 120%. All slopes greater than 72% are excluded from harvest. About 24 acres were excluded from harvest due to very high landslide potential, colluvial activity, steep slopes, and unstable drainages. Small areas of forested wetlands were identified (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9

and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).
WILDLIFE: Unit includes average snow deer winter range (entire unit except southern edge). Legacy standard and guideline applies in this VCU, see silviculture section. <u>Old-growth Reserve (OGR) Boundary</u> OGR acres added along northern boundary of VCU to the north of unit.

Appendix 1



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Unit Number: 185	Alternatives: ROD	Total Unit Acres: 20.4	Prescription: Clearcut
VCU Number: 583	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 333	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock, mountain hemlock, Sitka spruce and western redcedar. The dominant defects are stem form and stem decay. Mistletoe is light. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy is planned to coincide with areas with soils concerns. Total mapped legacy is approximately 10 acres.

TIMBER/YARDING: Shovel and cable yarding to proposed NFS road 3025550.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3025550, totaling 2,300 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek

Stream#: 1.1R Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

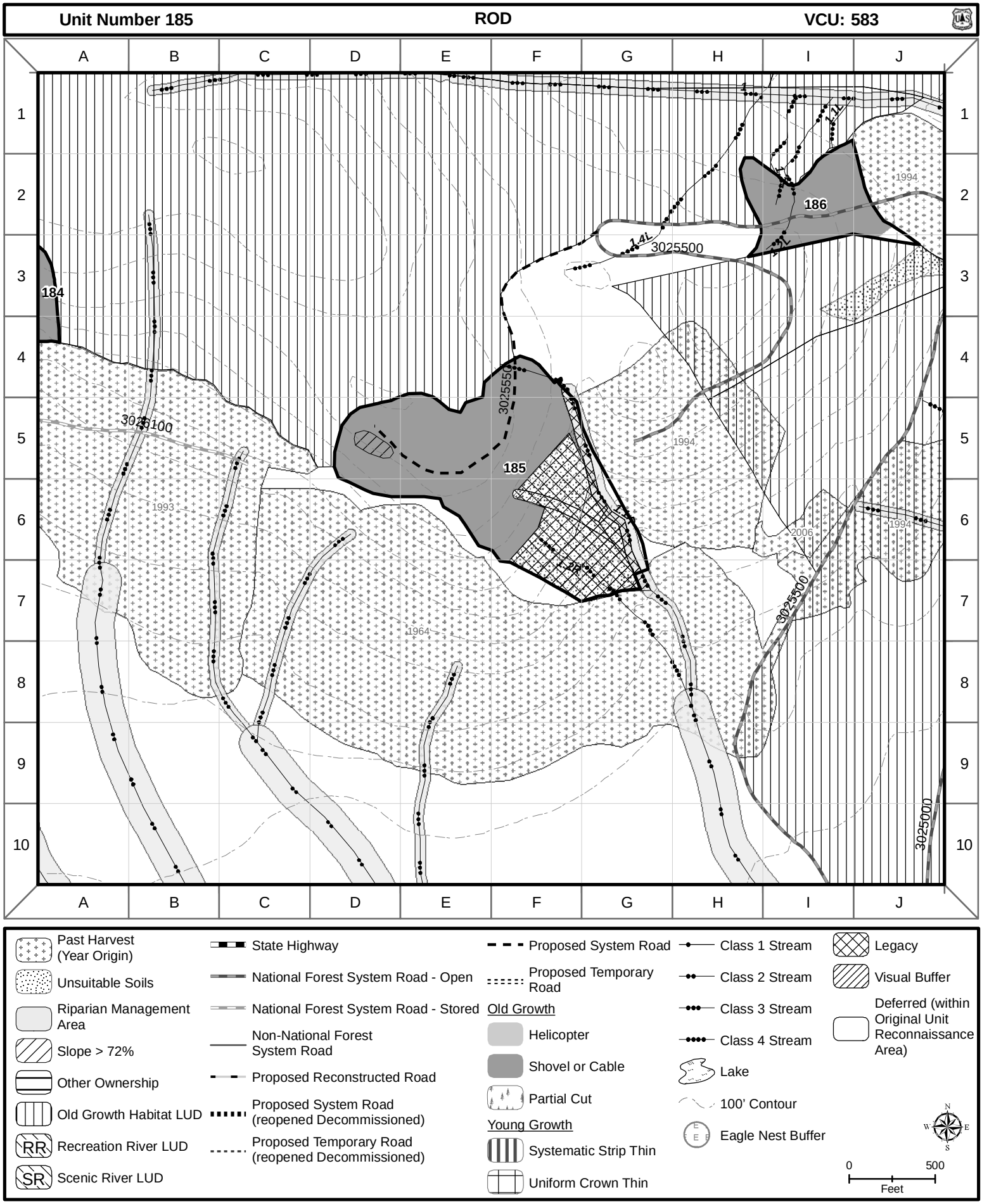
RECREATION: No Concerns, but the Ratz inventoried roadless area is within about 250 ft of the northwest border.

SOILS/WETLANDS: Slopes range from 35 to greater than 72%. About ½ of an acre of slopes greater than 72% is suitable for harvest with partial suspension. Approximately 8 acres were excluded due to colluvial activity, active landslides, and steep slopes. No wetlands were identified. In the remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6.

WILDLIFE: Unit includes average snow deer winter range (entire unit except western edge). Legacy standard and guideline applies in this VCU.

<u>Old-growth Reserve (OGR) Boundary</u>
OGR acres added along northern boundary of VCU to the north of unit.

Appendix 1



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Unit Number: 186	Alternatives: ROD	Total Unit Acres: 7.5	Prescription: Clearcut
VCU Number: 583	Yarding System: Cable	Net Harvest Volume (MBF): 175	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This old growth structured unit consists of western hemlock and scattered Sitka spruce with mountain hemlock and Alaska-cedar in the southwest. The average defect rating is light to moderate. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 186 and 460 combine to form a potential opening of 24 acres. This requires that approximately 7 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 186 and 460 potential opening. Legacy was planned to coincide with areas of lower value timber and unsuitable soils. Units 186 and 460 have a combined mapped legacy of approximately 8 acres. No legacy set-aside is required in these Alternatives.

TIMBER/YARDING: Cable yarding to NFS road 3025500.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Harbor

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

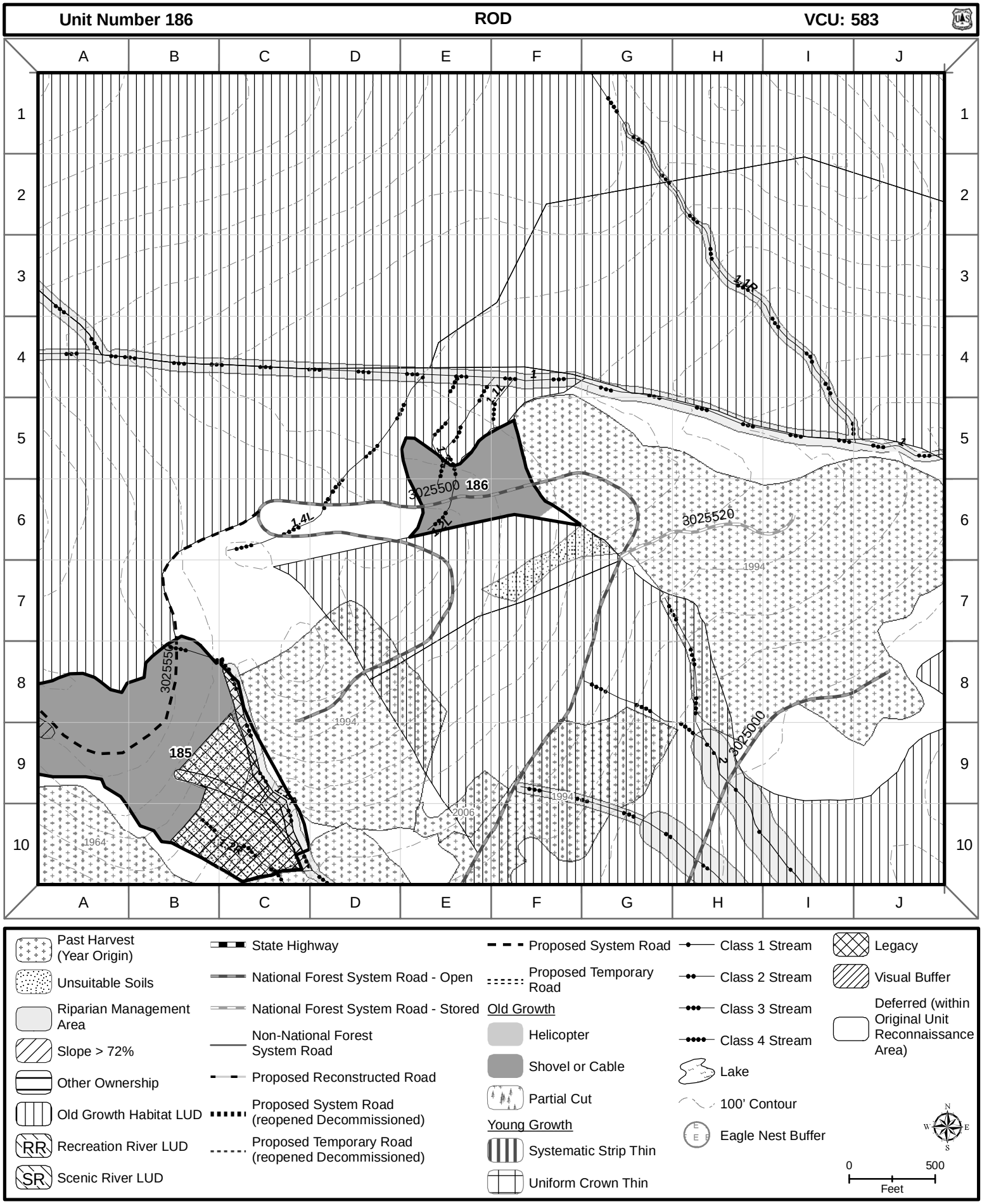
RECREATION: No Concerns.

SOILS/WETLANDS: Slopes are gentle throughout the existing unit. Slopes greater than 72% were identified and excluded from harvest consideration. No wetlands were identified. The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, see silviculture section.

Old-growth Reserve (OGR) Boundary
OGR acres added along northern boundary of VCU so OGR acres adjacent to unit to the north.

Appendix 1



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Unit Number: 187	Alternatives: ROD	Total Unit Acres: 3.2	Prescription: Clearcut
VCU Number: 581, 583	Yarding System: Cable, Helicopter	Net Harvest Volume (MBF): 92	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with mature timber exhibiting static growth. The overstory consists of Alaska-cedar and western hemlock along with scattered Sitka spruce. The dominant damage is mainly crook and sweep. The overall defect rating for the entire unit is moderate. Smaller diameter Alaska-cedar dominates the entire unit. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in these VCU's; however, the potential opening is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 600 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: No streams found in unit at time of survey. If streams found during implementations a fish biologist would be notified and appropriate protections would be applied.

Temporary roads for Unit 187: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads, implement BMPs 12.17, 13.10, 13.11, 13.6, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

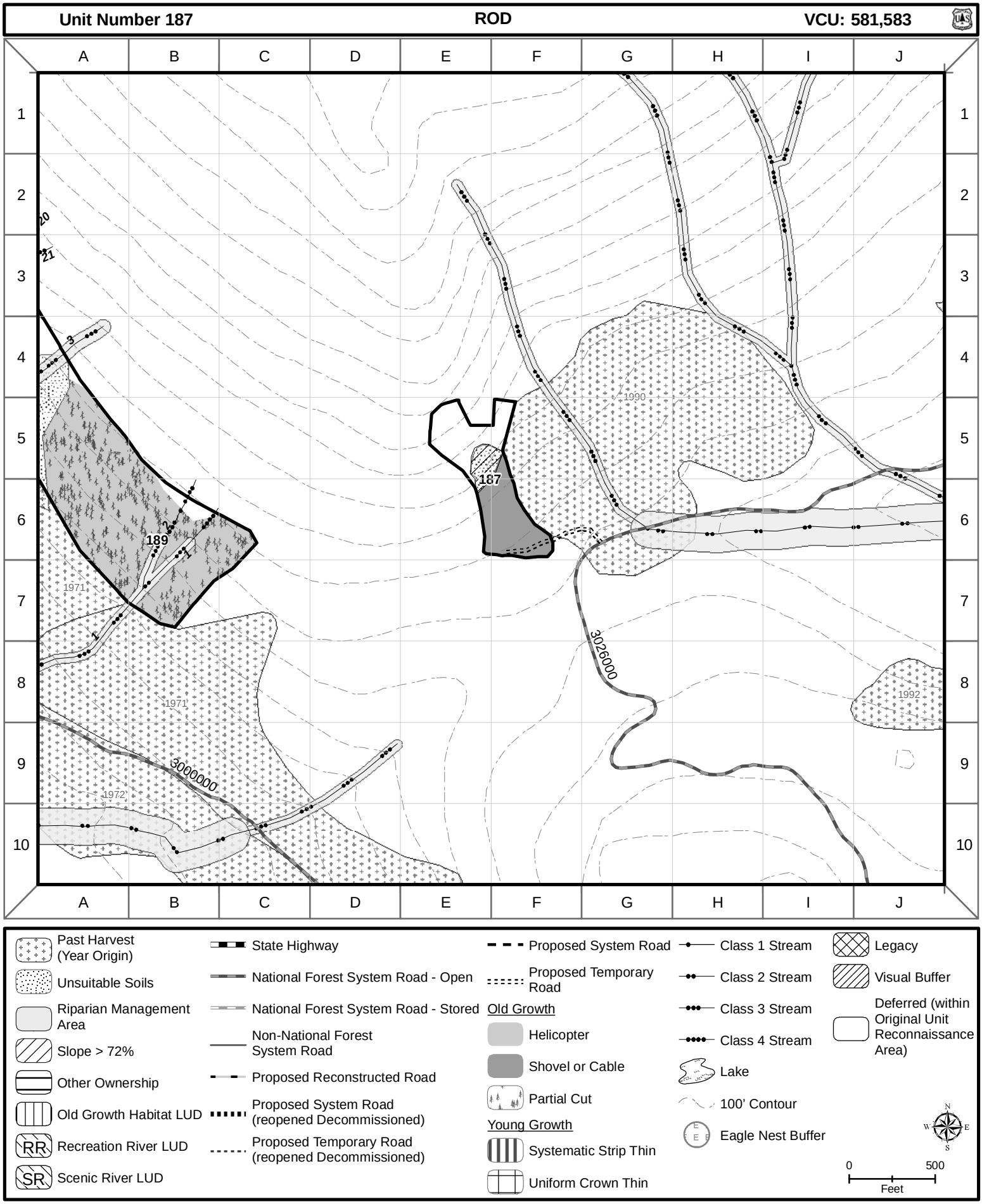
RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 40 to 100%. All slopes greater than 72% are excluded from harvest. Approximately 1 acre was excluded due to steep slopes, high landslide potential, and colluvial activity. The remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding, and helicopter yarding should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Intermittent patches of forested wetland are located on the gentle slopes (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4).

The proposed temporary road does not cross any wetland. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.

WILDLIFE: Unit includes average snow deer winter range (southern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Appendix 1



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Unit Number: 189	Alternatives: ROD	Total Unit Acres: 28.8	Prescription: Clearcut and 25% Removal
VCU Number: 581	Yarding System: Helicopter	Net Harvest Volume (MBF): 597	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 189 is old growth consisting primarily of western hemlock as the dominant species along with Sitka spruce as a secondary component. Alaska-cedar is present in lesser amounts more so at the highest elevations. The average defect rating is considered to be moderate. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut (Settings as shown on the unit card maps)
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 36 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy is planned to coincide with areas of unsuitable soils. Total mapped legacy is approximately 89 acres due entirely to soil concerns.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Settings as shown on the unit card maps)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. The uneven-aged single tree selection regeneration method is being prescribed for parts of this unit to reduce windthrow risk along class III streams and to protect soil resources. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to proposed temporary road accessing Unit 187 and NFS road 3000000.

ENGINEERING/ROADS: This unit is utilizing landings on the proposed temporary road of 600 feet accessing Unit 187. See Unit 187 unit card for details.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCD
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCD- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

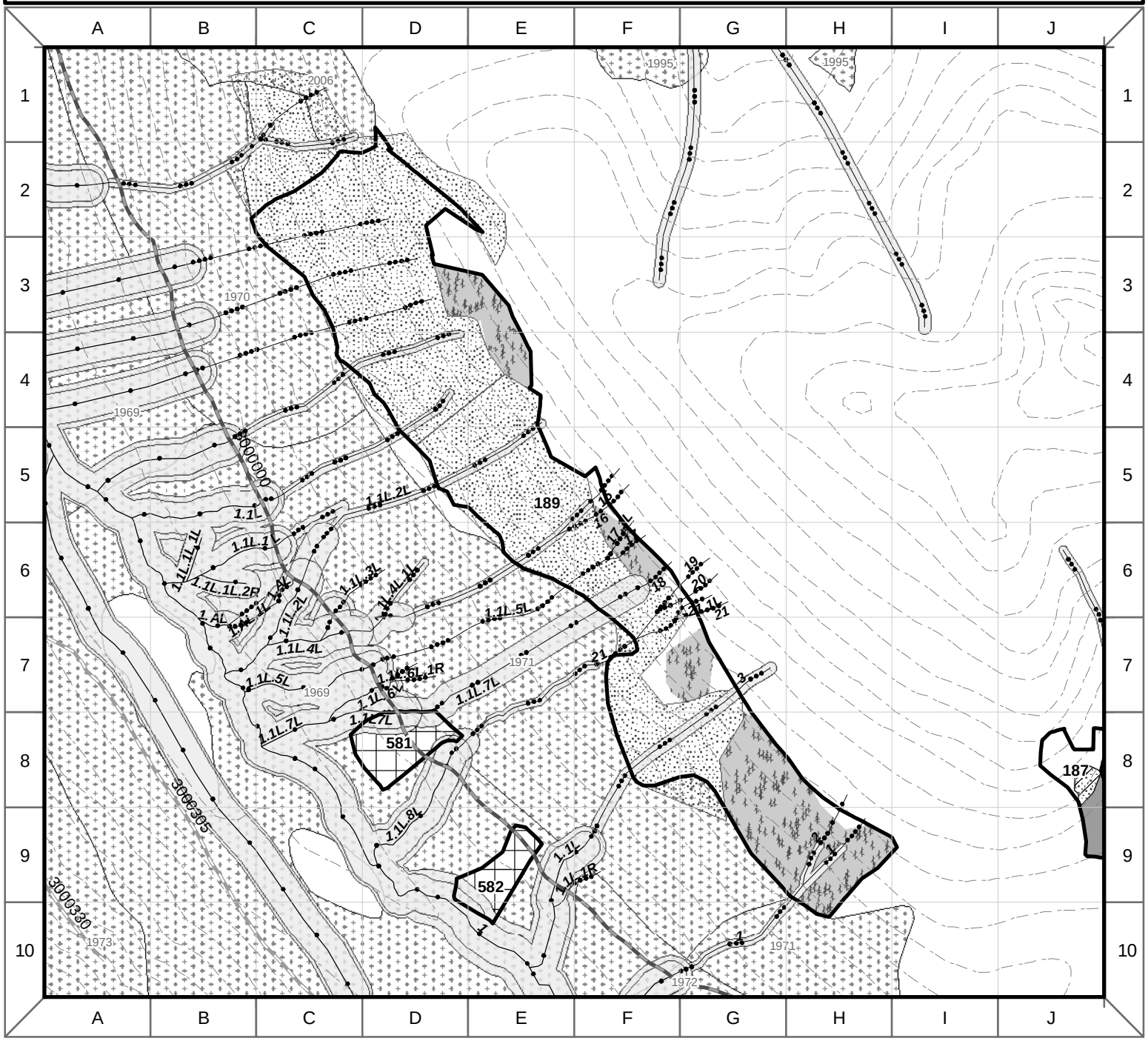
Stream#: 3 Class: III Flagging: O/W C- Type: HCM Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 1.1L.4L/15 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: active erosion and unstable banks
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Appendix 1

Stream#: 1.1L.7L/18 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCD Concerns: active erosion and unstable banks Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCD- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns.
RECREATION: Most of the northeast border of unit borders the Ratz inventoried roadless area.
SOILS/WETLANDS: Slopes range from 30 to 105%. All slopes greater than 72% are excluded from harvest. Approximately 81 acres were excluded due to steep slopes, hollow topography, active and historic landslides, and colluvial activity. The remainder of the unit, a minimum of full suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). No wetlands were identified in the unit.
WILDLIFE: Unit includes average snow deer winter range (southern 1/2 of unit). Legacy standard and guideline applies in this VCU.

Unit Number 189 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 190	Alternatives: ROD	Total Unit Acres: 22.7	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Helicopter	Net Harvest Volume (MBF): 742	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 190 is old-growth with the overstory consisting of western hemlock with variable amounts of Sitka spruce, western redcedar and Alaska-cedar. Stem decay is the primary damage. Mistletoe is light. Windthrow risk is high. An even-age harvest with origin in 2000 is along the northern edge of these units, this past harvest marginally meets green-up requirements (14 acres). A two-aged clearcut with origin in 2006 is adjacent to the southwest boundary (56 acres). There has been heavy blowdown in this unit since harvest. This blowdown has continued across the boundary into unit 190. A partial cut timber harvest was conducted in the setting along the northwestern corner of this unit in 2010. No modifications to the size of unit 190 are needed to meet NFMA requirements for opening size. The combined acreage of these past harvest openings with the planned acreage of this harvest will not exceed 100 acres.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 10 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy is planned to coincide with areas that were unsuitable for harvest due to karst concerns and RMA's. Total mapped legacy is approximately 12 acres.

TIMBER/YARDING: Cable settings yard to the proposed temporary road and NFS road 3030110. Helicopter settings yard to NFS road 3030110.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road totaling 2,100 feet. Approximately 500 feet of this road will be constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Lake

Stream#: LR1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 1 Class: III Flagging: O/W C- Type: HCD, HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 190: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

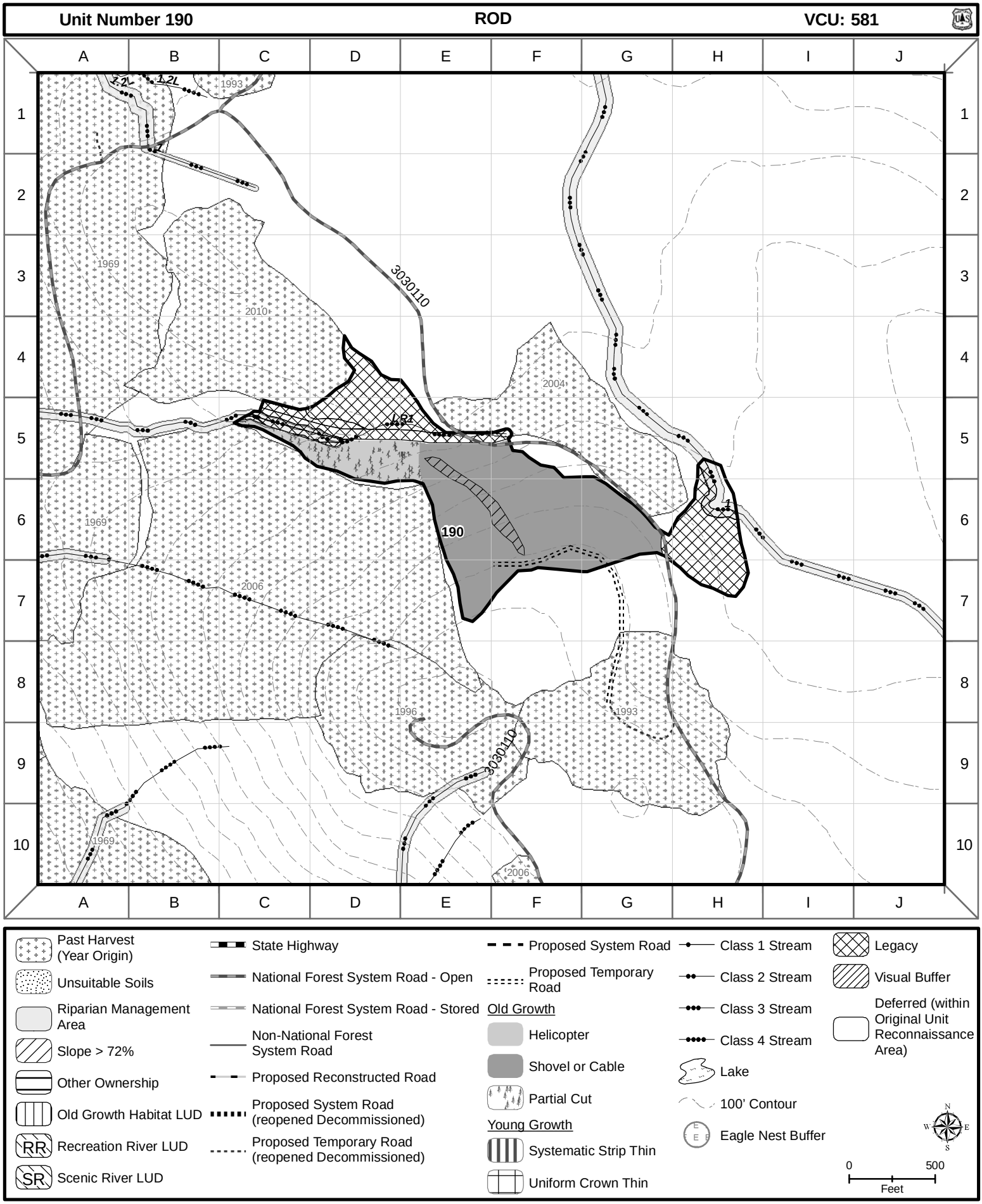
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from gentle to 75%. About 5 acres of slopes greater than 72% are suitable for harvest with partial suspension. No wetlands were identified. The soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. The proposed temporary road does not cross any wetland. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit except southern edge). Legacy standard and guideline applies in this VCU, see silviculture section.

Appendix 1



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Unit Number: 191	Alternatives: ROD	Total Unit Acres: 13.4	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 262	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old growth structure consisting primarily of western hemlock. Sitka spruce and western redcedar are present, but as secondary components. Most of the stand has experienced heavy windthrow. This windthrow has created two distinct cohorts consisting of old growth western hemlock and Sitka spruce over young intermediate Sitka spruce and western hemlock. In the old growth western hemlock, heart rot and stem decay are high, while mistletoe is moderate. Defect and damages are also high in the oldest Sitka spruce. The western redcedar has moderate defect. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This unit is adjacent to the Coffman Cove Loop road and due to the combination of moderate SIO and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Utilize younger spruce and hemlock to obtain the screen. Avoid leaving large defective trees adjacent to the road. This stand has a mature overstory with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 191, 192, 193, 469 and 470 combine to form a potential opening of 224 acres. This requires that approximately 67 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 191, 192,193, 469 and 470 potential opening. Legacy was placed to divide the combined opening, avoid sensitive plants, provide RAW and coincide with steep slopes, unsuitable soils and lower value timber. These units have a combined mapped legacy of approximately 74 acres. The majority of the legacy is within units 469 and 470.

TIMBER/YARDING: Cable settings yard to the proposed temporary road. Shovel settings yard to the proposed temporary road and NFS road 3030000.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,000 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

Stream#: 7 Class: III Flagging: O/W C- Type: HCM Concerns: exposed bedrock
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 4 Class: II, III Flagging: B/W, O/W C- Type: HCM, HCD
Concerns: blowdown, active erosion, steep side-slopes with loose soils and exposed bedrock, bedload storage.
Buffer (RMA): Class II for HCM- greater of 100 feet or to the top of the side-slope break. Class III for HCM and HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

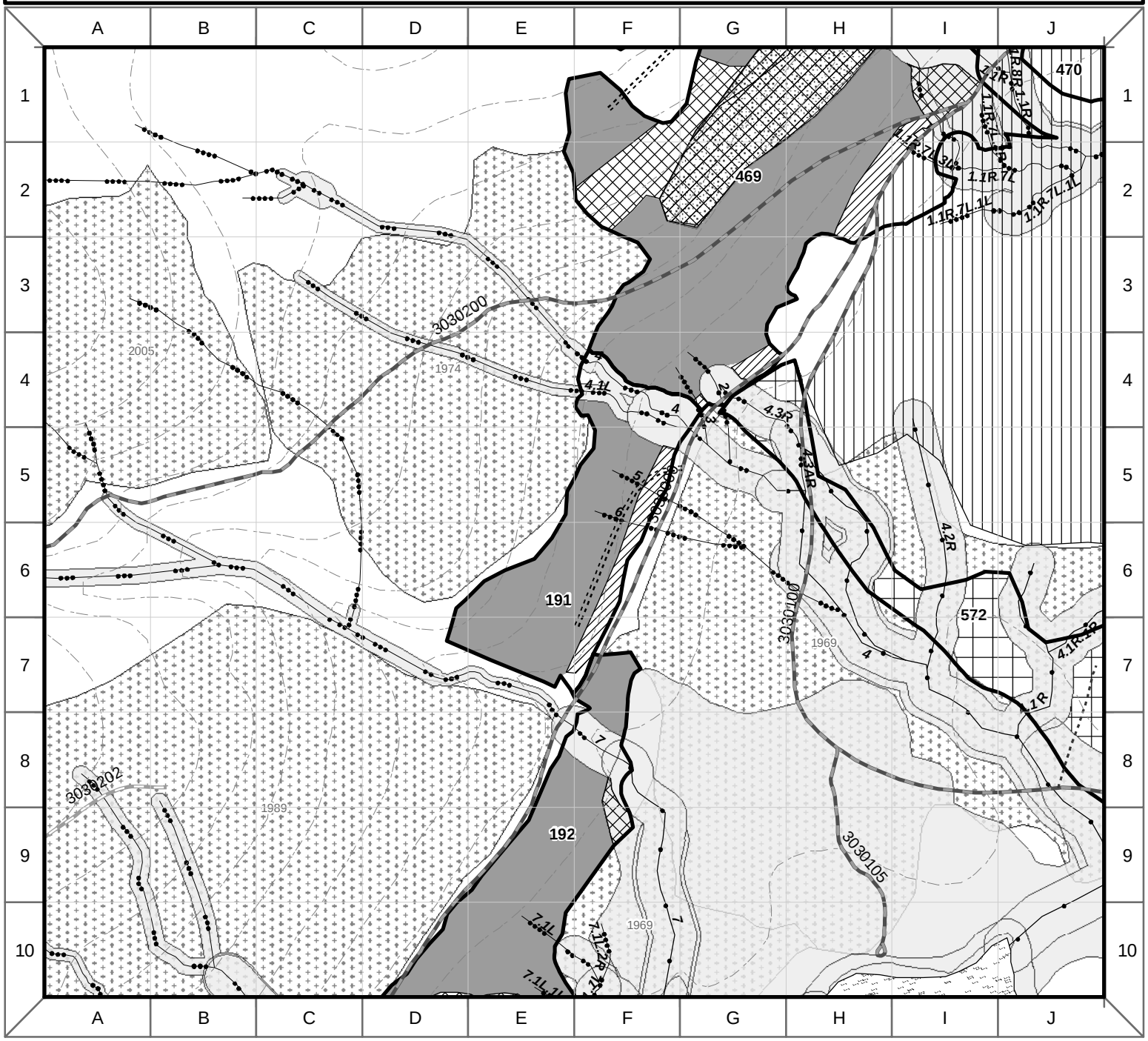
Stream#: 4.1L Class: II, III Flagging: B/W, O/W C- Type: HCL Concerns: blowdown
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCL- to the top of the side-slope break
Alternatives: ROD Buffer (RAW): review required on south side Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Appendix 1

Temporary roads for Unit 191: Two Class IV stream crossings. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Most of the unit has a Moderate SIO and unit is along the 3030000 Road. A visual buffer is prescribed along the road to screen most views into unit. This screen will be designed for windfirmness. See Silviculture section. With the screen, VAC is expected to be Intermediate and 15 to 40 acre openings are considered typical by the Forest Plan.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 30 to 50%. Forested wetlands are found on slopes less than 40% in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. The proposed temporary road does not cross any wetland. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, see silviculture section.

Unit Number 191 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

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Feet

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Appendix 1

Unit Number: 192	Alternatives: ROD	Total Unit Acres: 21.0	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 441	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure. The stand is mostly western hemlock with scattered western redcedar. Defect and damages are moderate for most species, but high in the larger western hemlock. The incidence of mistletoe is light to moderate. Little past windthrow is found within the stand, however exposure and timber type combine to increase risk. Moderate risk is estimated. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 191, 192, 193, 469 and 470 combine to form a potential opening of 224 acres. This requires that approximately 67 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 191, 192,193, 469 and 470 potential opening. Legacy was placed to divide the combined opening, avoid sensitive plants, provide RAW and coincide with steep slopes, unsuitable soils and reduce visual impacts. These units have a combined mapped legacy of approximately 74 acres. The majority of the legacy is within units 469 and 470.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3030000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: One population of lesser round-leaved orchid, with seven plants, and one population of lance-leaf grapefern, with three plants, have been incorporated into the proposed legacy for this unit. The lance-leaf grape fern population is partially within the indirect effects area for the unit.

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

Stream#: 7 Class: I, II, III Flagging: B/W, O/W C- Type: FPL, MMS, HCM
Concerns: heavy braiding with exposed roots; steep side-slopes, shallow soils, bedrock
Buffer (RMA): Class I- greater of 130 feet (FPL) and 120 feet (MMS) or flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCM- greater of 100 feet or to the top of the side-slope break. Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): review required for southwest exposure Protection: Category A and B

Stream#: 7.1L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class I and II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

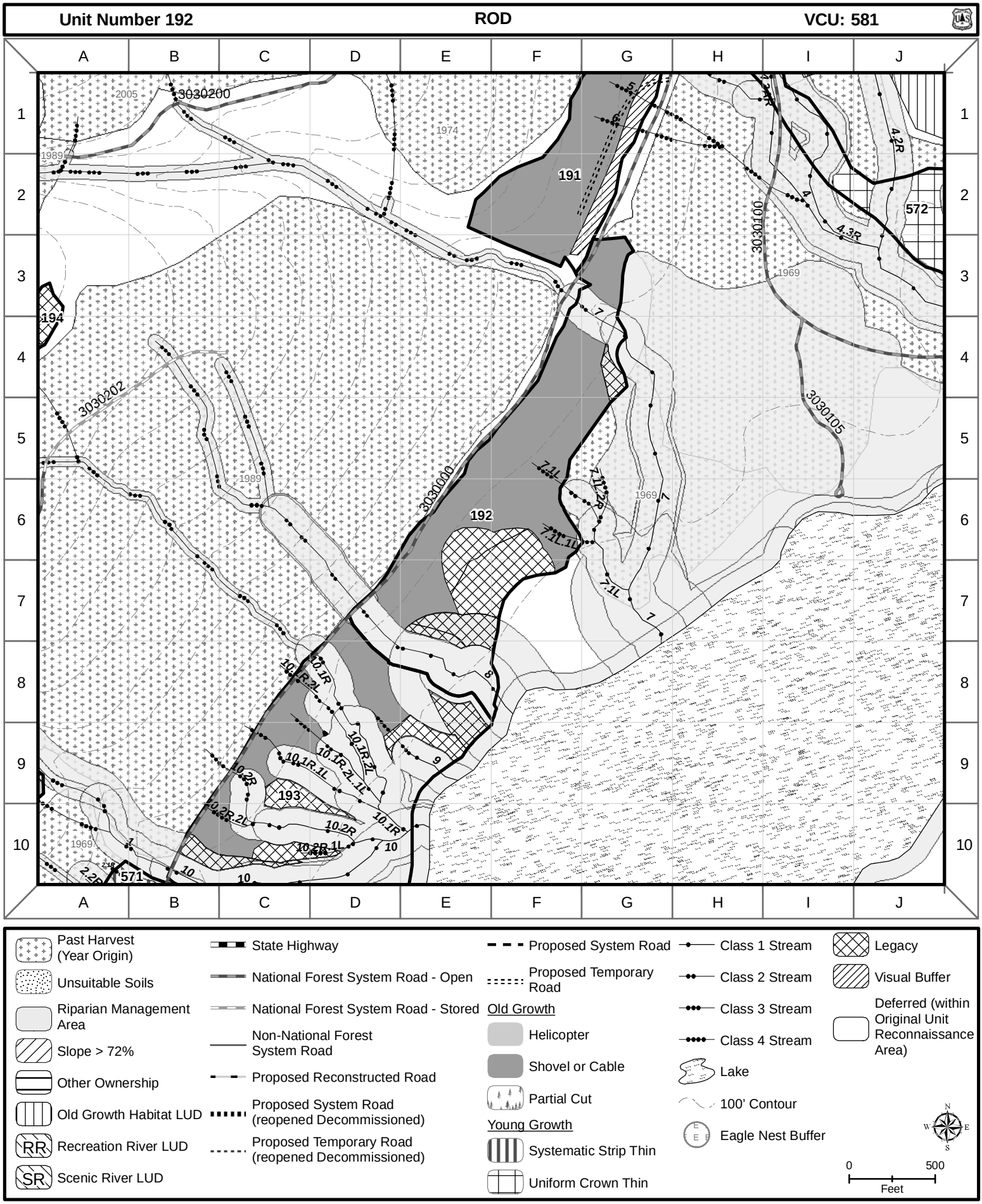
Stream#: 8 Class: I, II Flagging: B/W C- Type: FPL, HCO Concerns: blowdown
Buffer (RMA): Class I for FPL- greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review required Protection: Category A

Stream#: Lake-A1 (Luck Lake) Class: 1 Flagging: B/W C- Type: L Concerns: none
Buffer (RMA): Class I for Lake-1- greater of 100 horizontal feet or to the extent of the flood plain, riparian vegetation or soils, riparian associated wetland fens, or one site-potential tree height.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM

Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The unit is along the 3030000 road and is Moderate SIO. Some screening occurs due to trees along the road, but much of the unit is visible. However, the unit is long and relatively narrow and it is not all visible at the same time. The unit is mostly screened from view from Luck Lake. Typical opening size given in the Forest Plan for Moderate SIO with Intermediate VAC is 15 to 40 acres.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 15 to 35%. Forested wetlands are dominant throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU; see silviculture section.

Appendix 1



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Unit Number: 193	Alternatives: ROD	Total Unit Acres: 8.0	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable	Net Harvest Volume (MBF): 276	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 193 has old-growth stand structure with overstory species consisting of western hemlock, Sitka spruce and western redcedar. The average defect for the unit is light to moderate with stem decay as the dominant defect. Overall this unit has mature timber that is high volume, high quality and relatively healthy. Growth is static. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
Due to this unit being in a moderate SIO and foreground distance zone, harvest opening of 5 to 10 acres are allowed. The unit is currently slightly less than this as designed. This stand is mature with low to moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 191, 192, 193, 469 and 470 combine to form a potential opening of 224 acres. This requires that approximately 67 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 191, 192,193, 469 and 470 potential opening. Legacy was placed to divide the combined opening, avoid sensitive plants, provide RAW and coincide with steep slopes, unsuitable soils and lower value timber. These units have a combined mapped legacy of approximately 74 acres. The majority of the legacy is within units 469 and 470.

TIMBER/YARDING: Cable yarding to NFS road 3030000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

Stream#: 8 Class: I, II Flagging: B/W C- Type: FPL, HCO Concerns: blowdown
Buffer (RMA): Class I for FPL- greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 9 Class: I, IV Flagging: B/W, G/W C- Type: MMO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 10 Class: I Flagging: B/W C- Type: FPM, AFM, MMS, HCL Concerns: blowdown
Buffer (RMA): Class I for AFM- greater of 140 feet or active portion of alluvial fan. Class I- greater of 130 feet (FPM) or 120 feet (MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCL- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 10.1R Class: I, II, III Flagging: B/W, O/W C- Type: FPS, HCM Concerns: blowdown
Buffer (RMA): Class I for FPS- greater of 130 feet or flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCM- greater of 100 feet or to the top of the side-slope break. Class III for HCM- to the top of the side-slope break.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B Stream#: 10.1R.1L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: blowdown Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 10.1R.2L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: blowdown Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 10.1R.2L.1L Class: I, IV Flagging: B/W, G/W C- Type: HCO Concerns: blowdown Buffer (RMA): Class I for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 10.2R Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: blowdown Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens side-slope break. Class I and II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: Lake-A1 (Luck Lake) Class: 1 Flagging: B/W C- Type: L Concerns: none Buffer (RMA): Class I for Lake-1- greater of 100 horizontal feet or to the extent of the flood plain, riparian vegetation or soils, riparian associated wetland fens, or one site-potential tree height. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The unit is along the 3030000 road and is in Moderate SIO. Screening occurs due to riparian buffers that cross the unit, so that only small portions of the unit are visible at a time. Also, the unit is long and relatively narrow. The unit is mostly screened from view from Luck Lake. Typical opening size given in the Forest Plan for Moderate SIO with Intermediate VAC is 15 to 40 acres.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from nearly level to 35%. Forested wetlands are dominant throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension with cable yarding will meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-5, and Veg-6).
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, see silviculture section.

Unit Number 193 | **ROD** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 194	Alternatives: ROD	Total Unit Acres: 76.2	Prescription: Clearcut and 25% Removal
VCU Number: 581	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 1,650	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock with Sitka spruce, western redcedar and Alaska-cedar mixed. Overall the unit rated high for wind risk and has light mistletoe. There is evidence of high defect, primarily stem decay, in the western hemlock and Sitka spruce overstory. A two-age stand adjacent to the boundary south has lost 25% of residual trees since harvest in 2005. The combined acreage of this past harvest and the maximum proposed clear cut acreage for unit 194 is approximately 77 acres. No adjustments to unit 194 are required to meet NFMA opening size requirements under any alternative.

Silvicultural Prescription: Even-age Management
This unit has a low SIO and is primarily in the middleground. This classification allows for harvest openings of 40 to 60 acres. The unit as currently designed will have 51 acres of clearcut. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Approximately 23 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to cover RMA and consolidate POG. Total mapped legacy is approximately 23 acres.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter Settings)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed for this unit due to high windthrow risk combined with full suspension requirements and as a means to maintain wildlife habitat. The system is not optimum for timber production.

TIMBER/YARDING: Cable settings yard to the proposed temporary roads. Shovel settings yard to the proposed temporary roads and NFS roads 3030200 and 3030202. Helicopter settings yard to NFS road 3030202.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 2,400 feet. Approximately 2,000 feet of this road will be constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCM- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

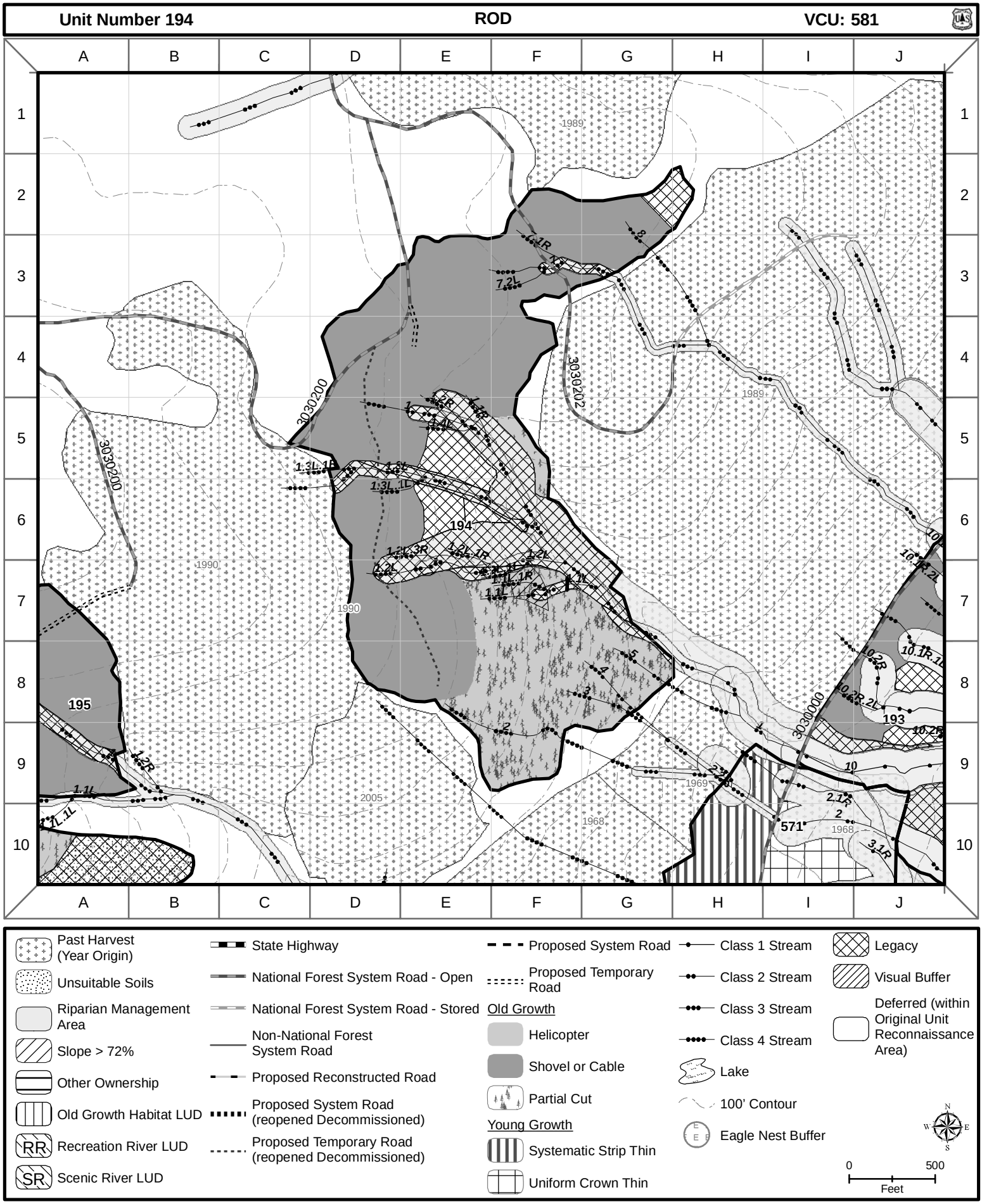
Stream#: 1.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 1.2L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 1.3L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO Concerns: none

Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C Stream#: 7 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: blowdown and active erosion, unstable side-slopes Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none. Alternatives: ROD Buffer (RAW): none Protection: Category B and C All other streams in unit: Class: IV Flagging: G/W C- Type: HC and MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C Temporary roads for Unit 194: One Class III and three Class IV crossings. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely in Low SIO. Legacy screens much of the harvest. No Concerns
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 15 to greater than 72%. Approximately 1 acre of slopes greater than 72% is suitable for harvest with full suspension. Forested wetlands are intermittent in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road does not cross any wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southeastern lobe of unit). Bald eagles observed in unit. Legacy standard and guideline applies in this VCU; see silviculture section.

Appendix 1



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Unit Number: 195	Alternatives: ROD	Total Unit Acres: 37.6	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 1,231	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure. Windthrow risk is moderate throughout the stand. Mistletoe was rated low. The overstory is made of widely-spaced mature western hemlock and Alaska-cedar with scattered Sitka spruce and western redcedar. The primary defect in the overstory is stem decay. Alaska cedar decline was also evident in the upper elevations where drainage is restricted. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post- harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 16 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. The largest portion of legacy was placed to coincide with areas dropped due to soils and RMA. Three acres of legacy was added adjacent to RMAs to divide unit into two openings and for RAW. Total mapped legacy is approximately 17 acres.

TIMBER/YARDING: Shovel, helicopter and cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 2,100 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM, HCO
Concerns: active erosion, unstable side-slopes
Buffer (RMA): Class III for HCD and HCM- to the top of the side-slope break. Class IV for HCO- none.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 1.1L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM, HCO Concerns: blowdown, active erosion, and unstable side-slopes
Buffer (RMA): Class III for HCD and HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): review required on north side Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 195: Four Class IV crossings. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

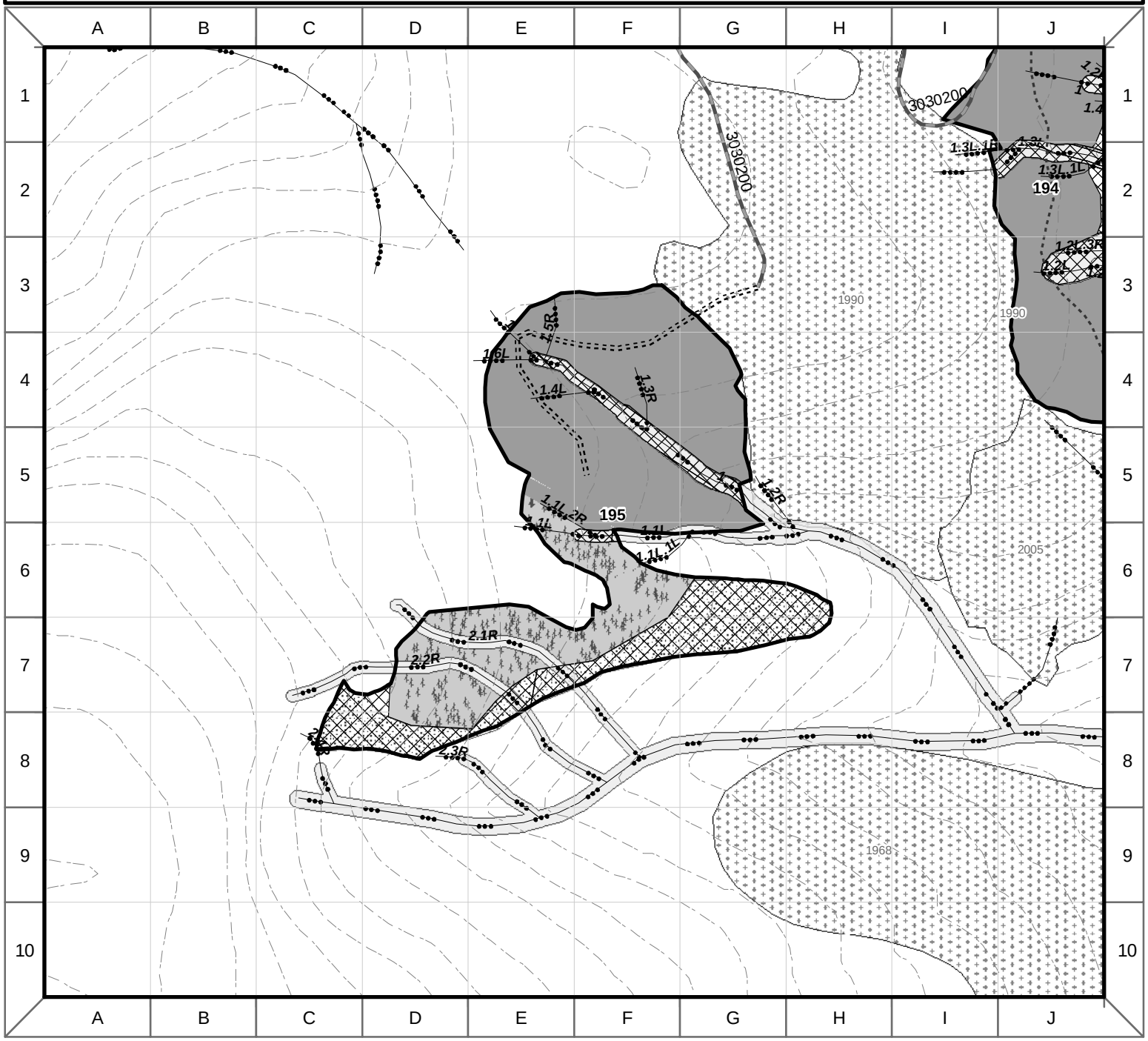
SCENERY: Unit is almost entirely in Very Low SIO, with 4 acres of Low. No concerns.

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from nearly level to 55% in the current unit. Approximately 8 acres were excluded due to wet steep slopes and hollow topography in the original unit. Forested wetlands are located throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit,

the soils and wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road crosses about 1.25 acres of forested wetlands and about ¼ of an acre of emergent short sedge. Wetland avoidance is not practicable due to contours, the existing road location, and multiple streams. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (southeastern edge of northern portion of unit). Legacy standard and guideline applies in this VCU; see silviculture section.

Unit Number 195 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 197	Alternatives: ROD	Total Unit Acres: 13.9	Prescription: 25% Removal
VCU Number: 581	Yarding System: Helicopter	Net Harvest Volume (MBF): 57	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with overstory consisting of western hemlock and Alaska-cedar with a minor component of Sitka spruce and western redcedar. This is a high elevation stand of mature timber with declining growth. The main damage is stem decay with moderate rating. Mistletoe was rated low. Windthrow risk is moderate. An adjacent past harvest to the east has regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

The uneven-aged single tree selection regeneration method is being prescribed to mitigate soil concerns and impacts to wildlife and the watershed. The system is not optimum for timber production.

No legacy retention required because the unit is less than 20 acres and prescription is partial harvest.

TIMBER/YARDING: Helicopter yarding to NFS road 3030000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

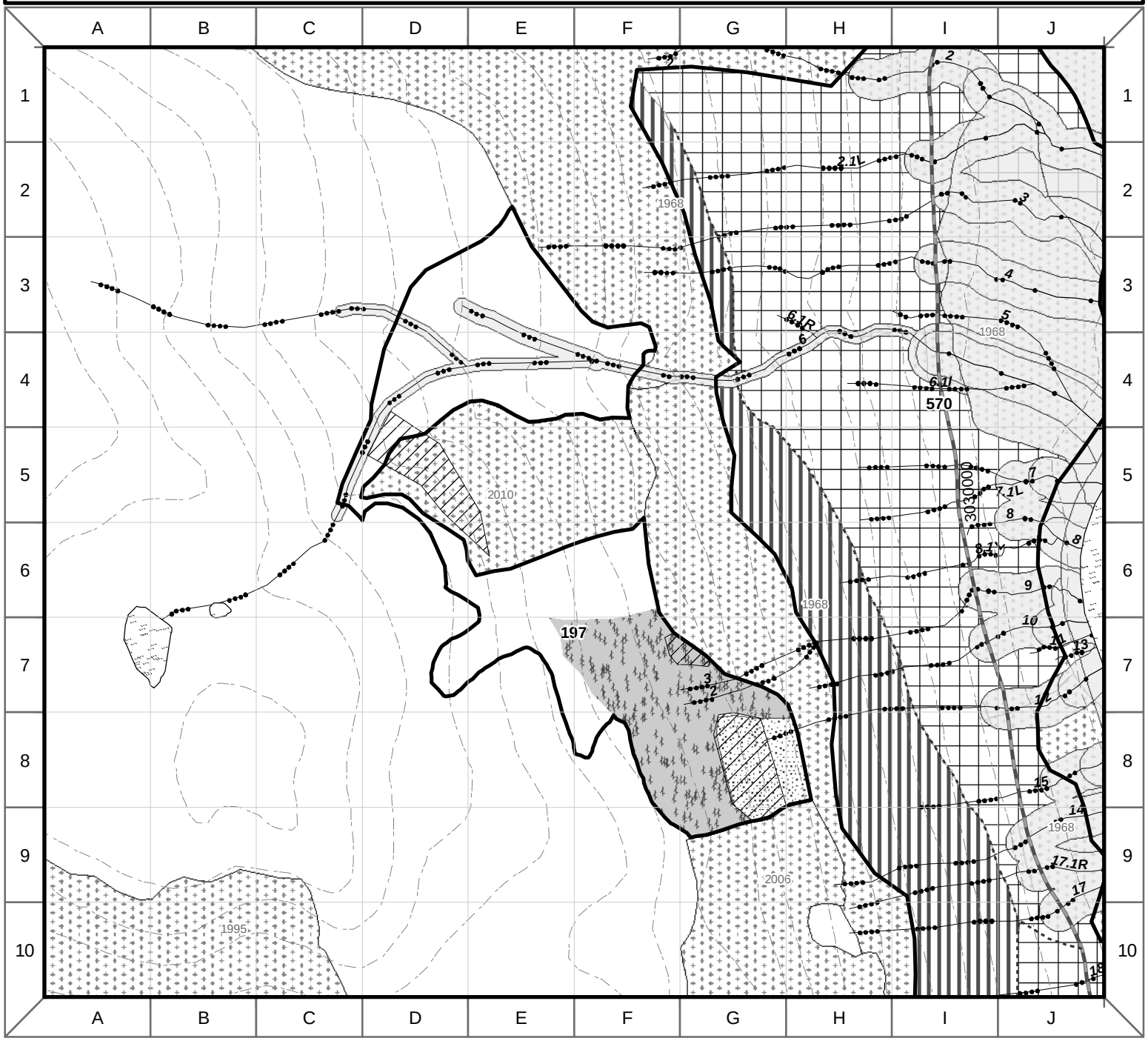
SCENERY: SIO is Low and VAC is also Low because of steepness. With uneven-aged management there are no concerns.

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 30 to 85%. Approximately ½ acre of slopes greater than 72% is suitable for harvest with full suspension partial harvest. Approximately 4 acres were excluded due to very high landslide potential, steep slopes, unstable drainages, and colluvial activity. In the remainder of the unit, a minimum of full suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). Isolated pockets of forested wetlands are found in the unit on slopes between 30 and 50% (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4).

WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 197 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 200	Alternatives: ROD	Total Unit Acres: 16.3	Prescription: Clearcut and 50% Removal
VCU Number: 581	Yarding System: Cable, Helicopter	Net Harvest Volume (MBF): 197	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure with over-mature timber that shows declining volume growth. The overstory consists of western hemlock as the dominant species. Secondary species include Sitka spruce, and patchy Alaska- cedar with widely scattered western redcedar. The dominant damage is stem decay as indicated by cracks and black seams. Mistletoe was rated low. Windthrow risk is moderate. A past even-age harvest with origin in 1987 is to the east. An even-age harvest from 1992 and a partial cut cable unit from 2000 are to the north. These areas all meet the green-up requirements of NFMA.

Silvicultural Prescription: Even-age Management – Clearcut (Settings as shown on the unit card maps)
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 200 and 201 combine to form a potential opening of 81 acres. This requires that approximately 24 acres for legacy. Legacy must be productive old growth representative of the overall composition of the planned harvest area. Legacy was placed to divide the combined opening, provide RAW and coincide with RMAs while reducing the visual impact of the harvest. There are 25 legacy acres mapped.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Settings as shown on the unit card maps)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed to improve economics and to mitigate impacts to wildlife and the watershed. The system is not optimum for timber production.

TIMBER/YARDING: Cable and helicopter yarding to NFS road 3000329.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek

All streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

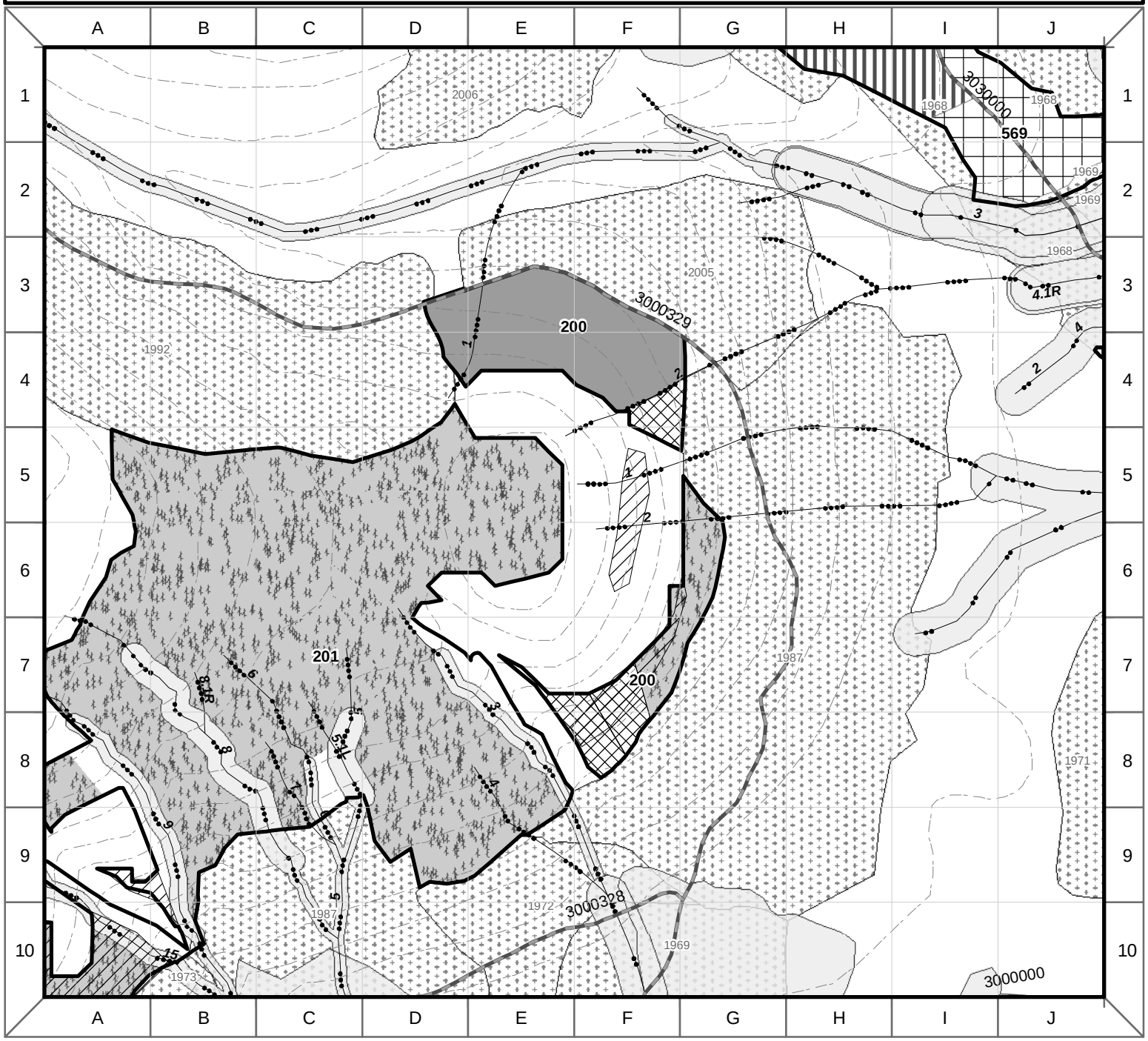
SCENERY: Unit is mostly Very Low SIO with 4 acres of Low. No Concerns

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 35 to greater than 72%. Approximately 2 acres of slopes greater than 72% is suitable for harvest with full suspension. A 2002 debris avalanche runs downslope in the middle of the southern setting. A second debris avalanche enters the northern legacy patch adjacent to the northern setting. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding (R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6).

WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, see silviculture section.

Unit Number 200 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 201	Alternatives: ROD	Total Unit Acres: 116.2	Prescription: Clearcut, 50% Removal
VCU Number: 581	Yarding System: Helicopter	Net Harvest Volume (MBF): 2,095	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 201 has old-growth stand structure. The overstory consists of western hemlock as the dominant species. Secondary species include Sitka spruce, and patchy Alaska-cedar with western redcedar in the southern half of the unit. The dominant damage is stem decay, indicated by cracks and black seams. Mistletoe was rated low. Windthrow risk is moderate. An adjacent past harvest to the east has regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut (settings as shown on unit card maps)
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 200 and 201 combine to form a potential opening of 81 acres. This requires that approximately 24 acres of productive old growth representative of the overall composition of the planned harvest area and be maintained within the unit 200 and 201 potential opening. Legacy was placed to divide the combined opening, provide RAW and coincide with RMAs while reducing the visual impact of the harvest. There are 25 legacy acres mapped in Alternatives 2 and 3.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (settings as shown on unit card)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed in Alternatives 4 and 5 to mitigate impacts to wildlife and the watershed and in Alternatives 2 and 3 to improve economics. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to NFS roads 3000329, 3000328 and 3000331.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek. (Location is depicted from confluence to headwaters)

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO Concerns: Active erosion
Buffer (RMA): Class III HCD- to the top of the side-slope break. Class IV HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 5 Class: III, IV Flagging: O/W, G/W C- Type: HCV, HCO
Concerns: Blowdown and active erosion
Buffer (RMA): Class III for HCV- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 6 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: Blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 8 Class: III Flagging: O/W C- Type: HCM Concerns: blowdown
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 9 Class: III Flagging: O/W C- Type: HCD Concerns: blowdown
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 15 Class: III Flagging: O/W C- Type: HCD Concerns: active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 16 Class: III Flagging: O/W C- Type: HCD Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 6.1R (trib of Stream 16) Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 6.2R (trib of Stream 16) Class: III, IV Flagging: O/W, G/W C- Type: HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCM- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

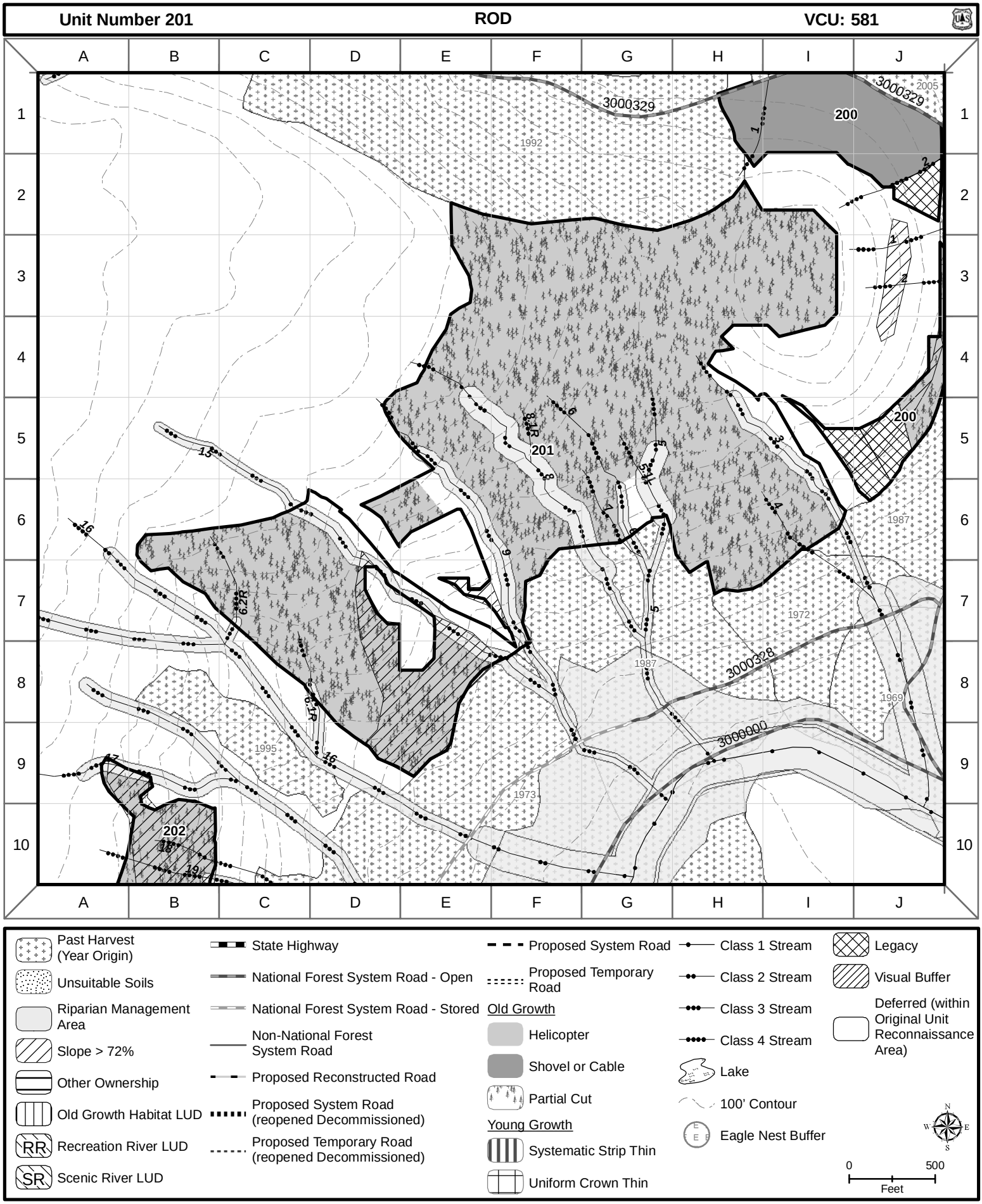
SCENERY: Unit is entirely Very Low SIO. No concerns.

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 25 to 100%. Approximately 9 acres of slopes greater than 72% is suitable for harvest with full suspension. A minimum of full suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). Forested wetlands were identified in the upper elevations of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4).

WILDLIFE: Unit includes average snow deer winter range (southern 3/4 of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Appendix 1



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Unit Number: 202	Alternatives: ROD	Total Unit Acres: 51.1	Prescription: Clearcut
VCU Number: 581	Yarding System: Helicopter	Net Harvest Volume (MBF): 1,473	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 202 has old-growth stand structure with an overstory composition of western hemlock, western redcedar, Sitka spruce and Alaska-cedar. Moderate heart rot and stem decay are the primary damages. Mistletoe is low. Windthrow risk is moderate. This is a mature stand with static to declining growth. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 22 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to supplement RMAs and add RAW. Total mapped legacy is approximately 22 acres.

TIMBER/YARDING: Helicopter yarding to NFS roads 3000331 and 3000334.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek

Stream#: 17 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 19 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: Blowdown and active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 23 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: Blowdown and active erosion, steep side-slopes with shallow soils and exposed bedrock
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 24 Class: III Flagging: O/W C- Type: HCM, HCD
Concerns: blowdown and active erosion, steep side-slopes with shallow soils and exposed bedrock
Buffer (RMA): Class III for HCM and HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 45 Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

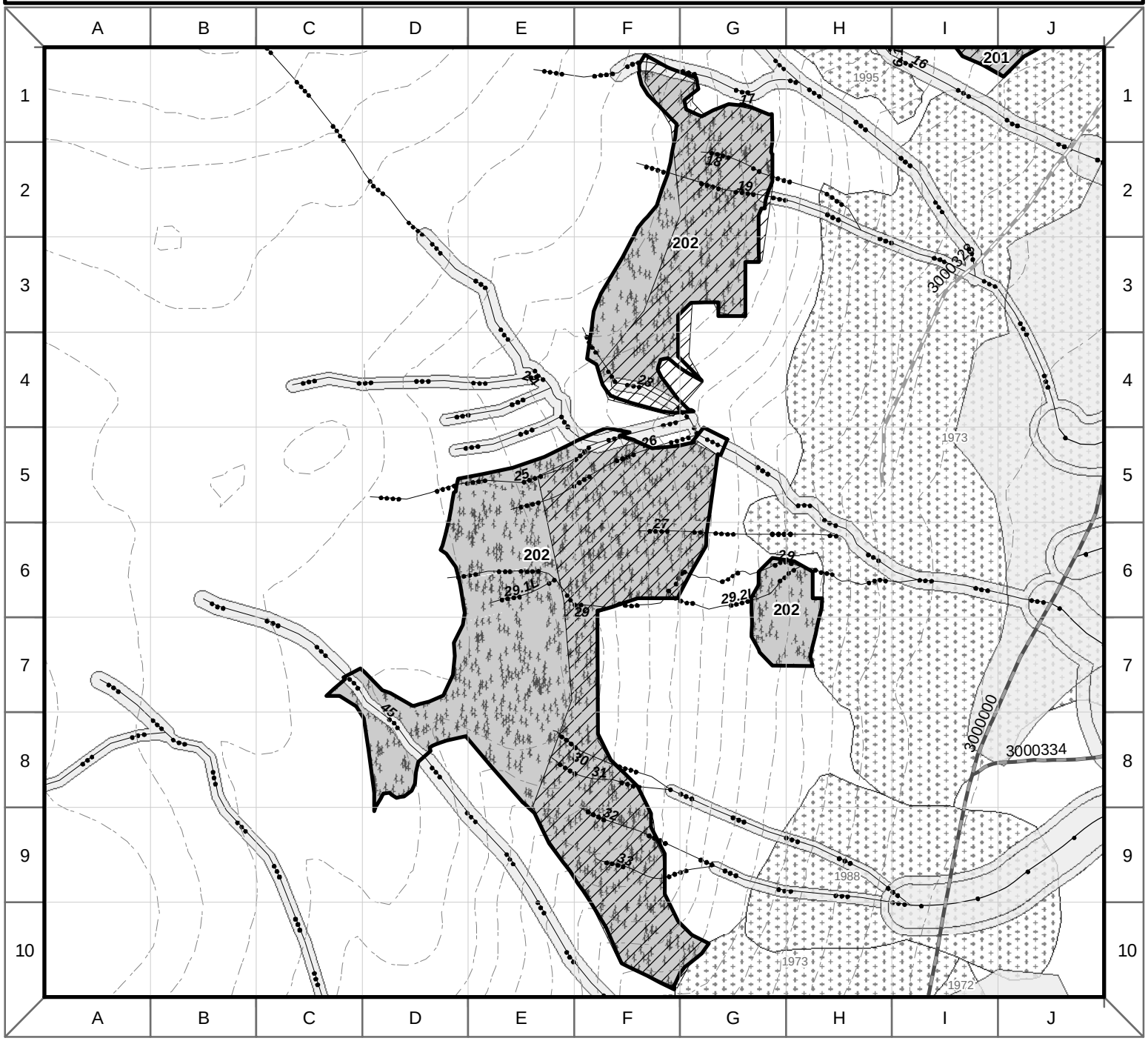
All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement

(PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely Very Low SIO. No concerns.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 35 to 110%. Approximately 20 acres of slopes greater than 72% is suitable for harvest with full suspension. A minimum of full suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). Minor areas of emergent short sedge fens were identified in the upper elevations of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). An alder re-vegetated debris torrent initiated near the upper unit boundary and extends below the unit. This debris torrent can be operated around.
WILDLIFE: Unit includes average snow deer winter range (eastern ½ of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Unit Number 202 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 203	Alternatives: ROD	Total Unit Acres: 67.7	Prescription: Clearcut and 50% Removal
VCU Number: 581	Yarding System: Helicopter	Net Harvest Volume (MBF): 1,896	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit is old-growth timber with the overstory consisting primarily of western hemlock, Alaska-cedar and Sitka spruce. Mountain hemlock are abundant in the higher elevations. The unit has over-mature timber with moderate stem decay and defects. Mistletoe is low. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut (settings as shown on unit card maps)
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 20 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy is planned for unsuitable soils and RMAs. Total mapped legacy is approximately 23 acres.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (settings as shown on unit card maps)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed to improve economics and provide RAW along streams. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to NFS roads 3000340 and 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek.

Stream#: 6 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 10 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCD
Concerns: blowdown and active erosion in Class III, steep side-slopes with shallow soils and exposed bedrock.
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCD- none
Alternatives: ROD Buffer (RAW): no review required Protection: Category B and C

Stream#: 20 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM
Concerns: blowdown and active erosion in Class III, steep side-slopes with shallow soils and exposed bedrock.
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCM- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

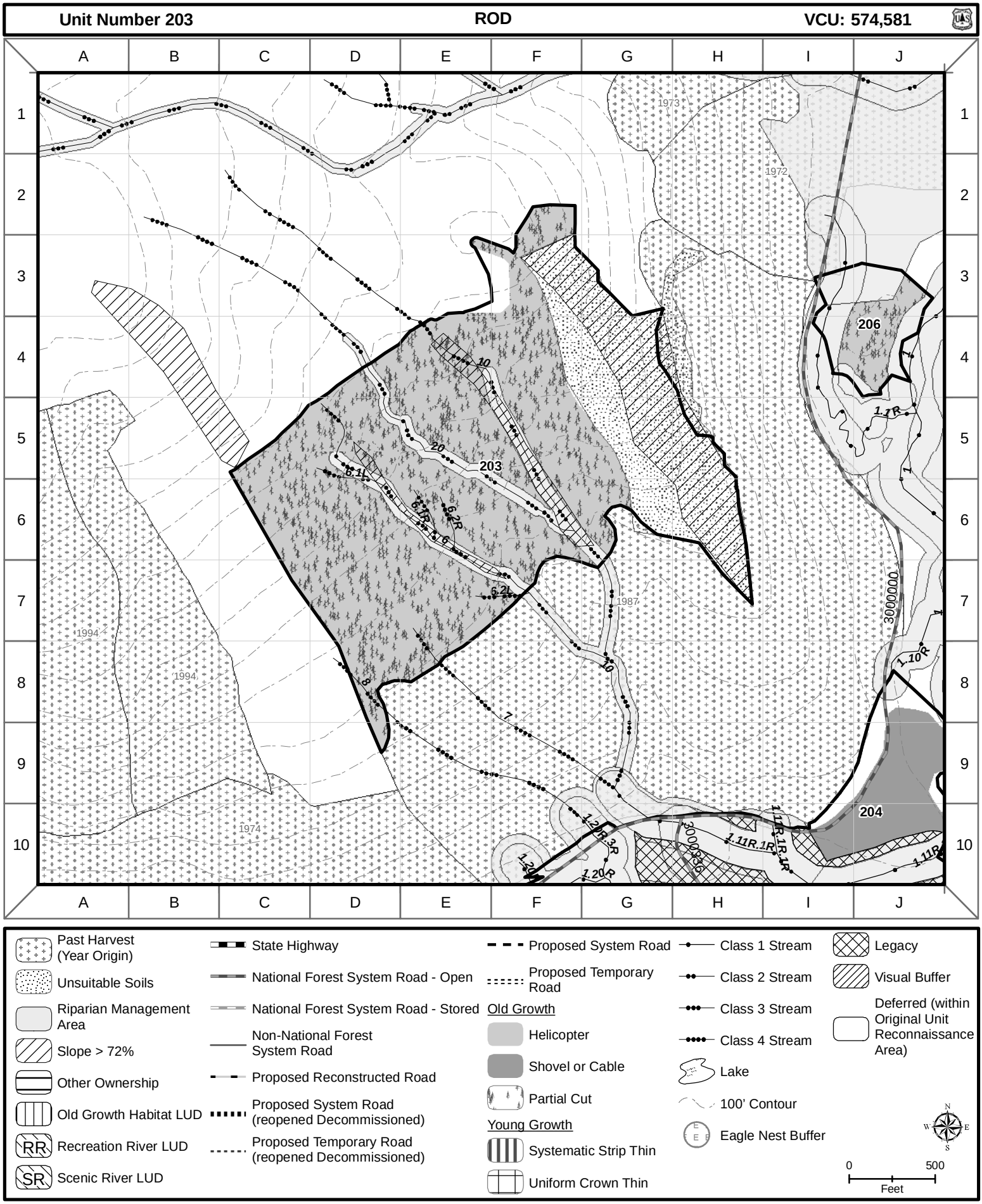
All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during

and/or after actual ground disturbance.
SCENERY: No Concerns.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 10 to 75%. The original unit was modified to exclude about 26 acres of extremely steep slopes, high landslide potential, and colluvial activity. Approximately 2 acres of slopes greater than 72% is suitable for harvest with full suspension. A minimum of full suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). Small emergent sedge fens were located in the center of the unit surrounded by forested wetlands. Forested wetlands were also identified in the northeastern corner of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Appendix 1



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Unit Number: 204	Alternatives: ROD	Total Unit Acres: 8.9	Prescription: Clearcut
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 176	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth structure. The overstory consists of a mixture of western hemlock and western redcedar. Sitka spruce are present in lesser amounts. The main damage is stem form with light to moderate stem decay. Overall the average defect rating for the whole unit is moderate. Mistletoe was rated as low. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. The potential opening is 20 acres. There is 11 acres of productive old growth representative of the overall composition of the planned harvest mapped within RMAs.

TIMBER/YARDING: Shovel yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek

Stream#: 1.10R Class: I Flagging: B/W C- Type: PAO Concerns: none
Buffer (RMA): Class I for PAO- greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.11R.1R Class: I Flagging: B/W C- Type: FPO, FPS, PAB, AFM
Concerns: extreme braiding present
Buffer (RMA): Class I for FPO and FPS- greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for PAB- greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for AFM- greater of 140 feet or active portion of alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.11R.1R.1R Class: I Flagging: B/W C- Type: MMO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

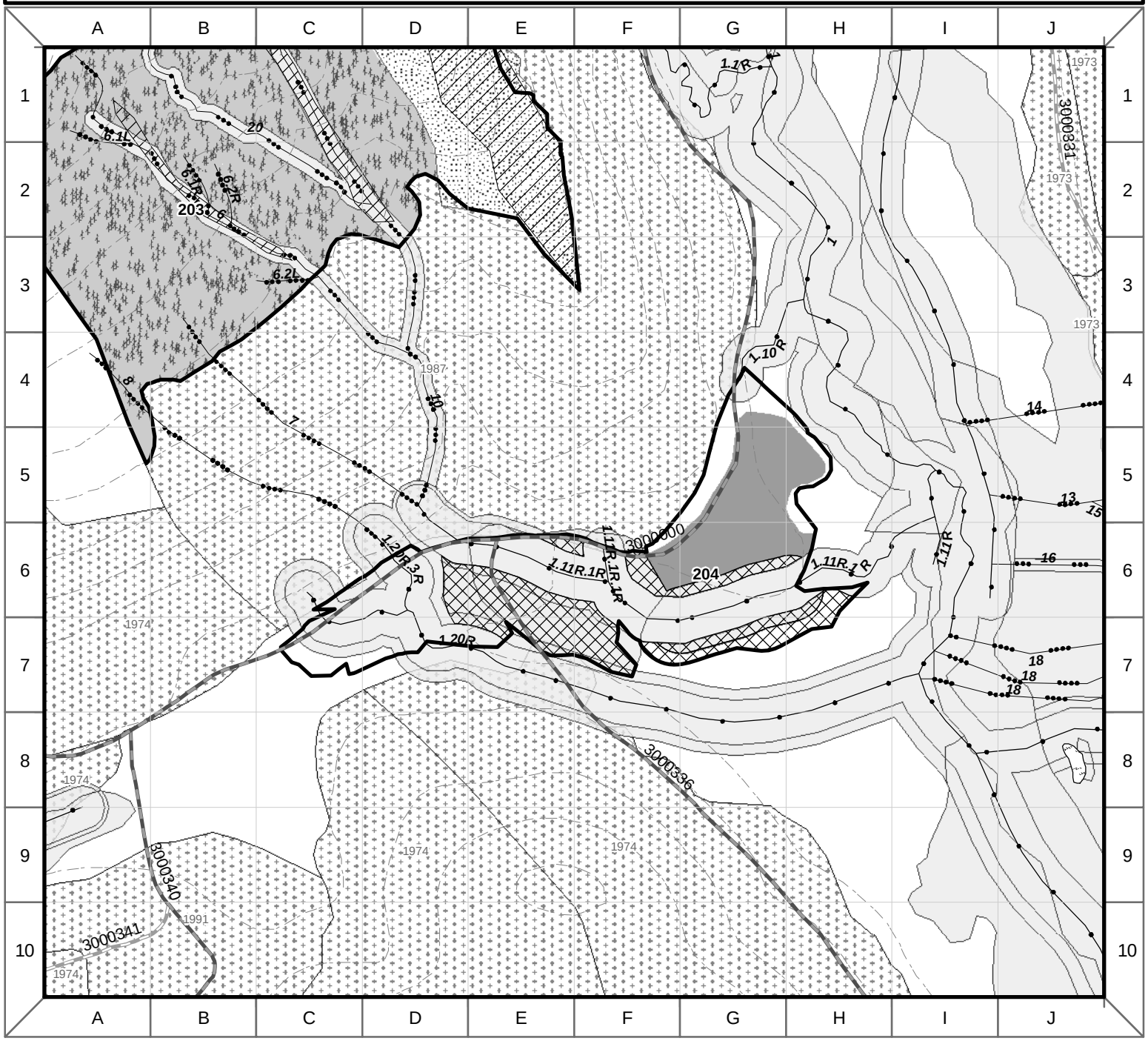
RECREATION: No Concerns.

SOILS/WETLANDS: Slopes are gentle. Forested wetlands are found throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4).

Appendix 1

WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 204 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 206	Alternatives: ROD	Total Unit Acres: 3.6	Prescription: Clearcut
VCU Number: 581	Yarding System: Helicopter	Net Harvest Volume (MBF): 83	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure. The overstory consists mostly of western Hemlock and Sitka Spruce. The major damage agent is stem decay. Mistletoe is low. Windthrow risk is high. There is extensive recent windthrow in the unit. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the potential opening is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Helicopter yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek. (Location is depicted from confluence to headwaters)

Stream#: 1 Class: I Flagging: B/W C- Type: PAM Concerns: none
Buffer (RMA): Class I for PAM- greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): review required for north, west, and east exposure Protection: Category A

Stream#: 1.1R Class: I Flagging: B/W C- Type: PAS, PAB Concerns: blowdown
Buffer (RMA): Class I for PAS and PAB- greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): review required for north, west, and east exposure Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

RECREATION: No Concerns.

SOILS/WETLANDS: Slopes are gentle. Forested wetlands are found throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 206 | **ROD** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 207	Alternatives: ROD	Total Unit Acres: 14.6	Prescription: Clearcut
VCU Number: 582	Yarding System: Cable	Net Harvest Volume (MBF): 523	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 207 has old-growth stand structure with an overstory consisting of western hemlock and western redcedar. Sitka spruce and Alaska-cedar are secondary components. This is a mature stand with moderate to heavy areas of mistletoe, stem decay and breakage. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate to heavy levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3030100, totaling 12,000 feet and a proposed temporary road of 1,600 feet; approximately 200 feet of this road will be constructed over decommissioned road bed. NFS road 3030100 also is used to access Units 464, 465, 466, 577, 578, 212, and 213. See road card for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Clarence Strait.

All streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 207: One Class IV stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

RECREATION: No concerns, but unit is adjacent to the Ratz Roadless Area along southeast border.

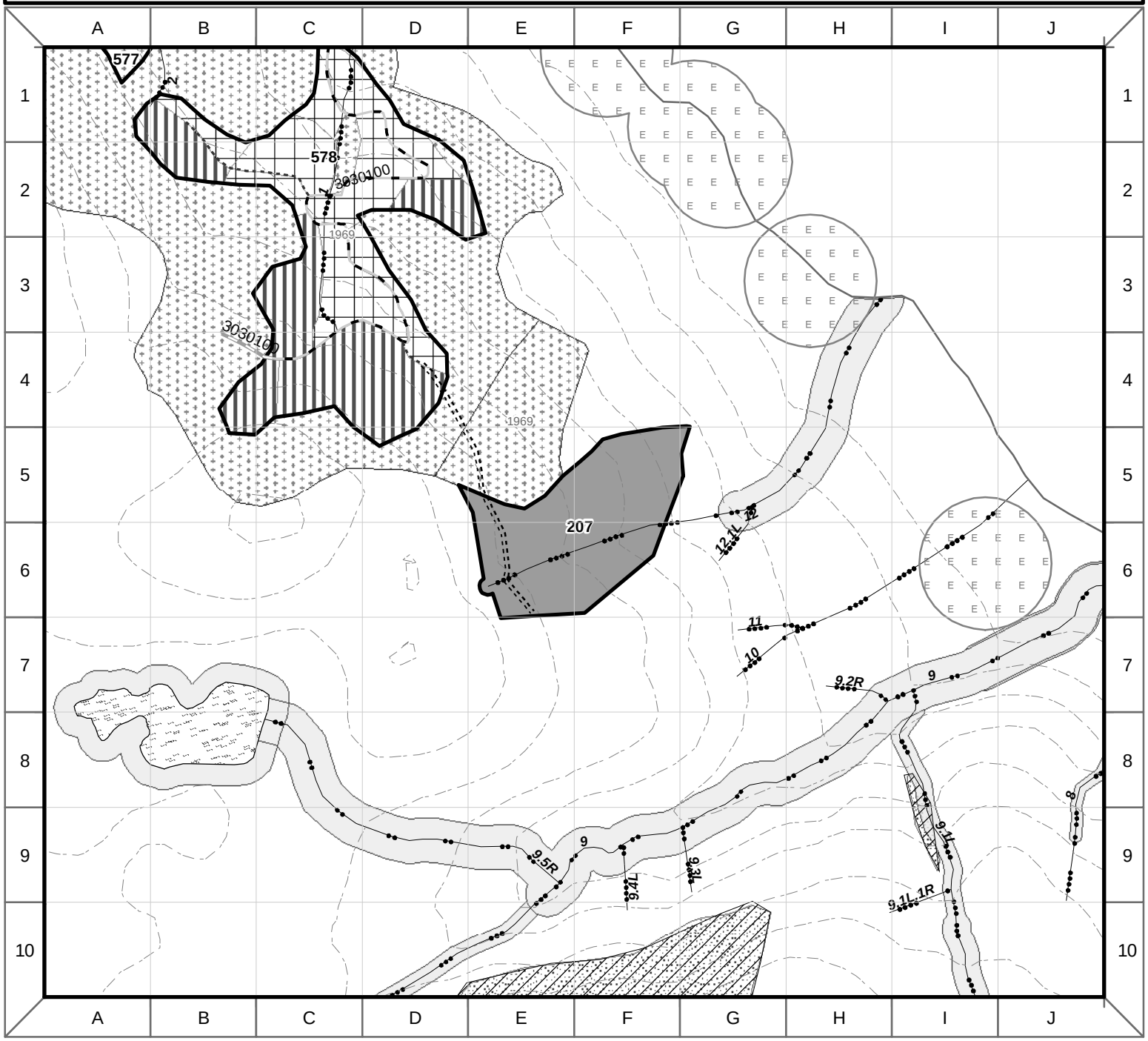
SOILS/WETLANDS: Slopes range from 5 to 70%. No slopes greater than 72% were identified. Intermittent forested wetlands were identified (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed road line crosses about ½ acre of forested wetland. Wetland avoidance is not feasible due to the existing road location and slopes. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.

WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern 3/4 of unit). Loons observed in small lake to west. Legacy standard and guideline does not apply in this VCU.

<u>Old-growth Reserve (OGR) Boundary</u>
OGR was modified acres but is still to the south of unit.

Unit Number 207 | **ROD** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 360	Alternatives: ROD	Total Unit Acres: 37.6	Prescription: Clearcut
VCU Number: 595	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 595	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 360 is predominantly a western hemlock stand that transitions to western hemlock and Alaska-cedar in the upper elevations. Old-growth stand structure dominates. Light to moderate windthrow, moderate defect, and a common incidence of mistletoe defines the health of the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate to levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Alternative 3: Cable and shovel settings yard to the proposed temporary roads. Helicopter settings yard to the proposed temporary roads and NFS road 2000440 in Unit 406.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 2,500 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek. Characteristics for Streams A1.North and A1.South do not include project-specific, field-verified information. This information will be collected prior to implementation.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM Concerns: none known
Buffer (RMA): Class I for MMM- greater of 120 feet or flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2R Class: I, II, IV Flagging: B/W, G/W C- Type: HCL, HCO Concerns: none
Buffer (RMA): Class I and II for HCL- greater of 100 feet or to top of side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.2R.1R Class: I Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class I for HCO- greater of 100 feet or to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: A1.North Class: III Flagging: O/W C- Type: HCD Concerns: *not field verified*
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: A1.South Class: III Flagging: O/W C- Type: HCD Concerns: : *not field verified*
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

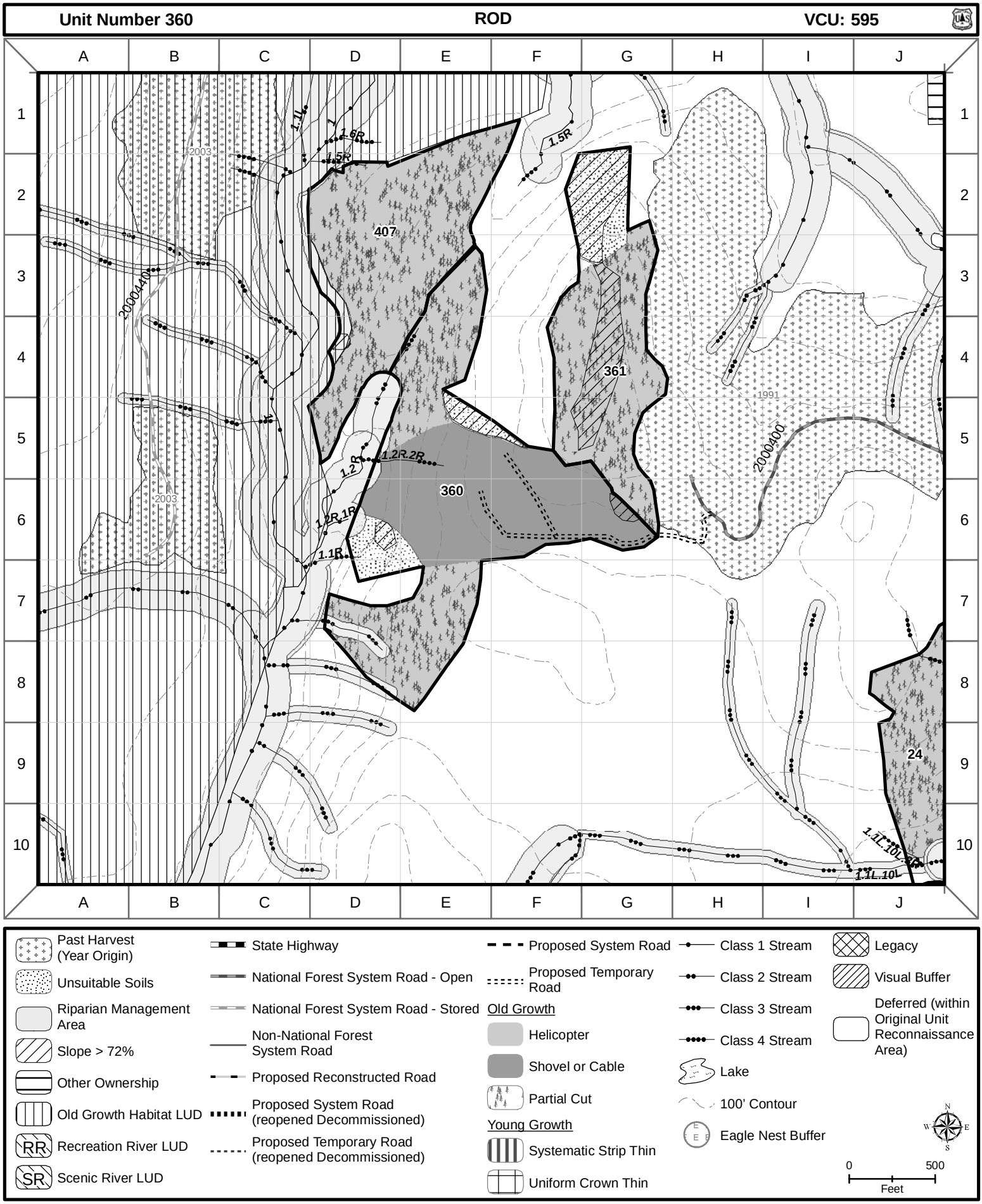
Temporary roads for Unit 360: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was

mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns. Unit is entirely in Very Low SIO.
RECREATION: No Concerns.
SOILS/WETLANDS: Slopes range from 15 to 110%. Approximately ½ of an acre of slopes greater than 72% is suitable for harvest with partial suspension. About 4 acres were excluded from harvest due to high landslide potential, colluvial activity, and extremely steep slopes. Interspersed wetlands were found in the central portion of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding (R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6). The proposed road crosses about 1 acre of forested wetlands. Wetland avoidance is not feasible due to existing road location and contours. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western 1/3 of unit). Unit is located in an area of known wolf use near Control Lake. Legacy standard and guideline does not apply in this VCU. <u>Old-growth Reserve (OGR) Boundary</u> OGR shifted slightly further west of unit.

Appendix 1



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Unit Number: 361	Alternatives: ROD	Total Unit Acres: 16.9	Prescription: Clearcut
VCU Number: 595	Yarding System: Helicopter	Net Harvest Volume (MBF): 467	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 361 is predominantly a Sitka spruce stand that transitions to western hemlock on the northern slopes. Old-growth stand structure dominates. Moderate to high windthrow and past weather damage, moderate defect, and moderate mistletoe define the stand. This stand is over-mature with declining growth. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Helicopter yarding to the proposed temporary road accessing Unit 360 and NFS road 2000400.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: No streams found in unit at time of survey. If streams are found during implementations, a fish biologist would be notified and appropriate protections would be applied.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns. Unit consists of Low and Very Low SIOs.

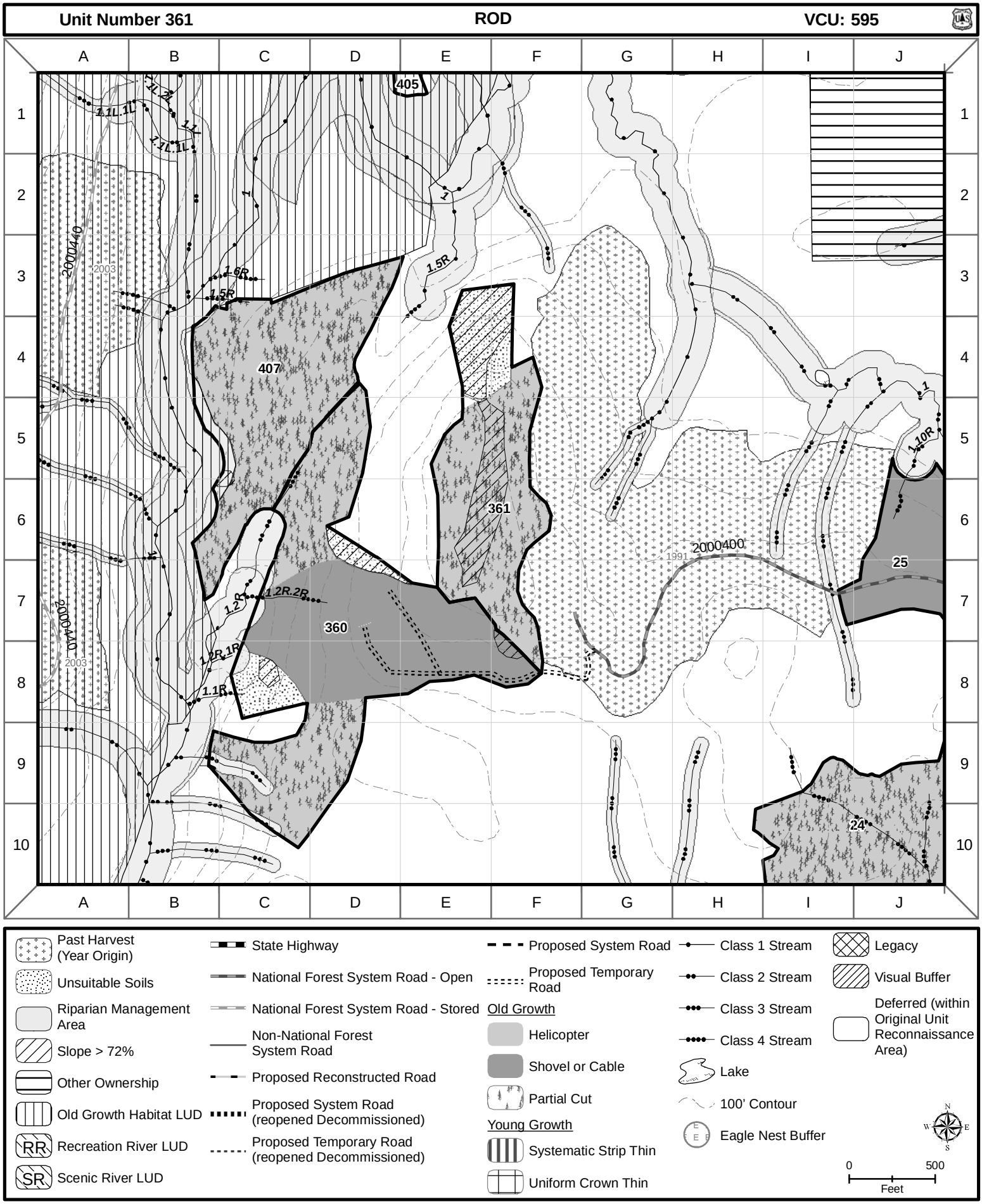
RECREATION: No Concerns.

SOILS/WETLANDS: Slopes range from 10 to greater than 72%. Approximately 4 acres of slopes greater than 72% is suitable for harvest with partial suspension. About 5 acres were excluded from harvest due to very high landslide potential, colluvial activity, and extremely steep wet slopes. Forested wetlands were identified on the benches below the cliff line (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

WILDLIFE: Unit includes average snow deer winter range (entire unit) and is located in an area of known wolf use near Control Lake. Legacy standard and guideline does not apply in this VCU.

<u>Old-growth Reserve (OGR) Boundary</u>
OGR boundary shifted further west of unit.

Appendix 1



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Unit Number: 363	Alternatives: ROD	Total Unit Acres: 104.4	Prescription: 50% Removal
VCU Number: 580	Yarding System: Helicopter	Net Harvest Volume (MBF): 1,794	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit consists of old-growth stand structure. The overstory is made up of unevenly-spaced, moderately stocked, mature western hemlock and western redcedar, with scattered Alaska-cedar and Sitka Spruce. Windthrow risk is moderate. Mistletoe in the stand is low overall. Damages and defects were rated as moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

The uneven-aged single tree selection regeneration method is being prescribed to avoid an opening exceeding 100 acres, mitigate economic concerns and reduce impacts to wildlife and the watershed. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to NFS roads 3015000 and 3015600.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: Two infestations of common tansy located along NFS roads 3015000 and 3015600. These infestations have been treated previously; recommend monitoring and retreatment as necessary.

FISHERIES: Streams tributaries to Thorne River

Stream#: 23 Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 23.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 25 Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 29 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 30 Class: II, III Flagging: B/W, O/W C- Type: AFH, HCM, HCD Concerns: none
Buffer (RMA): Class II for AFH- greater than 140 feet or to active portion of the alluvial fan. Class III for HCM and HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

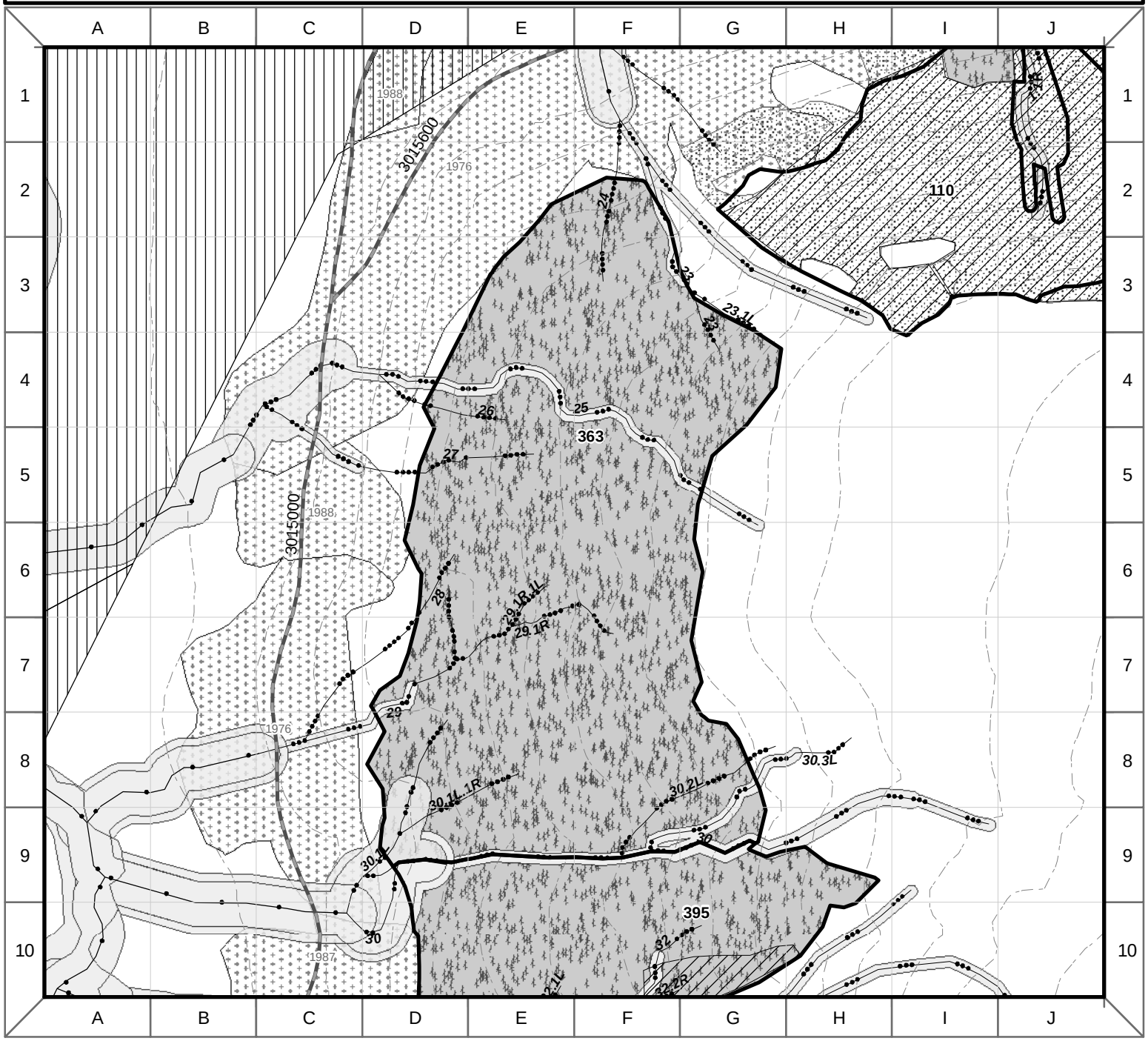
Stream#: 30.1L Class: II, IV Flagging: B/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class II for HCM-greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 30.3L Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Appendix 1

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit consists of about 32 acres of Low and 68 acres of Very Low SIOs. Half or less of the unit may be visible from some locations in the Snakey Lakes area. No Concerns.
RECREATION: Unit is about 1 mile from the Scenic River LUD, but is not likely to be visible from any location except on the river, at a distance of about 1 1/2 miles or more. No Concerns
SOILS/WETLANDS: Slopes range from 25 to 50%. Forested wetlands are located throughout the unit. Forested wetlands were identified in the upper elevations (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).
WILDLIFE: Unit includes average snow deer winter range (along southern edge of unit). Unit is near the Honker large OGR complex. Legacy standard and guideline does not apply in this VCU. <u>Old-growth Reserve (OGR) Boundary</u> OGR boundary relocated north and further away from unit.

Unit Number 363 | **ROD** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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Appendix 1

,Unit Number: 365	Alternatives: ROD	Total Unit Acres: 11.2	Prescription: Clearcut
VCU Number: 579	Yarding System: Shovel	Net Harvest Volume (MBF): 232	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit consists of old-growth stand structure. Windthrow risk is low. Mistletoe was generally absent from the stand. Alaska cedar decline was evident with both past and recent mortality. The overstory is poorly-stocked, over- mature, western hemlock and Sitka spruce with groups of dead Alaska-cedar and scattered western redcedar. Mountain hemlock is also common in the upper elevations. Heavy defects are present consisting of stem decay and weather associated cracks and seams. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with heavy levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the original planned unit is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Shovel yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3017100, totaling 2,200 feet and proposed extension of NFS road 3017100, totaling 700 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Gravelly Creek. *Class III portions of Stream 1 and 2 are w/in 60m of unit, but were not field-verified. Info is based on GIS information.*

Stream#: A1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: A2 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

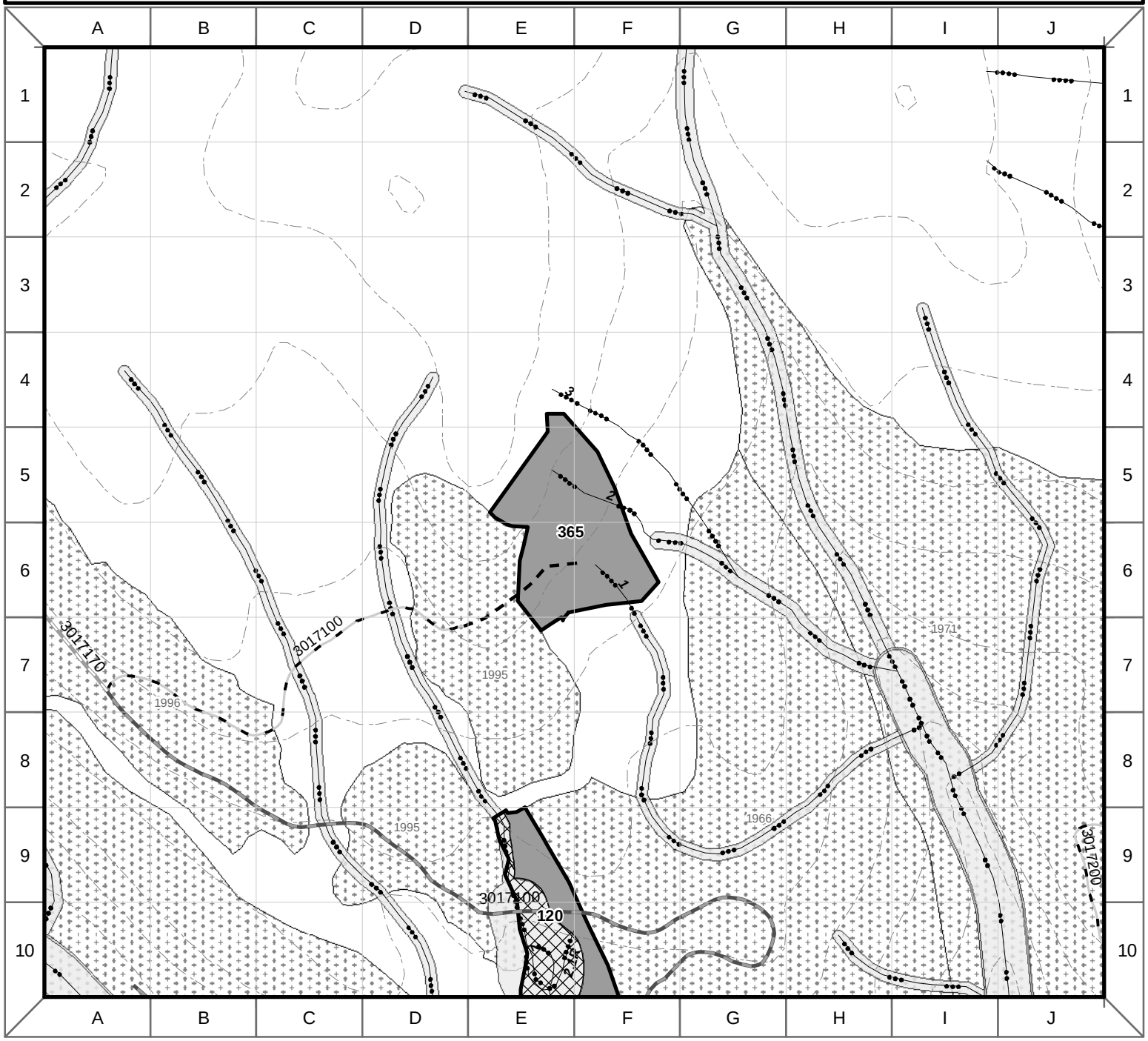
SCENERY: No Concerns.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 20 to 50%. Forested wetlands occur throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

WILDLIFE: Unit includes average snow deer winter range (southern end of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 365 | **ROD** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Appendix 1

Unit Number: 368	Alternatives: ROD	Total Unit Acres: 23.0	Prescription: Clearcut
VCU Number: 579	Yarding System: Shovel, Helicopter	Net Harvest Volume (MBF): 551	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth structure. Windthrow risk is moderate. Mistletoe occurrence in the stand is light. Alaska cedar decline is evident throughout the unit. The overstory is primarily mature western hemlock, with Alaska cedar common in the south and Sitka spruce occurring in the northernmost tip of the unit. The primary defects are stem decay and stem form defects. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 10 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to consolidate POG at north end of unit, expanding off the RMA and providing RAW. Also, it was placed to block up POG across the north-center of unit to divide opening and maintain east-west connectivity. Total mapped legacy is approximately 10 acres.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road. Helicopter settings yard to NFS road 3017200 or the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road totaling 1100 feet. This unit is also accessed by reconstruction of NFS road 3017200, totaling 11,800 feet. See road card for information.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Gravelly Creek

Stream#: 1 Class: III Flagging: O/W C- Type: HCD, HCM Concerns: none
Buffer (RMA): Class III for HCD and HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 368: One Class IV stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

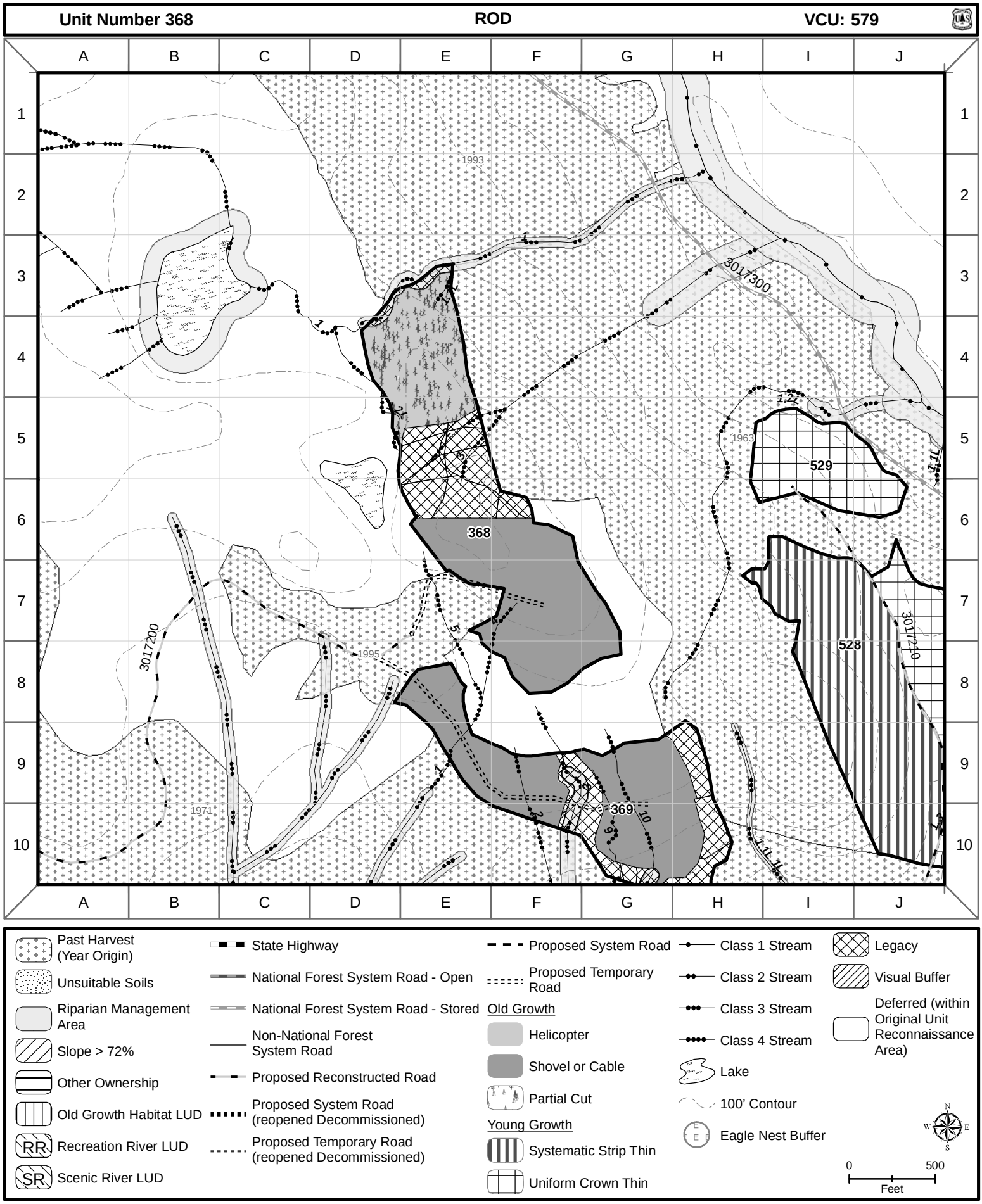
SCENERY: No Concerns.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from nearly level to 55%. Forested wetlands are located throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed temporary road crosses about ½ of acre of forested wetlands. Wetland avoidance is not feasible due to existing road location, streams, and contours. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Appendix 1



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Unit Number: 369	Alternatives: ROD	Total Unit Acres: 17.6	Prescription: Clearcut
VCU Number: 579	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 455	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 369 has old-growth stand structure comprised of mature western hemlock, western redcedar, Alaska- cedar and scattered Sitka spruce. Windthrow risk is moderate. Mistletoe occurrence is moderate. Stem decay is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 8 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to consolidate POG at the south and east sides of unit and adjacent to RMA in center and to shorten required roads. Total mapped legacy is approximately 7 acres.

TIMBER/YARDING: Shovel and cable settings yard to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3017200, totaling 11,600 feet and a proposed temporary road of 2,000 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Gravelly Creek. Characteristics for Stream A do not include project-specific, field-verified information. This information will be collected prior to implementation.

Stream#: 3 Class: III, IV Flagging: O/W C- Type: HCL, MMO Concerns: none
Buffer (RMA): Class III for HCL- to the top of the side-slope break. Class IV for MMO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 10 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: A Class: III Flagging: O/W C- Type: HCM Concerns: not field verified
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 369: Four Class IV and one Class III stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

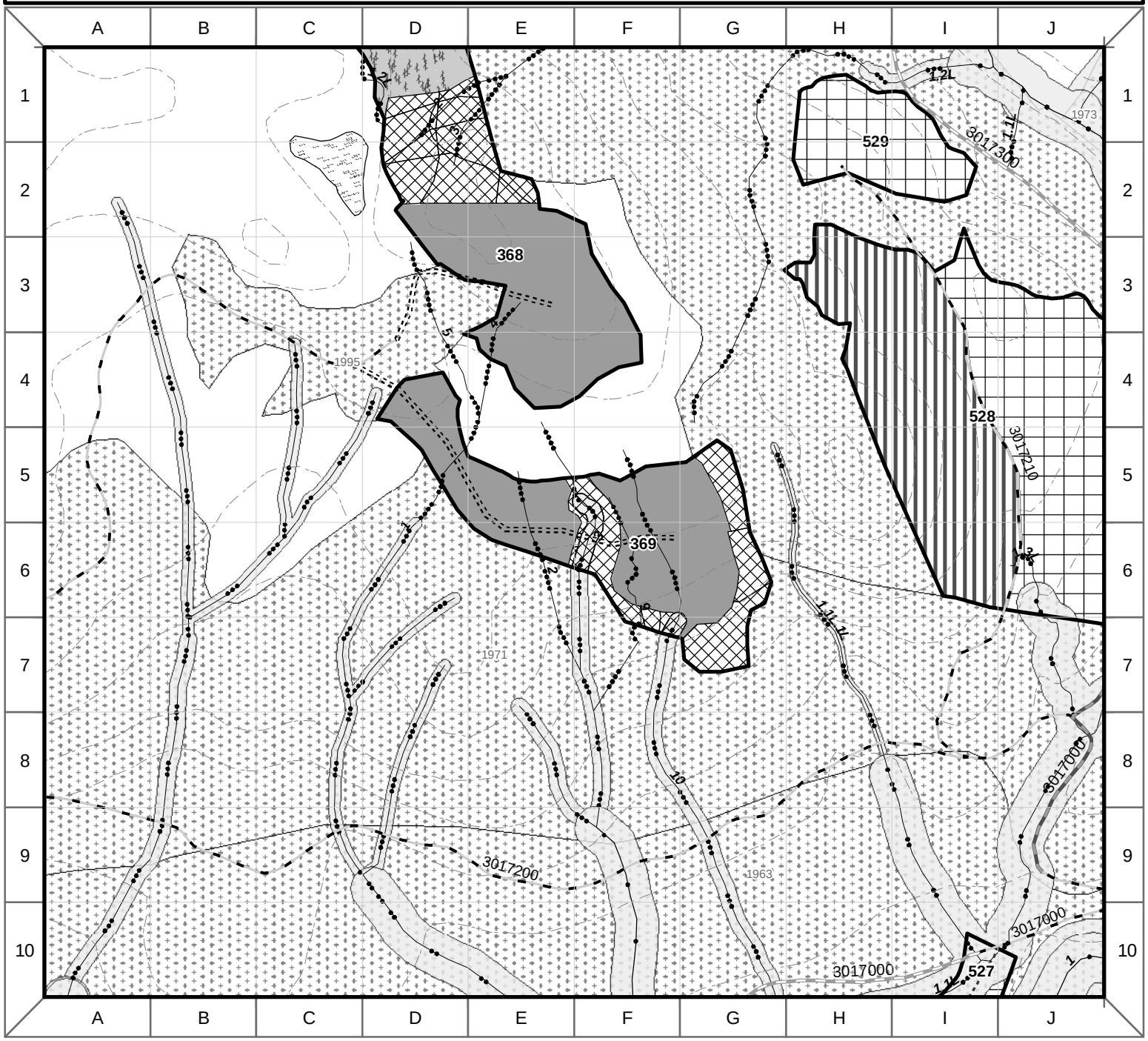
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 30 to 60%. Forested wetlands are interspersed throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road crosses about ½ of acre of forested wetlands. Wetland avoidance is not feasible due to existing road location and unit boundaries. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Unit Number 369 | **ROD** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
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Feet

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Appendix 1

Unit Number: 370	Alternatives: ROD	Total Unit Acres: 19.0	Prescription: Clearcut
VCU Number: 586	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 653	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit has old-growth stand structure in the southern half that transitions to even-age appearing understory re-initiation structure as you move up in elevation and to the north. The overstory consists of western hemlock, western redcedar, Alaska-cedar and Sitka spruce. The even-age area has a strong component of Sitka spruce due to the past disturbance. The even-age portion of the stand is approximately 150 years old, meets culmination requirements and is beginning to decline. The old growth area has moderate damage and defect. Windthrow risk is high. Mistletoe is light. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut
This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 8 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to consolidate POG at north end of unit and on west side of unit (adjacent to RMA) and to shorten required roads. Total mapped legacy is approximately 8 acres.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary roads.

ENGINEERING/ROADS: Unit is accessed by proposed temporary roads, totaling 2,600 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Thorne Bay

Stream#: 1 Class: II Flagging: B/W C- Type: MMO, HCM Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM- greater of 100 feet or to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 370: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

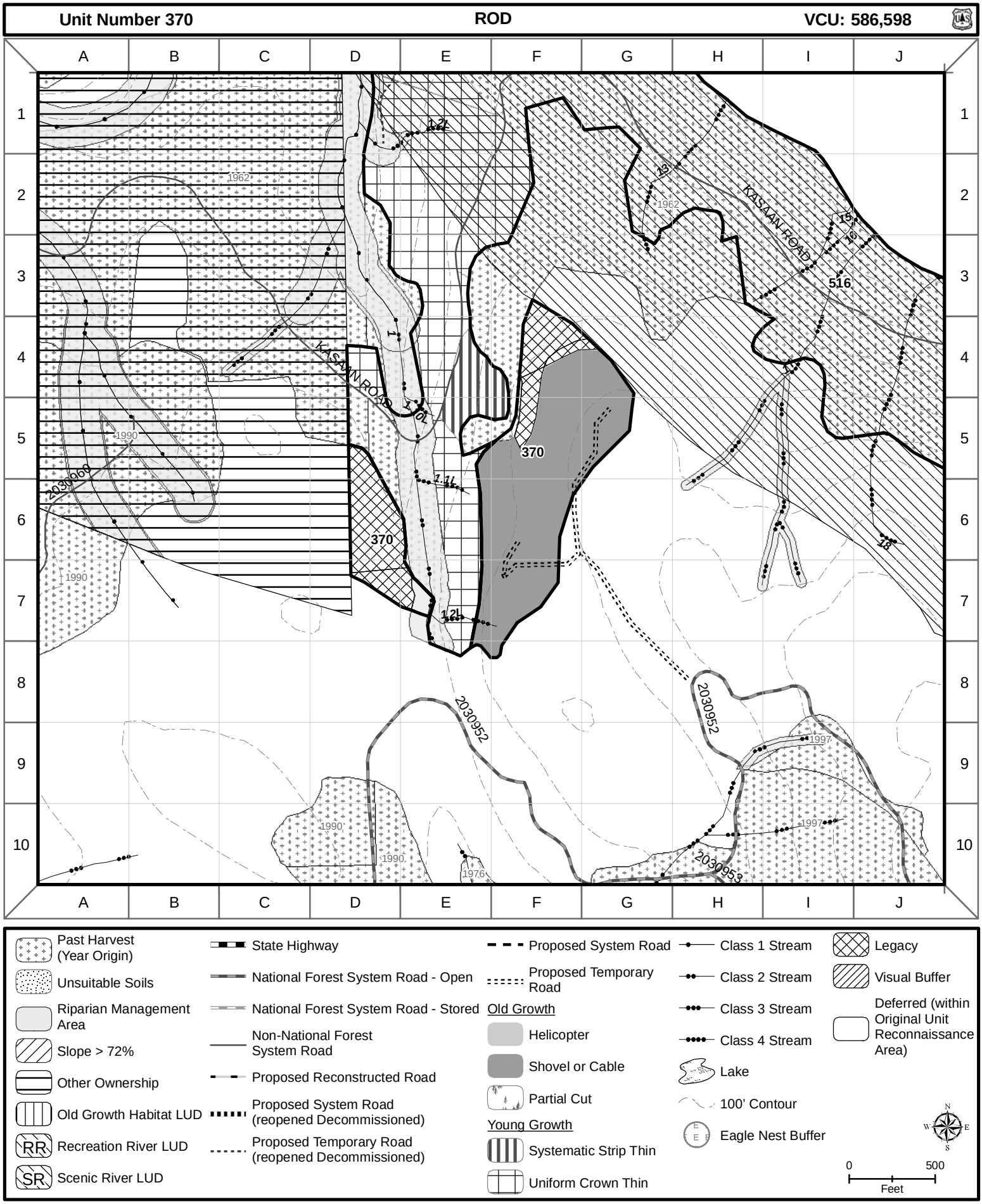
SCENERY: No Concerns. Units mostly in Low SIO, with 3 acres of Moderate, but majority of unit is well screened from VPRs along the Thorne River and saltwater areas.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 0 to 60%. Forested wetlands occur in the southeastern and western portion of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed temporary roads do not cross any wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (western half of unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in VCU 5860; positioning of Legacy acres covers some deer winter range.

Appendix 1



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Unit Number: 371	Alternatives: ROD	Total Unit Acres: 18.8	Prescription: Clearcut
VCU Number: 586	Yarding System: Cable	Net Harvest Volume (MBF): 551	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 371 has old-growth stand structure across the majority of the acreage. There are areas with patchy two-age structure resulting from older windthrow. The overstory of the unit consists of western hemlock, western redcedar and scattered Sitka spruce. Alaska cedar is present where the stand transitions into non-commercial timber along the southern boundary. The overstory has moderate damage and defect. Mistletoe is present but light. Windthrow risk is high. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. The potential opening is less than 20 acres. No legacy set-aside is required.

TIMBER/YARDING: Cable yarding to the proposed temporary road and NFS road 2030798.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 700 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Setter Lake and Thorne Bay

Stream#: 1 Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): review required on east side Protection: Category A

Stream#: 1.1L Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): review required on east side Protection: Category A

Temporary roads for Unit 371: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns.

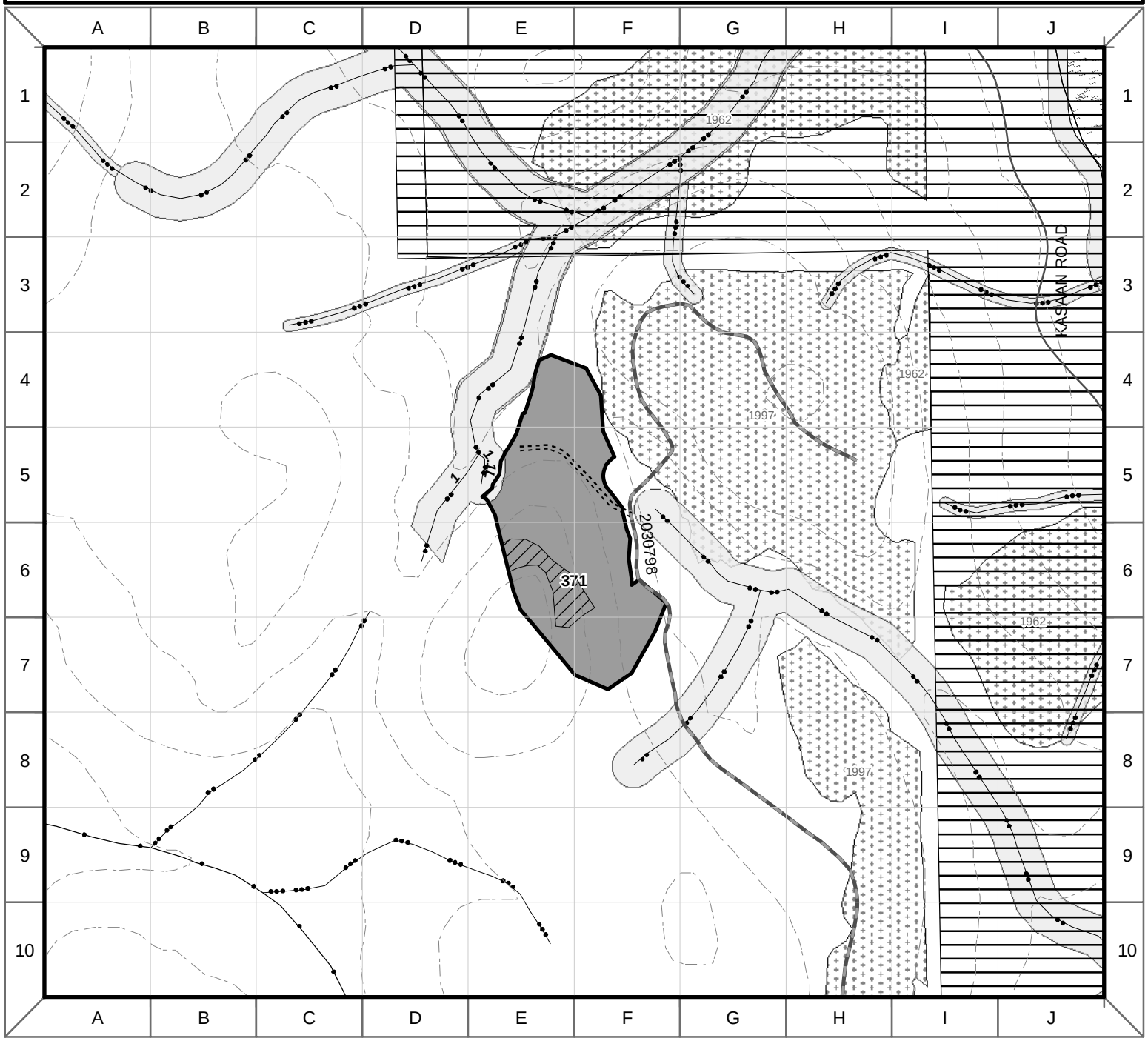
RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 10 to 110%. Approximately 2 acres of slopes greater than 72% are suitable for harvest with partial suspension. Forested wetlands were identified in the northern portion of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed temporary road does not cross any wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.

WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern and southern ends of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 371 **ROD** **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 372	Alternatives: ROD	Total Unit Acres: 9.3	Prescription: Clearcut
VCU Number: 584	Yarding System: Shovel	Net Harvest Volume (MBF): 141	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This area consists of old-growth timber. Windthrow risk is high. Mistletoe is light. The overstory is mature western hemlock, western redcedar and Sitka spruce. Damages are considered moderate across the stand. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Units 146 and 372 combine to form a potential opening of 39 acres. This requires 12 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 146 and 372 potential opening. The combined unit 146 and 372 mapped legacy set-aside is 12 acres.

TIMBER/YARDING: Shovel yarding to the proposed temporary road and NFS road 3000215.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3000215, totaling 900 feet and a proposed temporary road of 400 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Clarence Strait

Stream#: 1 Class: I, IV Flagging: B/W, G/W C- Type: HCO Concerns: blowdown
Buffer (RMA): Class I for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.2R Class: I Flagging: B/W C- Type: HCO Concerns: blowdown observed
Buffer (RMA): Class I for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Temporary roads for Unit 372: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is mostly Low SIO and is mostly screened from NFS Road 3000000, which is at a distance of more than 1/2 mile. No concerns.

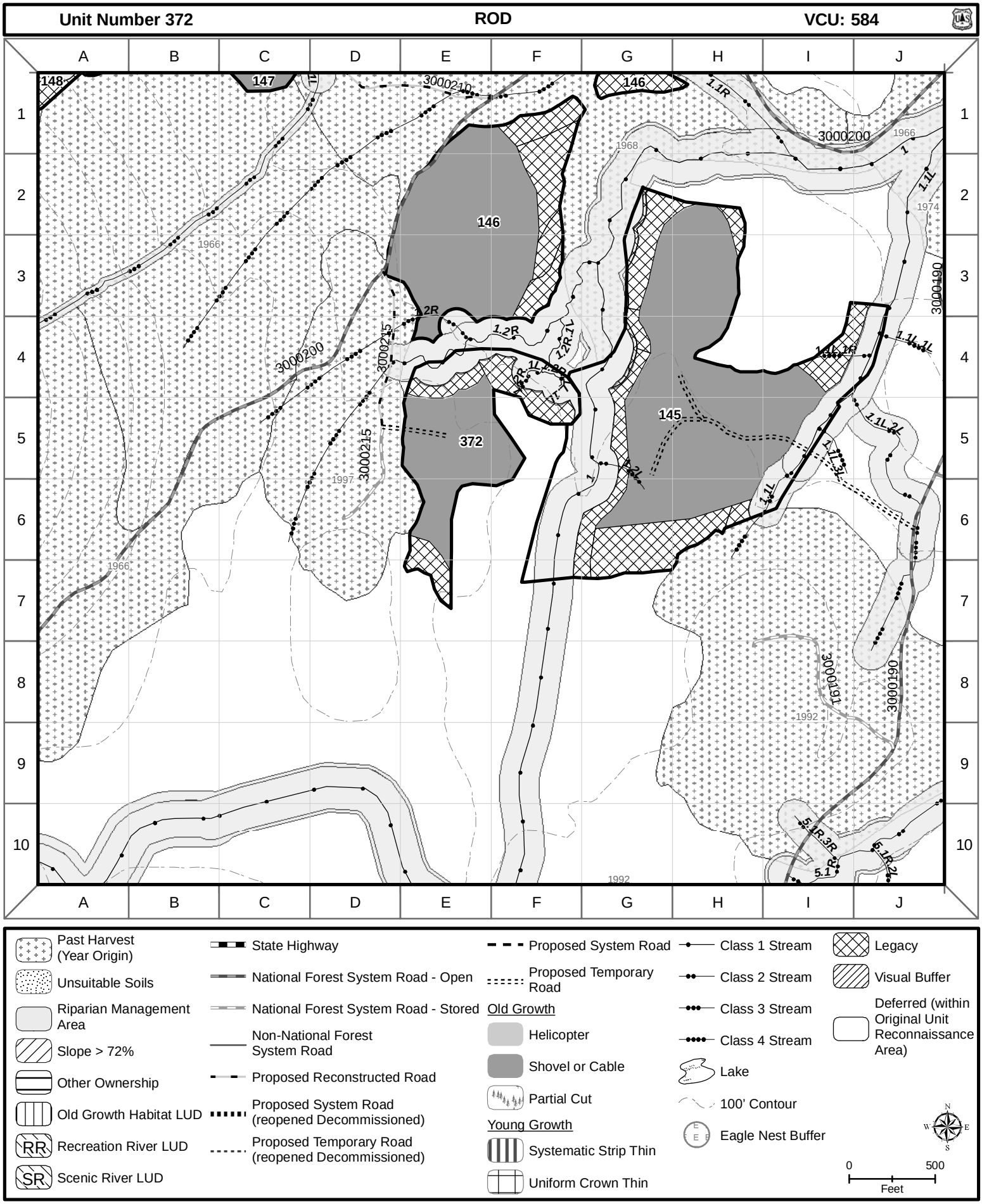
RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from nearly level to 50%. Forested wetlands are located in the center of the unit and along the stream (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed temporary road crosses less than ¼ of an acre of forested wetlands. Wetland avoidance was not

practicable due to existing road location, presence of stream, and extent of wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern half of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Appendix 1



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit Number: 380	Alternatives: ROD	Total Unit Acres: 38.2	Prescription: 25% Removal
VCU Number: 575 Phase 2	Yarding System: Helicopter	Net Harvest Volume (MBF): 381	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This area consists of old-growth that is comprised of mature western hemlock, western redcedar and Sitka spruce with scattered Alaska-cedar in the northwest. Windthrow risk is high. Mistletoe was practically absent in the stand. There is moderate stem form defect and stem decay. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

The uneven-aged single tree selection regeneration method is being prescribed to mitigate windthrow and economic concerns. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to NFS road 3016000 and the proposed temporary road accessing unit 381.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road in Unit 381. See Unit 381 unit card for details.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream#: 2 Class: III Flagging: O/W C- Type: HCM, MMS Concerns: none
Buffer (RMA): Class III HCM- to the top of the side-slope break. Class III for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is entirely in Low SIO and is partially visible from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. Typical opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres for Low VAC and 40 to 60 acres for Intermediate VAC. The area is mostly Low with some Intermediate VAC so unit is expected to meet the SIO. If Units 380, 381, and 382 are to be harvested together, visible opening size is estimated at 40 acres or less and the combination still appears to meet the SIO.

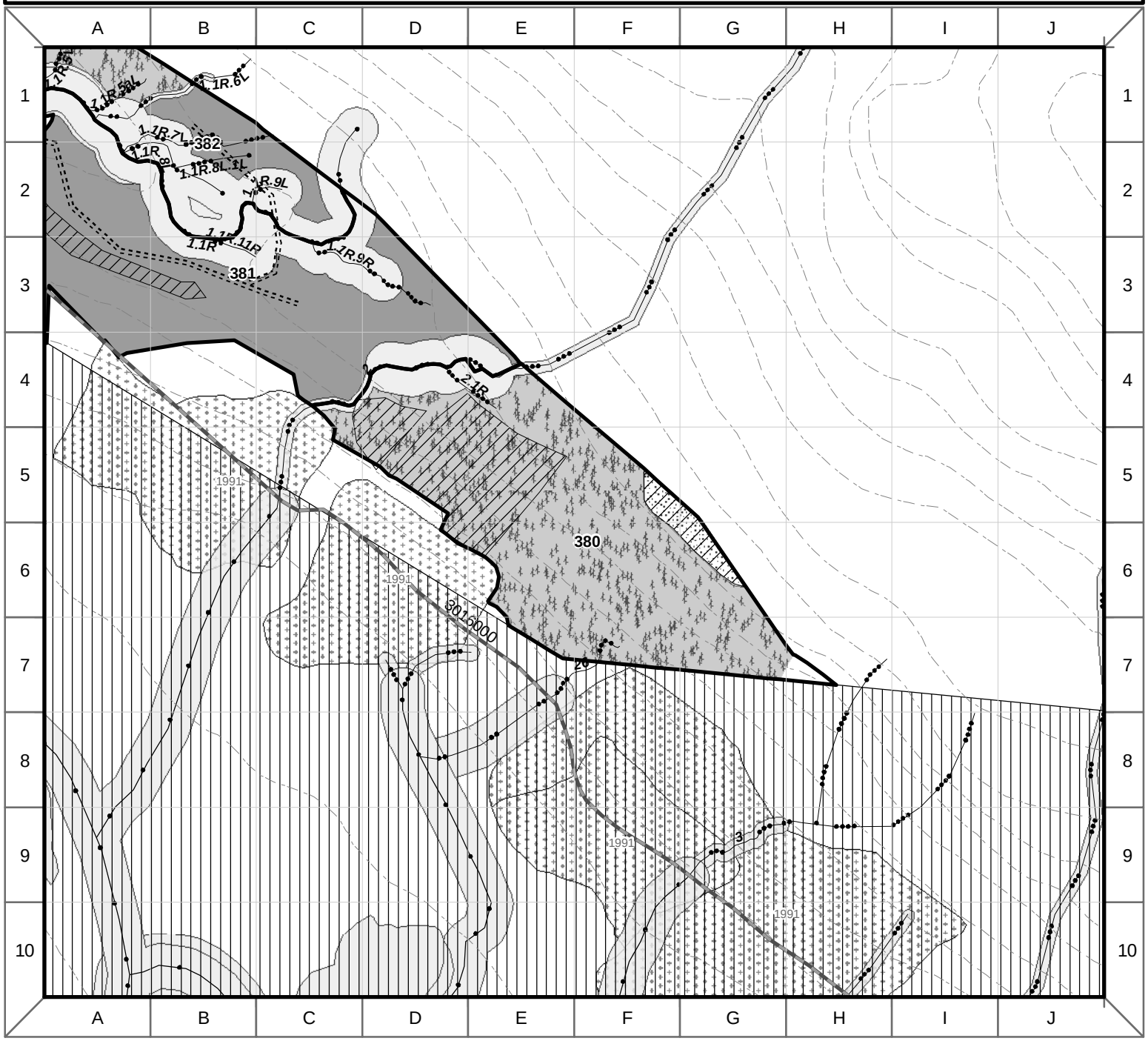
RECREATION: Unit is about 3/4 mile outside of the Scenic River corridor. It is partially visible from some portions of the lakes along the Honker Divide trail in the center of the Scenic River corridor, at a distance of about 1 1/4 miles or more. The northeastern boundary of the unit coincides with the boundary of the Thorne River inventoried roadless area, which also occurs about 1/4 mile southwest of the unit.

SOILS/WETLANDS: Slopes range from 50 to 100%. About 8 acres of slopes greater than 72% are suitable for harvest with partial suspension. Approximately 2 acres were excluded from harvest due to steep slopes, colluvial activity, and high landslide potential. Forested wetlands are found intermittently in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

Appendix 1

WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR complex (OGR to the south). Legacy standard and guideline does not apply in this VCU.

Unit Number 380 | **ROD** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

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Appendix 1

Unit Number: 381	Alternatives: ROD	Total Unit Acres: 35.1	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 1,093	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit is old-growth timber comprised mostly of western hemlock and Alaska-cedar. Windthrow risk is moderate to high throughout the stand with some evidence of older blowdown in the central to southeast portion of the unit and more recent blowdown along past harvest edges. Mistletoe was on average moderate throughout the stand. Primary defect is stem decay and form defects. Alaska-cedar decline was also evident in the southeastern corner. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road and NFS road 3016000. Cable settings yard to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by proposed temporary roads, totaling 2,900 feet. Approximately 500 feet of this road will be constructed over decommissioned road bed. Part of this road is also used to access Units 380 and 382.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River.
Stream#: 1.1R Class: II Flagging: B/W C- Type: MMS, HCM Concerns: none
Buffer (RMA): Class II for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 1.1R.11R Class: II Flagging: B/W C- Type: HCO Concerns: blowdown
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 2 Class: III Flagging: O/W C- Type: HCM, MMS Concerns: none
Buffer (RMA): Class III HCM- to the top of the side-slope break. Class III for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

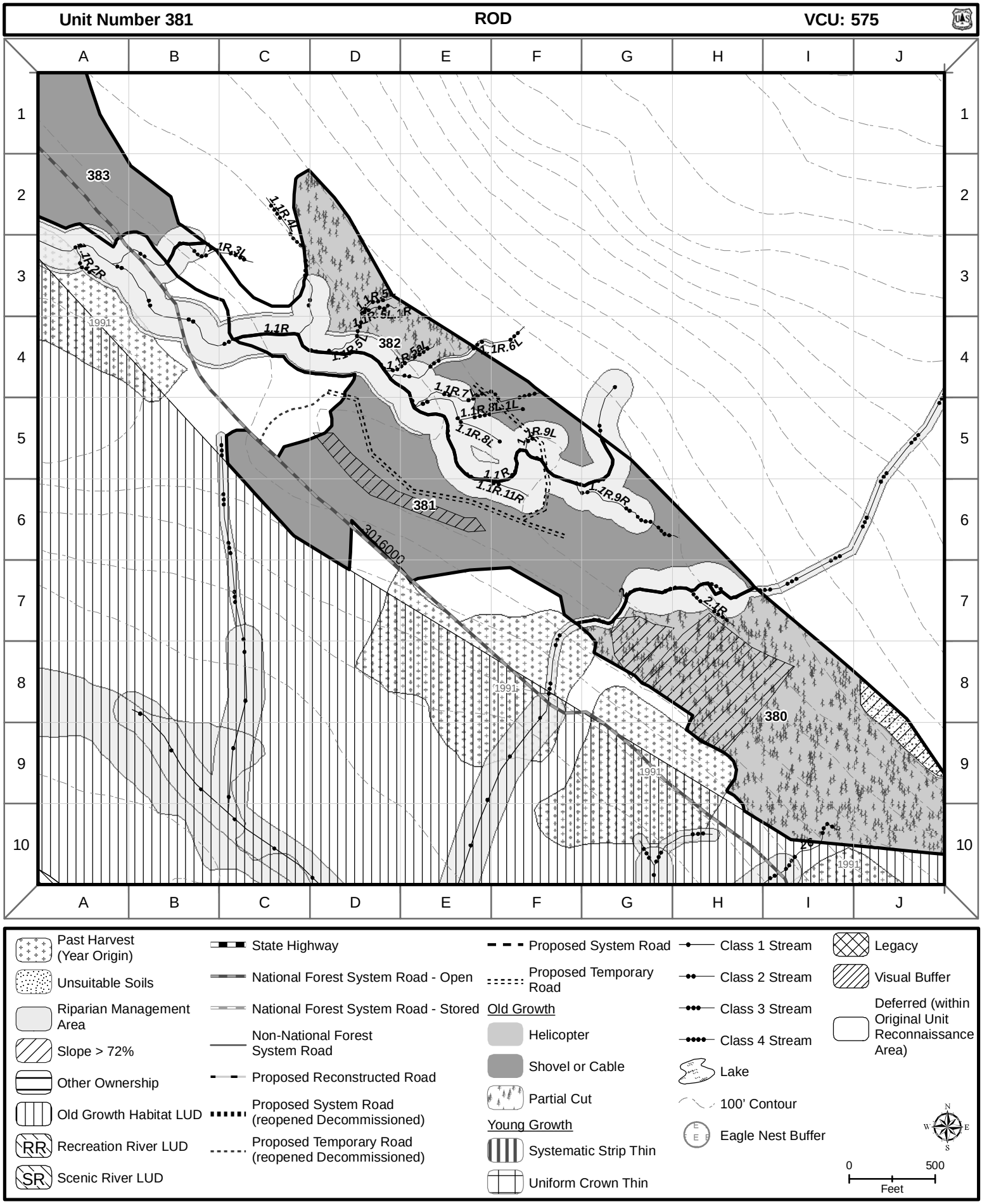
Temporary roads for Unit 381: One Class II stream crossing. Stream#: 1.1R, Class: II, C-Type: HCM. A bridge is recommended. Fish presence will need to be verified to determine timing windows prior to implementation. If any additional crossings are found they will be approved by the USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class II crossings will be designed to provide fish passage using a log culvert or bridge, will be installed under current timing constrictions, and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.14, 14.3, and 14.5, 14.20, and 14.8.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has 37 acres of Low SIO and 9 acres of Very Low. It is partially visible from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. Approximate opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres for Low VAC and 60 to 100 acres for High VAC. About half the unit is Low and half is High. If Units 380, 381, and 382 are to be harvested together, visible opening size is estimated at 40 acres or less and the combination still appears to meet the SIO.
RECREATION: Unit is about 3/4 mile outside of the Scenic River corridor. It is partially visible from some portions of the lakes along the Honker Divide trail in the center of the Scenic River corridor, at a distance of about 1 1/4 miles or more. A portion of the northeastern boundary of unit is within about 50 ft of the Thorne River inventoried roadless area boundary.
SOILS/WETLANDS: Slopes range from gentle to 45%. Forested wetlands are located intermittently throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road crosses about ½ of an acre of forested wetland. Wetland avoidance was not practicable due to streams and a cliff band. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR - to the west. Legacy standard and guideline does not apply in this VCU.

Appendix 1



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Unit Number: 382	Alternatives: ROD	Total Unit Acres: 13.5	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Shovel, Helicopter	Net Harvest Volume (MBF): 504	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 382 is a mixed species stand of old-growth timber. Windthrow risk is moderate throughout the stand with no significant evidence of blowdown. Mistletoe is light. The overstory is made up of mature western hemlock, western redcedar, Alaska-cedar, and Sitka spruce. Damage and defects are moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel and helicopter yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by proposed temporary roads, totaling 3,300 feet. Approximately 500 feet of this road will be constructed over decommissioned road bed. Part of this road is also used to access Units 380 and 381.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River.

Stream#: 1.1R Class: II Flagging: B/W C- Type: MMS, HCM Concerns: none
Buffer (RMA): Class II for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.4L Class: II, IV Flagging: B/W, G/W C- Type: HCO, MMO Concerns: erosion
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.1R.6L Class: II, III Flagging: B/W, O/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class III for HCO- to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.1R.7L Class: II, IV Flagging: B/W, O/W, G/W C- Type: HCO Concerns: blowdown
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

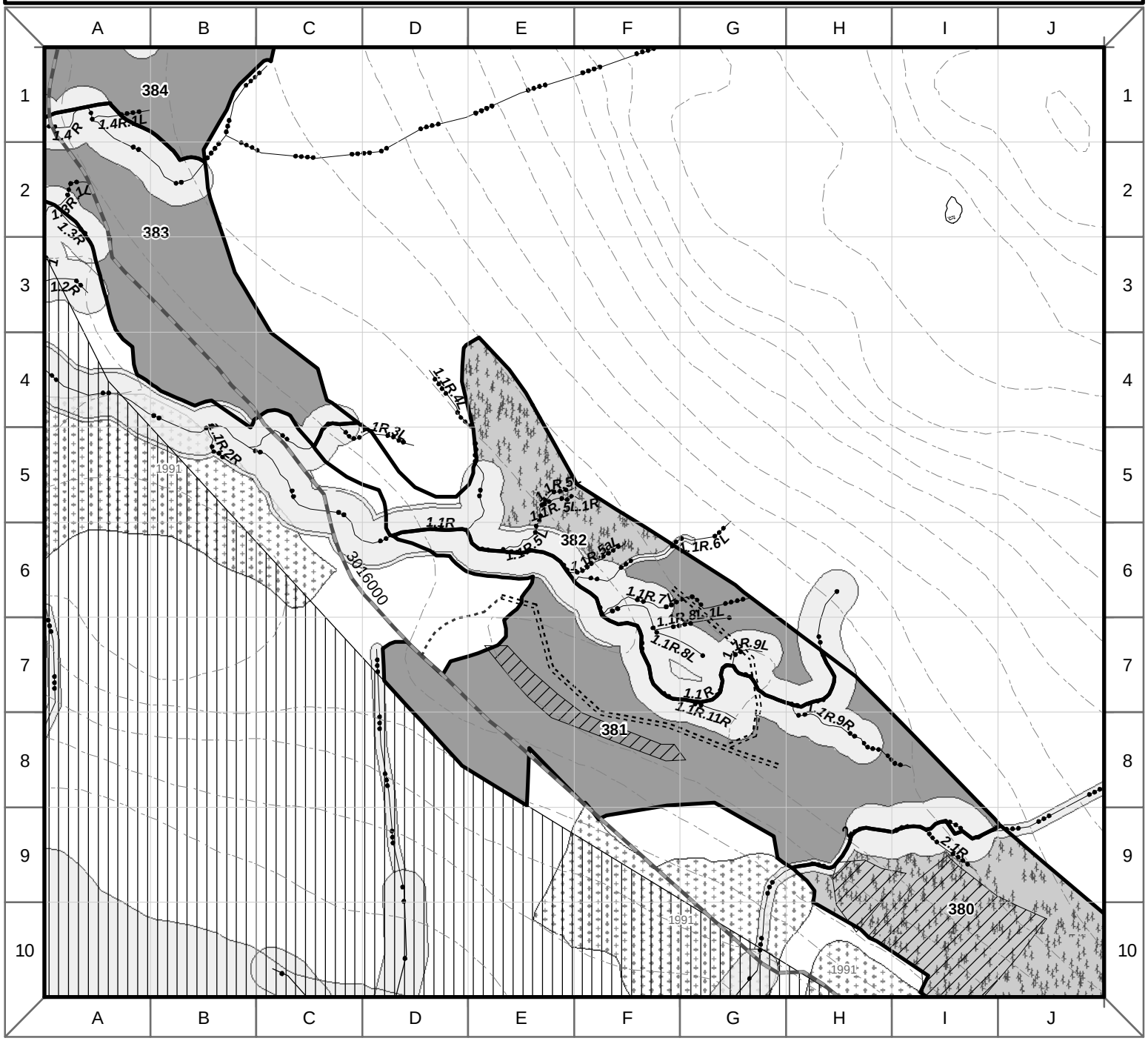
Stream#: 1.1R.8L Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.9L Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.9R Class: II, IV Flagging: B/W, G/W C- Type: MMO Concerns: blowdown
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C Temporary roads for Unit 382: Two Class II and two Class IV stream crossings. Stream#: 1.1R, Class: II, C-Type: HCM. A bridge is recommended. Stream#: 1.1R.9L Class: II C-Type: HCO. A log culvert is recommended. Fish presence will need to be verified to determine timing windows prior to implementation. If any additional crossings are found they will be approved by the USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class II crossings will be designed to provide fish passage using a log culvert or bridge, will be installed under current timing constrictions, and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.14, 14.3, and 14.5, 14.20, and 14.8.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is 2/3 in Low SIO and 1/3 in Very Low. Unit is small and does not appear to be visible from the Honker Divide trail because of topographic and vegetation screening. If Units 380, 381, and 382 are to be harvested together, visible opening size is estimated at 40 acres or less and the combination still appears to meet the SIO.
RECREATION: The Thorne River inventoried roadless area borders the unit on its northeastern boundary.
SOILS/WETLANDS: Slopes range from 0 to 45%. Forested wetlands occur throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding (R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is near Honker Large OGR complex. Legacy standard and guideline does not apply in this VCU.

Unit Number 382 | **ROD** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 383	Alternatives: ROD	Total Unit Acres: 19.5	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Shovel	Net Harvest Volume (MBF): 562	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 383 is predominantly a western hemlock old-growth stand. Western redcedar occurs to the west of the road. Moderate windthrow, moderate defect, and low evidence of mistletoe define the stand. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel yarding to NFS road 3016000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream#: 1 Class: II, III Flagging: B/W, O/W C- Type: MMS, HCM, HCL Concerns: none
Buffer (RMA): Class II for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM and HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCL- to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.1R Class: II Flagging: B/W C- Type: MMS Concerns: none
Buffer (RMA): Class II for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.3L Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2R Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

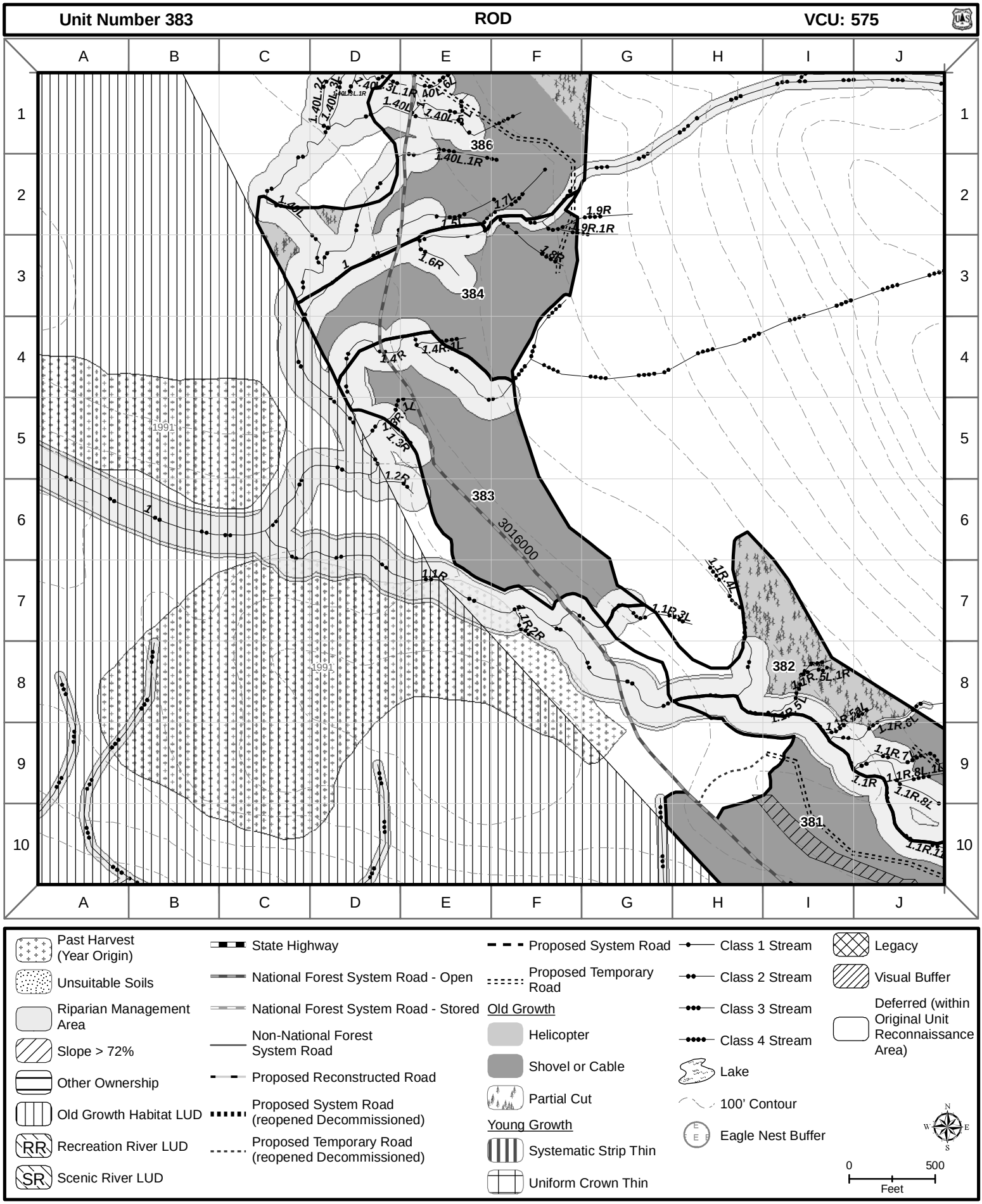
Stream#: 1.3R Class: II Flagging: B/W C- Type: MMO Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.4R Class: II, IV Flagging: B/W, G/W C- Type: MMS, HCL, HCO Concerns: blowdown
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): review required for southern exposure Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely in Very Low SIO. Unit is small and would not be visible from the Honker Divide trail because of topographic and vegetation screening
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from 5 to 40%. Forested wetlands are dominant throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4).
WILDLIFE: Unit includes average snow deer winter range (nearly entire unit), some of which is also deep snow marten habitat/deer winter range (western lobe of unit). Unit is adjacent to the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Appendix 1



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Unit Number: 384	Alternatives: ROD	Total Unit Acres: 15.1	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Shovel	Net Harvest Volume (MBF): 499	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: This unit is predominantly a western hemlock and western redcedar stand with old-growth stand structure. The timber is over-mature with declining growth. Moderate windthrow, moderate defect, and low evidence of mistletoe define the health of the stand. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel yarding to NFS road 3016000 and the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,700 feet. This road is also used to access Unit 386.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River.
Stream#: 1 Class: II, III Flagging: B/W, O/W C- Type: HCL Concerns: erosion
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCL- to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.4R Class: II, IV Flagging: B/W, G/W C- Type: MMS, HCL, HCO Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCL- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): review required for southern exposure Protection: Category A and C

Stream#: 1.6R Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II HCO- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): review required for southern exposure Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 384: One Class III and three Class IV stream crossings. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

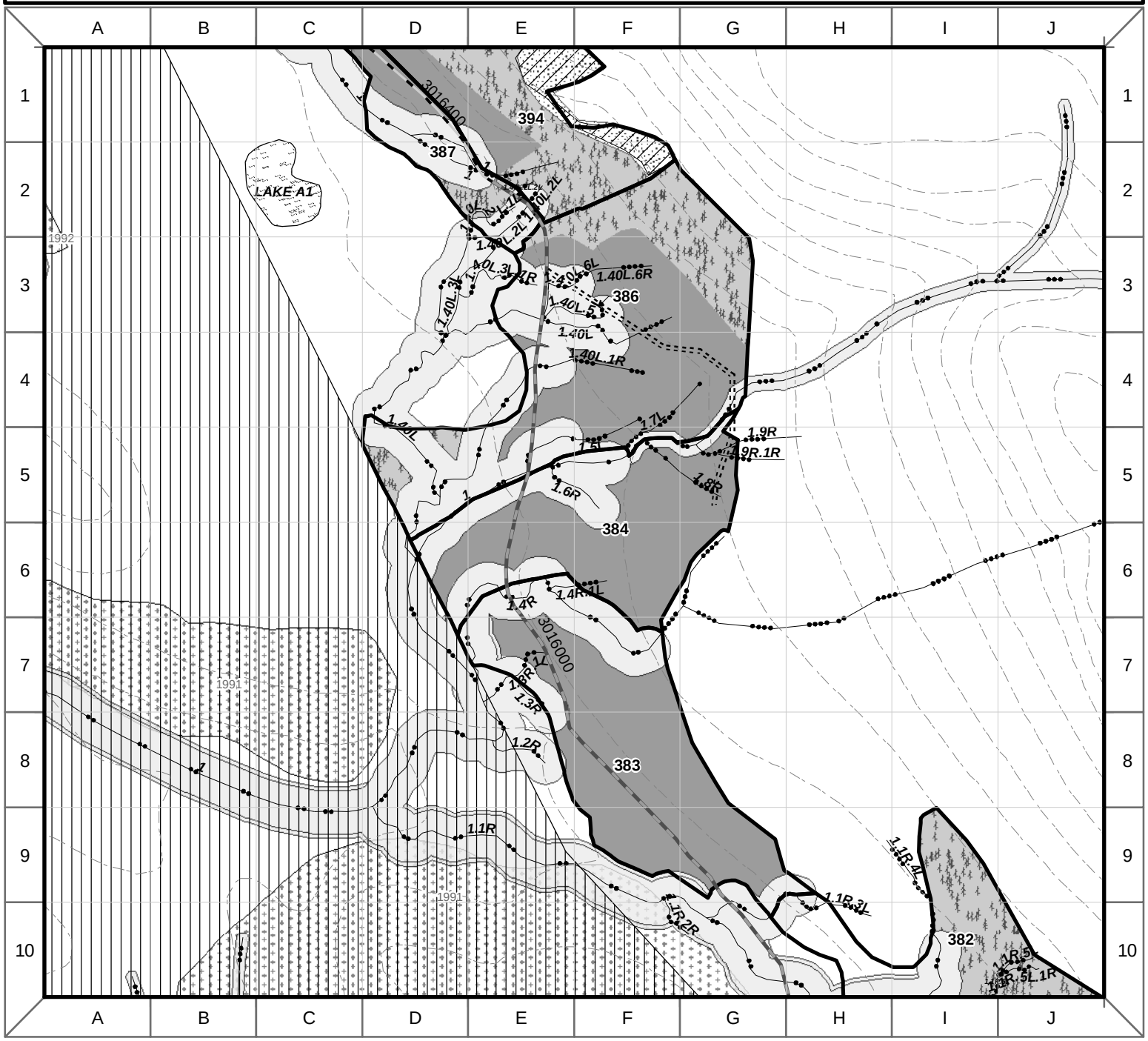
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is approximately 60% in Very Low and 40% in Low SIO and is not visible or only slightly visible from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. It is not likely to be visible from the Honker Divide trail because of topographic and vegetation screening. Typical opening sizes described in the Forest Plan for Low SIO areas with Intermediate VAC are 40 to 60 acres and 60 to 100 acres for High VAC. This unit has a combination of Intermediate and High VAC. Total visible size of the opening created by Units 383, 384, 386, and 387 is estimated to be less than 25 acres. No other units are considered part of the same

opening, because Unit 383 is mostly not seen and does not connect with Unit 382 to the south and Unit 387 is long and linear and connects to Unit 394 to the north, but is considered not seen.
RECREATION: Unit is about 3/4 mile outside of the Scenic River corridor. It is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening. A portion of the eastern boundary of the unit is adjacent to the Thorne River inventoried roadless area.
SOILS/WETLANDS: Slopes range from 20 to 45%. Forested wetlands occur throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road crosses about ½ of an acre of forested wetland. Wetland avoidance is not practicable due to contours and streams. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western half of unit). Unit is adjacent to the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Unit Number 384 | **ROD** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 386	Alternatives: ROD	Total Unit Acres: 24.7	Prescription: Clearcut, 25% Removal, 50% Removal
VCU Number: 575 Phase 2	Yarding System: Shovel, Helicopter	Net Harvest Volume (MBF): 552	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 386 is predominantly a western hemlock and western redcedar stand that transitions to pure western Hemlock in the southeast. Generally old-growth stand structure dominates. Moderate windthrow, moderate to high stem decay and a low instance of physical defects was observed. Mistletoe was rated low. The timber is over-mature and shows signs of declining growth. There are no adjacent past harvest units.

Silvicultural Prescription: Even-age Management – Clearcut (note unit card map for locations)
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (note unit card map for locations)
Maintain either 50 or 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

TIMBER/YARDING: Shovel and helicopter yarding to the proposed temporary road and NFS road 3016000.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 900 feet. This road is also used to access Unit 384.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River.

Stream#: 1 Class: II, III Flagging: B/W, O/W C- Type: HCL Concerns: none
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCL- to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.5L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.40L Class: II, IV Flagging: B/W C- Type: HCL, HCM, HCO Concerns: none
Buffer (RMA): Class II HCL and HCM- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): review required for southern exposure Protection: Category A and C

Stream#: 1.40L.1R Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): review required for southern exposure Protection: Category A and C

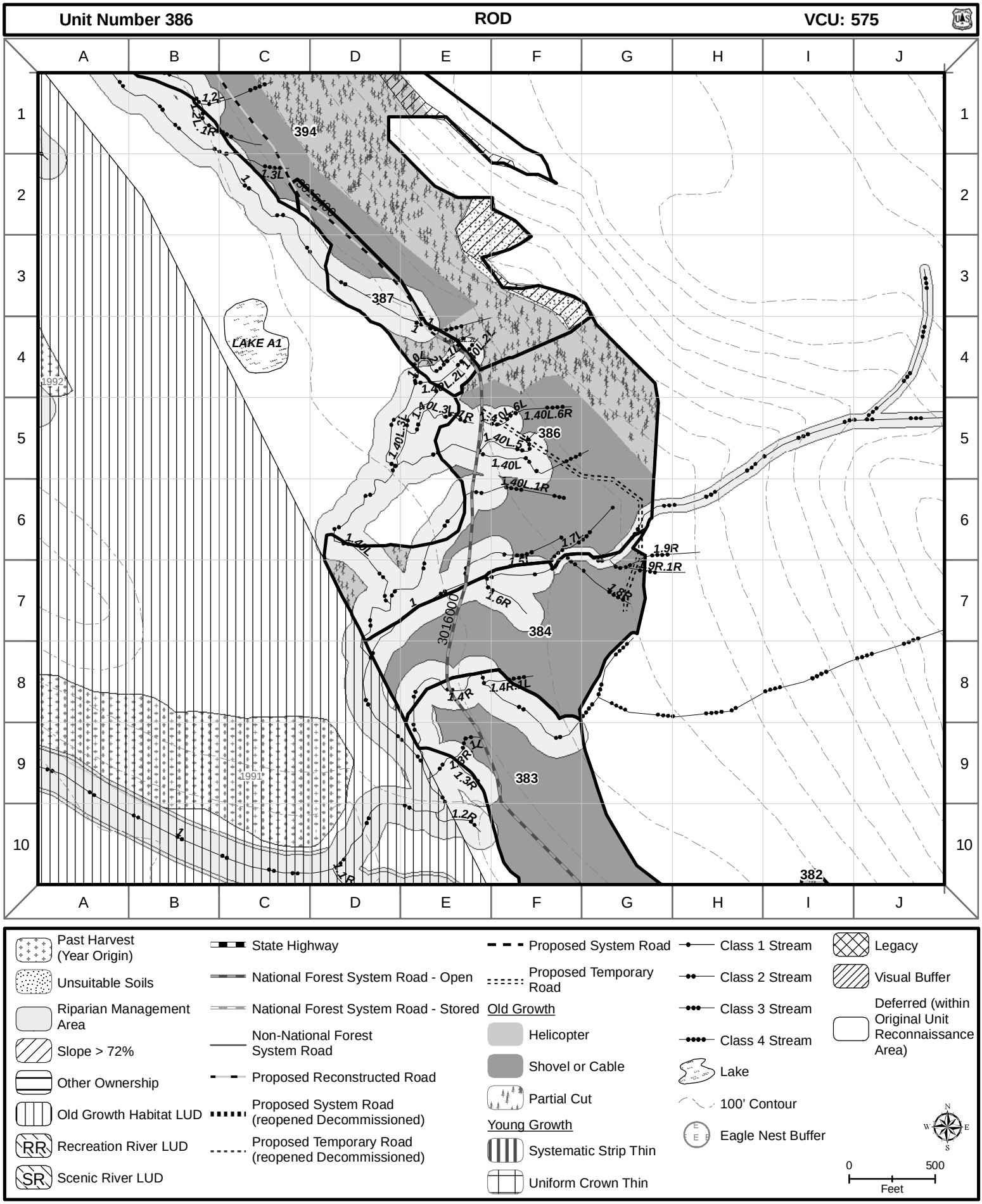
Stream#: 1.40L.2L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.40L.3L Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.40L.3L.1R Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none

Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.40L.5L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.40L.6L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C Temporary roads for Unit 386: One Class II and two Class IV stream crossings. Stream#: 1.40L.6L, Class: II/IV, C-Type: HCO. A log culvert is recommended. This crossing is located at the class break between the class II reach to the class IV reach. Does not need to meet passage requirements, but needs to be installed during timing windows. Fish presence will need to be verified to determine timing windows prior to implementation. If any additional crossings are found they will be approved by the USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class II will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.14, 14.3, and 14.5, 14.20, and 14.8.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is about 70% in Low SIO and 30% in Very Low SIO and may be partially visible from portions of the lakes along the Honker Divide trail at a distance of about 1 3/4 miles or more. Typical opening sizes described in the Forest Plan for Low SIO areas with Intermediate VAC are 40 to 60 acres and 60 to 100 acres for High VAC. This unit has a combination of Intermediate and High VAC. Total visible size of the opening created by Units 383, 384, 386, and 387 is estimated to be less than 25 acres. No other units are considered part of the same opening, because Unit 383 is mostly not seen and does not connect with Unit 382 to the south and Unit 387 is long and linear and connects to Unit 394 to the north, but is considered not seen.
RECREATION: Unit is about 3/4 mile outside of the Scenic River corridor. It is only partially visible (at most) from the corridor or the Honker Divide trail due to topographic and vegetation screening. Eastern and northeastern boundary of unit is adjacent to the Thorne River inventoried roadless area.
SOILS/WETLANDS: Slopes range from 30 to 70%. Forested wetlands occur in about 40% of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road crosses about 1 acre of forested wetland. Wetland avoidance is not practicable due to contours and streams. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Appendix 1



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Unit Number: 387	Alternatives: ROD	Total Unit Acres: 3.2	Prescription: Clearcut, 25% Removal
VCU Number: 575 Phase 2	Yarding System: Shovel	Net Harvest Volume (MBF): 43	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 387 is a low volume western hemlock / Alaska-cedar old growth stand. Moderate windthrow, moderate defect, and a moderate occurrence of mistletoe were observed. Timber values are poor in the unit however access and logging costs would be minimal due to the close proximity to the road. The timber is over-mature with declining growth. There are no adjacent past harvest areas.

Silvicultural Prescription: Even-age Management – Clearcut (note unit card map for locations)
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (note unit card map for locations)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

TIMBER/YARDING: Shovel yarding to NFS roads 3016000 and 3016400.

ENGINEERING/ROADS: Unit is accessed by part of reconstruction of NFS road 3016400, totaling 800 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream#: 1 Class: II Flagging: B/W C- Type: MMO Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

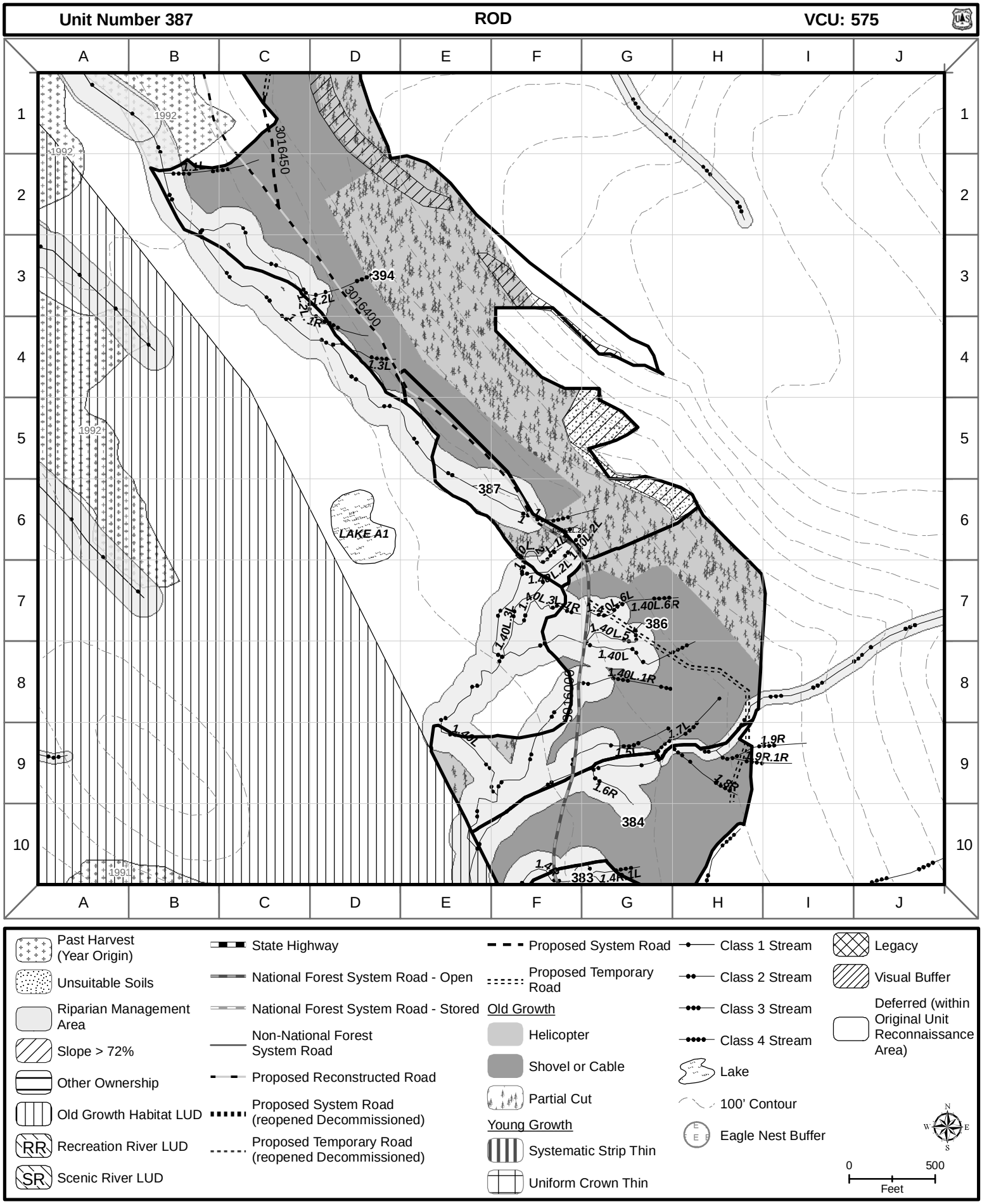
SCENERY: Unit is entirely in Low SIO and does not appear to be visible from the lakes along the Honker Divide trail due to topographic and vegetative screening. Approximate opening sizes described in the Forest Plan for Low SIO areas with Intermediate VAC are 40 to 60 acres. Total visible size of the opening created by Units 383, 384, 386, and 387 is estimated to be less than 25 acres. No other units are considered part of the same opening, because Unit 383 is mostly not seen and does not connect with Unit 382 to the south and Unit 387 is long and linear and connects to Unit 394 to the north, but is considered not seen.

RECREATION: Unit is over 1 mile outside of the Scenic River corridor and is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening.

SOILS/WETLANDS: Slopes range from 10 to 20%. Forested wetlands occur in about 20% of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4).

WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR. Legacy standard and guideline does not apply in this VCU.

Appendix 1



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Unit Number: 388	Alternative: 3	Total Unit Acres: 11.4	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Cable	Net Harvest Volume (MBF): 350	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Condition: Unit 388 is predominantly a western hemlock and western redcedar stand that transitions to western hemlock and Alaska-cedar in the east. Generally old-growth stand structure dominates, however areas with heavy past wind damage in the center of the unit have a two-age structure. Stem decay rated high. The windthrow risk is moderate overall.

Silvicultural Prescription: Even-age Management – Clearcut (Alternatives 2 and 3)
This stand is over-mature with high stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3016450, totaling 700 feet and by reconstruction of NFS road 3016400, totaling 2,400 feet a proposed temporary road of 500 feet. These roads access Units 387, 392 and 394. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: No streams found in unit at time of survey. If streams are found during implementations, a fish biologist would be notified and appropriate protections would be applied.

Temporary roads for Unit 388: Alternative 3 -- No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns

RECREATION: Unit is over 1 mile outside of the Scenic River corridor and is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening.

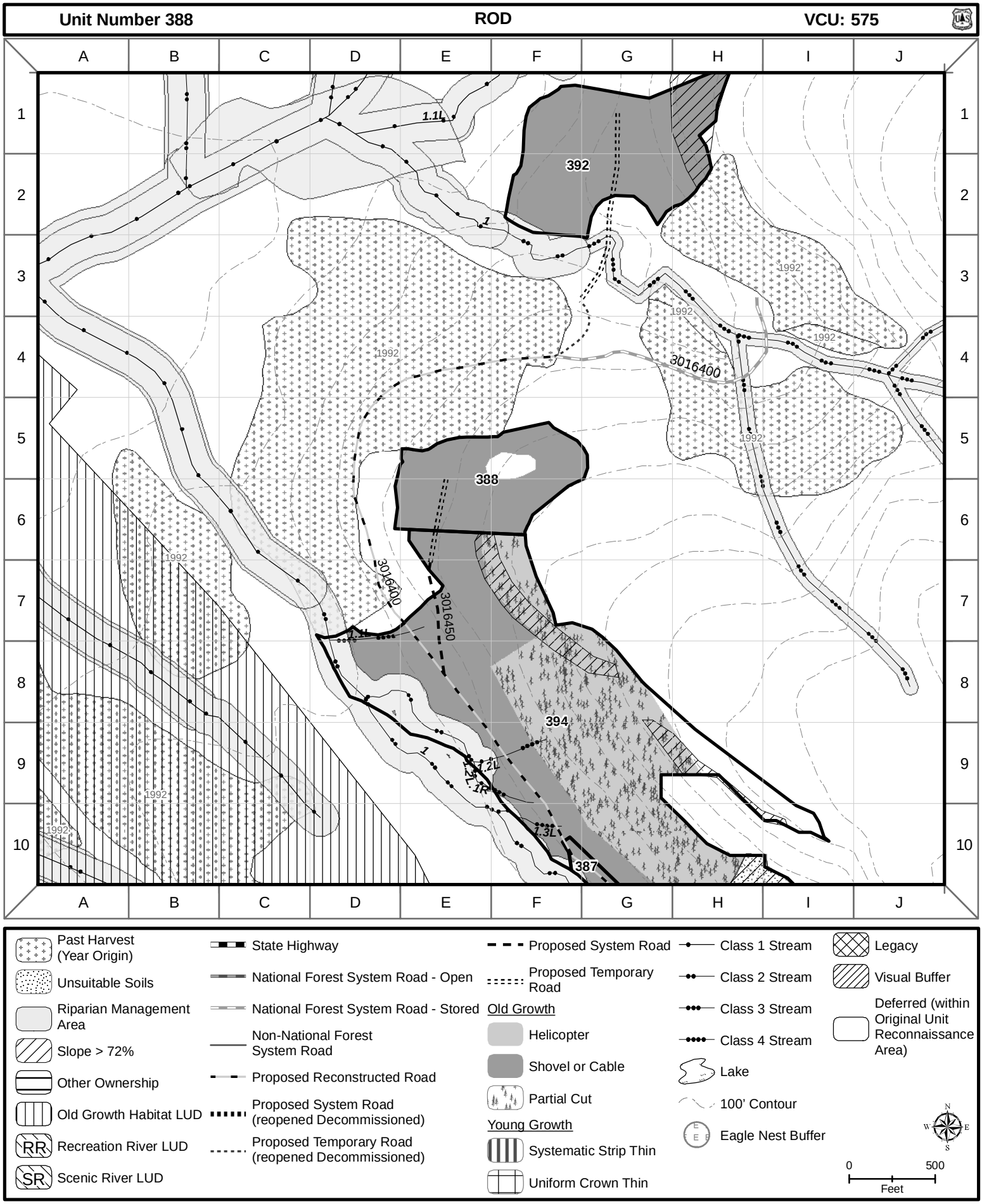
SOILS/WETLANDS: Slopes range from 30 to 40%. No wetlands were identified. A minimum of partial suspension with cable yarding will meet soil and wetland resource concerns (R10 BMPs 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-5, and Veg-6).

The proposed temporary road does not cross any wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.

WILDLIFE: Unit is adjacent to the Honker large OGR. Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest along the Honker large OGR.

Appendix 1



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Unit Number: 392	Alternatives: ROD	Total Unit Acres: 18.5	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Cable	Net Harvest Volume (MBF): 481	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 392 is an old-growth western hemlock and western redcedar stand with Sitka spruce with Alaska- cedar only present in the north. Windthrow risk is moderate throughout the stand, with a few small windthrow patches found low on the slope in the northwest corner. Mistletoe was light in the eastern portion but heavy in the western lower elevations. The primary defect in the overstory is stem decay and wind damage. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3016400, totaling 5,300 feet and a proposed temporary road of 1,600 feet; approximately 400 feet of this road will be constructed over decommissioned road bed. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream#: 1 Class: I, II, III Flagging: B/W, O/W C- Type: HCD Concerns: none
Buffer (RMA): Class I and II for HCD- greater of 100 feet or to top of side-slope break. Class III HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.1L.1R Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Temporary roads for Unit 392: One Class III stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

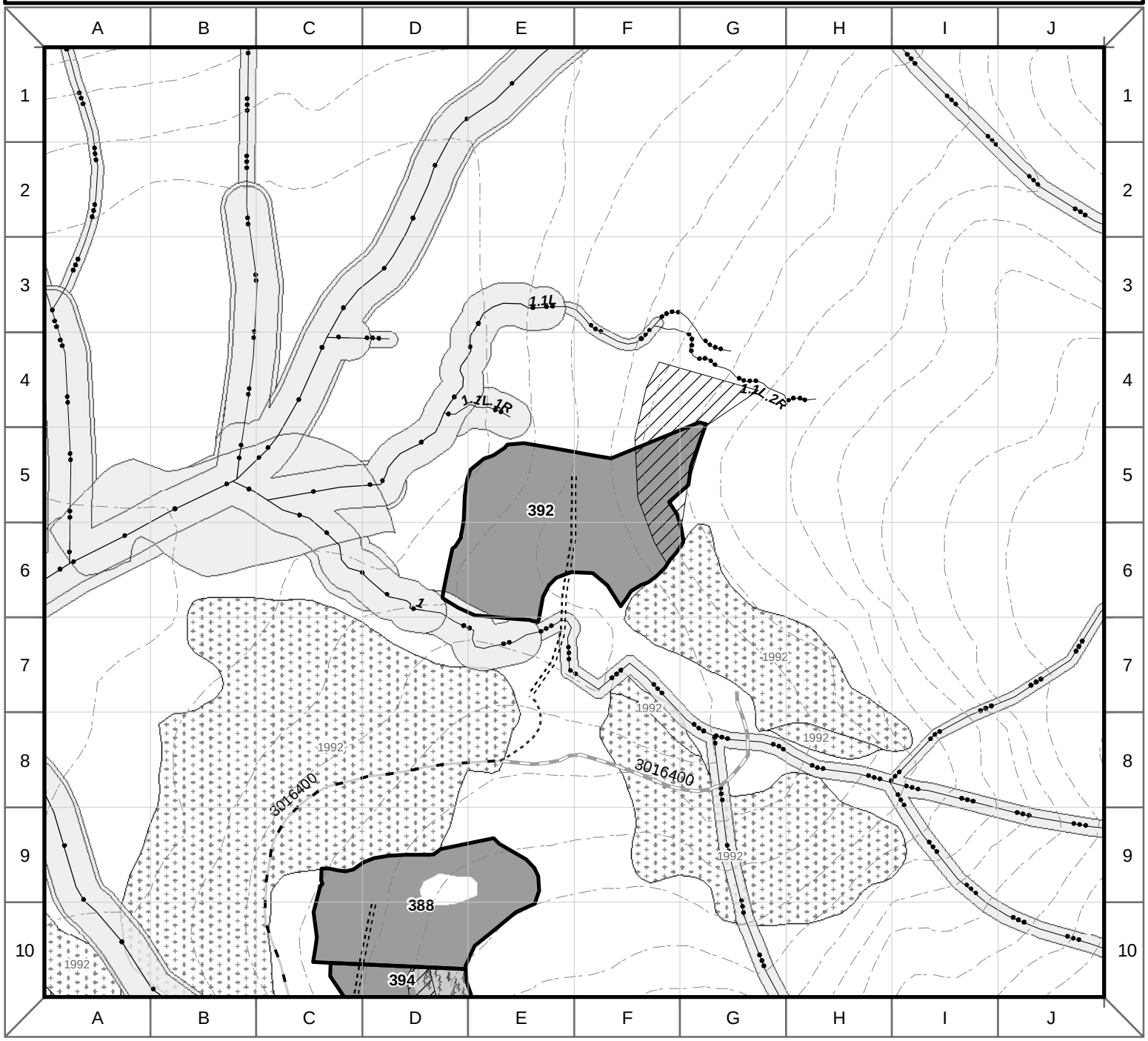
SCENERY: Unit is about 98% in Very Low SIO and may be partially visible (estimated to be up to 10 acres) from a few locations on the lakes along the Honker Divide trail at a distance of about 2 miles. Typical opening sizes described in the Forest Plan for Very Low SIO areas with Low VAC are 40 to 60 acres, so no concerns.

RECREATION: Unit is over 1 mile outside of the Scenic River corridor and is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening. The northern boundary is adjacent to the Thorne River inventoried roadless area.

SOILS/WETLANDS: Slopes range from 30 to 85%. About 3 acres of slopes greater than 72% are suitable for harvest with partial suspension. Forested wetlands were identified intermixed with uplands in the southeastern portion of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension with cable yarding will meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-5, and Veg-6).

The proposed temporary road crosses less than ¼ of an acre of forested wetlands. Wetland avoidance is not feasible due to the location of the existing road and wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (central portion of unit). Unit is near the Honker large OGR. Legacy standard and guideline does not apply in this VCU.

Unit Number 392 | **ROD** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 394	Alternatives: ROD	Total Unit Acres: 57.6	Prescription: Clearcut
VCU Number: 575 Phase 2	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 859	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 394 is predominantly a western hemlock / western redcedar stand with Alaska-cedar and Sitka Spruce present as lesser components. Generally old-growth stand structure dominates, however areas with patchy past wind damage throughout the south have a somewhat two-age structure. Moderate to high windthrow was noted. High defect occurs west of the road but defect is moderate east of the road. There is low evidence of mistletoe throughout the stand. The past harvest area adjacent to the north boundary has regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered an opening.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel and helicopter settings yard to NFS road 3016400. Cable settings yard to proposed NFS road 3016450.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3016400, totaling 2,400 feet and proposed NFS road 3016450, totaling 700 feet. See road card for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream#: 1 Class: II Flagging: B/W C- Type: HCM, MMO Concerns: none
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L Class: II, IV Flagging: B/W, G/W C- Type: HCO, MMO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.40L.2L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

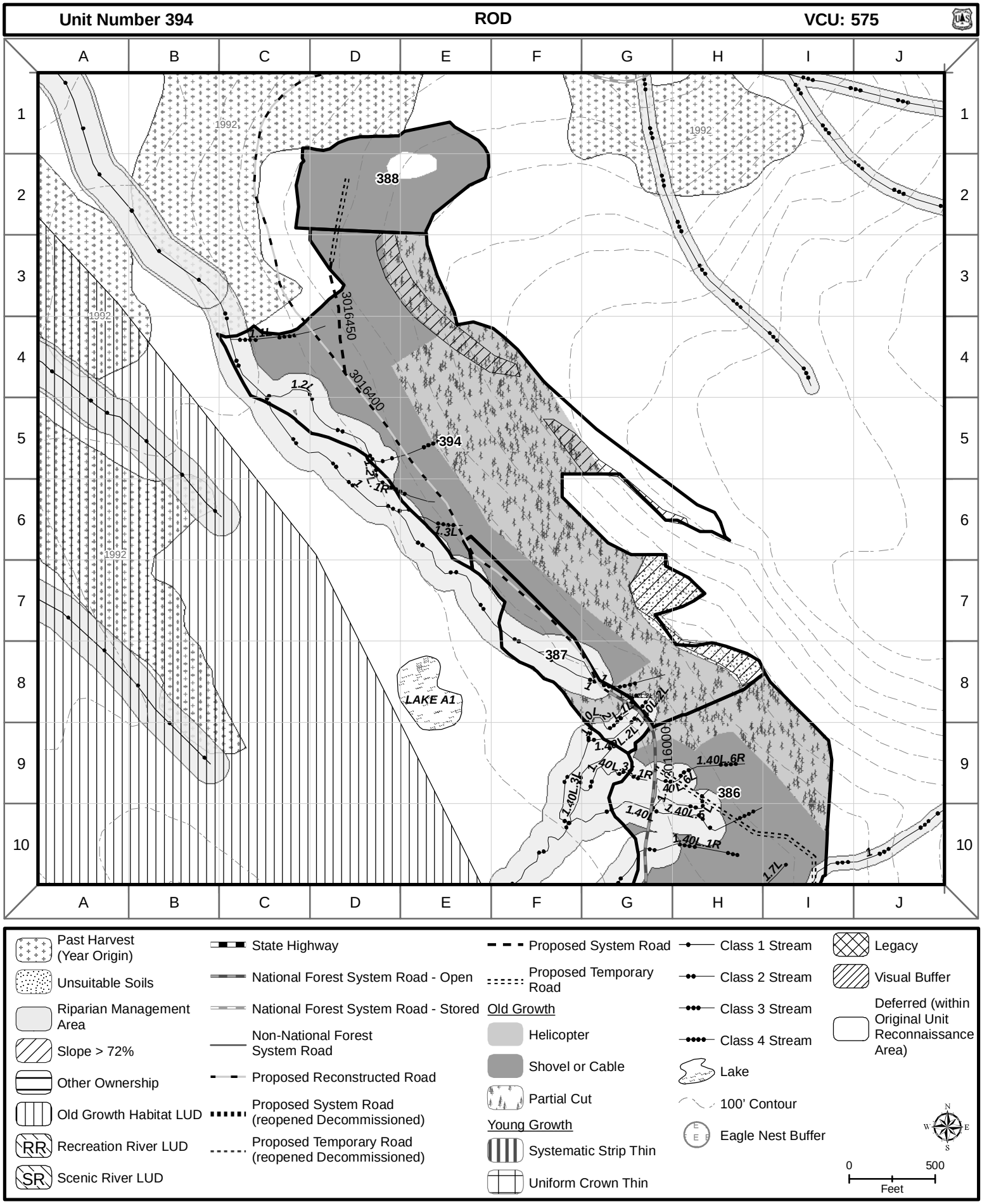
SCENERY: Unit is 70% in Low SIO and 30% in Very Low. It may be partially visible (estimated to be up to 15 acres) from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. Typical opening sizes described in the Forest Plan for Low SIO areas with Low VAC are 15 to 40 acres, so no concerns.

RECREATION: Unit is over 1 mile outside of the Scenic River corridor and may be only slightly visible from the corridor or the Honker Divide trail due to topographic and vegetation screening.

SOILS/WETLANDS: Slopes range from 50 to 140%. About 2 acres of slopes greater than 72% are suitable for harvest with partial suspension. About 4 acres were excluded from harvest due to very steep slopes, active landslide, and colluvial activity. Forested wetlands are located on northeast portion of unit (R10 BMP 12.5 and National Core

BMPs AqEco-2 and AqEco-4). A minimum of partial suspension with cable yarding will meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, Veg-5, and Veg-6). The proposed temporary road does not cross any wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is near the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Appendix 1



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Unit Number: 395	Alternatives: 3, 4, and 5	Total Unit Acres: 65.9	Prescription: 50% Removal
VCU Number: 580	Yarding System: Helicopter	Net Harvest Volume (MBF): 942	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This area consists of old-growth structure that is comprised mostly of western hemlock and western redcedar with scattered Sitka spruce and Alaska-cedar. Many of the Alaska-cedar are dead. Defect is average for the timber type. The primary defect in the overstory is stem decay. Windthrow risk is moderate throughout the stand. Mistletoe infection was variable across the stand. Heavy infection occurs in the southern portion in the higher volume classes. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

TIMBER/YARDING: Helicopter yarding to NFS road 3015000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: One infestation of common tansy has been treated along the NFS road 3015000; recommend future monitoring and re-treatments if necessary.

FISHERIES: Streams are tributaries to Thorne River
Stream#: 1 Class: I, III Flagging: B/W, O/W C-Type: AFH, HCD Concerns: none
Buffer (RMA): Class I for AFH- greater of 140 feet or active portion of the alluvial fan. Class III for HCD- to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.1L Class: III Flagging: O/W C-Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed Protection: Category B

Stream#: 1.4L Class: III Flagging: O/W C-Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed Protection: Category B

Stream#: 30 Class: II, III Flagging: B/W, O/W C-Type: AFH, HCM, HCD Concerns: none
Buffer (RMA): Class I for AFH- greater of 140 feet or active portion of the alluvial fan.
Class III for HCM and HCD- to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed Protection: Category A and B

Stream#: 32 Class: III, IV Flagging: O/W, G/W C-Type: HCM, HCL Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed Protection: Category B and C

Stream#: 33 Class: III Flagging: O/W C-Type: HCD Concerns: none
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed Protection: Category B

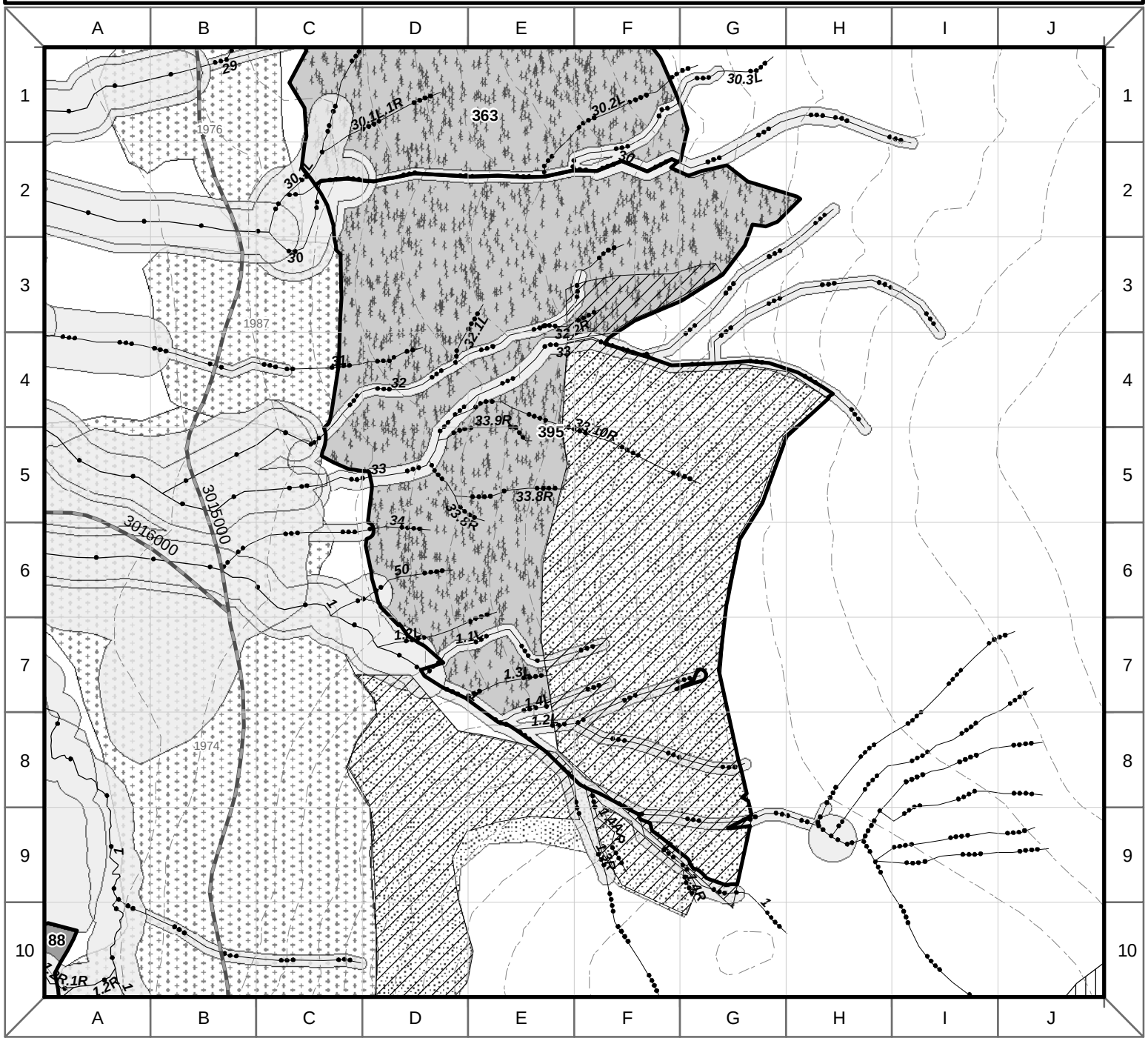
Stream#: 33.8R Class: IV Flagging: O/W, G/W C-Type: HCO Concerns: blowdown, erosion
Buffer (RMA): Class IV O/W HCO - none Protection: Category B and C

Stream#: 34 Class: III, IV Flagging: O/W, G/W C-Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed Protection: Category B and C

Appendix 1

Stream#: 50 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break. Alternatives: 3, 4, and 5 Buffer (RAW): no review needed Protection: Category A and C All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM Buffer (RMA): none Protection: Category C Concerns: none
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely in Low SIO and may be partially visible from the Snakey Lakes area at a distance of about 1 mile or more. Approximate opening sizes described in the Forest Plan for Low SIO areas with Low VAC are 15 to 40 acres.
RECREATION: Unit is less than 1 mile from the Scenic River LUD, near Snakey Lakes, but is not likely visible, except possibly from the lakes at a distance of 1 mile or more.
SOILS/WETLANDS: Slopes range from 40 to 100%. About 11 acres of slopes greater than 72% are suitable for harvest with full suspension partial harvest. About 45 acres were excluded from harvest due to extremely steep slopes, saturated hollows, very high landslide potential, and colluvial activity. Forested wetlands were identified in the upper elevations (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of full suspension partial harvest would meet soil and wetland resource concerns (R10 BMPs 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).
WILDLIFE: Unit contains no deep snow deer or marten habitat. Legacy standard and guideline does not apply in this VCU.

Unit Number 395 | **ROD** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 401	Alternatives: ROD	Total Unit Acres: 19.0	Prescription: Clearcut and 50% Removal
VCU Number: 595	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 326	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 401 is a western hemlock and Alaska-cedar stand in the north that transitions to a mixed conifer stand in the center of the unit and then to a Sitka spruce stand in the southwest. Mistletoe was rated as low. Stem decay and defect were rated as moderate and high. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings. Portions of the unit in NW corner were dropped due to low volume timber and steep slopes.

Silvicultural Prescription: Even-age Management – Clearcut (Cable and Shovel settings)
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter settings)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed to mitigate economic concerns. The system is not optimum for timber production.

TIMBER/YARDING: Shovel, cable and helicopter yarding to NFS road 2000440.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 2000440, totaling 1,300 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek. Characteristics for Stream 1.1R and the tributary to Stream 3 do not include project-specific, field-verified information. This information will be collected prior to implementation.

Stream#: 1 Class: II, III Flagging: B/W, O/W C- Type: HCM Concerns: none
Buffer (RMA): Class II for HCM- greater of 100 feet or to top of side-slope break. Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.1R Class: I Flagging: B/W C- Type: HCL Concerns: not field verified
Buffer (RMA): Class I for HCL- greater of 100 feet or to top of side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: tributary to Stream 3 Class: III Flagging: O/W C- Type: HCD Concerns: not field verified
Buffer (RMA): Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

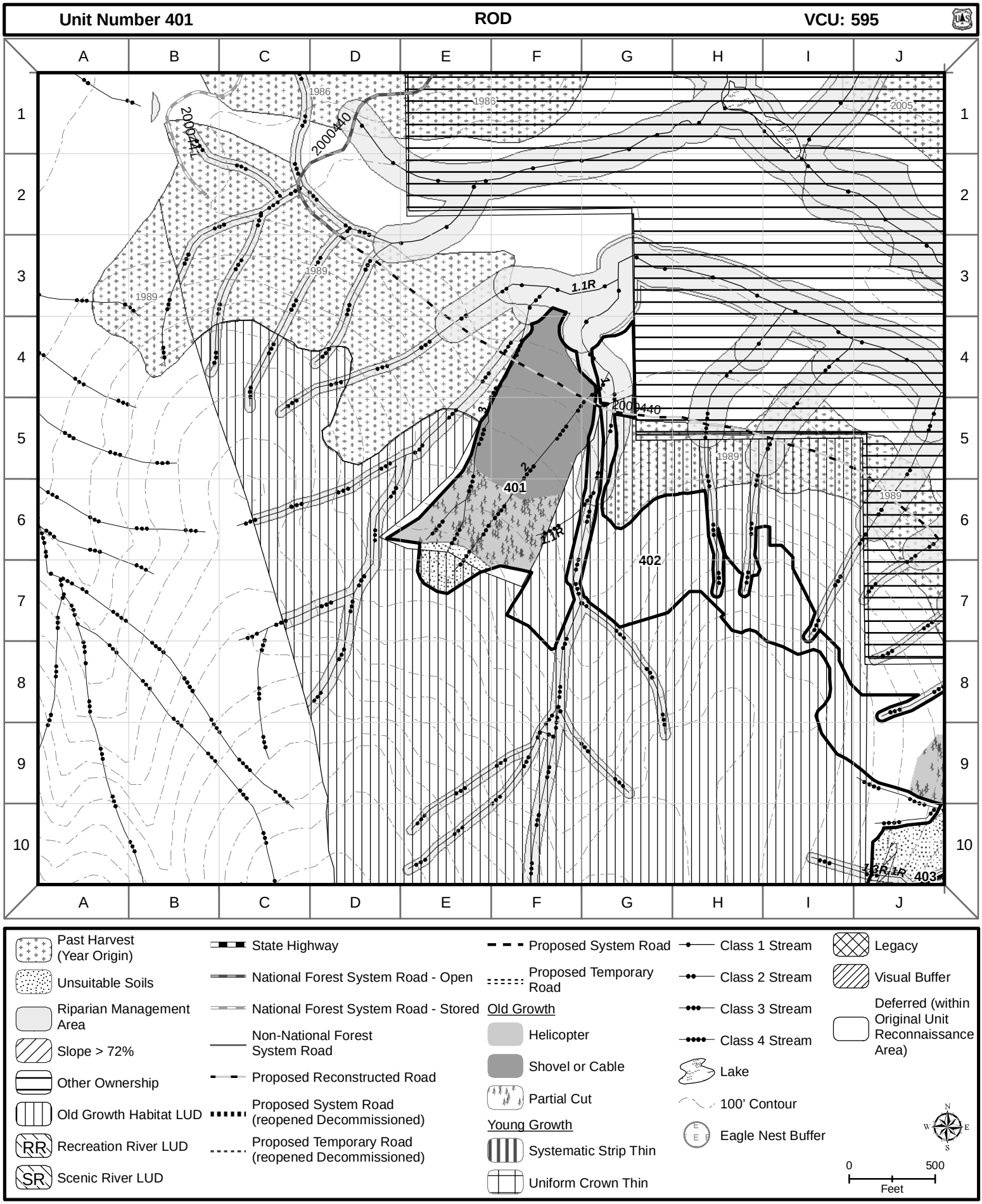
All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has 15 acres of Low and 2 acres of Very Low SIO. It is Seen at a distance of about 1/2 mile or more from portions of the Control Lake to Naukati highway. Typical opening sizes described in the Forest Plan are 40 to 60 acres for Low SIO areas and 80 to 100 acres for Very Low SIO areas with Intermediate VAC. The seen portion of unit is about 15 acres, so no concerns.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from 45 to 80%. All slopes greater than 72% are excluded from harvest. About 6 acres were excluded from harvest due to steep wet slopes, colluvial activity, and high landslide potential. Forested wetlands are located in the 30% of the central and northeastern portions of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding (R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern portion of unit). Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Unit is in 2008 OGR. OGR modified in Alternative 3. <u>Old-growth Reserve (OGR) Boundary</u> OGR boundary is adjacent to unit to the south, west, and east (separated by a stream buffer).

Appendix 1



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Unit Number: 402	Alternatives: ROD	Total Unit Acres: 6.6	Prescription: 50% Removal
VCU Number: 595	Yarding System: Helicopter	Net Harvest Volume (MBF): 88	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 402 is predominantly a western Hemlock / Alaska-cedar stand. Generally old-growth stand structure dominates. Moderate windthrow, moderate to high defect, and light evidence of mistletoe define the health of the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings. Parts of the original unit in the northwest corner were dropped due to low volume timber and steep slopes

Silvicultural Prescription: Uneven-age Management Single Tree Selection Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.

The uneven-aged single tree selection regeneration method is being prescribed to mitigate economic concerns. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to NFS road 2000440.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 2000440, totaling 6,400 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek

Stream#: 1 Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM Concerns: none
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.3R Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: All 6 acres of unit are in Low SIO. It is Seen at a distance of 1/2 mile or more from portions of the Control Lake to Naukati highway. Approximate opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres with Low VAC and seen portion of unit is about 6 acres. In addition, unit is broken by riparian buffer and areas dropped due to soils. No concerns

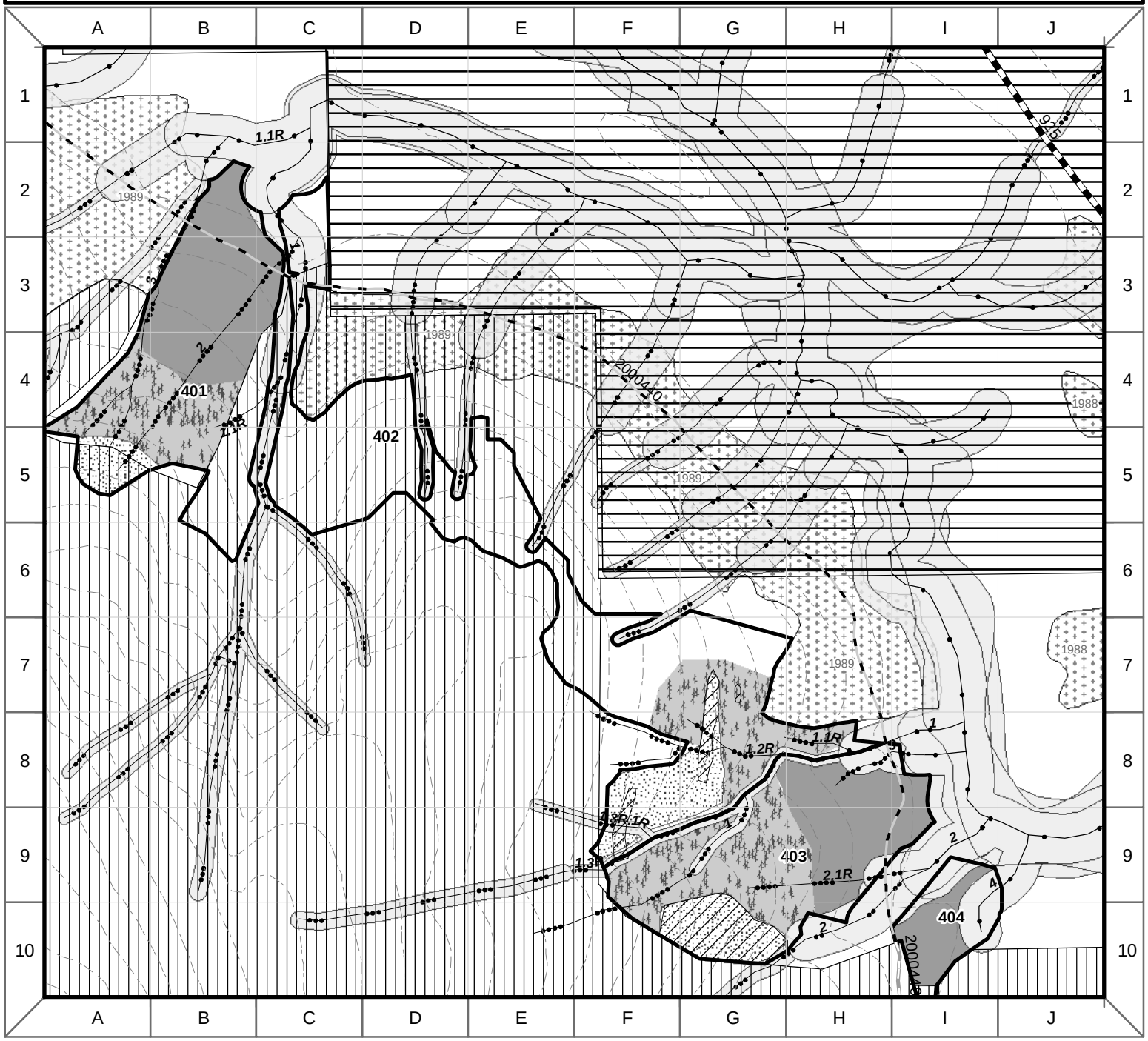
RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 65 to 90%. About a ¼ of an acre of slopes greater than 72% is suitable for harvest with a minimum of partial suspension. About 30 acres of the original unit were excluded from harvest due to very high landslide potential, colluvial activity, and steep slopes. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5). No wetlands were identified.

WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern portion of unit). It is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Unit is 2008 OGR.

Old-growth Reserve (OGR) Boundary
OGR boundary is adjacent to unit to the west.

Unit Number 402 | **ROD** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 403	Alternatives: ROD	Total Unit Acres: 17.1	Prescription: Clearcut and 50% Removal
VCU Number: 595	Yarding System: Shovel, Helicopter	Net Harvest Volume (MBF): 302	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit is old-growth timber comprised of patchy, lightly stocked, western hemlock and Alaska-cedar, as well as some scattered mountain hemlock and western redcedar in the upper elevations. Windthrow risk is moderate. Mistletoe occurrence is light throughout the entire unit. Overall defect is moderate to high with primary defects being stem decay, root/butt diseases, and cedar decline. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut (Shovel settings)
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter settings)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed to mitigate economic concerns. The system is not optimum for timber production.

TIMBER/YARDING: Shovel and helicopter yarding to NFS road 2000440.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 2000440, totaling 6,400 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek

Stream#: 1 Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCL, HCM, HCO Concerns: none
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B, and C

Stream#: 1.3R Class: III Flagging: O/W C- Type: HCM Concerns: none
Buffer (RMA): Class III for HCM- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 2 Class: I, II, III Flagging: B/W, O/W C- Type: AFH, HCM, HCD Concerns: none
Buffer (RMA): Class I and II for AFH- greater of 140 feet or to active portion of alluvial fan. Class II for HCM- greater of 100 feet or to the top of the side-slope break. Class III for HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

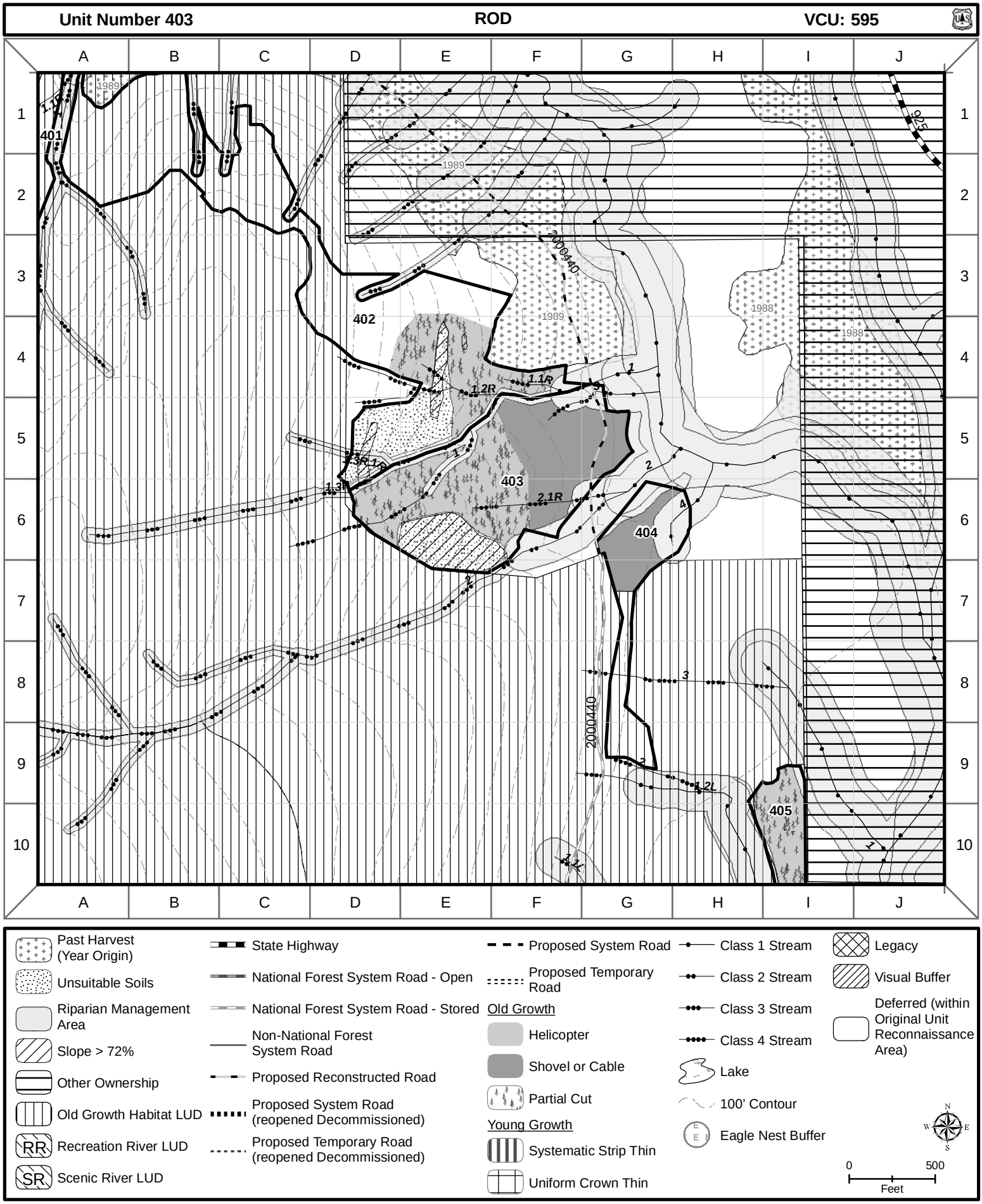
Stream#: 2.1R Class: II, III Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3 Class: I,II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: All 17 acres of unit are in Low SIO. It is Seen at a distance of 1/2 mile or more from portions of the Control Lake to Naukati highway. Typical opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres for Low VAC and 40 to 60 acres for Intermediate VAC. The Seen portion of unit is about 17 acres. Even if combined with Unit 402, which is 6 acres, opening size would be about 23 acres. In addition, unit 402 is broken by riparian buffer and areas dropped due to soils, and is across another riparian buffer from Unit 403. No concerns.
RECREATION: Unit is adjacent to the Kogish Roadless Area and small OGR on the southwest.
SOILS/WETLANDS: Slopes range from 60 to 90%. All slopes greater than 72% are excluded from harvest. About 4 acres were excluded from harvest due to steep slopes, colluvial activity, and high landslide potential. In the remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding and helicopter yarding (R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6). No wetlands were identified.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern portion of unit). It is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Unit is 2008 OGR. <u>Old-growth Reserve (OGR) Boundary</u> OGR boundary adjacent to unit to the southwest.

Appendix 1



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Unit Number: 404	Alternatives: ROD	Total Unit Acres: 2.8	Prescription: Clearcut
VCU Number: 595	Yarding System: Shovel	Net Harvest Volume (MBF): 52	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This lower elevation unit consists of old-growth structure that is comprised of western hemlock along with some scattered Sitka Spruce. Windthrow risk is low, with only minor indications of past windthrow throughout the stand. Mistletoe occurrence is light as well. Overall defect is moderate with primary defect being stem decay. There are no adjacent past harvest areas.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel yarding to NFS road 2000440.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 2000440, totaling 7,000 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek

Stream#: 2 Class: I, II Flagging: B/W C- Type: AFH, HCM Concerns: none
Buffer (RMA): Class I and II for AFH- greater of 140 feet or to active portion of alluvial fan.
Class II for HCM- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4 Class: I Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class I for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has 2 acres in Low and 3 acres in Very Low SIO. Portion of the unit is Seen at a distance of 1/2 mile or more from portions of the Control Lake to Naukati highway. Typical opening sizes described in the Forest Plan for Low SIO areas are 60 to 100 acres for High VAC and seen portion of unit is about 2 acres. Even if combined with Units 402 and 403, opening size would be about 25 acres. In addition, unit 402 is broken by riparian buffer and areas dropped due to soils, and is across another riparian buffer from Unit 403; unit 404 is across a TTRA buffer from unit 403.

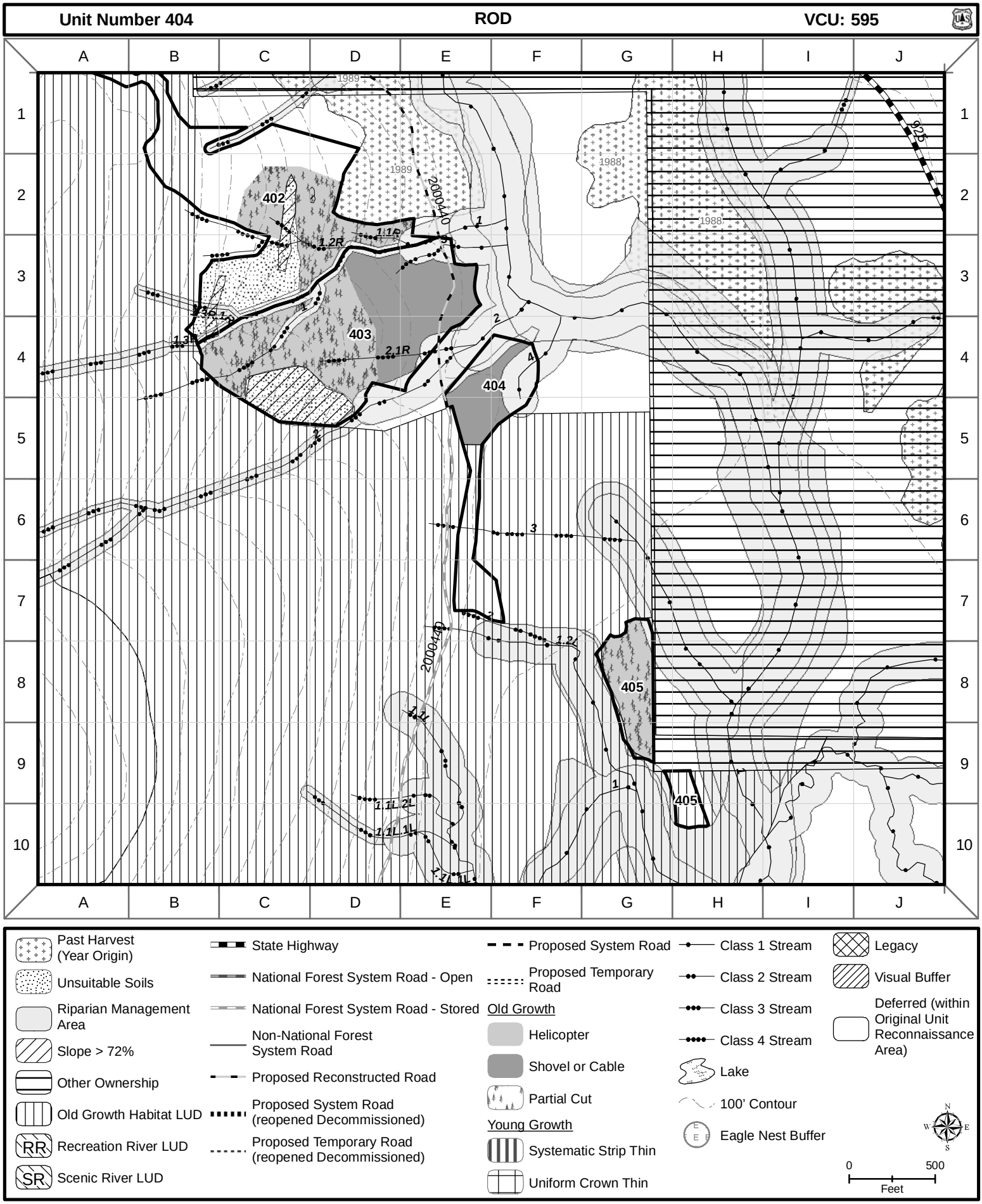
RECREATION: Most of the southwestern boundary of unit is adjacent to the Kogish inventoried roadless area. Only about 75 ft of the existing road borders the unit outside the roadless area; then the road enters the roadless area and the unit is separated from it by the roadless area

SOILS/WETLANDS: Slopes range from 5 to 35%. Forested wetlands are dominant throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4).

WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Unit is in 2008 OGR.

<u>Old-growth Reserve (OGR) Boundary</u>
OGR boundary adjacent to unit on west.

Appendix 1



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Unit Number: 405	Alternatives: ROD	Total Unit Acres: 4.4	Prescription: 50% Removal
VCU Number: 595	Yarding System: Helicopter	Net Harvest Volume (MBF): 29	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 405 is predominantly a western hemlock stand with old-growth stand structure. Sitka spruce are scattered. Moderate windthrow, moderate to high defect, and a light occurrence of mistletoe were noted for the stand. There are no adjacent past harvest areas. State lands border the unit on the east.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter settings)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance.
The uneven-aged single tree selection regeneration method is being prescribed to mitigate economic concerns. The system is not optimum for timber production.

TIMBER/YARDING: Helicopter yarding to NFS road 2000440.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 2000440, totaling 9,500 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek

Stream#: 1 Class: I Flagging: B/W C- Type: FPM Concerns: none
Buffer (RMA): Class I for FPM- greater of 130 feet or flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L Class: I Flagging: B/W C- Type: MMS, PAS Concerns: none
Buffer (RMA): Class I- greater of 120 feet (MMS) or 100 feet (PAS) or flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit entirely in Very Low SIO. No concerns

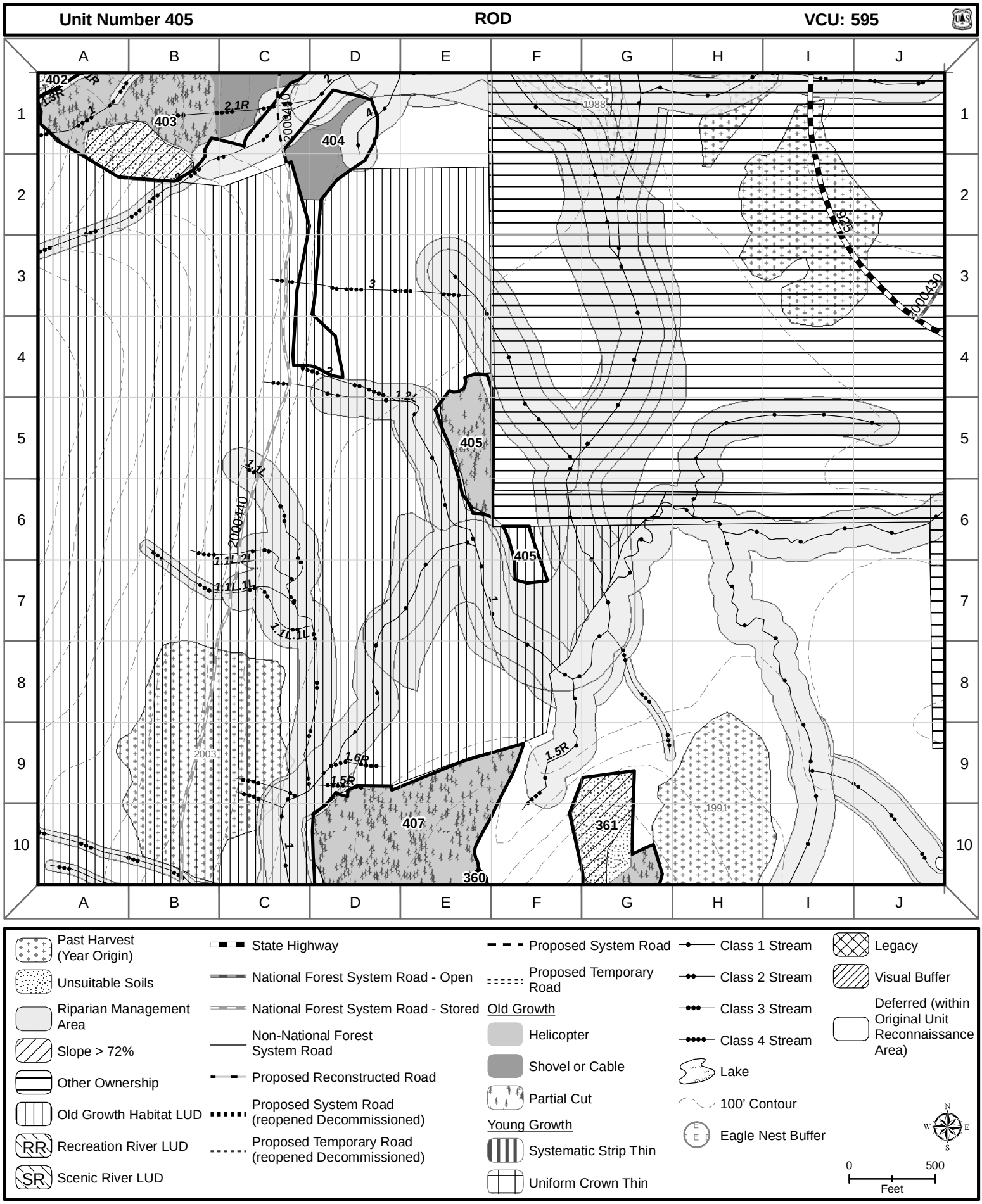
RECREATION: No concerns

SOILS/WETLANDS: Slopes are gentle. Forested wetlands are dominant throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Unit in 2008 OGR.

<u>Old-growth Reserve (OGR) Boundary</u>
OGR boundary near unit to west, but not adjacent.

Appendix 1



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Unit Number: 407	Alternatives: ROD	Total Unit Acres: 23.6	Prescription: Clearcut
VCU Number: 595	Yarding System: Helicopter	Net Harvest Volume (MBF): 595	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 407 is predominantly a western hemlock and Sitka spruce stand where old-growth stand structure dominates. Moderate windthrow, low to moderate defect, and light evidence of mistletoe define the stand. There was some evidence of wind shake seams in the Sitka spruce in the south end of the unit. There are no adjacent past harvest areas.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with low to moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Helicopter yarding to the proposed temporary road accessing Unit 360.

ENGINEERING/ROADS: Unit is accessed by proposed temporary roads constructed for Unit 360 for helicopter yarding. See unit 360 unit card for information.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Steelhead Creek

Stream#: 1 Class: I Flagging: B/W C- Type: MMM, FPM, MCM Concerns: none
Buffer (RMA): Class I- greater of 130 feet (FPM) or 120 feet (MMM) or 100 feet (MCM), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2R Class: I, II, IV Flagging: B/W, G/W C- Type: HCL, HCO Concerns: none
Buffer (RMA): Class I and II for HCL- greater of 100 feet or to the top of the side-slope break.
Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.5R Class: I, IV Flagging: B/W, G/W C- Type: PAB, HCO Concerns: none
Buffer (RMA): Class I for PAB- greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit entirely in Very Low SIO. No concerns

RECREATION: No concerns

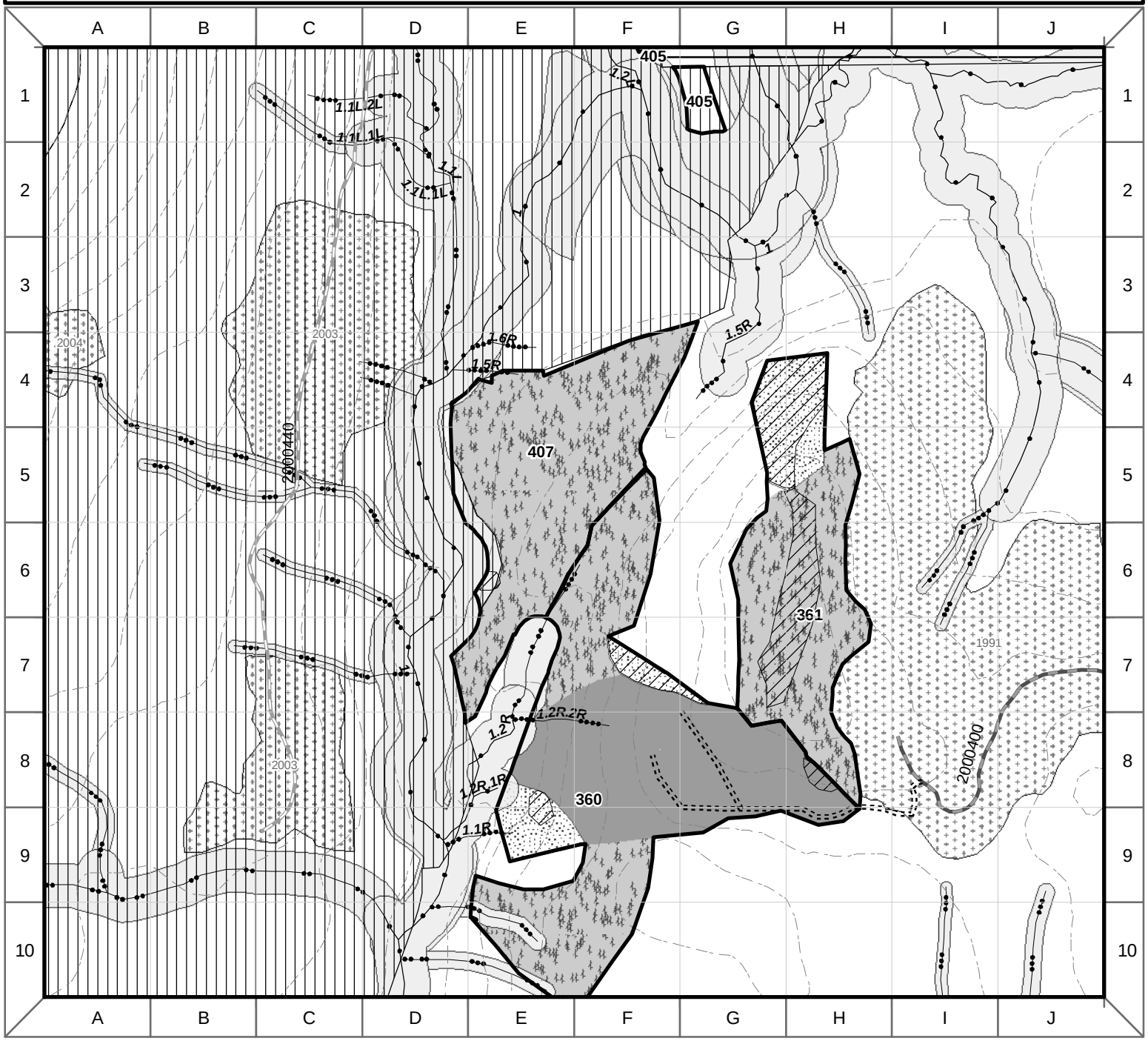
SOILS/WETLANDS: Slopes range from 25 to 55%. Forested wetlands occur throughout the southwestern portion of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).

WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Unit in 2008 OGR.

Appendix 1

Old-growth Reserve (OGR) Boundary OGR boundary is across Class I stream to the west.

Unit Number 407 | **ROD** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Appendix 1

Unit Number: 438	Alternatives: ROD	Total Unit Acres: 54.0	Prescription: Clearcut
VCU Number: 585	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 836	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 438 is a mixed species stand with a mosaic of uneven-age and old growth stand structure. Moderate to high windthrow, moderate to light defect and a moderate to high occurrence of mistletoe was found. Volume Class 5-6 timber occurs throughout the unit with areas of non-merchantable timber in recent windthrow patches. The overstory of the stand is mainly Western Hemlock, Western redcedar and Sitka spruce. The average overstory tree class rating is unacceptable except in areas of older even-age structure where the average tree class was acceptable. The primary damage in the overstory is stem decay.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 24 acres of productive old growth representative of the overall composition of the planned harvest area be maintained. Legacy was placed to block up POG and screen the majority of unit from NFS road 3000000 and Clarence Strait; legacy also widens buffer above road along Salamander Creek. Legacy was also used to help divide unit into four separate openings. Total mapped legacy is approximately 25 acres.

TIMBER/YARDING: Cable settings yard to the proposed temporary roads. Shovel settings yard to the northern proposed temporary road and NFS roads 3000000 and 3000153. Helicopter settings yard to the northern proposed temporary road. Shovel yarding need a corridor through the visual buffer along NFS road 3000000.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 600 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Clarence Strait

Stream # 1 Class: I Flagging: B/W C- Type: HCM, MCS Concerns: none
Buffer (RMA): Class I for HCM and MCS- greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 1.1R Class: I, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream # 1.2R Class: I, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class I for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

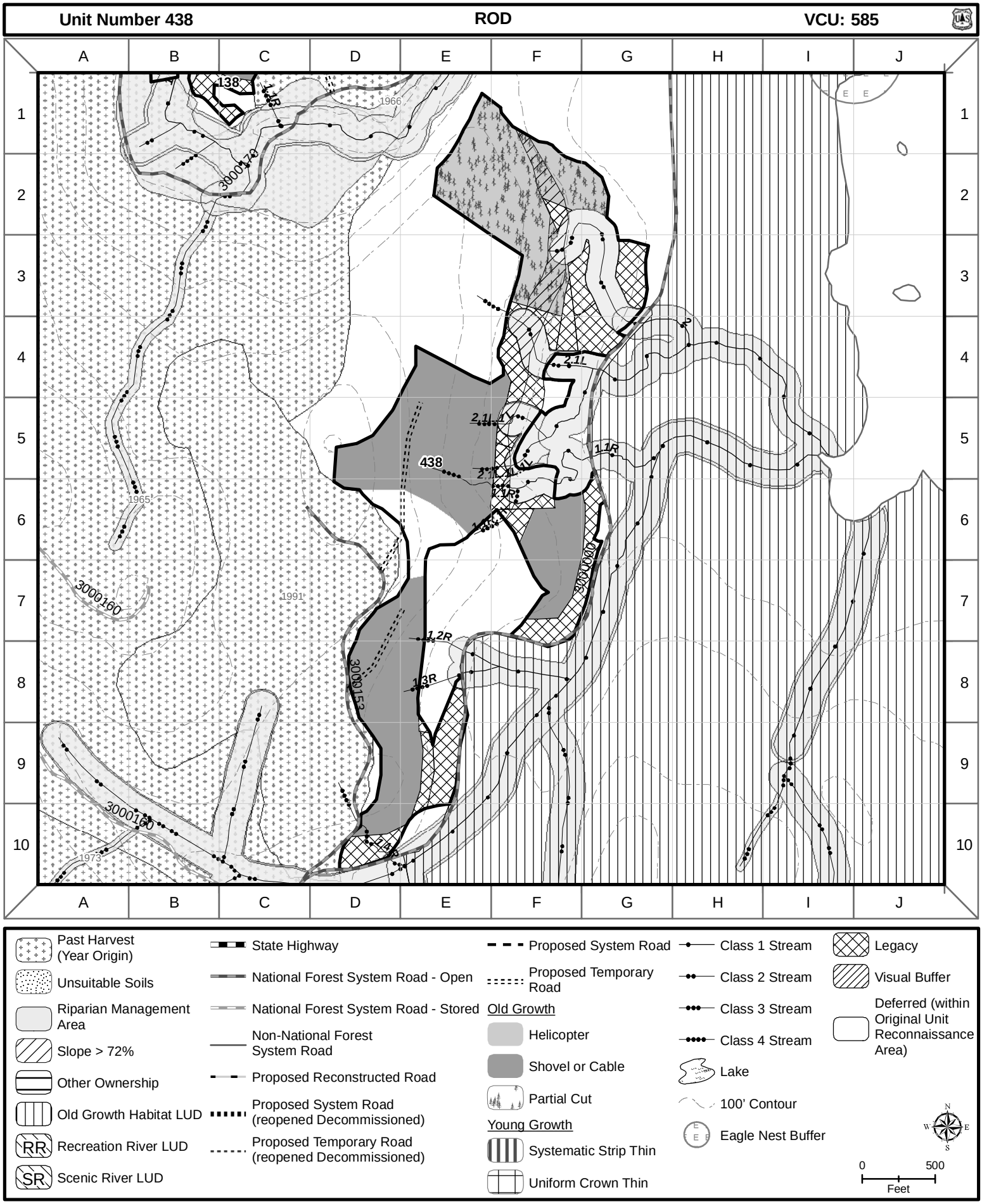
Stream # 1.3R Class: I, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class I for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream # 2 Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream # 2.1L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none

Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream # 2.1L.1L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO Concerns: none Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream # 2.1L.1L.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO Concerns: none Buffer (RMA): Class II for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C Temporary roads for Unit 438: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is primarily in Moderate SIO, with a small amount of Very Low in the north. Legacy areas have been placed to screen or reduce visibility from the 3000000 Road and saltwater use areas. Acreage in legacy is greater than the minimum because of visual concerns. Legacy was also used to help divide unit into four separate openings. Typical opening sizes identified by the Forest Plan for Moderate SIO areas with Intermediate VAC are 15 to 40 acres. Because of the separate openings that are spread north to south over 1 mile and topographic and vegetative screening, no more than about 10 to 15 acres of each opening are visible and, generally, about two openings can be seen at a time.
RECREATION: No concerns
SOILS/WETLANDS: Slopes range from 15 to greater than 72%. About 2 acres of slopes greater than 72% are suitable for harvest with full suspension. Forested wetlands occur throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary roads will cross about 2 acres of forested wetlands. Wetland avoidance is not practicable due to the existing road location, contours, and the extent of wetland in the unit. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western lobe of unit), and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR. Unit is adjacent to OGR boundary. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Appendix 1



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Unit Number: 440	Alternatives: ROD	Total Unit Acres: 103.4	Prescription: Clearcut and 50% Removal
VCU Number: 580	Yarding System: Cable, Shovel, Helicopter	Net Harvest Volume (MBF): 1720	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 440 is a western hemlock and western redcedar stand that changes to near pure western hemlock in the far southwestern point of the unit. Old-growth stand structure dominates the area. Minor windthrow, moderate defect, and a high incidence of mistletoe define the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management – Clearcut (cable and shovel settings)
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter settings)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. This system is not optimum for promoting timber production but is being prescribed primarily to address economic concerns.

A Tongass Wide Young Growth Study site (POW Thorne River #3) is along the southeast boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/YARDING: Cable, helicopter and shovel yarding to NFS road 3015000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: One lesser round-leaved orchid plant is within the southwestern portion of unit.

INVASIVE SPECIES: Orange hawkweed is known along the existing NFS road 3015000. Future monitoring is recommended to ensure the infestation does not spread as a result of the project activities.

FISHERIES: Streams are tributaries to Thorne River. Characteristics for Stream 1.ZL do not include project-specific, field-verified information. This information will be collected prior to implementation.

Stream # 1.AL Class: I, IV Flagging: B/W, G/W C- Type: HCO Concerns: none
Buffer (RMA): Class I for HCO- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream # 1.YL Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCL, HCO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCL- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

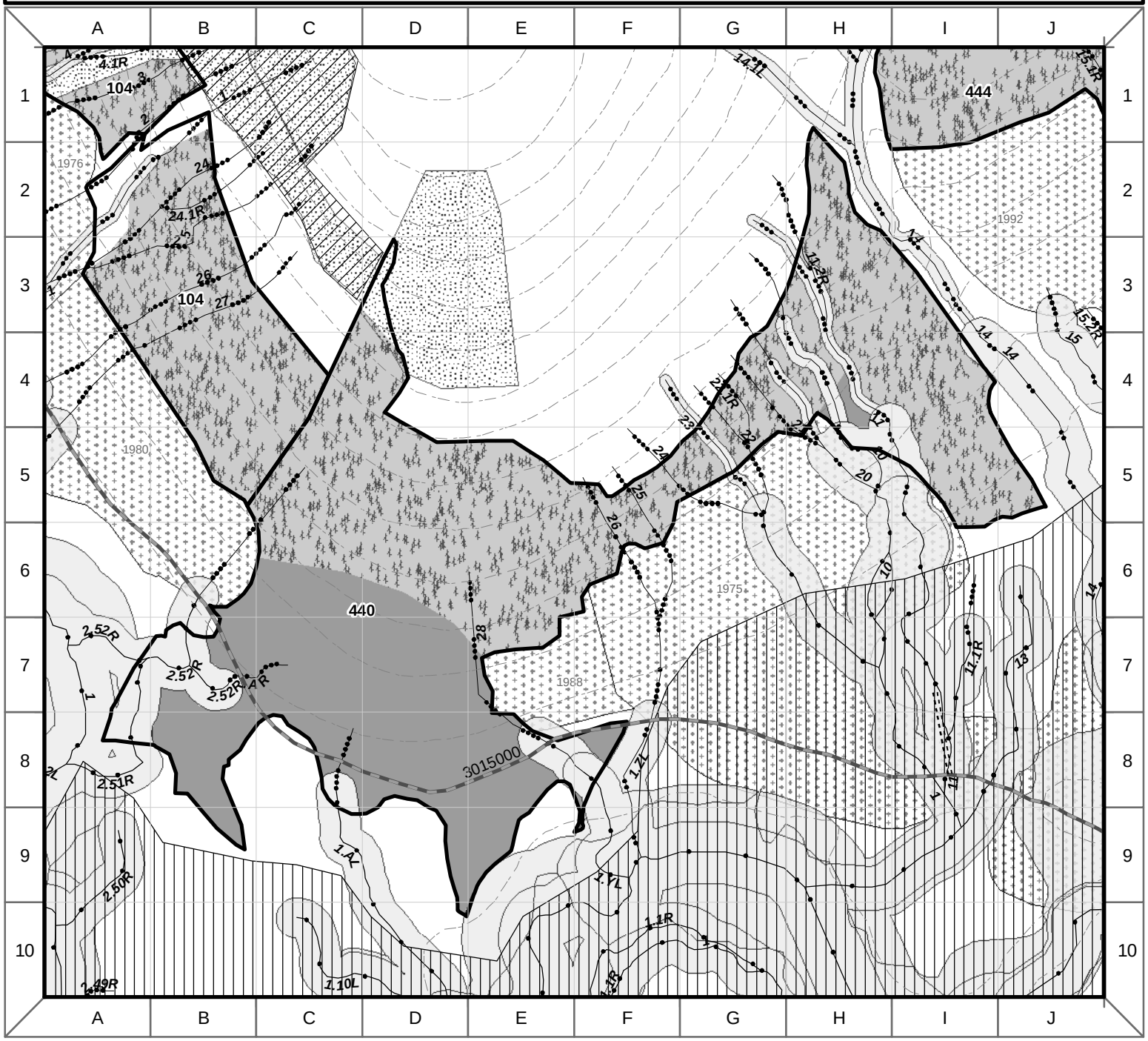
Stream # 1.ZL Class: II Flagging: B/W C- Type: MMO Concerns: none
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 2.51R Class: I Flagging: B/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 2.52R Class: I, IV Flagging: B/W, G/W C- Type: MMO, HCM, HCO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCM and HCO- greater of 100 feet or to the top of the side-slope break.

Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream # 10 Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCL, HCO Concerns: none Buffer (RMA): Class II for HCL- greater of 100 feet or the top of the side-slope break. Class III for HCL- to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B, and C Stream # 11 Class: I, II, III Flagging: B/W, O/W C- Type: MMM, HCM Concerns: none Buffer (RMA): Class I for MMM- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM- greater of 100 feet or the top of the side-slope break. Class III for HCM- to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B Stream # 11.2R Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C Stream # 14 Class: I, III Flagging: B/W, O/W C- Type: HCM Concerns: none Buffer (RMA): Class I for HCM- greater of 100 feet or the top of the side-slope break. Class III for HCM- to the top of the side- slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B Stream # 14.1L Class: III Flagging: O/W C- Type: HCD Concerns: none Buffer (RMA): Class III for HCD- to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B Stream # 20 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO Concerns: none Buffer (RMA): Class III for HCM- to the top of the side-slope break. Class IV for HCO- none Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C Stream # 23 Class: III Flagging: O/W C- Type: HCM Concerns: none Buffer (RMA): Class III for HCM- to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns
RECREATION: No concerns
SOILS/WETLANDS: Slopes range from 20 to 70%. About 1 acre was excluded due to very high landslide potential, steep wet slopes, and colluvial activity. Forested wetlands occupy the portion of the unit below the 3015000 road (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). Tin the remainder of the unit, the soils and wetlands are suitable for a minimum of partial suspension cable yarding, helicopter yarding, or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is within the 2008 Forest Plan OGR, which was moved under Alternative 3. Unit is located in an area that connects the Honker large OGR with saltwater near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 440 | **ROD** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 444	Alternatives: ROD	Total Unit Acres: 39.6	Prescription: 25% Removal
VCU Number: 580	Yarding System: Helicopter	Net Harvest Volume (MBF): 337	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 444 is an old-growth stand comprised of a mixture of western hemlock, western redcedar and Alaska-cedar, with a few Sitka spruce in the lowest elevations. Windthrow risk is low in the lower elevations and high in the upper elevations of the stand with evidence of past windthrow being common there. Topographic exposure to storm winds is high in the upper elevations. Mistletoe was low in the upper elevations and moderate in the lower elevations. The primary defect in the overstory is stem decay, but in the upper elevations wind damage is also prevalent. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 25 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Review the marking guides in the harvest prescription for this unit to obtain basal area by species allowances and other specific instructions. Review the introduction to the unit cards for general guidance. This system is not optimum for promoting timber production but is being prescribed primarily to address economic and windthrow concerns.

A Tongass Wide Young Growth Study site (POW Thorne River #3) is along the 3015000 road to the southwest of the unit. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/YARDING: Helicopter yarding to NFS roads 3015000 and 3015600.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream # 14 Class: I, III Flagging: B/W, O/W C- Type: HCM Concerns: none
Buffer (RMA): Class I for HCM- greater of 100 feet or the top of the side-slope break. Class III for HCM- to the top of the side- slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream # 15.1R Class: II, IV Flagging: B/W, G/W C- Type: HCL, HCO Concerns: none
Buffer (RMA): Class II for HCL- greater of 100 feet or the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream # 15.1R.1L Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO- greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 21 Class: I, II, III, IV Flagging: B/W, O/W, G/W C- Type: HCO, HCL, HCM Concerns: none
Buffer (RMA): Class I and II for HCO, HCL, and HCM- greater of 100 feet or the top of the side-slope break. Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B, and C

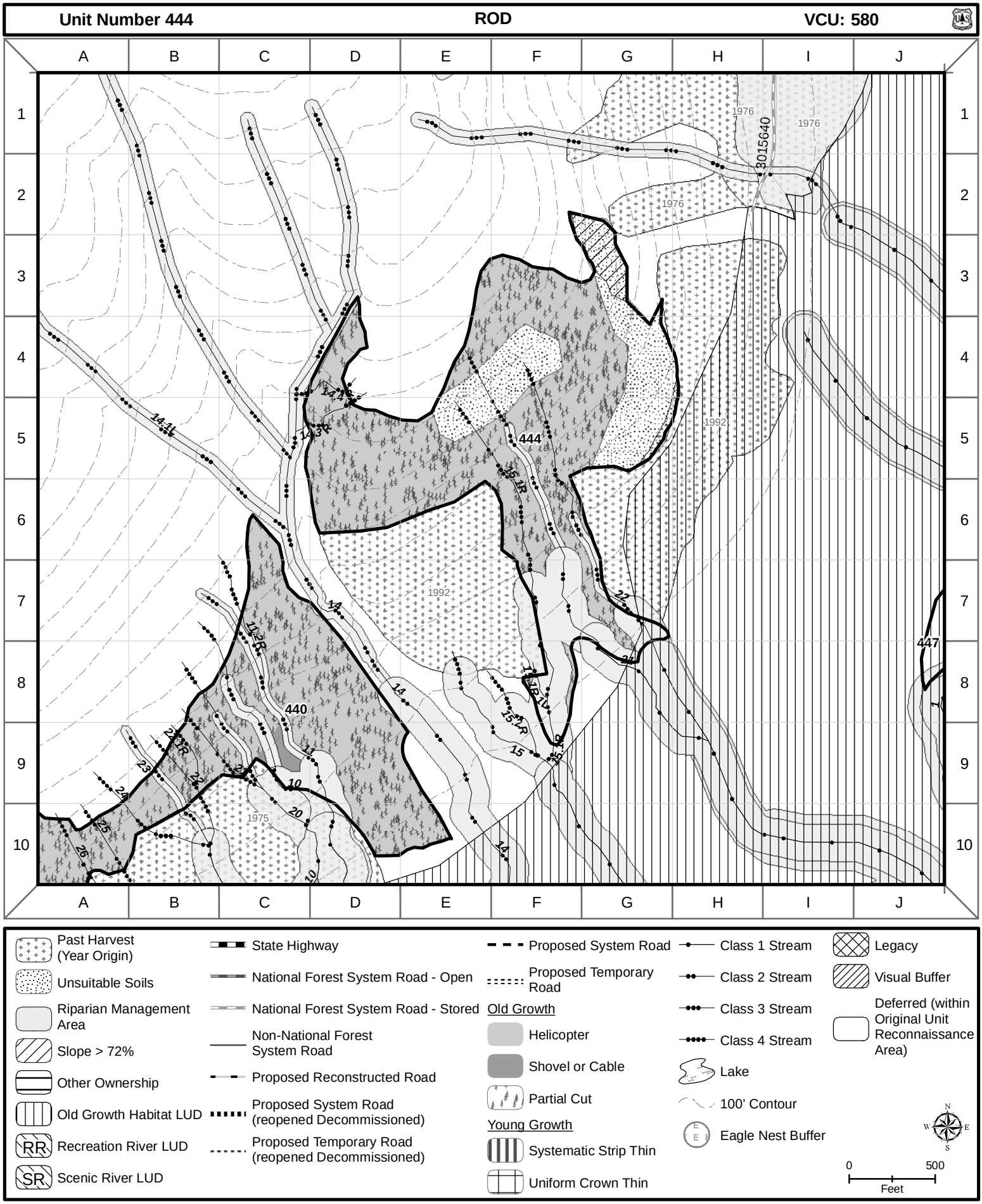
Stream # 22 Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCL, HCM, HCO Concerns: none
Buffer (RMA): Class II for HCL- greater of 100 feet or the top of the side-slope break. Class III for HCM- to the top of the side-slope break. Class IV for HCO- none
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B, and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns
RECREATION: No concerns
SOILS/WETLANDS: Slopes range from 15 to 120%. All slopes greater than 72% are excluded from harvest. About 14 acres were excluded due to steep slopes, active and historic landslides, saturated hollows, and colluvial activity. Isolated forested wetlands are found in southern portion of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (R10 BMPS 12.5, 13.5, and 13.9 and National Core BMPs Plan-2, AqEco-2, AqEco-4, Veg-1, Veg-2, and Veg-5).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is within 2008 Forest Plan OGR and is located in an area that connects the Honker large OGR with the beach near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Appendix 1



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Unit Number: 447	Alternatives: ROD	Total Unit Acres: 9.1	Prescription: Clearcut
VCU Number: 580	Yarding System: Shovel, Helicopter	Net Harvest Volume (MBF): 197	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 447 is a western hemlock and western redcedar stand with old growth structure. Alaska-cedar occurs as a minor component. Low windthrow, moderate defect and a low occurrence of mistletoe was found. The larger overstory hemlock trees are particularly high defect. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/YARDING: Shovel and helicopter yarding to NFS road 3015600.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Thorne River

Stream # 1 Class: I Flagging: B/W C- Type: FPM, MCM Concerns: none
Buffer (RMA): Class I for FPM- greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MCM- greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 1.1R.1L Class: I, II Flagging: B/W C- Type: MMO, HCO Concerns: none
Buffer (RMA): Class I for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 1.1R.2L Class: I, II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream # 1.2R Class: I, II Flagging: B/W C- Type: MMS Concerns: none
Buffer (RMA): Class I and II for MMS- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): review required for south side. Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

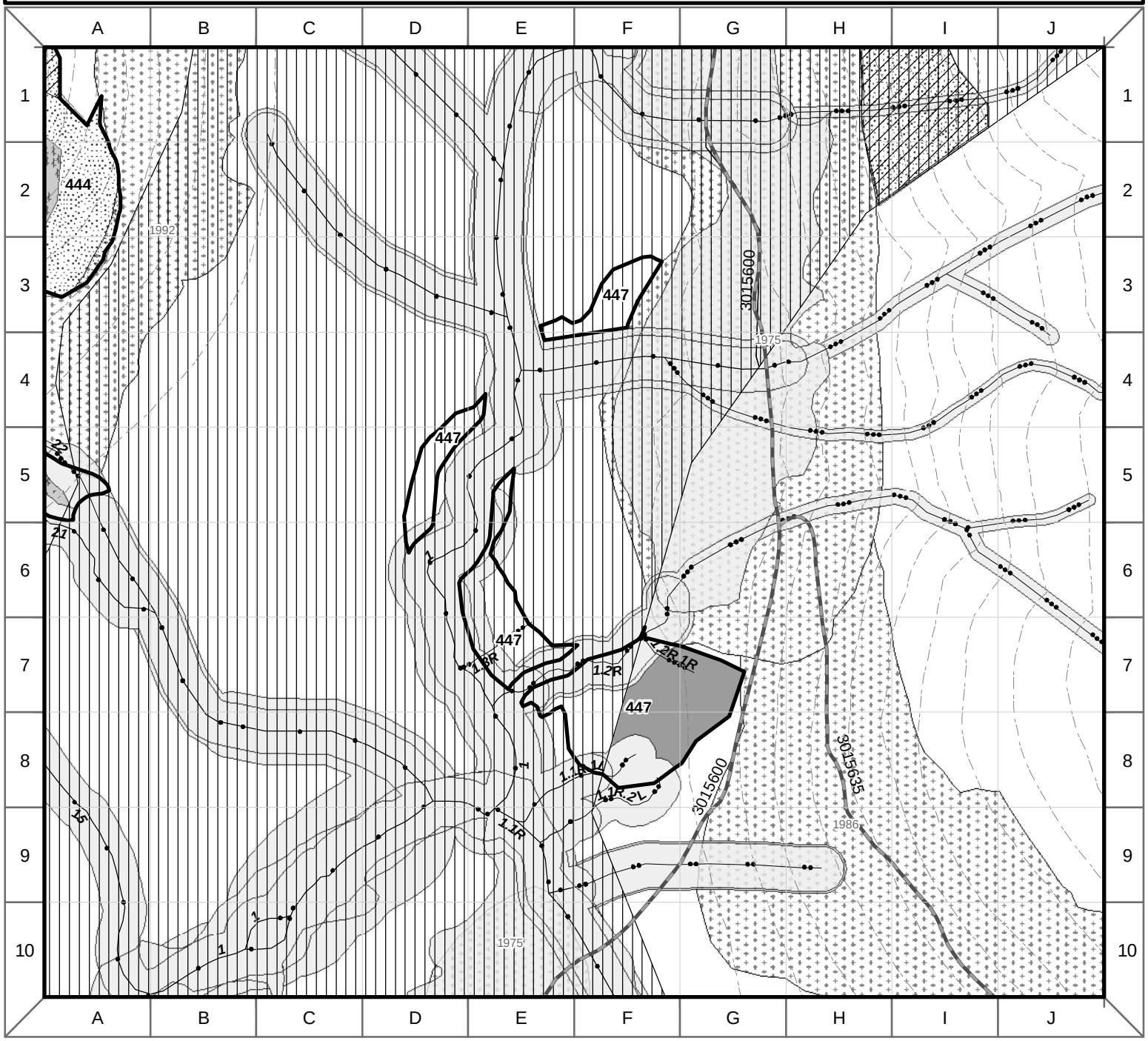
SCENERY: No concerns

RECREATION: This unit is located along the North Thorne Falls fishing access route. Recreation use of this site has caused soil erosion and vegetation loss. Harvest in this unit would temporarily prevent recreation use along this route, but visitors would likely create a new trail to the river following harvest activities.

SOILS/WETLANDS: Slopes range from 0 to 35%. Forested wetlands are found throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4).

WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is within the 2008 Forest Plan OGR. It is located in an area that connects the Honker large OGR with beach near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 447 | **ROD** | **VCU: 580**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Appendix 1

Unit Number: 469	Alternatives: ROD	Total Unit Acres: 39.9	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 1210	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Unit 469 is a mixed species stand with western hemlock, western redcedar, Sitka spruce and Alaska- cedar. Generally, old-growth stand structure dominates however patchy areas of heavy past wind damage across the stand have a two-age stem exclusion structure. Heavy repeated wind damage, average to high defect, and a generally moderate incidence of mistletoe was noted. Breakage and stem decay are the primary issues in the overstory. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, improve site productivity through increased soil temperature and minimize defect and disease in the future stand to the maximum extent possible.

This unit is adjacent to the Coffman Cove Loop road and due to the combination of Modified Landscape LUD and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Utilize existing advanced young growth adjacent to the road to the maximum extent possible to achieve this screen.

The legacy standard and guide applies in this VCU. Units 191, 192, 193, 469 and 470 combine to form a potential opening of 224 acres. This requires that approximately 67 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 191, 192,193, 469 and 470 potential opening. Legacy was placed to divide the combined opening, avoid sensitive plants, provide RAW and coincide with steep slopes, unsuitable soils and lower value timber. These units have a combined mapped legacy of approximately 74 acres. The majority of the legacy is within units 469 and 470.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road and NFS road 3030000. Cable settings yard to the proposed temporary road and NFS road 3030200.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,500 feet and proposed NFS road 3030390, totaling 3,600 feet. Approximately 800 feet of this road will be constructed over decommissioned road bed. This road is also used to access Unit 470. See road card for information on NFS road.

BOTANY: Two lesser round-leaved orchid populations, with an estimated 207 and 565 plants each, were found during surveys for this unit. The larger population is mapped as over 300 acres, the proposed harvest for the unit overlaps with approximately 23 acres. The legacy, RMAs, and deferred portions of the unit overlap with approximately 22 acres. This population is also partially affected, directly and indirectly by harvest in units 470 and 471, and just over 40 acres has been harvested previously. There are no direct effects to the smaller population, but it is partially within the indirect effects area for this proposed harvest unit.

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

Stream # 1.1R Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM, HCO Concerns: debris in channel holding back bedload
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCM and HCO- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream # 1.1R.7L Class: II, III Flagging: B/W, O/W C- Type: MMO, HCL
Concerns: existing LWD in channel is holding back bedload and sediment
Buffer (RMA): Class II for MMO- greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCL- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream # 4 Class: II, III Flagging: B/W, O/W C- Type: HCM, HCD
Concerns: blowdown, active erosion, steep side-slopes with loose soils and exposed bedrock, bedload storage.
Buffer (RMA): Class II for HCM- greater of 100 feet or to the top of the side-slope break. Class III for HCM and HCD- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): review required for northeast exposure Protection: Category A and B

Stream # 4.3R Class: II Flagging: B/W C-Type: HCO
Concerns: Yarding through RMA may be required.
Buffer (RMA): Class II for HCO- greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C

Temporary roads for Unit 469: One Class III and one Class IV stream crossing. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has 23 acres in Moderate SIO and 4 acres in Low SIO. It is adjacent to the Coffman Cove Loop road and requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.

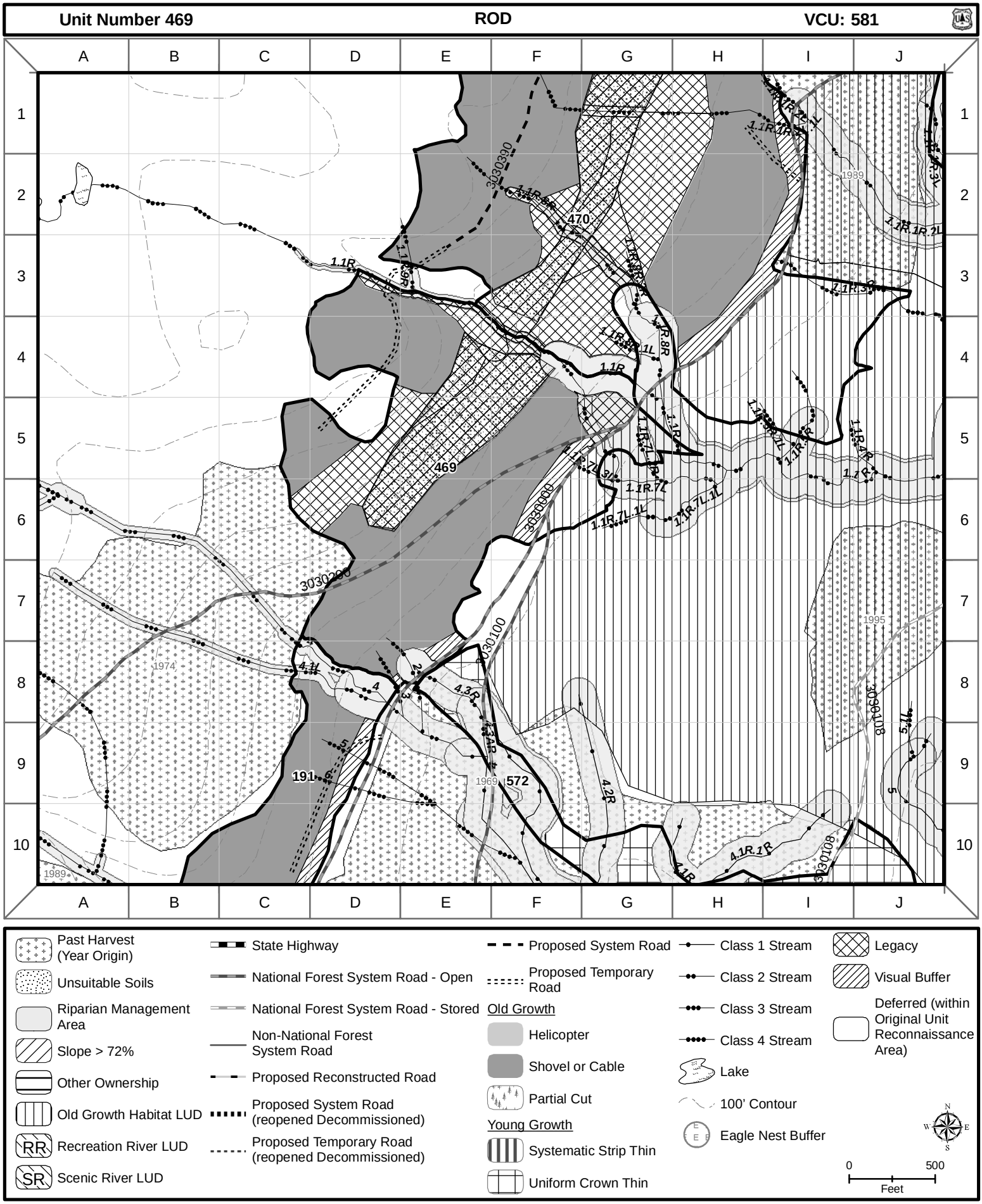
RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 15 to 85%. All slopes greater than 72% are excluded from harvest. About 11 acres were excluded due to steep slopes, high landslide potential, and colluvial activity. Forested wetlands occur in the northwestern portion of the unit and in the upper elvations (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4).

The proposed temporary road crosses about ¼ of an acre of forested wetlands. Wetland avoidance is not feasible due to streams, steep slopes, and contours. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.

WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is located within the 2008 Forest Plan OGR. Unit is adjacent to modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat. See silviculture section.

Appendix 1



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Unit Number: 470	Alternatives: ROD	Total Unit Acres: 67.6	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 1728	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit is predominantly a western hemlock and western redcedar stand. Western hemlock and Alaska-cedar occur in the upper elevations. Generally old-growth stand structure dominates, however windthrow and stem breakage are extensive. Extensive repeated windthrow, moderate to high defect, and patches of heavy mistletoe were noted. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

This unit is adjacent to the Coffman Cove Loop road and due to the combination of Modified Landscape LUD and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Utilize existing advanced young growth adjacent to the road to the maximum extent possible to achieve this screen.

The legacy standard and guide applies in this VCU. Units 191, 192, 193, 469 and 470 combine to form a potential opening of 224 acres. This requires that approximately 67 acres of productive old growth representative of the overall composition of the planned harvest area be maintained within the combined 191, 192,193, 469 and 470 potential opening. Legacy was placed to divide the combined opening, avoid sensitive plants, provide RAW and coincide with steep slopes, unsuitable soils and lower value timber. These units have a combined mapped legacy of approximately 74 acres. The majority of the legacy is within units 469 and 470.

TIMBER/YARDING: Cable settings yard to proposed NFS road 3030390. Shovel settings yard to the proposed temporary road, proposed NFS road 3030390 and NFS road 3030000.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 500 feet and a proposed NFS road 3030390, totaling 3,600 feet. Approximately 800 feet of this road will be constructed over decommissioned road bed. See road card for information on NFS road.

BOTANY: One lesser round-leaved orchid population, with 565 plants, was found during surveys for this unit. The harvest portion of the unit overlaps with approximately 31 acres of the population. The legacy, RMAs, and other deferred areas of the unit account for 76 acres of this population. This population is also partially affected, directly and indirectly by harvest in units 469 and 471, and just over 40 acres has been harvested previously.

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek

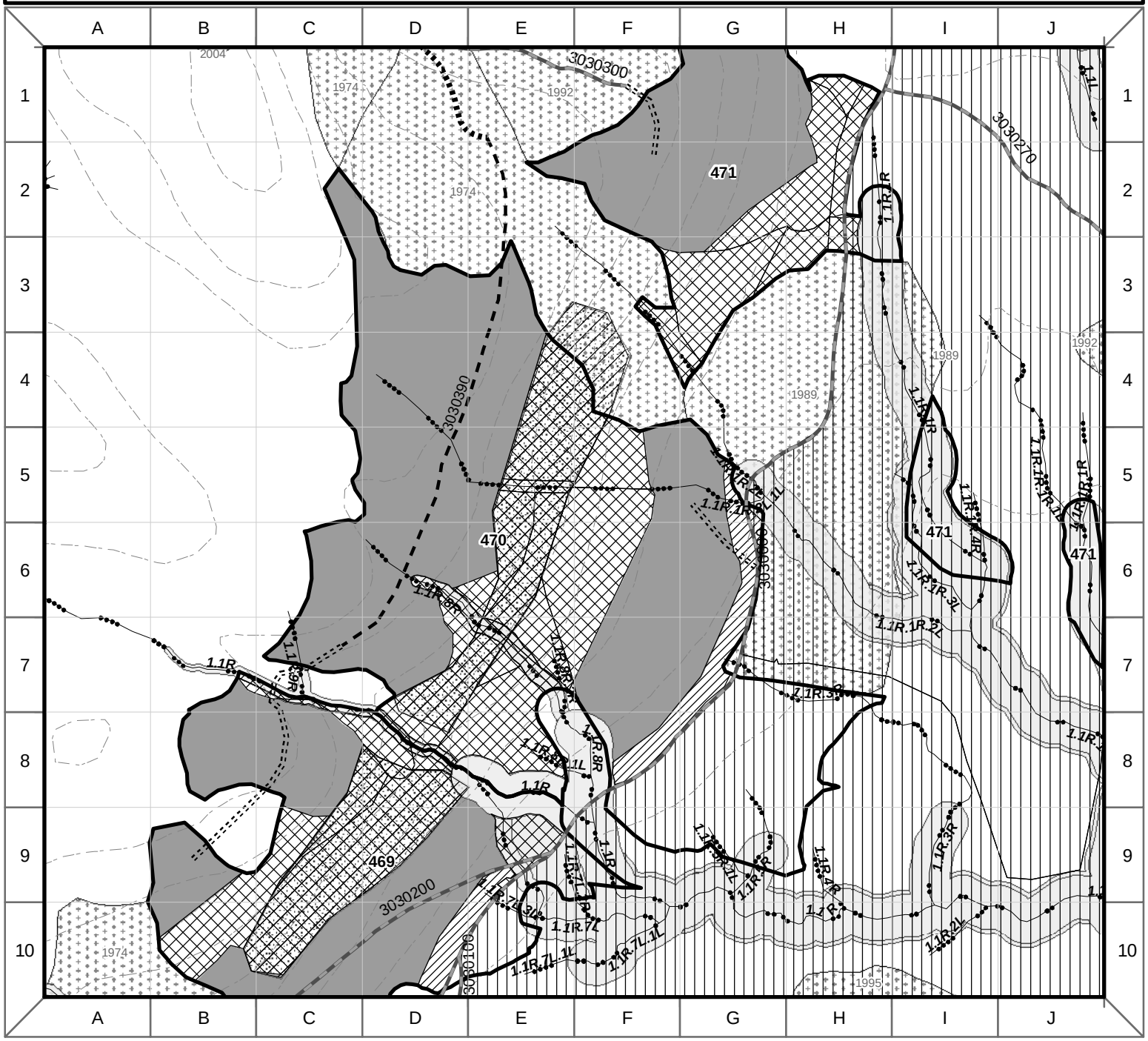
Stream#: 1.1R.1R.2L Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCM Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCM none.
Alternatives: ROD Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and C

Stream # 1.1R Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM, HCO
Concerns: blowdown observed, debris blockages holding bedload material
Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCM and HCO- to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream # 1.1R.8R Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCL, HCM, MMO
Concerns: blowdown observed, LWD in channel holding back sediment

Buffer (RMA): Class II for HCL- greater of 100 feet or to the top of the side-slope break. Class III for HCL and HCM- to the top of the side-slope break. Class IV for MMO- none Alternatives: ROD Buffer (RAW): review required for northeast exposure Protection: Category A, B and C Stream # 1.1R.9R Class: III, IV Flagging: O/W, G/W C- Type: HCL Concerns: blowdown observed Buffer (RMA): Class III for HCL- to the top of the side-slope break. Class IV for HCL- none Alternatives: ROD Buffer (RAW): review required for northeast exposure Protection: Category B and C All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM Buffer (RMA): none Buffer (RAW): no review needed Protection: Category C Temporary roads for Unit 470: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit has 27 acres in Moderate SIO, 32 acres in Low SIO, and 9 acres in Very Low SIO. It is adjacent to the Coffman Cove Loop road and requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed (as legacy) to be maintained to restrict the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from 5 to 90%. All slopes greater than 72% are excluded from harvest. About 15 acres were excluded due to steep slopes, colluvial activity, and high landslide potential. A muskeg was identified surrounded by forested wetlands along the eastern edge of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). In the remainder of the unit, the soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary road crosses about ¼ of an acre of forested wetland. Wetland avoidance is not feasible due to streams, steep slopes, and contours. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern and southern ends). Unit is located within the 2008 Forest Plan OGR.Unit is adjacent to the modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat. See silviculture section.

Unit Number 470 | **ROD** | **VCU: 581**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Appendix 1

Unit Number: 471	Alternatives: ROD	Total Unit Acres: 34.9	Prescription: Clearcut
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 682	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit is an old-growth stand with windthrow and stem breakage resulting in some areas of even-aged stand structure. Variable windthrow and stem breakage, moderate stem decay, and moderate mistletoe were noted. The over- story of the stand is western hemlock, redcedar and spruce. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post-harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

This unit is adjacent to the Coffman Cove Loop road and due to the combination of Modified Landscape LUD and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement screens of trees are being prescribed to be maintained to limit the harvest area from view.

The legacy standard and guide applies in this VCU. This requires that approximately 14 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to consolidate POG, screen the unit from the 3030 road, shorten required road length, and avoid interference with logging. Total mapped legacy is approximately 15 acres.

TIMBER/YARDING: Shovel settings yard to the proposed temporary roads and NFS road 3030000. Cable settings yard to the proposed temporary roads.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 1,900 feet.

BOTANY: One lesser round-leaved orchid population, with 565 plants, was found during surveys for this unit. The harvest portion of the unit overlaps with approximately 2 acres of the population. The legacy, RMAs, and other deferred areas of the unit overlap with 15 acres of the population. This population is also partially affected, directly and indirectly by harvest in units 469 and 470, and just over 40 acres has been harvested previously.

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek.

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 471: No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

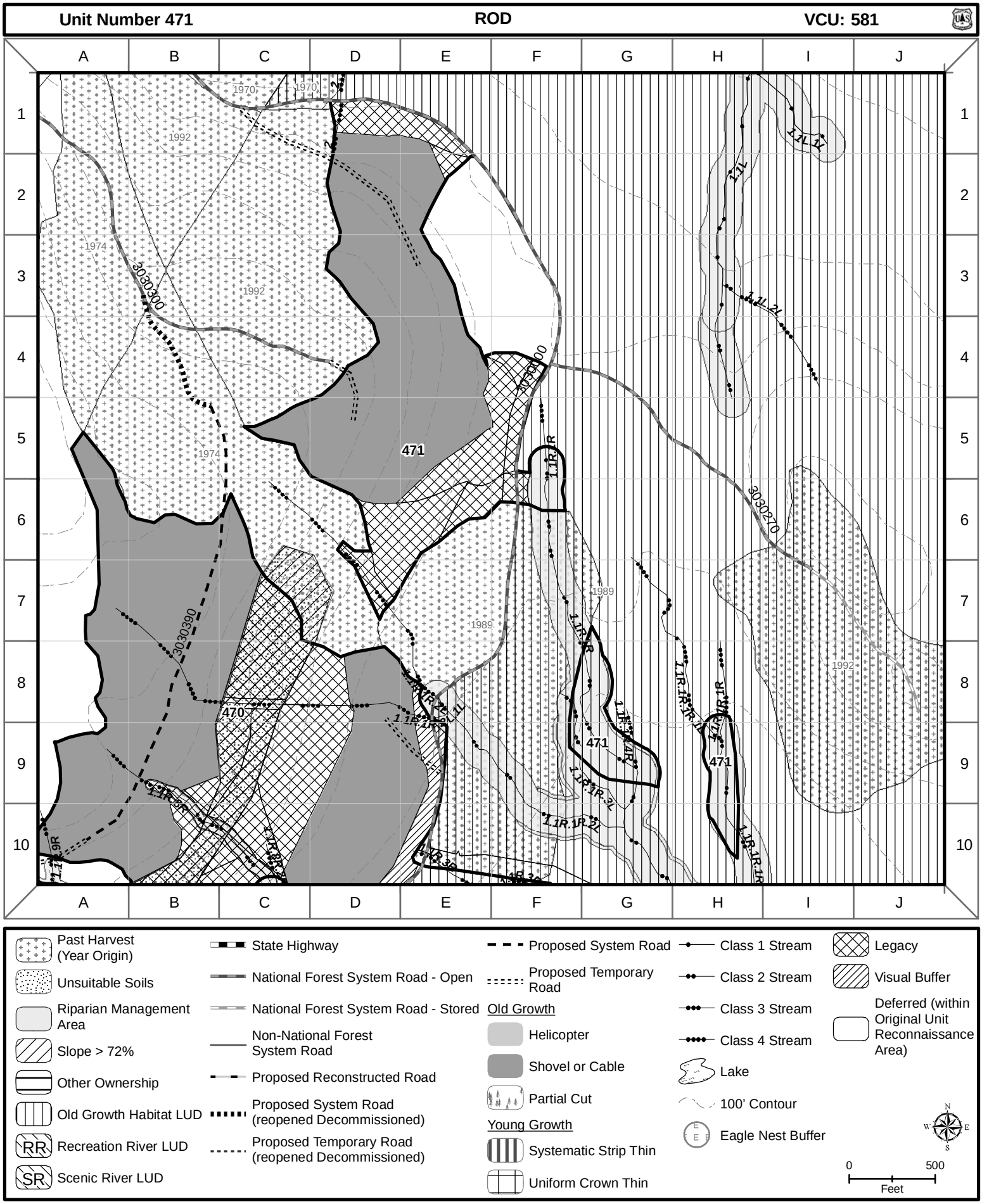
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has 11 acres in Moderate SIO and 22 acres in Low SIO. It is adjacent to the Coffman Cove Loop road and requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed (as legacy) to be maintained to restrict the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes range from 5 to 70%. Forested wetlands occur in the eastern portion of the unit surrounding a small muskeg (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable with a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). The proposed temporary roads do not cross any wetlands. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern half). Unit is located within the 2008 Forest Plan OGR. Unit is adjacent to modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat. See silviculture section.

Appendix 1



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Unit Number: 500	Alternatives: ROD	Total Unit Acres: 3.8	Prescription: Crown Thinning
VCU Number: 597.2	Yarding System: Shovel	Net Harvest Volume (MBF): 22	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972200501. The stand origination date is 1968. This stand was entirely pre-commercially thinned in 1982. The site potential in this area ranges from medium to high. The unit is currently in a successional stage of stem exclusion. This unit lies within the Deer Winter Range Landscape Zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

This treatment is being proposed based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3012000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: An infestation of orange hawkweed is known along the existing road, adjacent to the unit. Monitoring is recommended to ensure that the infestation does not spread as a result of project activities.

FISHERIES: No streams found in unit at time of survey. If streams are found during implementations a fish biologist would be notified and appropriate protections would be applied.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is in Moderate SIO; however, unit is set back at least 250 ft from the Thorne Bay-Control Lake highway and has vegetative and topographic screening. Thinning is not expected to be noticeable and VAC is moderate to high so openings can be as large as 15 acres or more. No concerns.

RECREATION: No concerns.

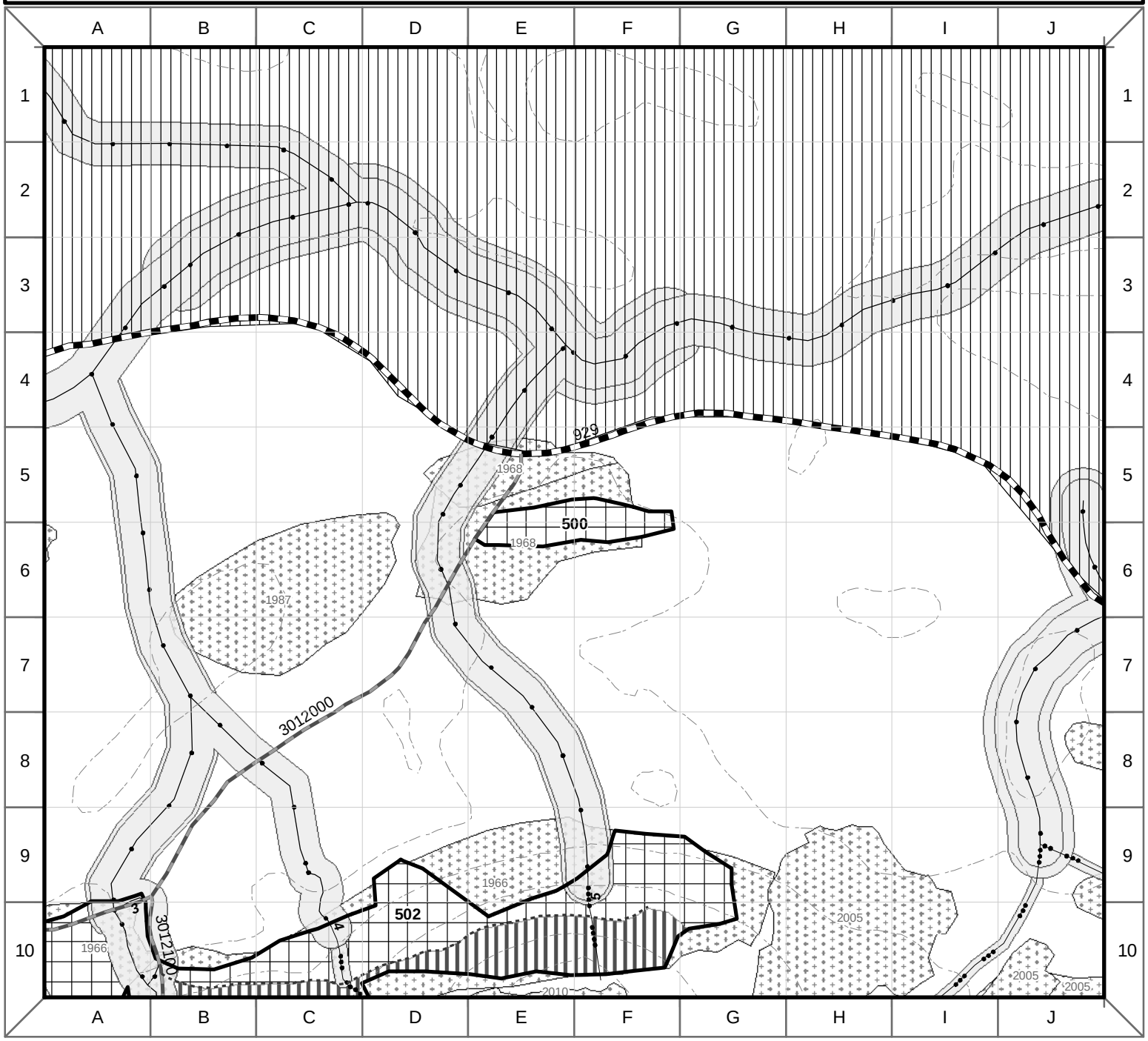
SOILS/WETLANDS: Slopes average less than 25% throughout the unit based on review of digital elevation model. There are approximately 3 acres (71% of the unit) mapped as forested wetland in the southeastern portion of the unit (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Existing detrimental soil disturbance is expected in second growth units. Additional analysis is ongoing to ensure that no activity areas exceed the Region 10 soil productivity standard.

WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 500 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

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Unit Number: 501	Alternatives: ROD	Total Unit Acres: 16.7	Prescription: Crown Thinning
VCU Number: 597.2	Yarding System: Shovel	Net Harvest Volume (MBF): 98	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972100502. The stand origination date is 1967. Approximately 62% of the stand area was pre-commercially thinned in 1982. The site potential in this area ranges from medium to high. The unit is in a successional stage of stem exclusion. This unit lies in the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

This treatment is being proposed based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,600 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver Creek. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: MCM, FPM Concerns: none
Buffer (RMA): Class I for MCM greater of 100 feet or to the top of the side-slope break. Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: I Flagging: B/W C-Type: FPO Concerns: none
Buffer (RMA): Class I for FPO greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L Class: I Flagging: B/W C-Type: PAB Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

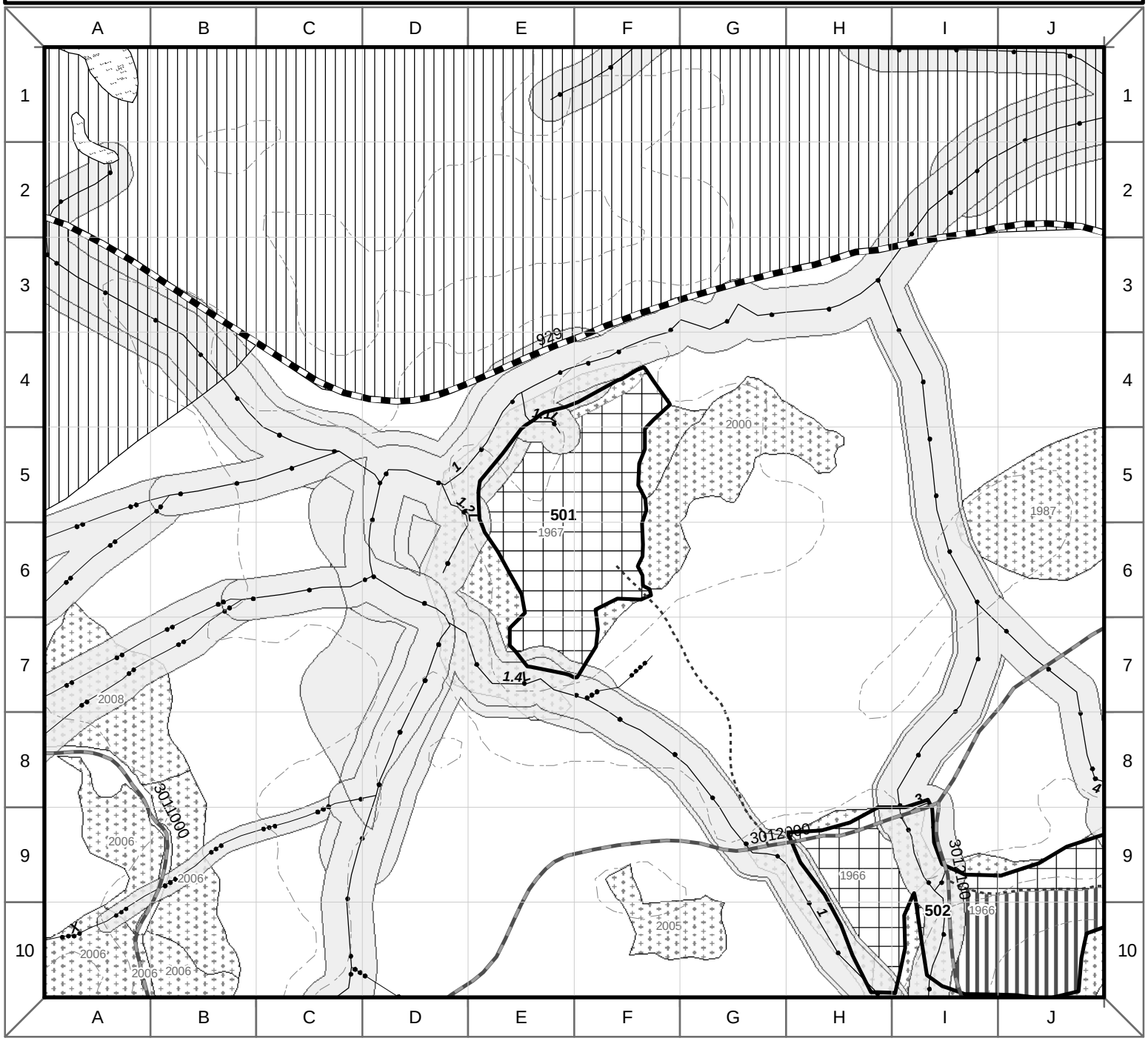
Stream#: 1.4L Class: I Flagging: B/W C-Type: FPM, MMS Concerns: none
Buffer (RMA): Class I greater of 130 feet (for FPM) or 120 feet (for MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

Appendix 1

Temporary road (reopened decommissioned) for Unit 501: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: One-third of unit is in Moderate SIO and two-thirds is in Very Low SIO; however, unit is set back at least 350 ft from the Thorne Bay-Control Lake highway and has vegetative and topographic screening. Thinning is not expected to be noticeable and VAC is moderate to high so openings can be as large as 15 acres or more. No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes average less than 25% throughout the unit based on review of digital elevation model. There is approximately 3/4 acre of forested wetland mapped near the southern unit boundary (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 501 **ROD** **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 502	Alternatives: ROD	Total Unit Acres: 36.7	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 247	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: The majority of this unit lies within Stand #5972200502. The stand origination date is 1966. Approximately 79% of the stand area was pre-commercially thinned in 1982. Approximately 7.7 acres of the unit lies within Stand #5972100503. This stand was entirely pre-commercially thinned in 1982. The site potential in this unit appears to range from medium to high. The unit is in a successional stage of stem exclusions. This unit lies in the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road and NFS roads 3012000 and 3012100. Cable settings yard to the proposed temporary road and NFS road 3012000.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 2,500 feet, constructed over decommissioned road bed.

BOTANY: Portions of two lesser round-leaved orchid populations are within the indirect effects area for this proposed harvest unit.

INVASIVE SPECIES: An infestation of orange hawkweed is known along the existing road, adjacent to the unit. Monitoring is recommended to ensure that the infestation does not spread as a result of project activities.

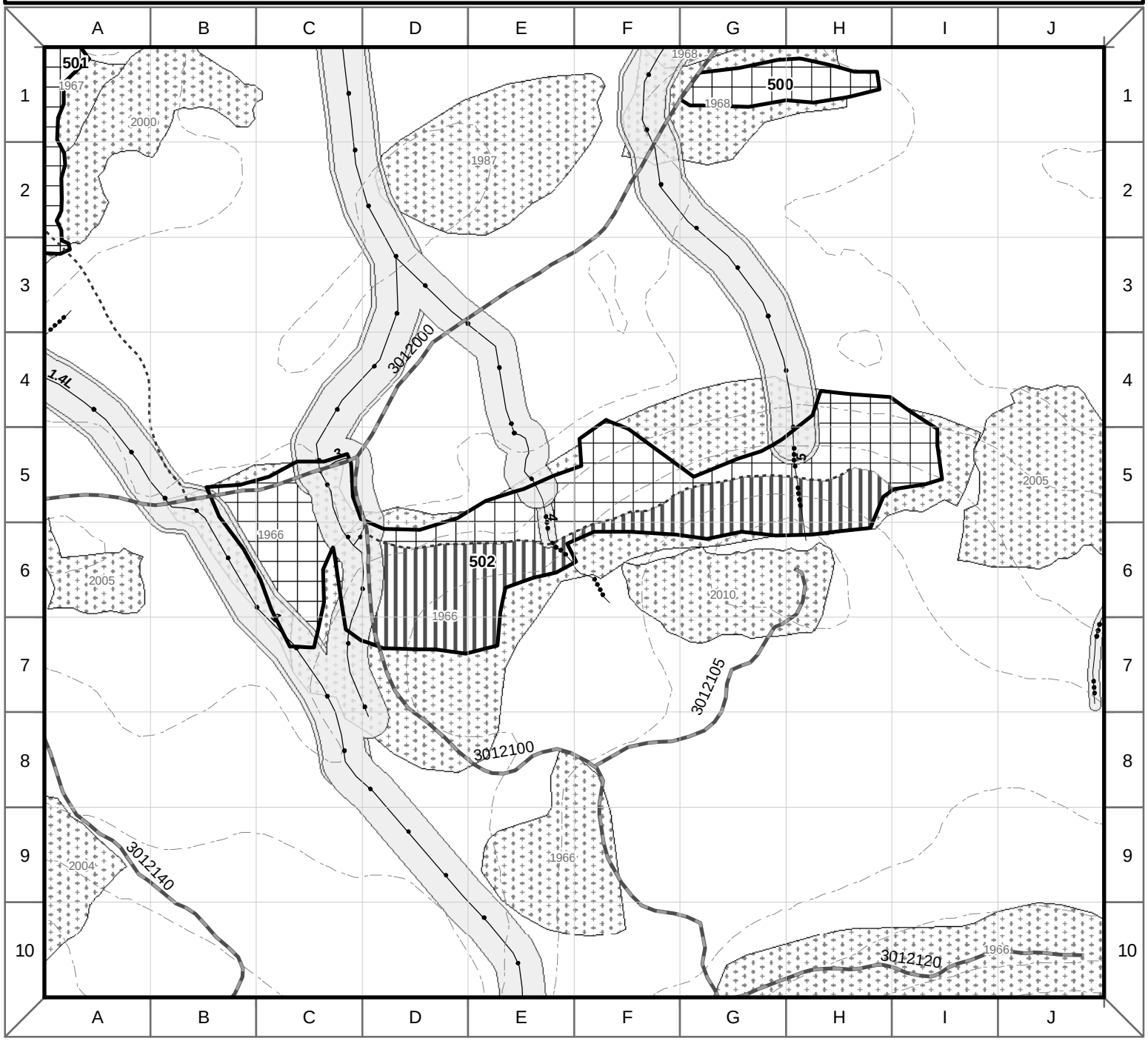
FISHERIES: Streams are tributaries to Rio Beaver.
Stream#: 1.4L/1 Class: I Flagging: B/W C-Type: MMS Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 3 Class: I Flagging: B/W C-Type: MMS, MMO Concerns: none
Buffer (RMA): Class I for MMS and MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 4 Class: I, III, IV Flagging: B/W, O/W, G/W C-Type: MMO, HCL, HCO Concerns: none Buffer (RMA): Class I for MMS and MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCL to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C Stream#: 5 Class: I, IV Flagging: B/W, G/W C-Type: MMS, HCO Concerns: none Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is made up of 35 acres of Low SIO and 9 acres of Very Low. Unit is generally 1/2 mile or more from the Thorne Bay- Control Lake highway. Some areas of thinning can likely be seen, but are unlikely to be very noticeable. VAC is moderate to high so openings can be as large as 40 acres or more. No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes average less than 55% throughout the unit based on review of digital elevation model. The western third of the unit is below 35% slope. Two small avalanches occur near the center of the unit. There are about 1/2 acre of emergent sedge/forested wetland complex and 2 acres of forested wetland mapped near the unit edges (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 502 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 503	Alternatives: ROD	Total Unit Acres: 21.8	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable	Net Harvest Volume (MBF): 163	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972100504. The stand origination date is 1967. Approximately 82% of the stand area has been pre-commercially thinned. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatment being proposed is based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to the proposed temporary road and NFS road 3012000.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 700 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: MMS, FPS, HCL Concerns: none
Buffer (RMA): Class I greater of 120 feet (for MMS) or 130 feet (for FPS), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

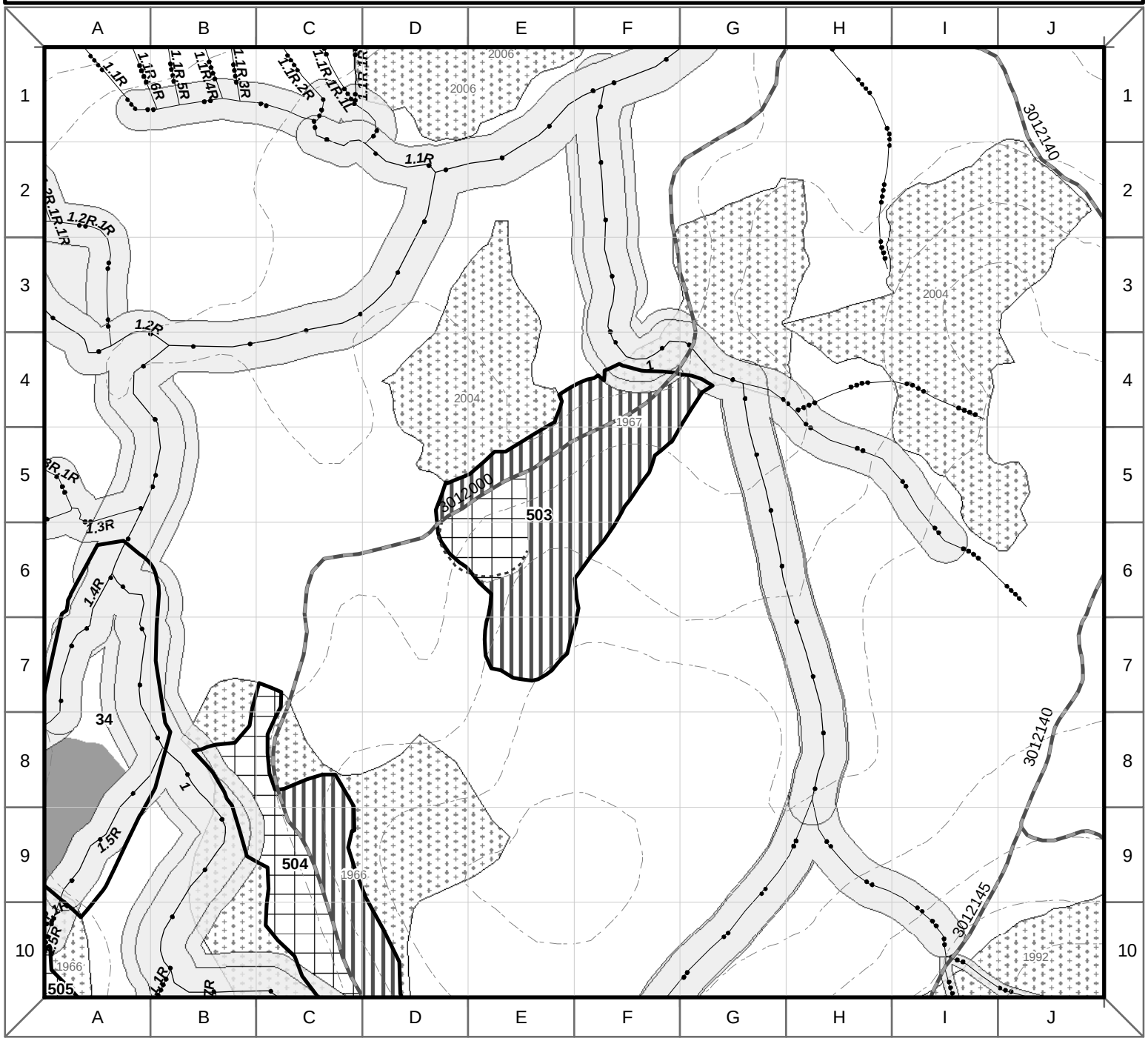
Temporary road (reopened decommissioned) for Unit 503: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was

mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes in the unit are less than about 50%, but the majority of the unit is below 35% slope. There are approximately 3 acres of forested wetland mapped adjacent to the southeastern unit edge R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). A minimum of partial suspension will meet soil quality standards and wetland resource concerns (follow BMPs 12.5, 13.2 and 13.9).
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 503 **ROD** **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 504	Alternatives: ROD	Total Unit Acres: 24.1	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 165	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies primarily within Stand #5972100093. The stand origination date is 1966. Approximately 98% of the stand area has been pre-commercially thinned. Approximately 3.7 acres of the unit lies within Stand #5972100505. This stand has had approximately 90% of the stand area pre-commercially thinned. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to NFS road 3012000. Cable settings yard to NFS roads 3012000 and 3012180

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: An infestation of perennial sowthistle has been found and treated along the NFS road 3012000. Follow-up monitoring is recommended, as well as future treatments if necessary. Several scattered infestations of orange hawkweed are also known along the existing road adjacent to the unit. Monitoring of these infestations is recommended to ensure that they do not spread as a result of the project activities.

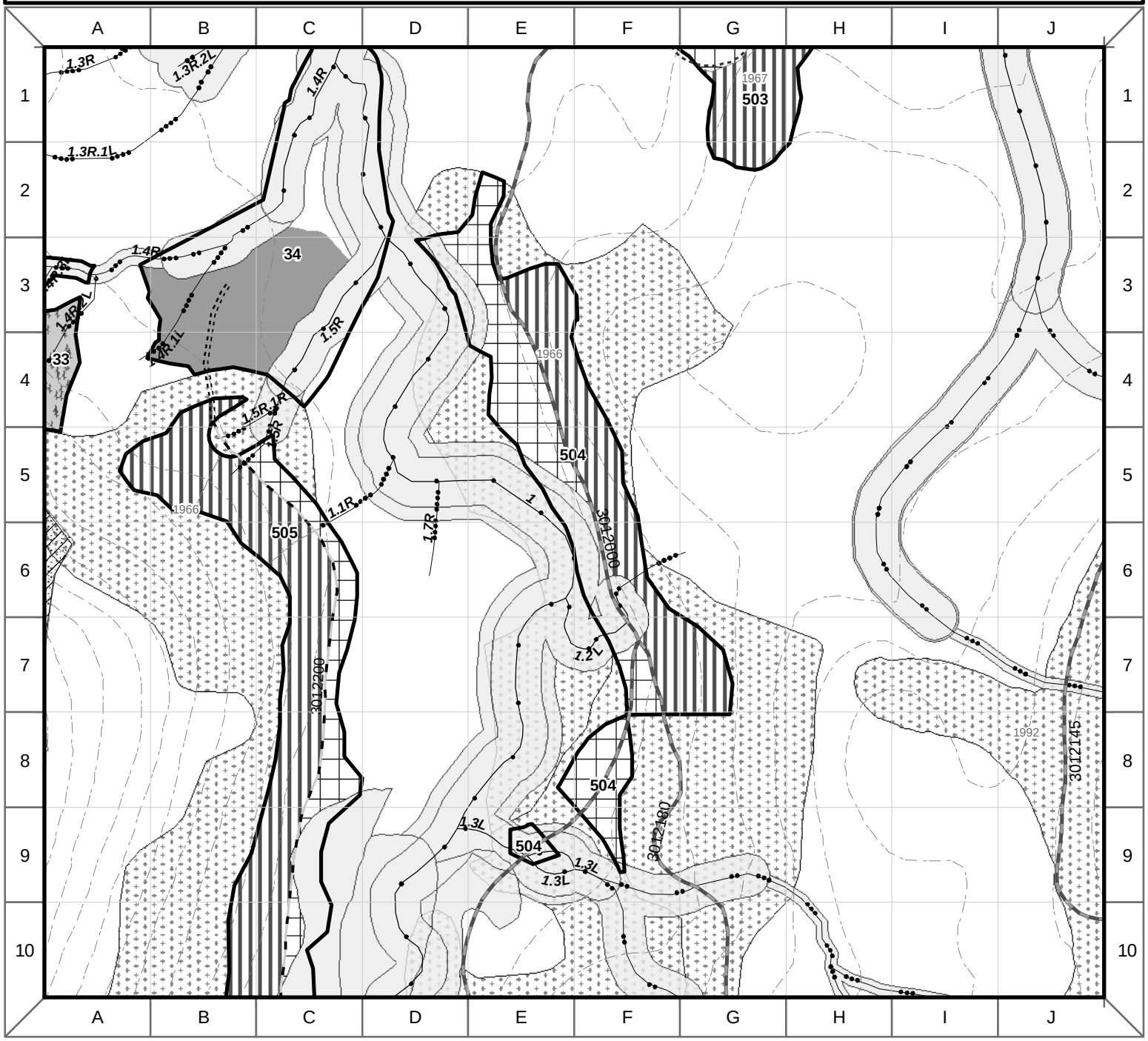
FISHERIES: Streams are tributaries to Rio Beaver Creek. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM
Concerns: yarding through RMA.
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L Class: I, IV Flagging: B/W, G/W C-Type: PAS, HCO Concerns: none
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated

wetland fens. Class I for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.3L Class: I, II Flagging: B/W C-Type: AFH, HCM Concerns: none Buffer (RMA): Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class I and II for HCM greater of 100 feet or to the top of the side-slope break. Alternatives: 3, 4 and 5 Buffer (RAW): no review needed Protection: Category A
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Nearly 80% of the unit is below 50% slope. There are no slopes greater than 72% mapped in the unit. A historic avalanche (pre-1971) occurs near the southeast boundary. There is about 1/4 acre of forested wetland mapped near the northern tip of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 504 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 505	Alternatives: ROD	Total Unit Acres: 26.6	Prescription: Systematic and Uniform Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 196	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972100505. The stand origination date is 1966. Approximately 90% of the stand area has been pre-commercially thinned. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3012200.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3012200, totaling 4,400 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver Creek. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.5R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

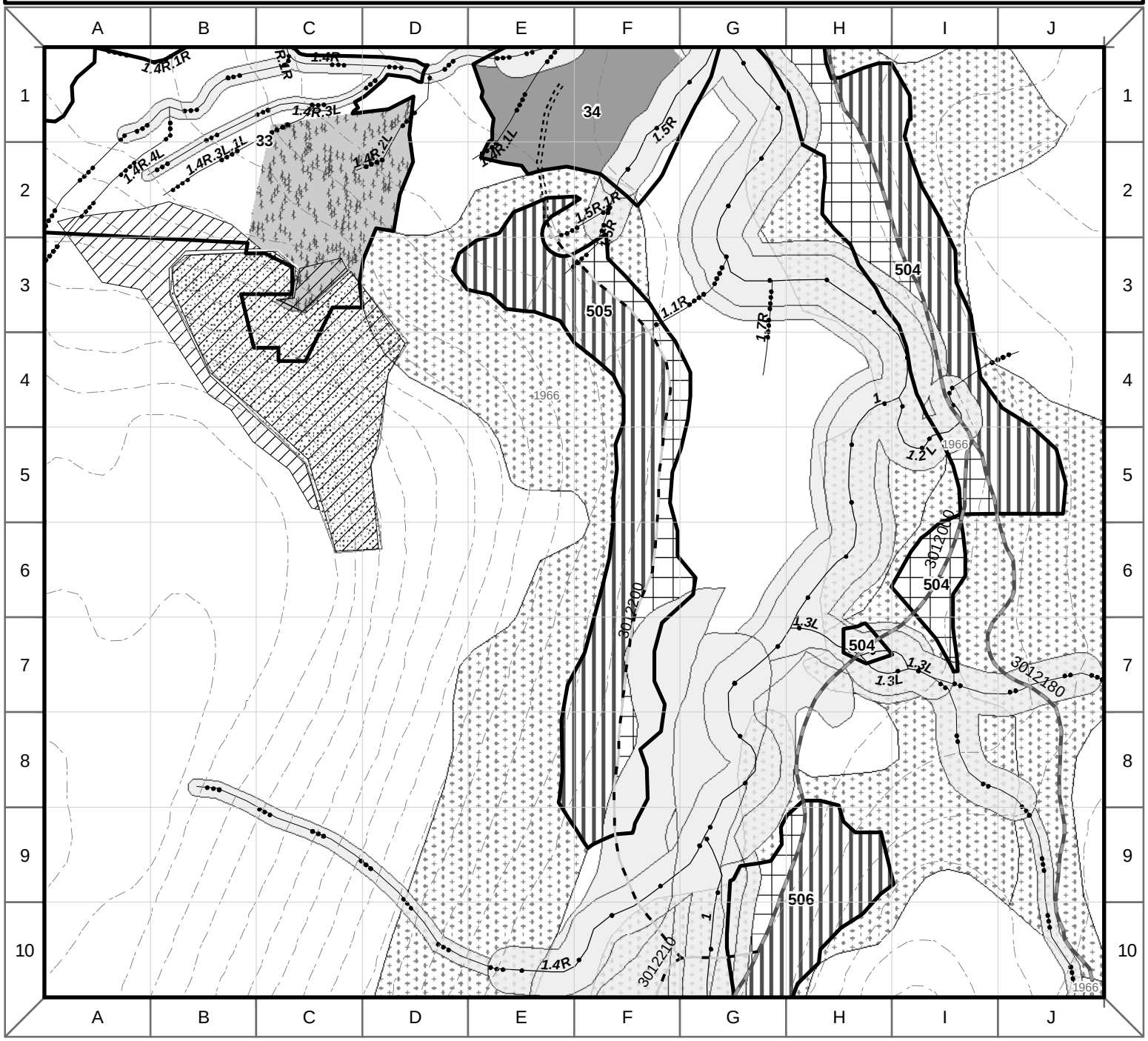
All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

Appendix 1

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes range from about 15% to greater than 72%, based on DEMs. All slopes greater than 72% will be verified prior to implementation. There are approximately 5 acres of forested wetland and 2 acres of moss muskeg and 3 acres of tall sedge fen near the eastern boundary of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 505 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 506	Alternatives: ROD	Total Unit Acres: 28.0	Prescription: Systematic and CrownThinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 214	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972100505. The stand origination date is 1966. Approximately 90% of the stand area has been pre-commercially thinned. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable and shovel yarding to NFS road 3012000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM
Concerns: yarding through RMA
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

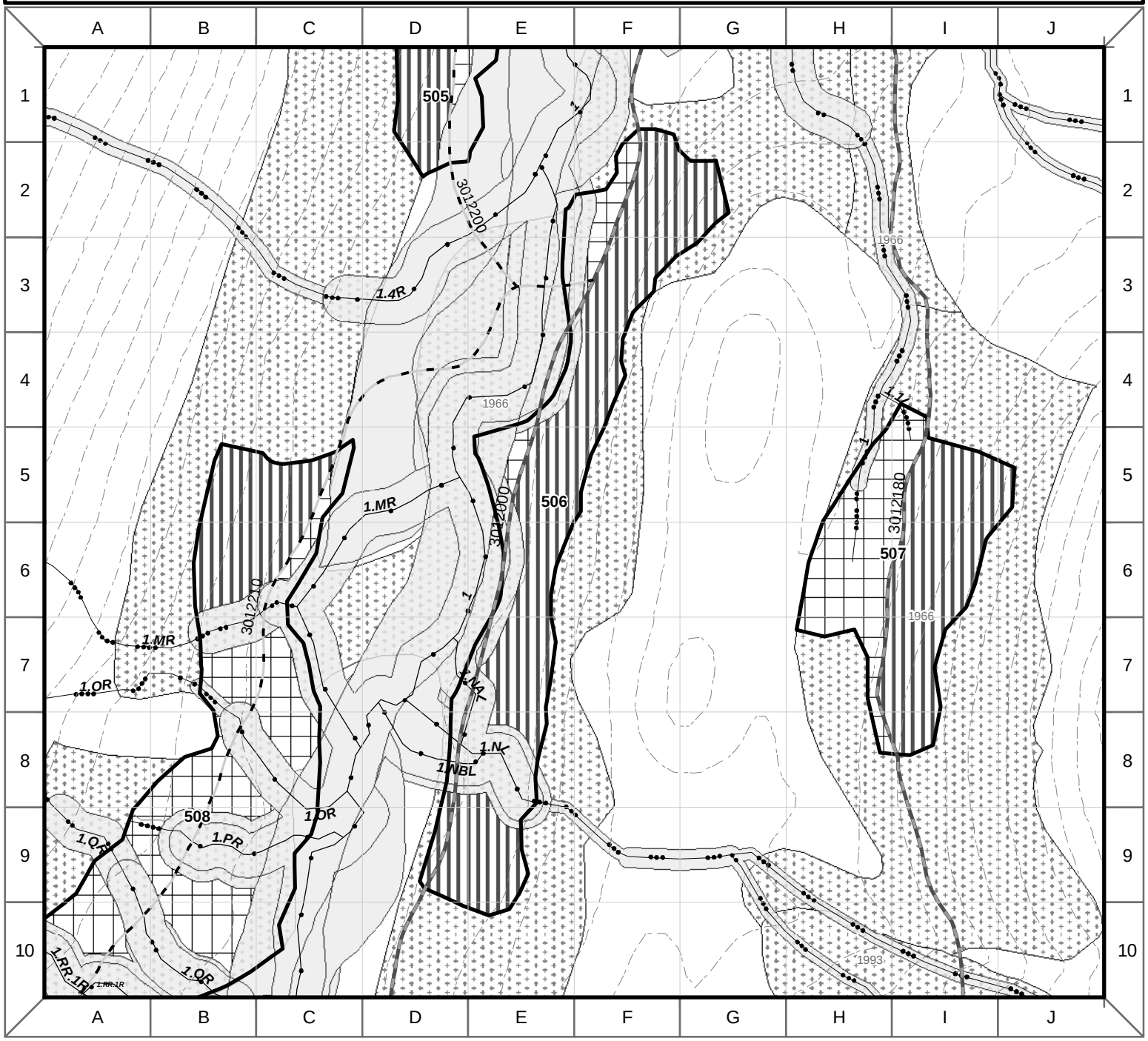
Stream#: 1.NL Class: I, III Flagging: B/W, O/W C-Type: AFH, HCM Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.NAL Class: I Flagging: B/W C-Type: MMO
Concerns: yarding through RMA

Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.NBL Class: I Flagging: B/W C-Type: AFH, HCM Concerns: none Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCM to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes range from about 20% to about 75% based on DEMs. All slopes greater than 72% will be verified prior to implementation. A small debris torrent (initiated in 1993) occurs near the center of the unit (in the cable setting). No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 506 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit Number: 507	Alternatives: ROD	Total Unit Acres: 22.6	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 158	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972100046. The stand origination date is 1966. Approximately 89% of the stand area was pre-commercially thinned in 1986. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3012180.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver.
Stream#: 1 Class: III, IV Flagging: O/W, G/W C-Type: HCL, HCO Concerns: none
Buffer (RMA): Class III for HCL to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

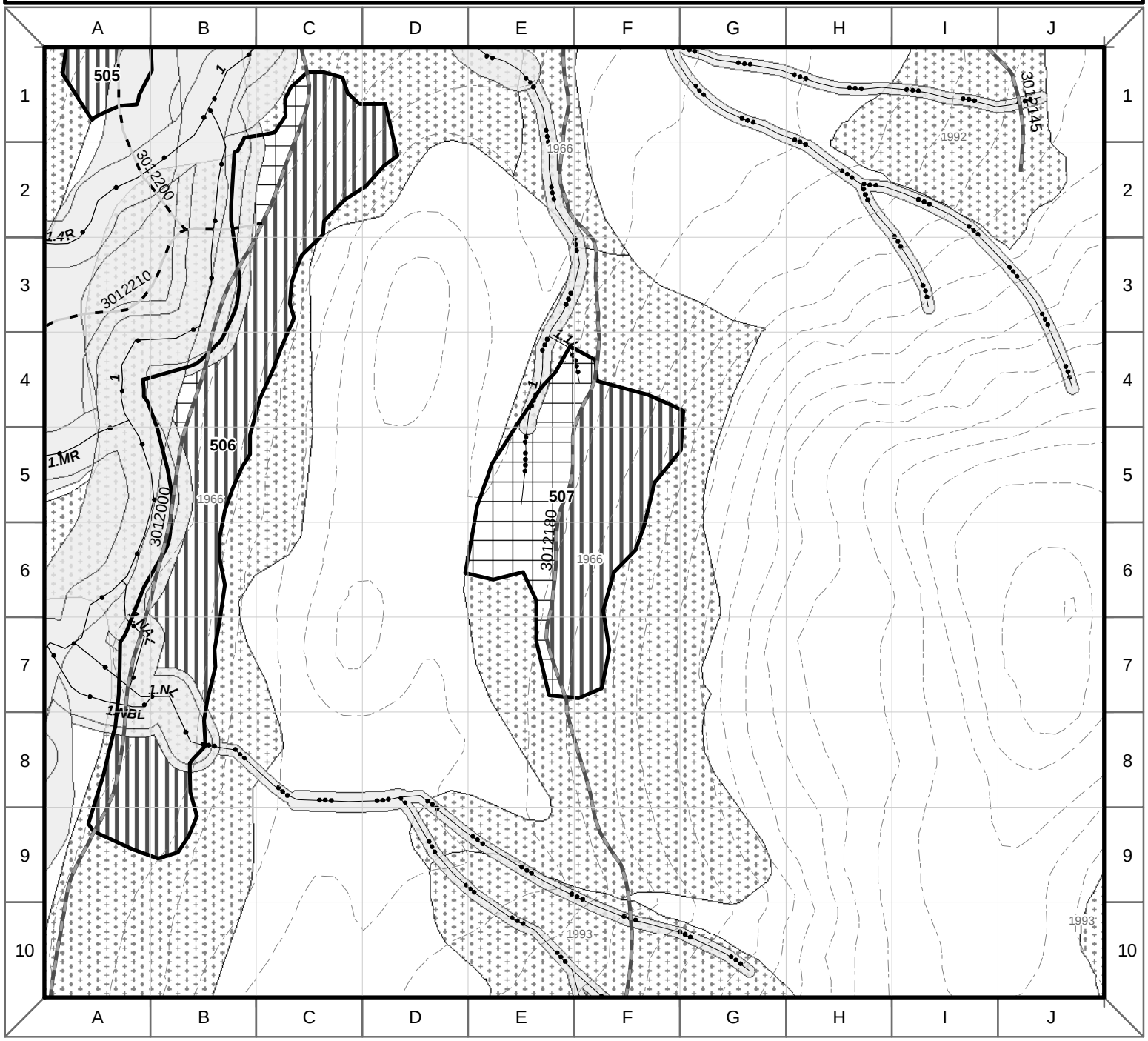
SCENERY: No concerns.

RECREATION: No concerns.

Appendix 1

SOILS/WETLANDS: Slopes range from about 15% to about 60% based on DEMs. There are no slopes greater than 72% mapped in the unit. A small debris avalanche (initiated in 1993) occurs near the center of the unit (in the cable setting). No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 507 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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Appendix 1

Unit Number: 508	Alternatives: ROD	Total Unit Acres: 41.4	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 278	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies primarily within Stand #5972100505. The stand origination date is 1966. Approximately 90% of the stand area was pre-commercially thinned in 1985. Approximately 3.8 acres of the unit lies within Stand #5972400501. The stand origination date is 1966. Approximately 36% of the stand area has been pre-commercially thinned. This was primarily completed in 1985. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3012210.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3012200 and 3012210, totaling 6,400 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.MR Class: I, II, IV Flagging: B/W, G/W C-Type: PAB, HCL, HCO Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.OR Class: I, III, IV Flagging: B/W, O/W, G/W C-Type: FPO, MMO, HCL, HCO
Concerns: none
Buffer (RMA): Class I greater of 130 feet (for FPO) or 100 feet (for MMO), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCL to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.PR Class: I, IV Flagging: B/W, G/W C-Type: FPS, HCO Concerns: none
Buffer (RMA): Class I for FPS greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.QR Class: I, II Flagging: B/W C-Type: MMS, HCO Concerns: none
Buffer (RMA): Buffer (RMA): Class I and II greater of 120 feet (for MMS) or 100 feet (for HCO), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.RR Class: I Flagging: B/W C-Type: PAB Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.RR.1R Class: I, II, III Flagging: B/W, O/W C-Type: AFH, HCM, HCD Concerns: none
Buffer (RMA): Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.SR Class: I, II, III Flagging: B/W, O/W C-Type: AFH, HCL Concerns: none
Buffer (RMA): Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCL to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.TR Class: I, II, III Flagging: B/W, O/W C-Type: AFH, HCL Concerns: none
Buffer (RMA): Class I and II for AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCL to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No concerns.

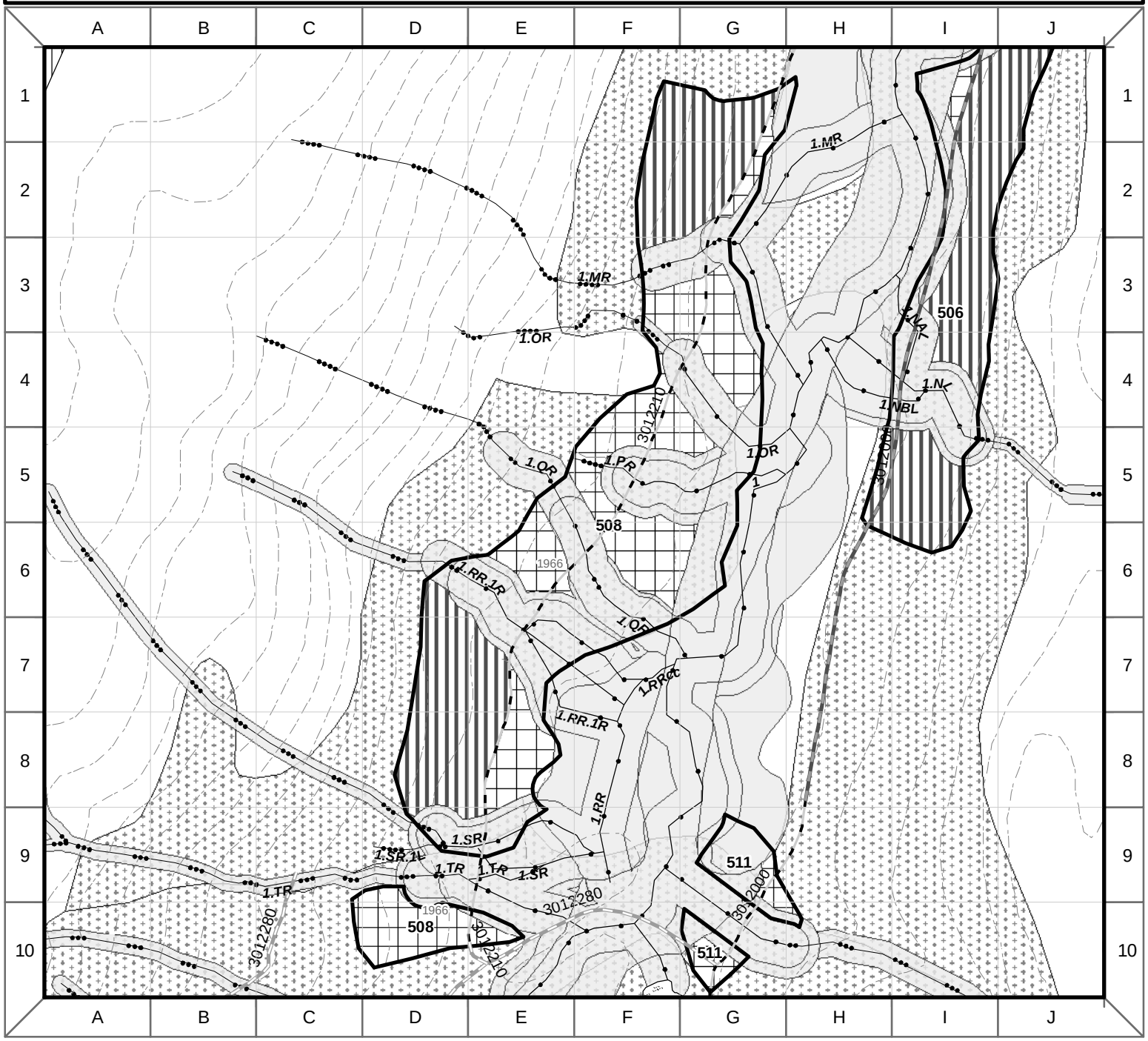
RECREATION: No concerns.

SOILS/WETLANDS: Slopes range from about 10% to more than 72% based on DEMs. All slopes greater than 72% will be verified prior to implementation. Nearly ¾ of the unit is less than 35% slope. There are about 16 acres affected by debris avalanches in the unit. There are approximately 19 acres of forested wetland adjacent to the eastern unit boundary (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.

WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor

and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 508 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 511	Alternatives: ROD	Total Unit Acres: 11.5	Prescription: Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 67	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies primarily within Stand #5972400501. The stand origination date is 1966. Approximately 36% of the stand area has been pre-commercially thinned. This was primarily completed in 1985. Approximately 0.5 acres of the unit lies within Stand #5972100505. The stand origination date is 1966. Approximately 90% of the stand area was pre- commercially thinned in 1985. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

This treatment is being proposed based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to NFS roads 3012000 and 3012300. Cable settings yard to NFS road 3012300.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3012000 and 3012300, totaling 5,300 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: I, II Flagging: B/W C-Type: PAS, MMO, HCO Concerns: none
Buffer (RMA): Class I greater of 100 feet (for PAS) or 120 feet (for MMO), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

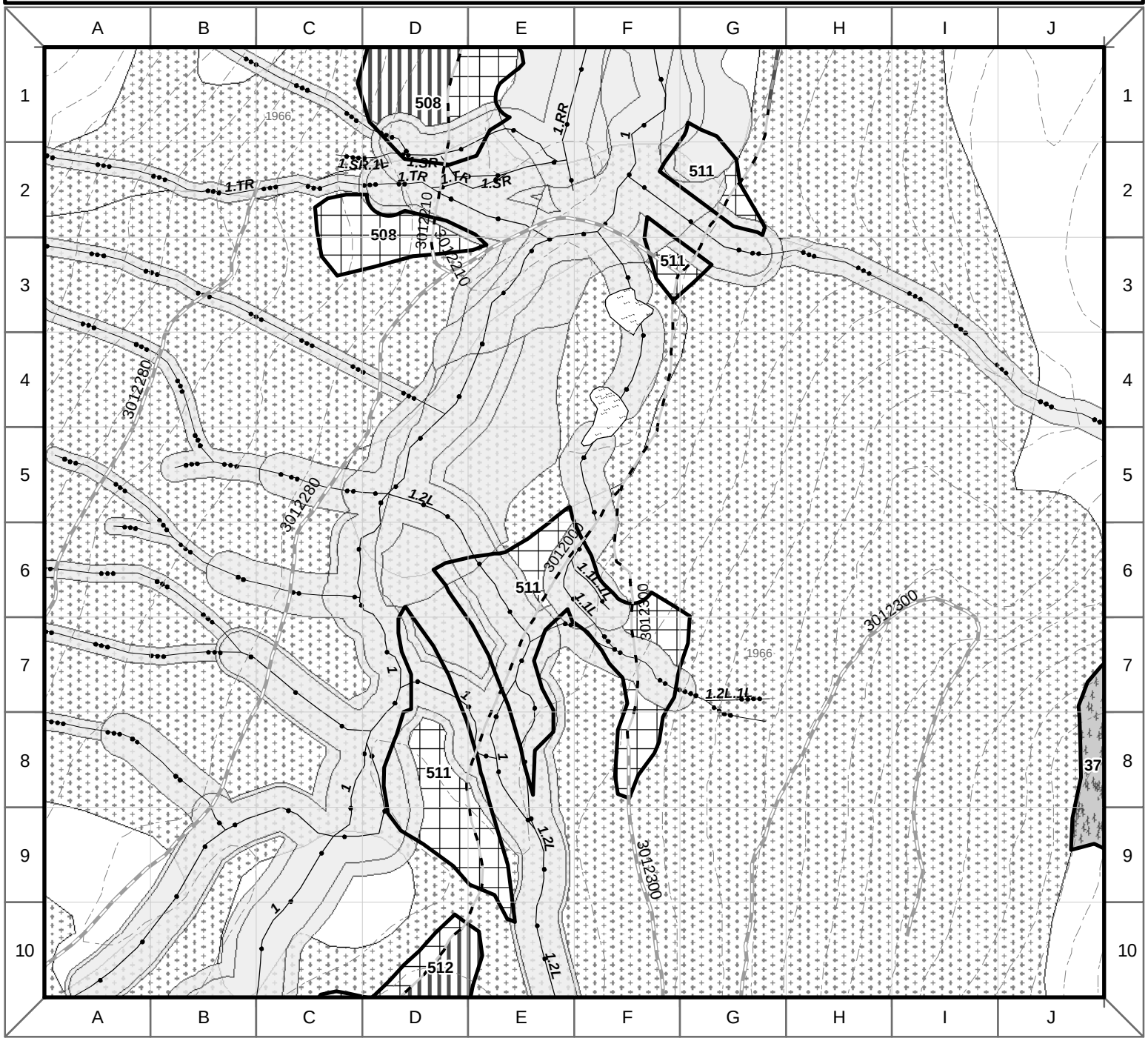
Stream#: 1.1L.1L Class: I Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L Class: I Flagging: B/W C-Type: AFM, MMS Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L.1L Class: II, IV Flagging: B/W, G/W C-Type: HCL, HCO Concerns: none Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.2L.1R Class: I Flagging: B/W C-Type: AFM Concerns: none Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.3L Class: I Flagging: B/W C-Type: AFM Concerns: none Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes range from about 10% to about 30% based on DEMs. There is about 1/2 acre of moss muskeg and 2 acres of tall sedge fen in the unit (BMP 12.5). (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 511 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Unit Number: 512	Alternatives: ROD	Total Unit Acres: 21.0	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 152	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972400501. The stand origination date is 1966. Approximately 36% of the stand area has been pre-commercially thinned. This was primarily completed in 1985. The site potential in this area appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 15 acres of this unit lies within the Deer Winter Range landscape zone. The remaining approximately 6 acres is within the Uplands/Mountain Slopes landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3012000.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3012000, totaling 6,000 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver. Stream 1 is Rio Beaver.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

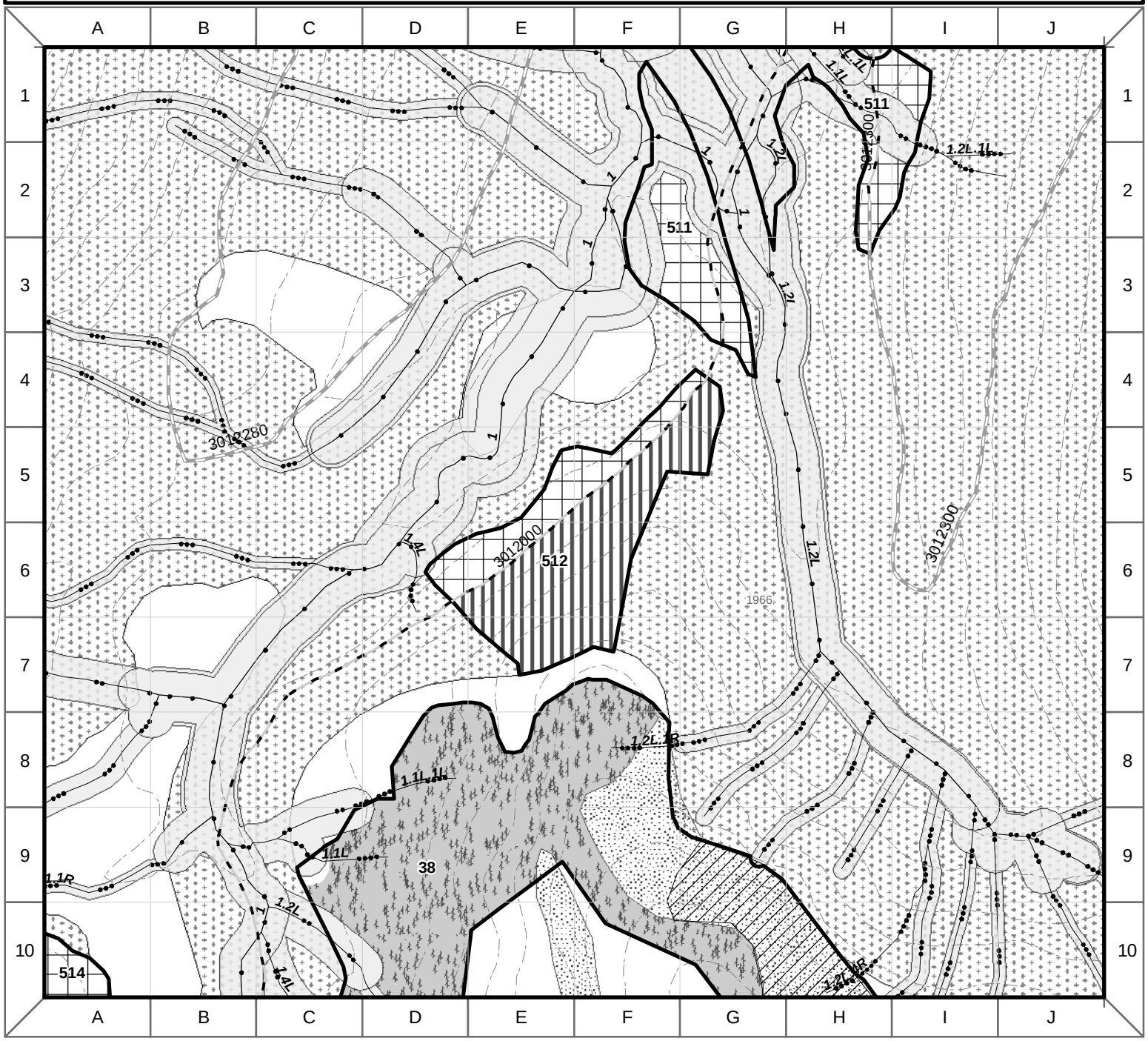
Stream#: 1.4L Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was

mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes range from about 20% to over 72% based on DEMs. All slopes greater than 72% will be verified prior to implementation. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning is expected to enhance wildlife habitat by improving travel corridor and forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 512 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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Appendix 1

Unit Number: 514	Alternatives: ROD	Total Unit Acres: 79.1	Prescription: Systematic and Crown Thinning
VCU Number: 597.2	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 491	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5972400501. The stand origination date is 1966. Approximately 36% of the stand area has been pre-commercially thinned. This was primarily completed in 1985. The site potential in this area ranges from medium to high. This unit is in a successional stage of stem exclusion. Approximately 66 acres of this unit lies within the Uplands/Mountain Slopes landscape zone. The remaining approximately 12 acres is within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS roads 3012000 and 3012600.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3012000 and 3012600, totaling 16,900 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

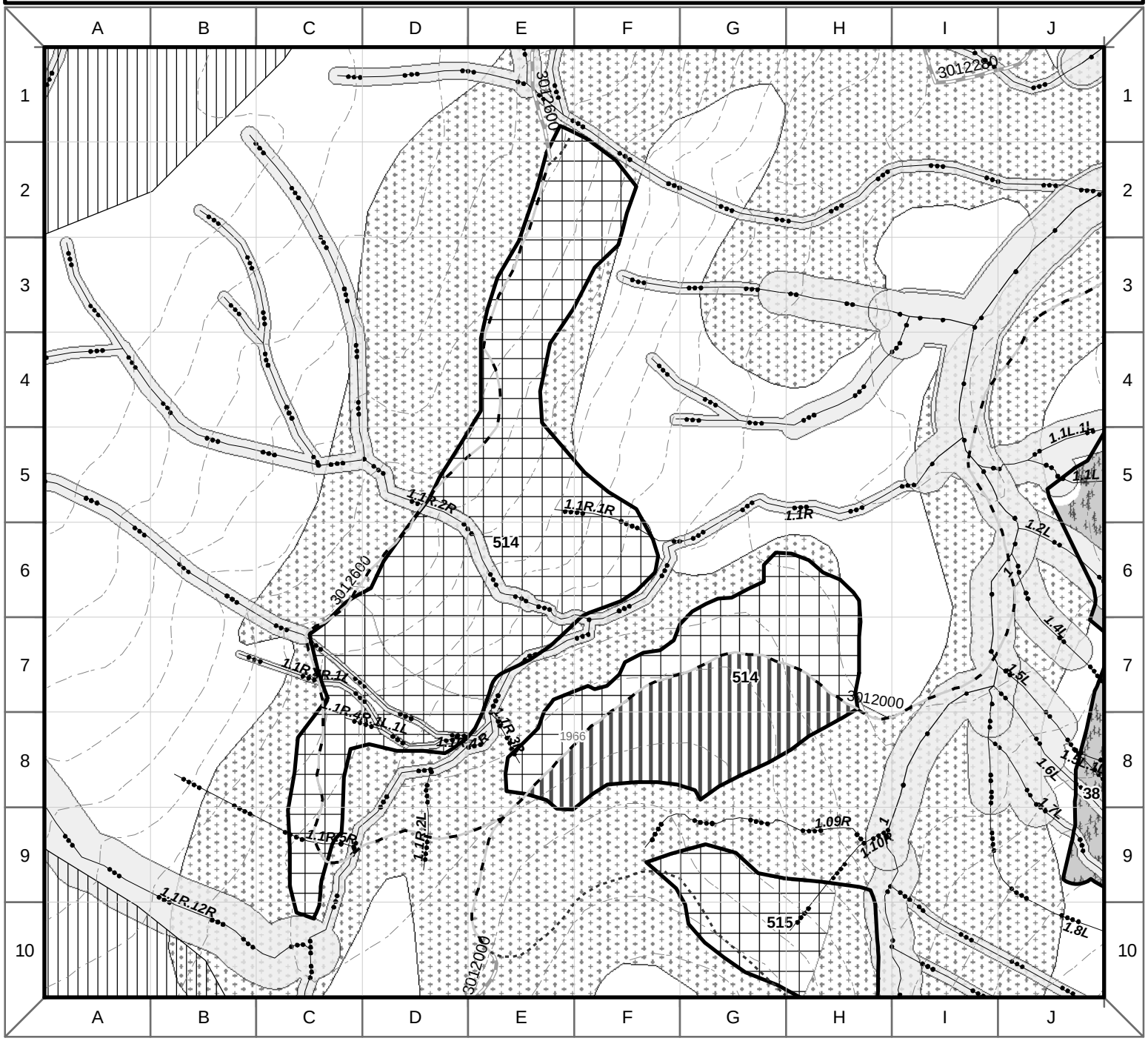
INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver. Characteristics for Stream 2 do not include project-specific, field-verified information. This information will be collected prior to implementation.
Stream#: 1.1R Class: III Flagging: O/W C-Type: HCM Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 1.1R.2R Class: III Flagging: O/W C-Type: HCM, HCD Concerns: erosion Buffer (RMA): Class III for HCM and HCD to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B Stream#: 1.1R.4R Class: III Flagging: O/W C-Type: HCO, HCL Concerns: none Buffer (RMA): Class III for HCO and HCL to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B Stream#: 1.1R.4R.1L Class: III Flagging: O/W C-Type: HCO Concerns: none Buffer (RMA): Class III for HCO to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B Stream#: 1.1R.12R Class: III Flagging: O/W C-Type: AFM Concerns: erosion Buffer (RMA): Class III for AFM greater of 140 feet or active portion of the alluvial fan. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B Stream#: 2 Class: III Flagging: O/W C-Type: HCM Concerns: none Buffer (RMA): Class III for HCM to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes are estimated to be less than 55%. There are no slopes greater than 72% mapped in the unit. There is a small amount of forested wetland (less than 1/4 acre) at the northern tip of the western polygon (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkages between the Honker large OGR and the Karta Wilderness. Commercial thinning will enhance wildlife habitat by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 514 | **ROD** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit Number: 515	Alternatives: ROD	Total Unit Acres: 8.8	Prescription: Crown Thinning
VCU Number: 597.2	Yarding System: Cable	Net Harvest Volume (MBF): 52	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies primarily within Stand #5972400501. The stand origination date is 1966. Approximately 36% of the stand area has been pre-commercially thinned. This was primarily completed in 1985. The site potential in this area appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Uplands/Mountain Slopes landscape zone.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

A Tongass Wide Young Growth Study site (POW Rio Beaver Experiment #4) overlaps the eastern third of unit. Protection of this site is required and this area may need to be deferred. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/YARDING: Cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3012000, totaling 12,600 feet and a proposed temporary road of 1,900 feet, constructed over decommissioned road bed. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Rio Beaver. Stream 1 is Rio Beaver.
Stream#: 1 Class: II Flagging: B/W C- Type: HCM Concerns: erosion
Buffer (RMA): Class II for HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary road (reopened decommissioned) for Unit 515: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

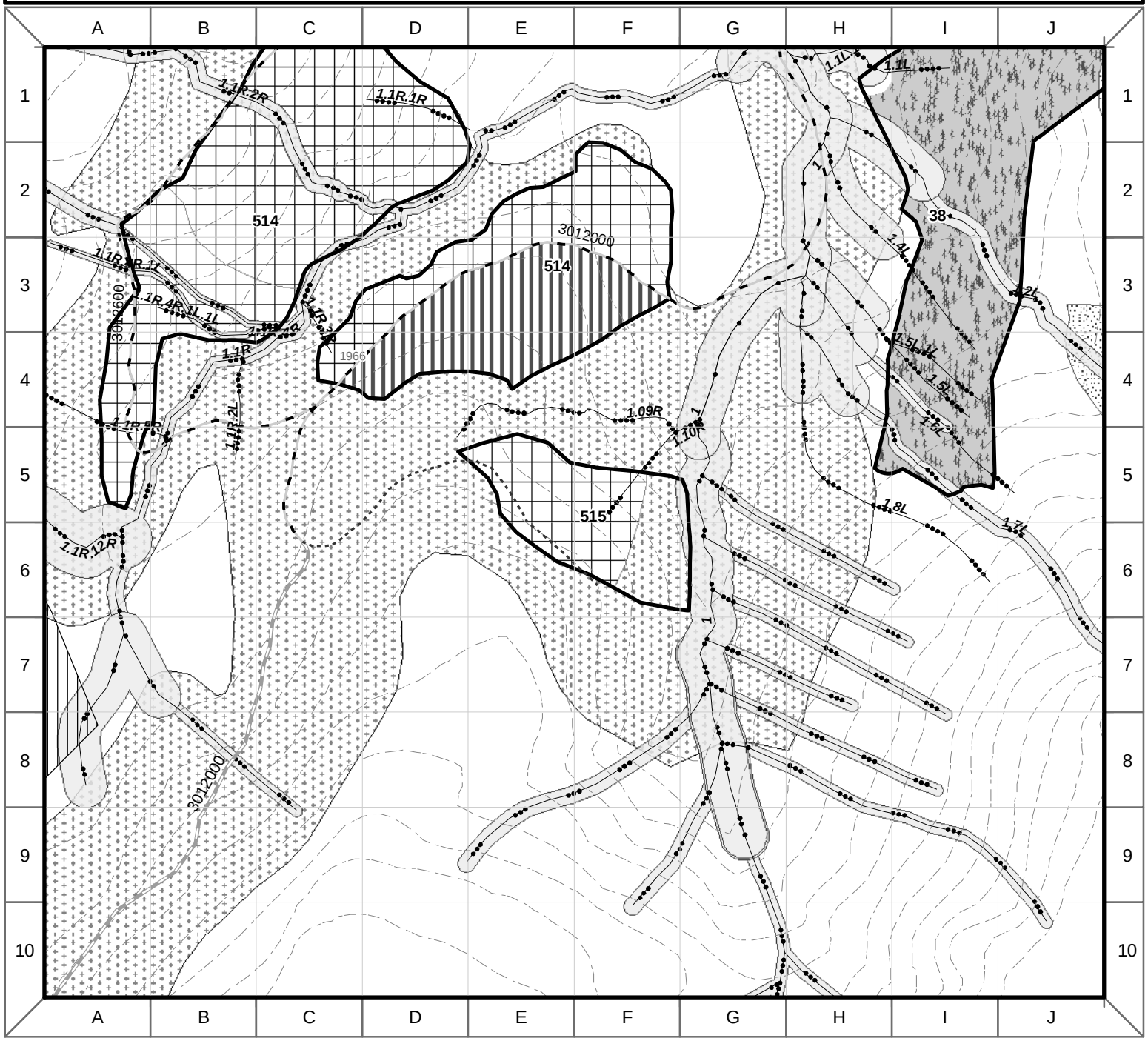
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Appendix 1

SCENERY: No concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes are estimated to be less than 65 percent based on DEMs. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Unit is located in Rio Beaver drainage, one of the north-south linkage between the Honker large OGR and the Karta Wilderness. Commercial thinning will enhance wildlife habitat by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 515 **ROD** **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 516	Alternatives: ROD	Total Unit Acres: 64.7	Prescription: Systematic and Crown Thinning
VCU Number: 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 418	LUD: Modified Landscape, Recreation River

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5860300504. The stand origination date is 1962. This stand has not been pre-commercially thinned. The site potential in this area appears to range from medium to high. This unit is in a successional stage of stem exclusion. This unit lies entirely within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the Kasaan road and proposed temporary road. Cable setting yard to the Kasaan road and the proposed temporary road accessing Unit 370.

ENGINEERING/ROADS: Unit is accessed by the proposed temporary road accessing Unit 370 and proposed temporary roads, totaling 2,700 feet, constructed over decommissioned road bed. See Unit 370 unit card for information on Unit 370 temporary road.

BOTANY: The proposed thinning overlaps with a portion of a lesser round-leaved orchid population, with seven known plants. A remaining portion of the population is within the indirect effects area for the unit. To the extent feasible, minimize direct effects in the vicinity of known plants.

INVASIVE SPECIES: An infestation of orange hawkweed is known along the existing road, adjacent to the proposed thinning. Monitoring is recommended for this infestation to ensure that it does not spread as a result of project activities.

FISHERIES: Streams drain to Thorne Bay.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake 1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: A Class: I, II Flagging: B/W C-Type: MMS, HCM, HCO

Concerns: blowdown
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCM and HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: A.2R Class: I, IV Flagging: B/W, G/W C-Type: HCL, HCO Concerns: none
Buffer (RMA): Class I and II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: A.2R.1R Class: II, IV Flagging: B/W, G/W C-Type: HCL, HCO Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: A.2R.2L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: A.3R Class: II, IV Flagging: B/W, G/W C-Type: HCL, HCO Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 10 Class: I Flagging: B/W C-Type: PAS Concerns: none
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1 Class: I, II Flagging: B/W C-Type: PAS, MMS, PAB, HCM, HCO
Concerns: blowdown
Buffer (RMA): Class I greater of 100 feet (for PAS and PAB) or 120 feet (for MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM and HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2L Class: I, III, IV Flagging: B/W, O/W, G/W C-Type: MMO, HCM, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary road (reopened decommissioned) for Unit 516: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

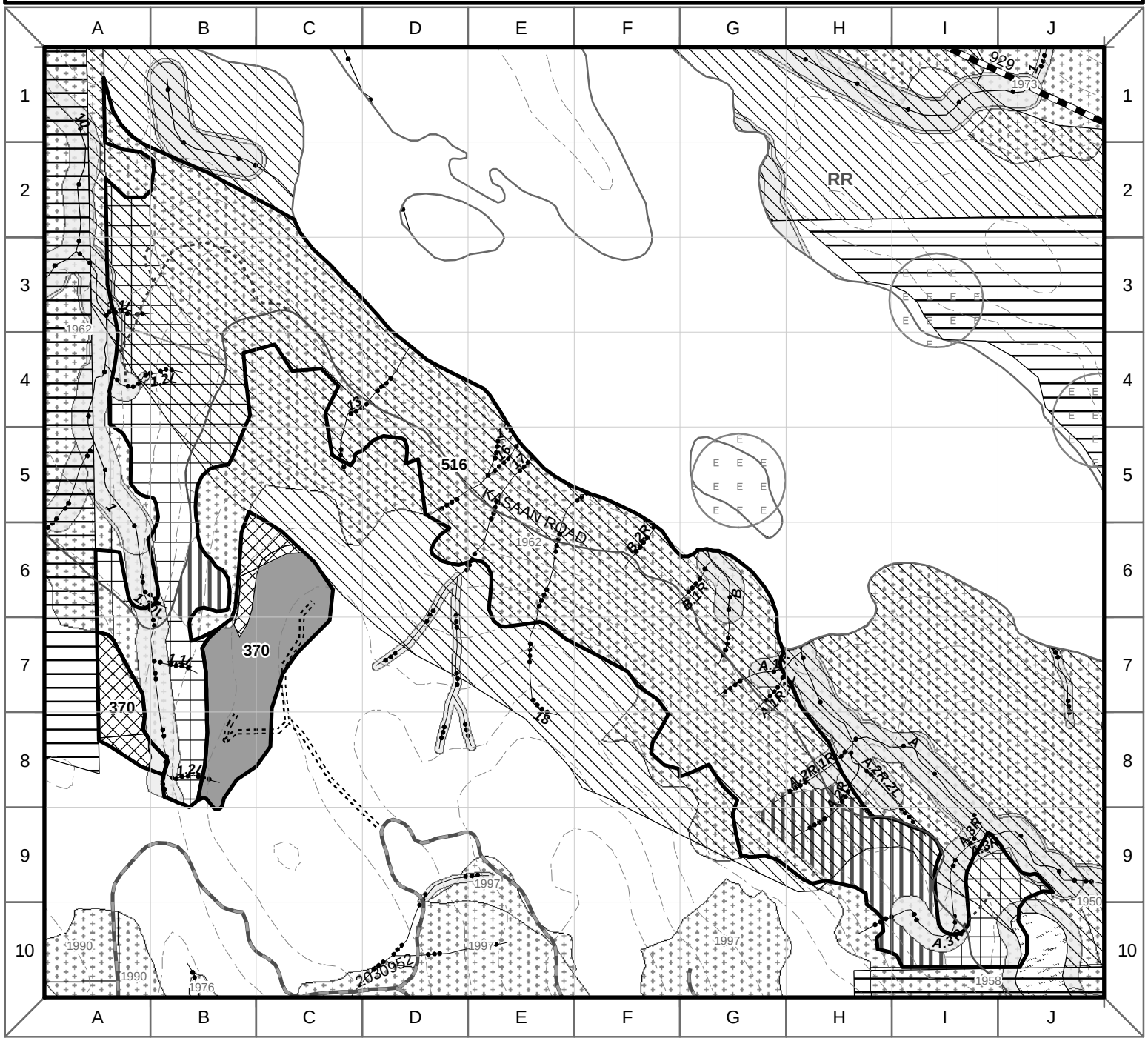
SCENERY: Unit is primarily in Low and Very Low SIO, but contains about 20 acres in Moderate. About half of unit is in Recreation River LUD but, due to topographic and vegetative screening, it is not likely to be seen from the river or estuary.

RECREATION: Thinning operations would occur within the Recreation River LUD and may be heard from the river.

Appendix 1

SOILS/WETLANDS: Slopes are less than 50% in most of the unit based on DEM. Slopes over 72% may be present. All slopes greater than 72% will be verified prior to implementation. About 1 acre of the unit has mapped debris torrents/avalanches. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 516 | **ROD** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 517	Alternatives: ROD	Total Unit Acres: 9.3	Prescription: Crown Thinning
VCU Number: 579	Yarding System: Shovel	Net Harvest Volume (MBF): 55	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies mostly within Stand #5790100045, except for approximately 4 acres in Stand #5790200506. The stand origination date is 1966. The site potential in Stand #5790100045 appears to be high, and the site potential in Stand #5790200506 appears to be medium. This unit is in a successional stage of stem exclusion. Approximately 0.46 acres in the northeast corner of the unit were previously pre-commercially thinned in 2003. This unit lies within the Deer Winter Range landscape zone of the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3015100.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Falls Creek. Stream 2 is Falls Creek.
Stream#: 2 Class: I Flagging: B/W C- Type: MCS, MMS Concerns: erosion
Buffer (RMA): Class I for MCS and HCV greater of 100 feet or to the top of side-slope break. Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.2L.1R Class: I, II Flagging: B/W C- Type: MMS, HCM, AFH, HCV
Concerns: erosion, blowdown
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCM and HCV greater of 100 feet or the top of the side-slope break. Class I for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

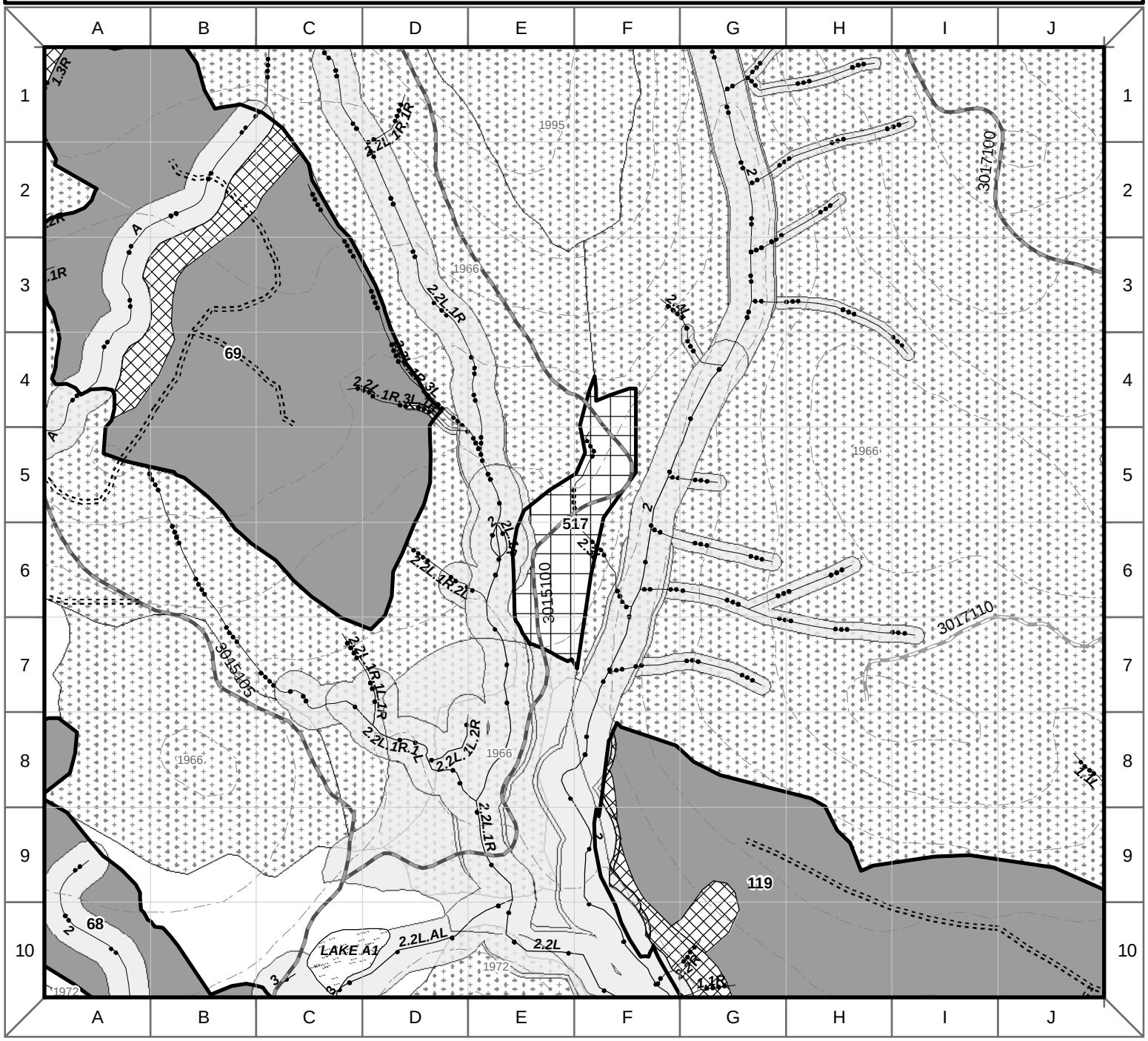
SCENERY: No Concerns

RECREATION: No Concerns

SOILS/WETLANDS: Slopes are estimated to be less than 25% based on DEM. A mapped historic (pre-1971) debris avalanche occurs in the valley bottom. No wetlands have been mapped in the unit. The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat along Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 517 | **ROD** | **VCU: 579**



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Unit Number: 518	Alternatives: ROD	Total Unit Acres: 15.7	Prescription: Crown Thinning
VCU Number: 579	Yarding System: Cable	Net Harvest Volume (MBF): 92	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5790200506. There has been no pre-commercial thinning within the unit. The site potential appears to be high. This unit is in a successional stage of stem exclusion. The stand has an origination date of 1966. Approximately 12 acres of the unit lies within the Upland/Mountain Slopes landscape zone. The remaining approximately 3 acres is within the Deer Winter Range landscape zone. The unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to NFS road 3017100.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek.
Stream#: 1.3L Class: II Flagging: B/W C- Type: HCD Concerns: erosion
Buffer (RMA): Class II for HCD greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.3L.2L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM, HCO
Concerns: erosion. blowdown
Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns

RECREATION: No Concerns

SOILS/WETLANDS: Slopes are estimated to be less than 65% based on DEM. There are no slopes greater than

72% mapped in the unit. A mapped debris avalanche (from 1982) initiates near the southern boundary. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat along Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 518 **ROD** **VCU: 579**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 519	Alternatives: ROD	Total Unit Acres: 32.8	Prescription: Crown Thinning
VCU Number: 579	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 192	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5790200506. There has been no pre-commercial thinning within the unit. The site potential appears to be high. The stand has an origination date of 1966. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Thorne Bay NW young- growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road and NFS road 3017100. Cable settings yard to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,000 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek. Stream 1 is Gravelly Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: IV Flagging: O/W, G/W C-Type: HCO Concerns: erosion
Buffer (RMA):none Buffer (RAW): no review needed Protection: Category B and C

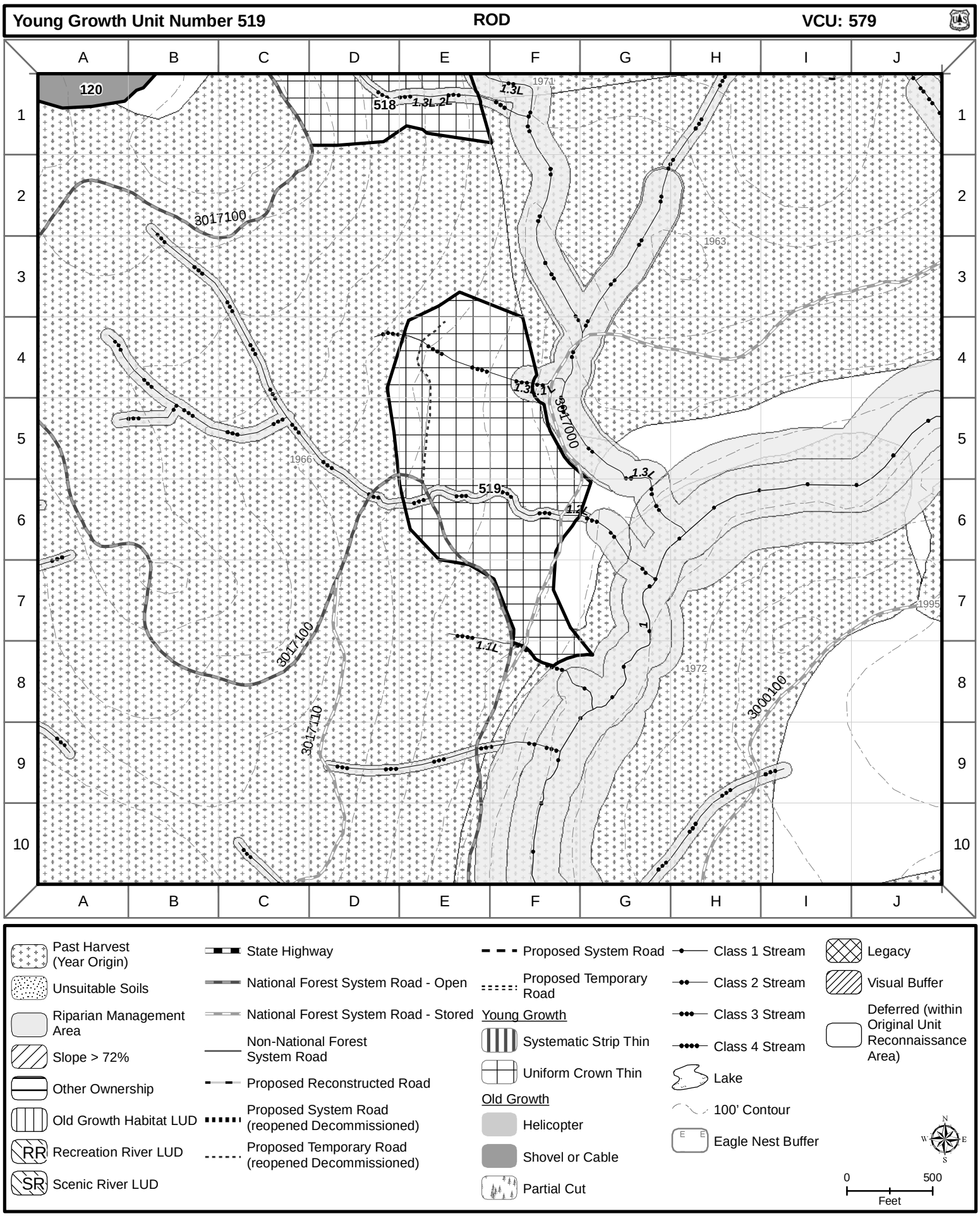
Stream#: 1.2L Class: II, III Flagging: B/W, O/W C-Type: HCM Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.3L Class: II Flagging: B/W C-Type: HCM, MMS Concerns: erosion
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.3L.1L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Temporary road (reopened decommissioned) for Unit 519: One Class III stream crossings. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are less than 40% based on DEM. There are no slopes greater than 72% mapped in the unit. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat along Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1



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Unit Number: 520	Alternatives: ROD	Total Unit Acres: 38.4	Prescription: Crown Thinning
VCU Number: 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 224	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5860100509. Approximately 59% of this stand was previously pre- commercially thinned. This was primarily completed in 1979 and 1984. The site potential appears to be medium. The stand has an origination date of 1963. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of the NFS road 3018125, totaling 2,700 feet, the first 1,600 feet of this road will be reconstructed across non- National Forest System lands; and a proposed temporary road of 750 feet, constructed over decommissioned road bed. Map incorrectly displays the road as proposed temporary, and a portion should be shown as reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: Orange hawkweed is known along the existing road. Monitoring is recommended to ensure that it does not spread as a result of project activities.

FISHERIES: Streams are tributaries to Deer Creek. Stream 1 is Deer Creek.
Stream#: 1 Class: II Flagging: B/W C-Type: MMS Concerns: none
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R Class: II Flagging: B/W C-Type: MCS, PAB Concerns: erosion
Buffer (RMA): Class II for MCS greater of 100 feet or to the top of the side-slope break. Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

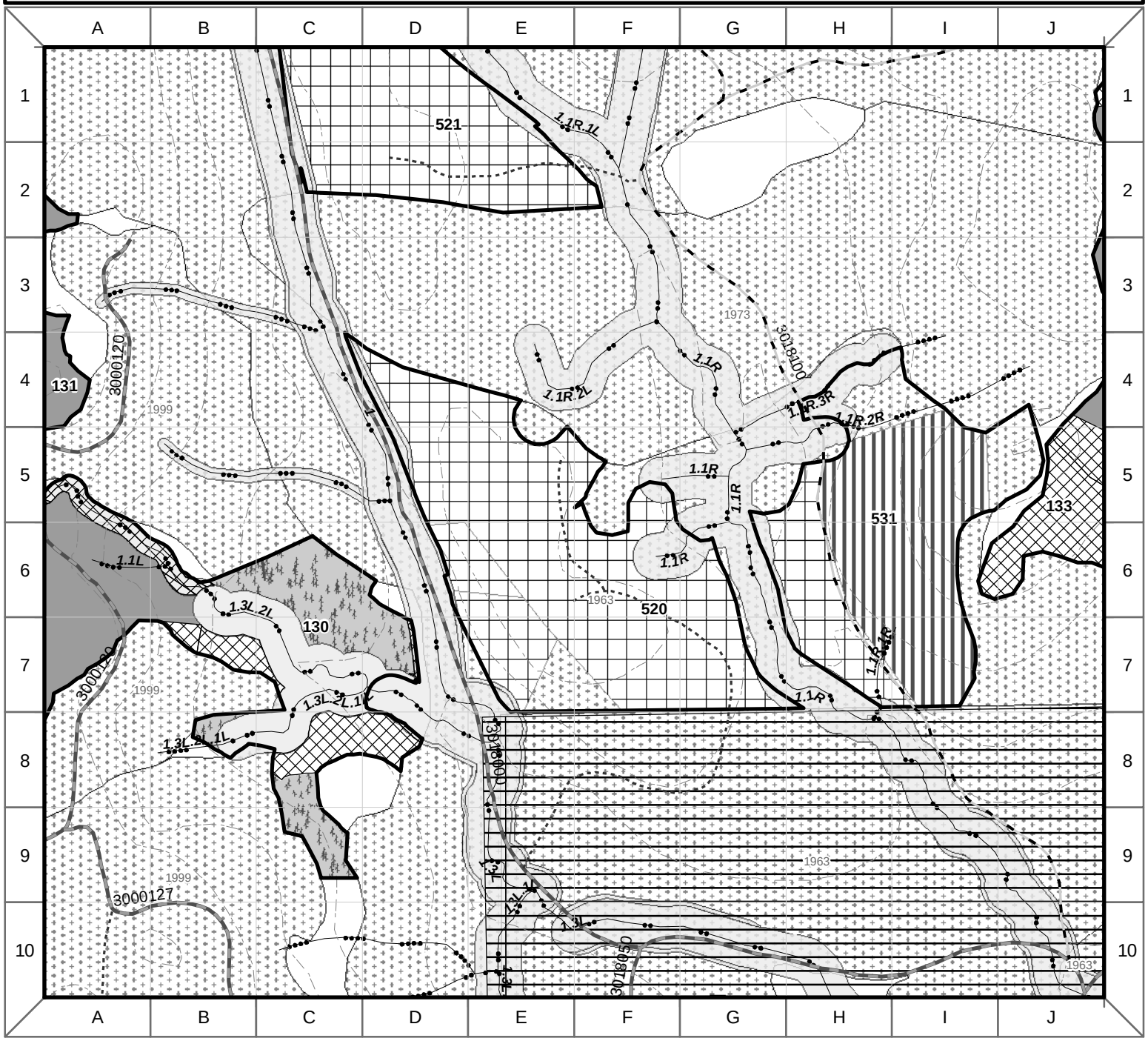
Stream#: 1.1R.1L Class: II Flagging: B/W C-Type: PAB Concerns: none
Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.2L Class: II Flagging: B/W C-Type: MMO Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.

Appendix 1

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.1R.3L Class: II Flagging: B/W C-Type: PAB Concerns: none Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Temporary roads (reopened decommissioned) for Unit 520: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes in most of the unit are below 35%. Slopes over 72% may be present. All slopes greater than 72% will be verified prior to implementation. The entire unit is wetland, including about 36 acres of forested wetland/emergent short sedge complex, 5.1 acres, and about 1/4 acre of moss muskeg based on GIS analysis (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Deer Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 520 **ROD** **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 521	Alternatives: ROD	Total Unit Acres: 41.9	Prescription: Crown Thinning
VCU Number: 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 245	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5860100509. Approximately 59% of this stand was previously pre- commercially thinned. This was primarily completed in 1979 and 1984. The site potential appears to range from medium to high. The stand has an origination date of 1963. The unit is in a successional stage of stem exclusion, but has five wildlife gaps (roughly 1/10 ac) partially or wholly within north end of unit. This unit lies within the Deer Winter Range landscape zone, and is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable settings yard to the northern proposed temporary road. Shovel yarding to the southern proposed temporary road and NFS road 3018000.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3018100 and 3018110, totaling 6,700 feet and two proposed temporary roads, totaling 2,100 feet, constructed over decommissioned road bed. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: An infestation of orange hawkweed is known along the existing road, just south of the proposed unit. Monitoring is recommended to ensure that the infestation is not spread as a result of the project activities.

FISHERIES: Streams are tributaries to Deer Creek. Stream 1 is Deer Creek.
Stream#: 1 Class: II Flagging: B/W C-Type: MMS, PAS
Concerns: yarding through RMA
Buffer (RMA): Class II greater of 120 feet (for MMS) or 100 feet (for PAS), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R Class: II Flagging: B/W C-Type: MMS Concerns: none
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.1L Class: II, IV Flagging: B/W, G/W C-Type: MMS, PAB, HCO, MMO
Concerns: none
Buffer (RMA): Class II greater of 120 feet (for MMS) or 100 feet (for PAB), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Temporary roads (reopened decommissioned) for Unit 521: One Class II stream crossings. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class II crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5. Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Upon completion of unit harvest, decommission road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Ensure natural drainage across road is restored beyond fish stream crossing prior to temporary structure removal (BMP 14.20). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to be less than 70% based on DEM. The entire unit is wetland including 27 acres of emergent sedge/forested wetland complex, 14 acres of forested wetland, and about 3/4 acre of moss muskeg based on GIS analysis (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Deer Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 521 **ROD** **VCU: 586**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit Number: 522	Alternatives: ROD	Total Unit Acres: 56.6	Prescription: Systematic and Crown Thinning
VCU Number: 579, 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 355	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies primarily within Stand #5860100509. Approximately 59% of this stand was previously pre- commercially thinned. This was primarily completed in 1979 and 1984. The stand origination date is 1963. Approximately 1 acre of the unit lies within Stand #5790200516. This stand has not been previously pre-commercially thinned. This stand has a stand origination date of 1962. The site potential in this unit appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 61 acres of this unit lies within the Deer Winter Range landscape zone. The remaining approximately 20 acres is in the Uplands/Mountain Slopes landscape zone. This unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary roads and FS roads 3018130 and 3000120. Cable settings yard to the proposed temporary roads and NFS road 3018130.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3018130, totaling 4,200 feet and proposed temporary roads, totaling 2,400 feet, constructed over decommissioned road bed. See road card for information on NFS road.

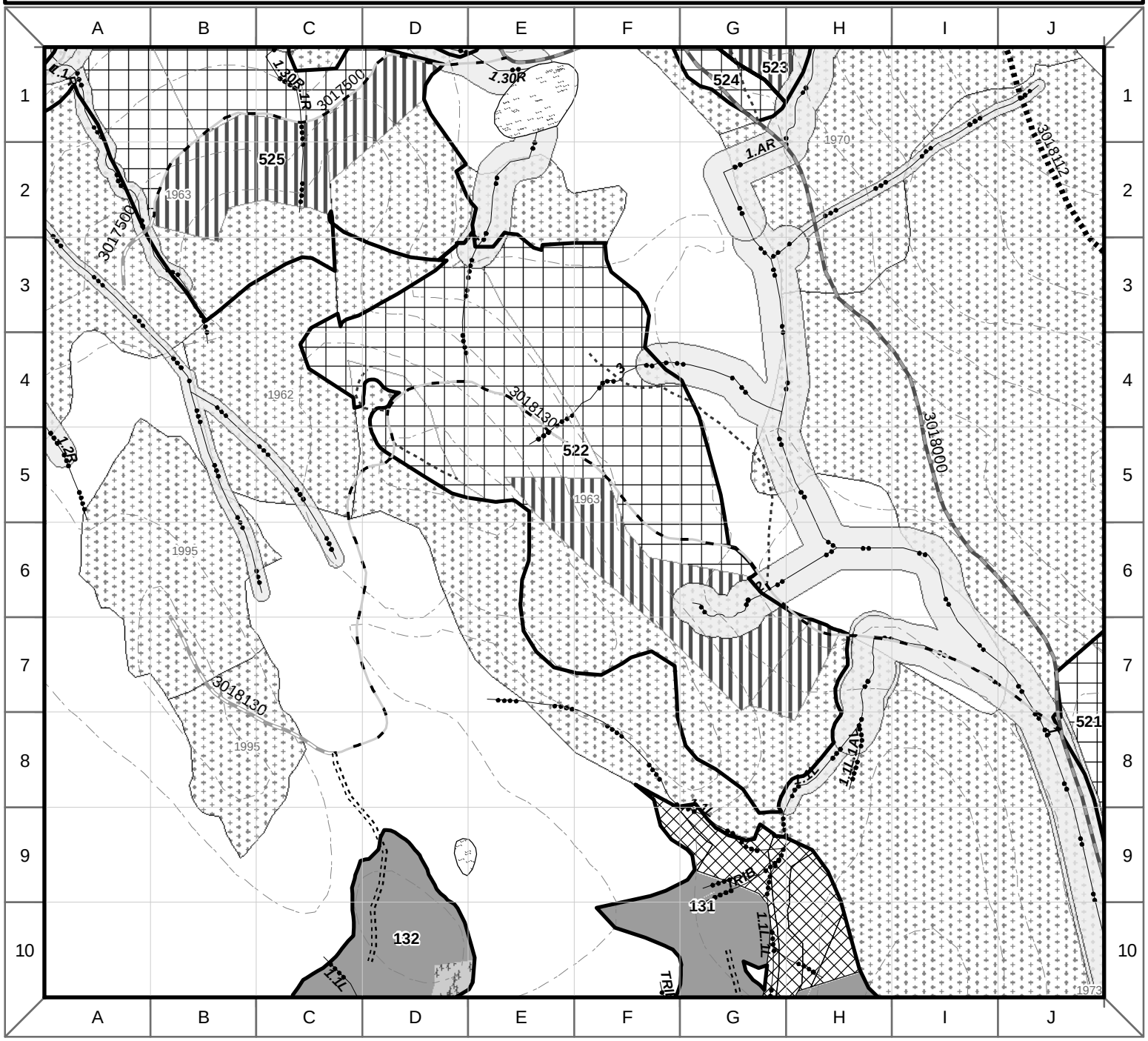
BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Deer Creek
Stream#: 1.1L Class: II, III, IV Flagging: B/W, O/W, G/W C-Type: MMS, HCO, HCD, MMO

Concerns: none Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C Stream#: 2 Class: II Flagging: B/W C-Type: PAO, HCO Concerns: none Buffer (RMA): Class II for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 3 Class: II, IV Flagging: B/W, G/W C-Type: MMO, HCO Concerns: none Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 4 Class: II, IV Flagging: B/W, G/W C-Type: PAO, HCO Concerns: none Buffer (RMA): Class II for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Temporary road for Unit 522: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from 10% or less, to approximately 72% or more, based on DEMs. All slopes greater than 72% will be verified prior to implementation. A small debris avalanche (initiated 1977) occurs near the center of the unit. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Deer Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 522 | **ROD** | **VCU: 579, 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Appendix 1

Unit Number: 523	Alternatives: ROD	Total Unit Acres: 65.8	Prescription: Systematic and Crown Thinning
VCU Number: 579, 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 436	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This majority of this unit lies within Stand #5790200509. This stand has an origination date of 1963. This stand has been 23% pre-commercially thinned. This was completed in 1982 and 2004. Approximately 10 acres of this unit lies within Stand #5860100509. This stand has been 59% pre-commercially thinned. This was primarily completed in 1979 and 1984. The site potential in this unit appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 38 acres of the unit lies within the Uplands/Mountain Slopes landscape zone. The remaining approximately 24 acres is in the Deer Winter Range landscape zone. The unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable settings yard to the proposed temporary road, proposed NFS road 3018112 and to NFS road 3018000. Shovel settings yard to NFS roads 3018000 and 3017000.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 400 feet, constructed over decommissioned road bed for all alternatives, and by proposed NFS road 3018112, totaling 3,300 feet, constructed over decommissioned road bed and reconstruction of NFS roads 3018100 and 3018110, totaling 9,600 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

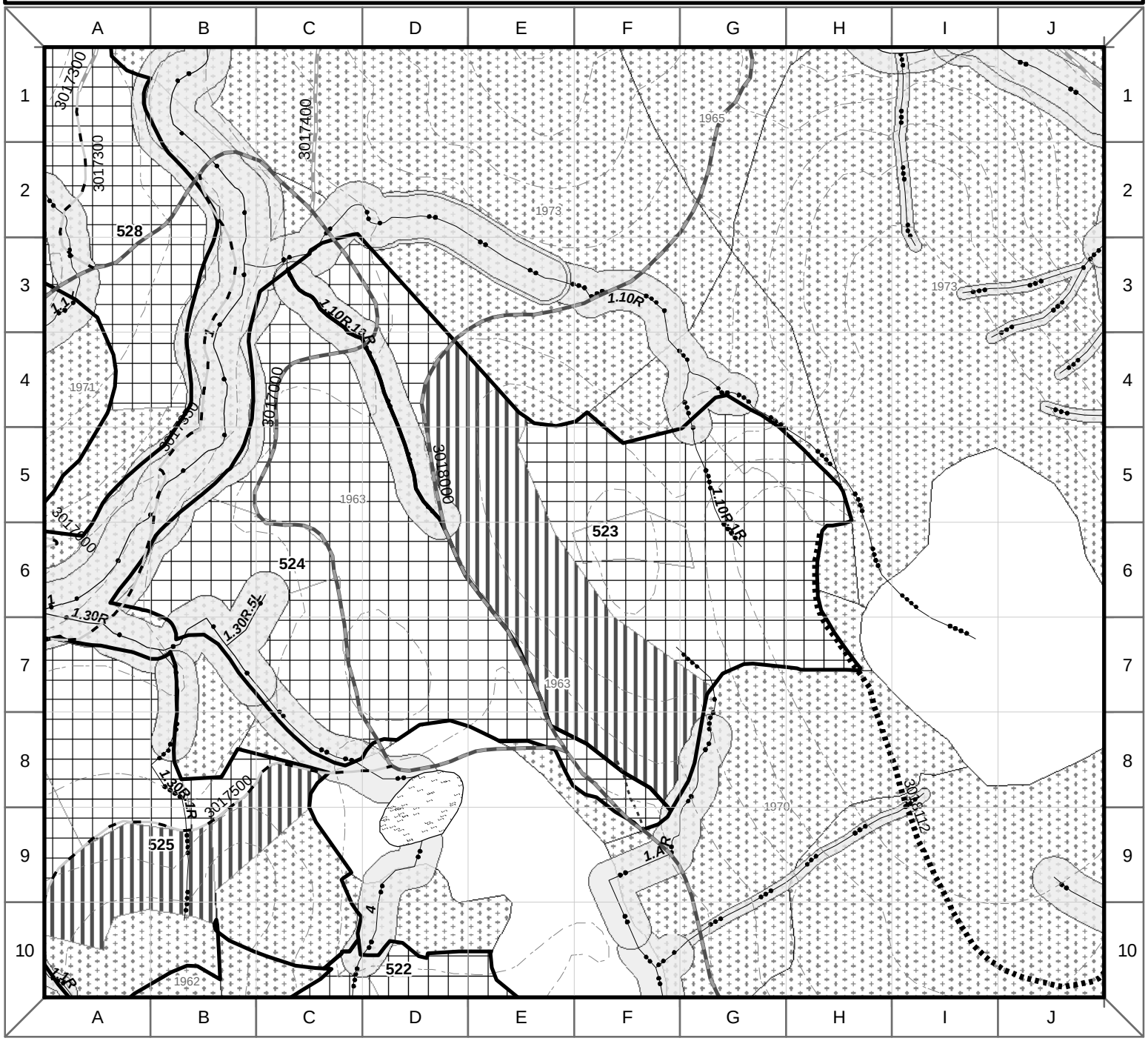
INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek.

Stream#: 1.10R Class: II, III, IV Flagging: B/W, O/W, G/W C-Type: PAB, MMS, HCO Concerns: none Buffer (RMA): Class II greater of 100 feet (for PAB) or 120 feet (for MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for PAB limit harvest or no harvest in riparian area. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C Stream#: 1.10R.1R Class: III, IV Flagging: O/W, G/W C-Type: PAB, HCO Concerns: none Buffer (RMA): Class III for PAB limit harvest or no harvest in riparian area. Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C Stream#: 1.10R.1aR Class: II Flagging: B/W C-Type: HCO Concerns: yarding through RMA Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.AR Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Temporary road (reopened decommissioned) for Unit 523: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from about 15% to about 72% or more, based on DEMs. All slopes greater than 72% will be verified prior to implementation. There are approximately 4 acres of forested wetland/emergent short sedge complex adjacent to the southern unit boundary (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. The proposed temporary road will utilize an existing decommissioned road to minimize soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Gravelly and Deer Creeks by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 523 | **ROD** | **VCU: 579, 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 524	Alternatives: ROD	Total Unit Acres: 47.4	Prescription: Crown Thinning
VCU Number: 579, 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 277	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: The majority of this unit lies within Stand #5790200509. This stand has an origination date of 1963. This stand has been 23% pre-commercially thinned. This was completed in 1982 and 2004. Approximately 19 acres of this unit lies within Stand #5860100509. This stand has been 59% pre-commercially thinned. This was primarily completed in 1979 and 1984. The site potential in this unit appears to range from medium to high. This unit is in a successional stage of stem exclusion. This unit lies entirely within the Deer Winter Range landscape zone. This unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to NFS roads 3017000 and 3018000. Cable settings yard to NFS road 3017000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: Orange hawkweed is known along the NFS road 3018000. Monitoring is recommended to ensure that the infestations do not spread as a result of the project activities.

FISHERIES: Streams are tributaries to Gravelly Creek. Stream 1 is Gravelly Creek.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake 1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

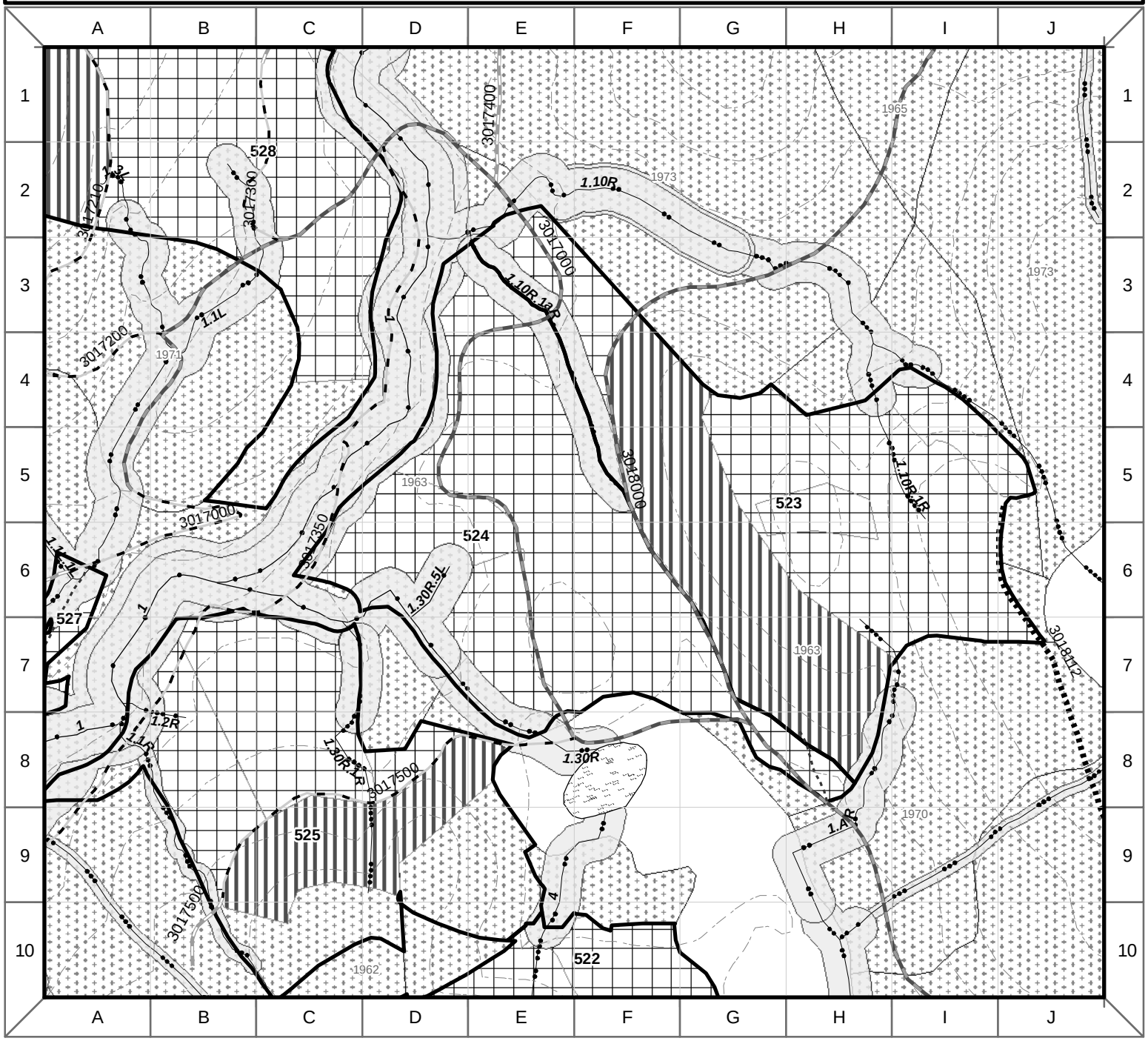
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.10R Class: II Flagging: B/W C-Type: PAB Concerns: none
Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.10R.1aR Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.30R Class: I, II Flagging: B/W C-Type: PAB, HCM Concerns: erosion Buffer (RMA): Class I and II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.30R.5L Class: I Flagging: B/W C-Type: PAB Concerns: none Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.AR Class: II Flagging: B/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Temporary road for Unit 524: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes generally appear to range between 10% and 60%; however, slopes over 72% may be present. Field review is necessary. There are approximately 4 acres of forested wetland/emergent short sedge complex and about 1/2 acre of moss muskeg in the southern edge of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat along Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 524 | **ROD** | **VCU: 579, 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Appendix 1

Unit Number: 525	Alternatives: ROD	Total Unit Acres: 35.6	Prescription: Systematic and Crown Thinning
VCU Number: 579, 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 232	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: The majority of this unit lies within Stand #5790200509.The stand origination date is 1963. This stand has had approximately 23% of the area pre-commercially thinned. This was completed in 1982 and 2004. Approximately 5 acres of the unit lies within Stand #5860100509. This stand has had approximately 59% of the area pre-commercially thinned. This was primarily completed in 1979 and 1984. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 31 acres of the unit lies within the Deer Winter Range landscape zone. The remaining approximately 2 acres lies within the Uplands/Mountain Slopes Landscape Zone. This unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel setting yard to NFS roads 3017500 and 3017350. Cable settings yard to NFS road 3017500.

ENGINEERING/ROADS: Unit is accessed by the reconstruction of NFS roads 3017500 and 3017350, totaling 5,800 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek. Stream 1 is Gravelly Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM

Concerns: yarding through RMA
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R Class: III, IV Flagging: O/W, G/W C-Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 1.30R Class: I, II Flagging: B/W C-Type: PAB, HCM
Concerns: yarding through RMA
Buffer (RMA): Class I and II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.30R.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 4 Class: II, IV Flagging: B/W, G/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class II for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns

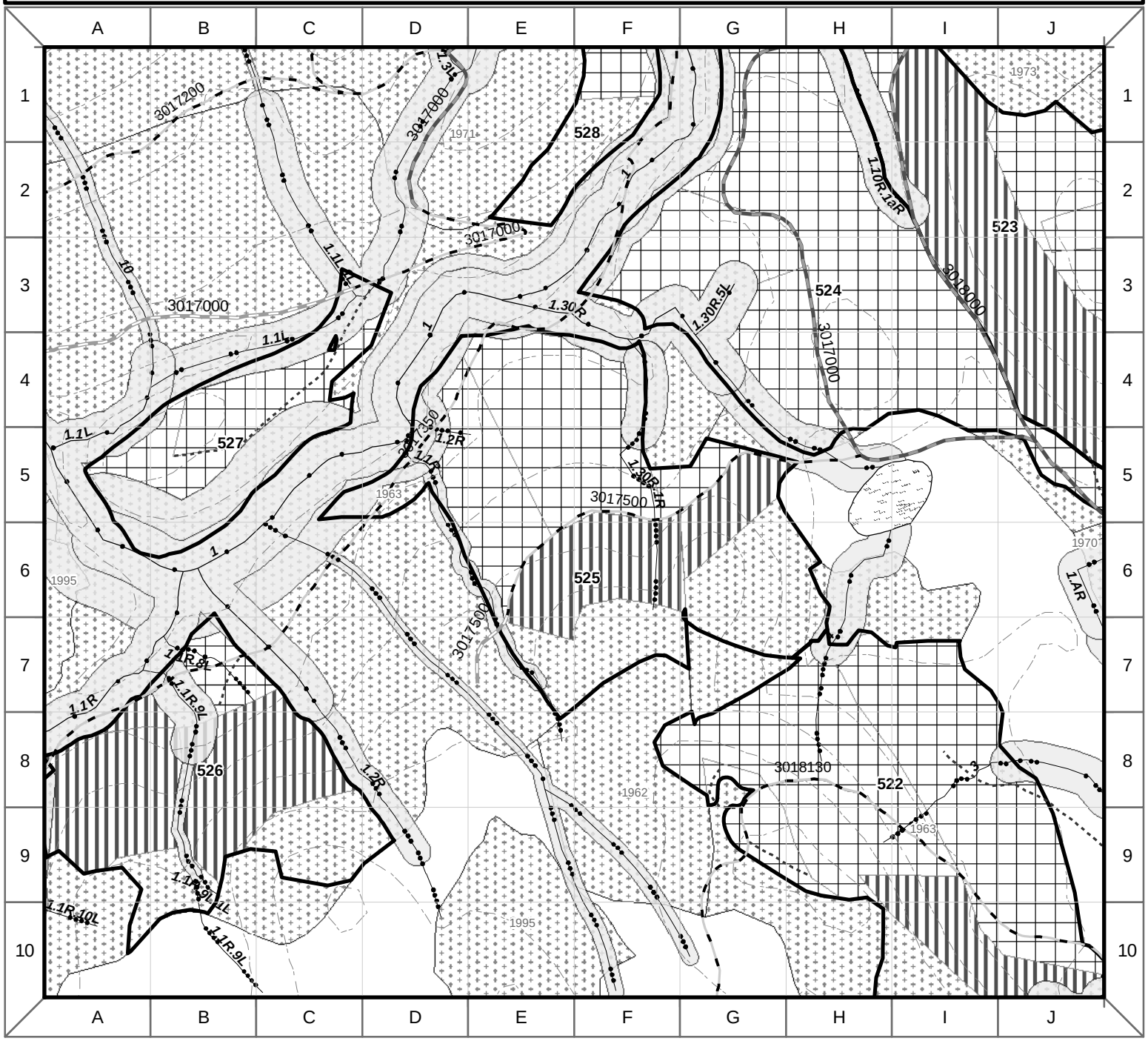
RECREATION: No Concerns

SOILS/WETLANDS: Slopes generally appear to range between 20% and 60%; however, slopes over 72% may be present. All slopes greater than 72% will be verified prior to implementation. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.

WILDLIFE: Commercial thinning will enhance wildlife habitat along Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 525 | **ROD** | **VCU: 579, 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 526	Alternatives: ROD	Total Unit Acres: 22.4	Prescription: Systematic and Crown Thinning
VCU Number: 579	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 170	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5790200509. The stand origination date is 1963. Approximately 23% of the area within the stand has been pre-commercially thinned. This was completed in 1982 and 2004. The site potential appears to be medium. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Thorne Bay NW young-growth study Area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary road and NFS road 3017350.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3017350, totaling 6,500 feet and a proposed temporary road of 300 feet, constructed over decommissioned road bed. See road card for information on NFS road.

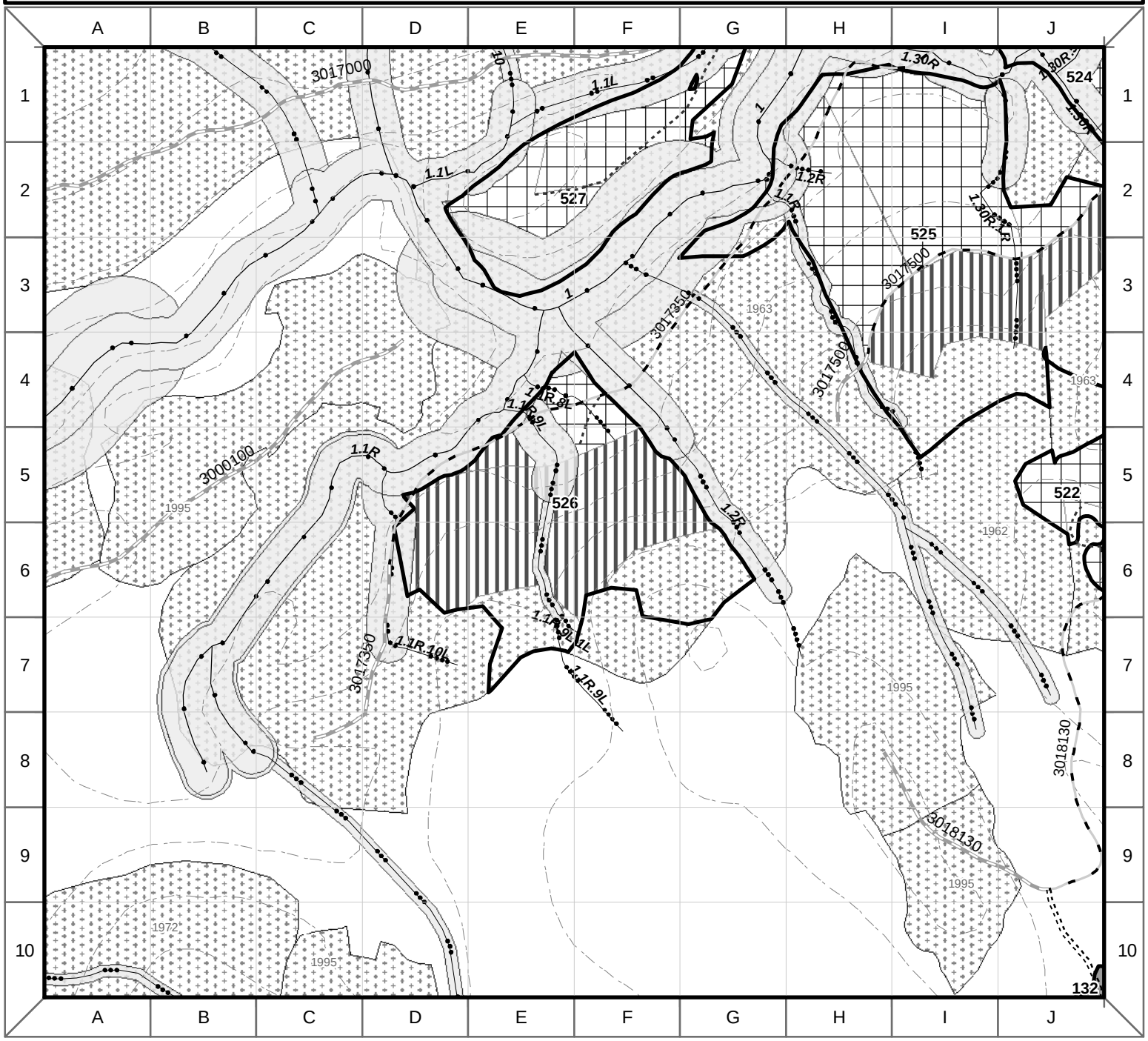
BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek.
Stream#: 1.1R Class: I Flagging: B/W C-Type: PAB
Concerns: yarding through RMA
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.1R.9L Class: II, III, IV Flagging: B/W, O/W, G/W C-Type: HCM, HCO Concerns: yarding through RMA Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C Stream#: 1.1R.10L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: yarding through RMA Buffer (RMA): Class III for HCM to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.2R Class: I, III, IV Flagging: B/W, O/W, G/W C-Type: HCL, HCV, HCO Concerns: yarding through RMA Buffer (RMA): Class I for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCV to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C Temporary road (reopened decommissioned) for Unit 526: One class IV stream crossing. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range from 15% to about 70% based on DEMs. All slopes greater than 72% will be verified prior to implementation. There is approximately 1 acre of moss muskeg in the northern edge of the unit based on GIS (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. The proposed temporary road will utilize an existing decommissioned road to minimize soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again). A road would need to be reconstructed to access the unit.

Young Growth Unit Number 526 | **ROD** | **VCU: 579**



- Past Harvest (Year Origin)
- Unsuitable Soils
- Riparian Management Area
- Slope > 72%
- Other Ownership
- Old Growth Habitat LUD
- Recreation River LUD
- Scenic River LUD
- State Highway
- National Forest System Road - Open
- National Forest System Road - Stored
- Non-National Forest System Road
- Proposed Reconstructed Road
- Proposed System Road (reopened Decommissioned)
- Proposed Temporary Road (reopened Decommissioned)
- Proposed System Road
- Proposed Temporary Road

Young Growth
- Systematic Strip Thin
- Uniform Crown Thin

Old Growth
- Helicopter
- Shovel or Cable
- Partial Cut

- Class 1 Stream
- Class 2 Stream
- Class 3 Stream
- Class 4 Stream
- Lake
- 100' Contour
- Eagle Nest Buffer
- Legacy
- Visual Buffer
- Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 527	Alternatives: ROD	Total Unit Acres: 8.9	Prescription: Crown Thinning
VCU Number: 579	Yarding System: Shovel	Net Harvest Volume (MBF): 52	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5790200509. The stand origination date is 1963. Approximately 23% of the area within the stand has been pre-commercially thinned. This was completed in 1982 and 2004. The site strata appears to be high. This unit is in a successional stage of stem exclusion. This unit lies entirely within the Deer Winter Range landscape zone. The unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3017000, totaling 1,500 feet and a proposed temporary road of 1,400 feet, constructed over decommissioned road bed. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek. Stream 1 is Gravelly Creek.
Stream#: 1 Class: I Flagging: B/W C- Type: MCM, FPL, FPM Concerns: none
Buffer (RMA): Class I for MCM greater of 100 feet or to the top of the side-slope break. Class I for FPL and FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: I, II Flagging: B/W C- Type: HCD, PAB Concerns: none
Buffer (RMA): Class I for HCD greater of 100 feet or to the top of the side-slope break. Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Temporary road (reopened decommissioned) for Unit 527: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

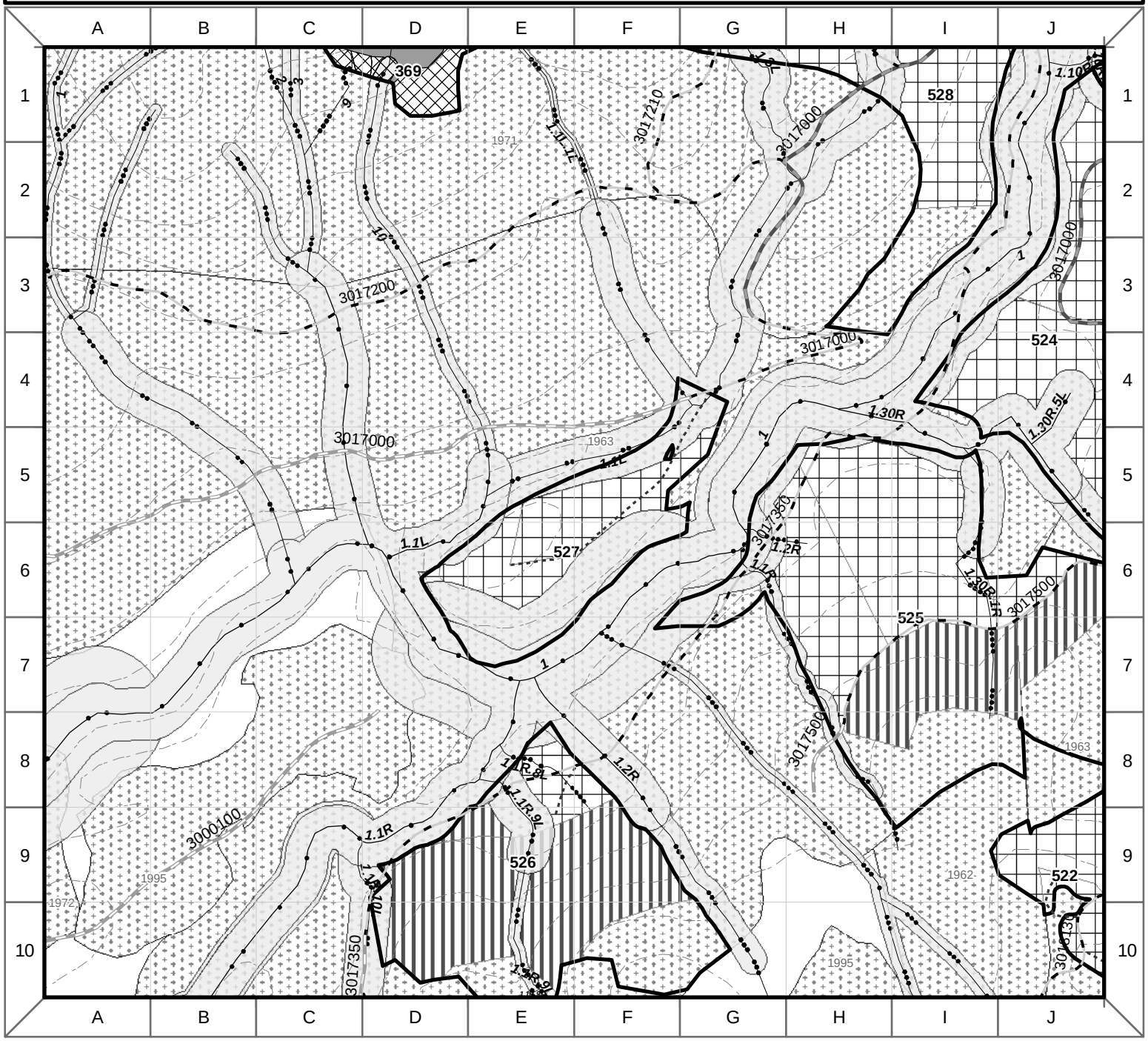
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns

RECREATION: No Concerns
SOILS/WETLANDS: Slopes generally appear to range between 20% and 65%; however, slopes over 72% may be present. All slopes greater than 72% will be verified prior to implementation. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. The proposed temporary roads will utilize existing decommissioned roads to minimize soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat along Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 527 | **ROD** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 528	Alternatives: ROD	Total Unit Acres: 72.6	Prescription: Systematic and Crown Thinning
VCU Number: 579	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 472	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5790200509. The stand origination date is 1963. Approximately 23% of the area within the stand has been pre-commercially thinned, which was completed in 1982 and 2004. The site potential appears to be medium. This unit is in a successional stage of stem exclusion. Approximately 33 acres of the unit lies within the Deer Winter Range landscape zone. Approximately 29 acres is in the Uplands/Mountain Slopes landscape zone. This unit is located in the Thorne Bay NW young-growth study areas.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to NFS roads 3017200, 3017300 and 3017210. Cable settings yard to NFS road 3017210.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3017200, 3017210, and 3017300, totaling 4700 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

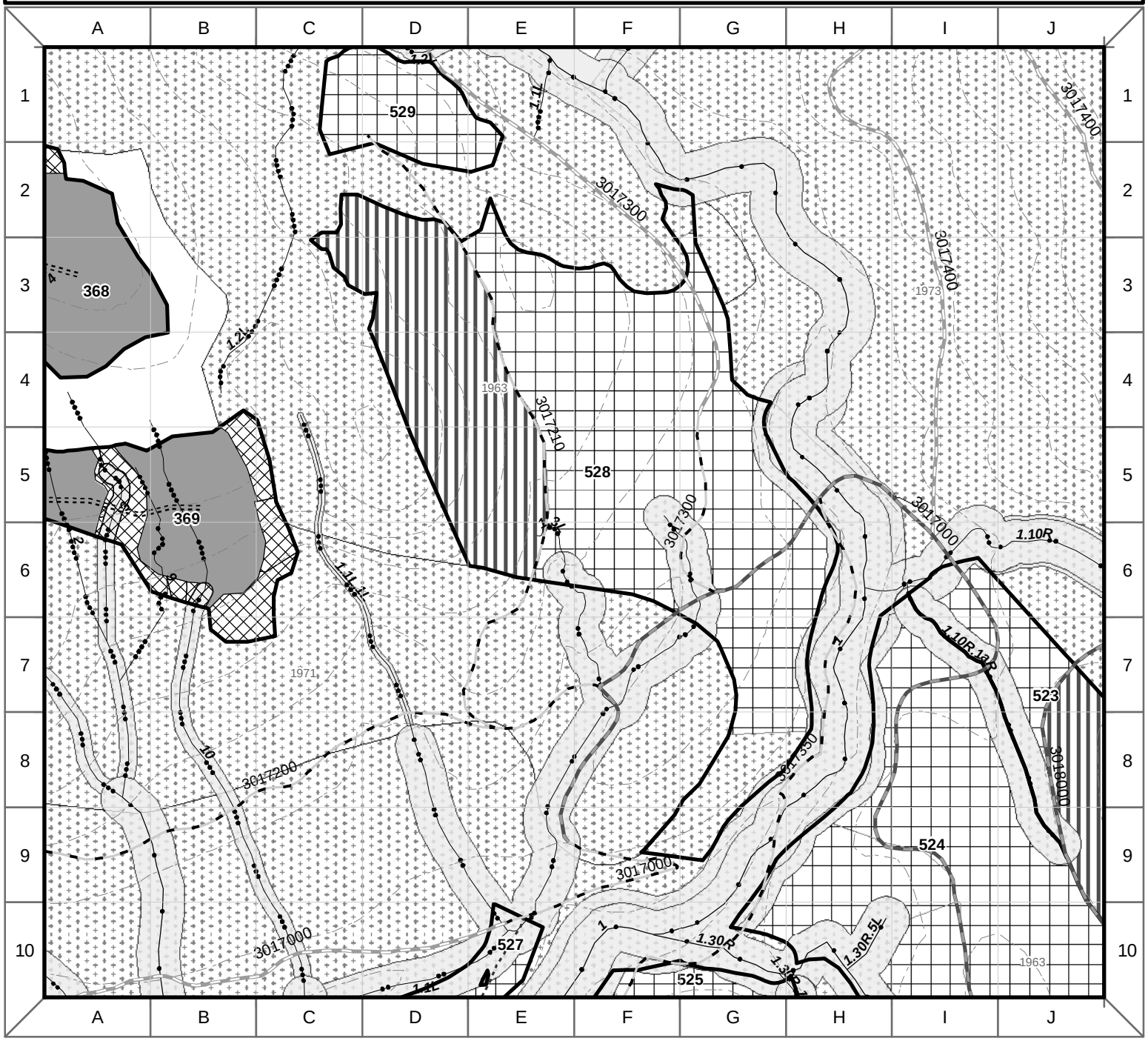
INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek. Stream 1 is Gravelly Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM, MCM, MCL Concerns: erosion
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MCM and MCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Appendix 1

Stream#: 1.1L Class: II Flagging: B/W C-Type: PAB, HCO Concerns: none Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.3L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes generally appear to range between about 20% and 80%, based on DEMs. Slopes over 72% are likely present. All slopes greater than 72% will be verified prior to implementation. A small, older (>40 years) debris avalanche is mapped in the southwest portion of unit. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 528 | **ROD** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 529	Alternatives: ROD	Total Unit Acres: 8.7	Prescription: Crown Thinning
VCU Number: 579	Yarding System: Cable	Net Harvest Volume (MBF): 51	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5790200509. The stand origination date is 1963. Approximately 23% of the acres within the stand have been pre-commercially thinned, which was completed in 1982 and 2004. The site potential appears to be high. This unit is in a successional stage of stem exclusion. Approximately 5 acres of the unit lies within the Uplands/Mountain Slopes landscape zone. The remaining approximately 2 acres is in the Deer Winter Range landscape zone. This unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to NFS road 3017210.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3017200 and 3017210, totaling 4,000 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Gravelly Creek.
Stream#: 1.2L Class: III, IV Flagging: O/W, G/W C-Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

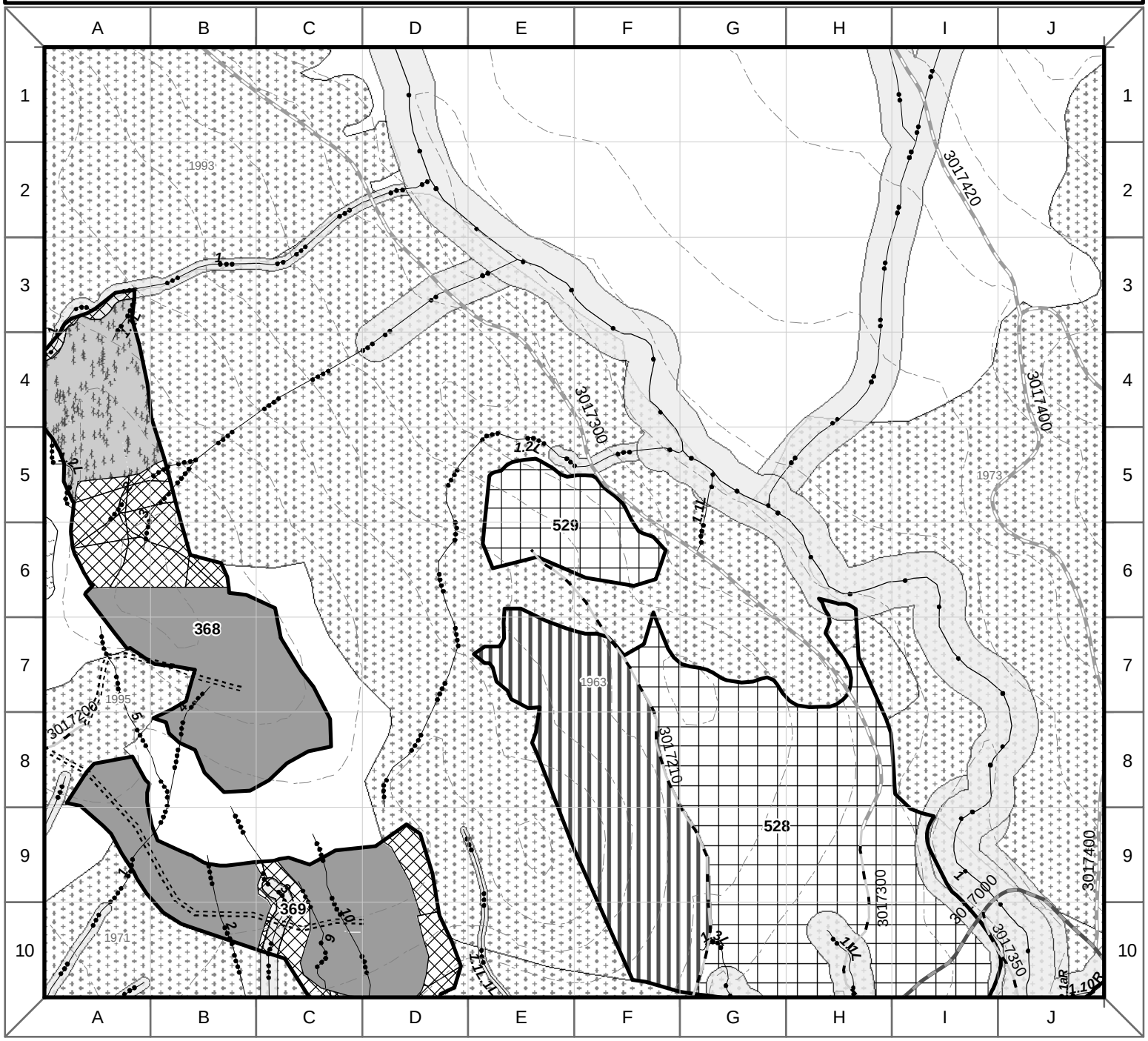
SCENERY: No Concerns

RECREATION: This young growth unit is located in close proximity to the Boy Scout ATV project. Potential impacts would be reduced by avoiding placement of slash on the road prism and stream ford.

SOILS/WETLANDS: Slopes are estimated to be less than 50%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial harvest with partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Gravelly Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 529 | **ROD** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 531	Alternatives: ROD	Total Unit Acres: 26.8	Prescription: Systematic and Crown Thinning
VCU Number: 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 195	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5860100509. The stand origination date is 1963. Approximately 59% of the area within the stand has been pre-commercially thinned. This was primarily completed in 1979 and 1984. The site potential appears to be medium. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range Landscape Zone, and is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable and shovel yarding to NFS road 3018100.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3018100, totaling 2,800 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

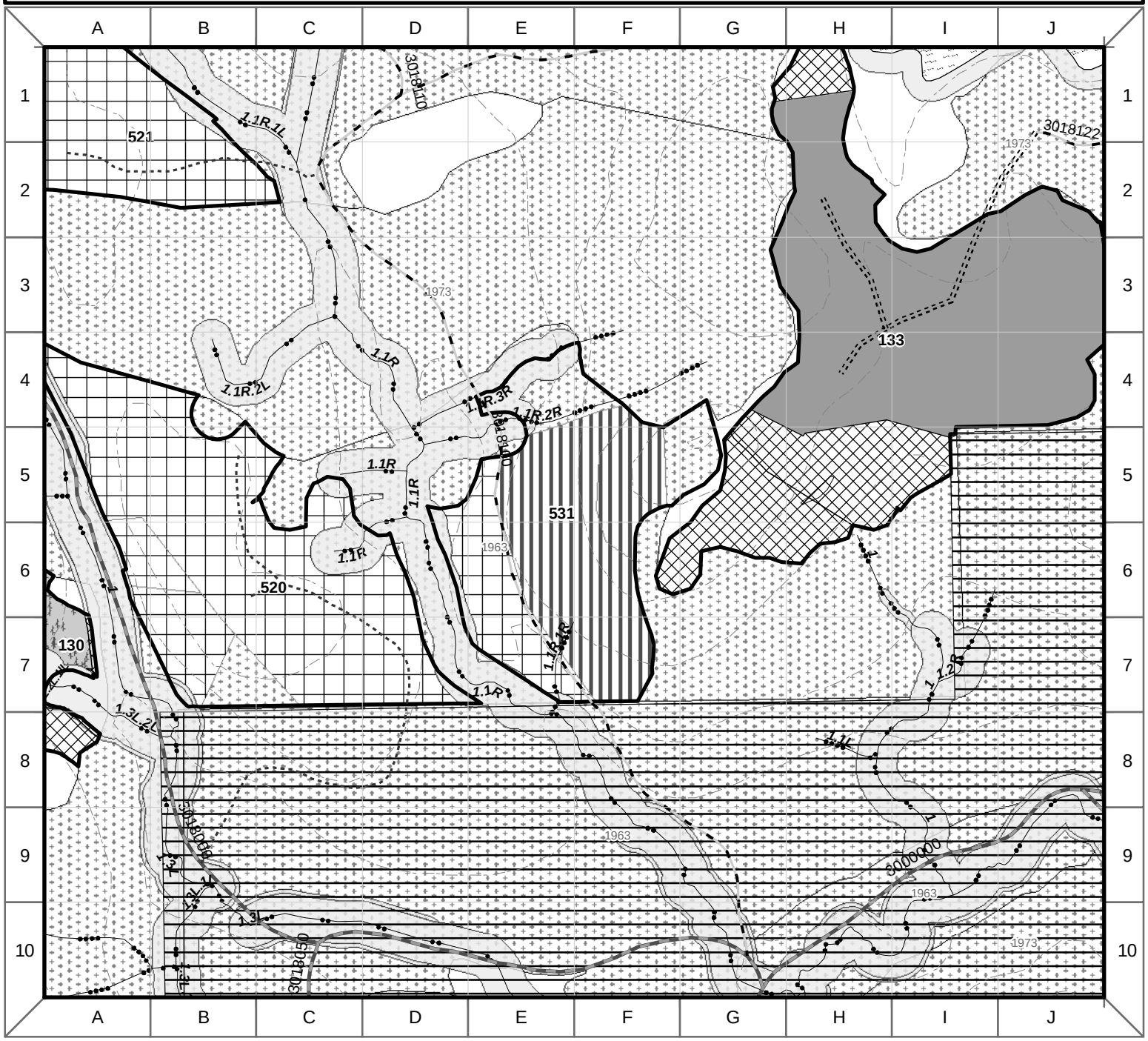
FISHERIES: Streams are tributaries to Deer Creek.
Stream#: 1.1R Class: II Flagging: B/W C-Type: MCS, PAB Concerns: erosion
Buffer (RMA): Class II for MCS greater of 100 feet or to the top of the side-slope break. Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R.2R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.1R.3R Class: II, IV Flagging: B/W, G/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated

wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: About 1/3 of unit is in Low SIO and 2/3 is in Very Low. Southeastern half of unit may be partially visible from the 30 Road, but mostly at an angle and at a distance of a 1/4 to 1/2 mile or so; therefore, VAC would be Intermediate or High. Visual disturbance associated with thinning is expected to be well within the level permitted by the Forest Plan.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range from about 10% to about 50%. There is about 1/2 acre of forested wetland/emergent short sedge complex near the southwest unit boundary (BMP 12.5). (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Deer Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 531 | **ROD** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Appendix 1

Unit Number: 532	Alternatives: ROD	Total Unit Acres: 18.2	Prescription: Systematic and Crown Thinning
VCU Number: 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 125	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5860100509. The stand origination date is 1963. Approximately 59% of the area within the stand has been pre-commercially thinned. This was primarily completed in 1979 and 1984. The site potential appears to be medium. This unit is in a successional stage of stem exclusion. Approximately 10 acres of the unit lies within the Deer Winter Range landscape zone. The remaining approximately 9 acres is in the Uplands/Mountain Slopes landscape zone. This unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable and shovel yarding to NFS road 3018100.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3018100, totaling 10,100 feet. See road card for information on NFS road.

BOTANY: No Concerns

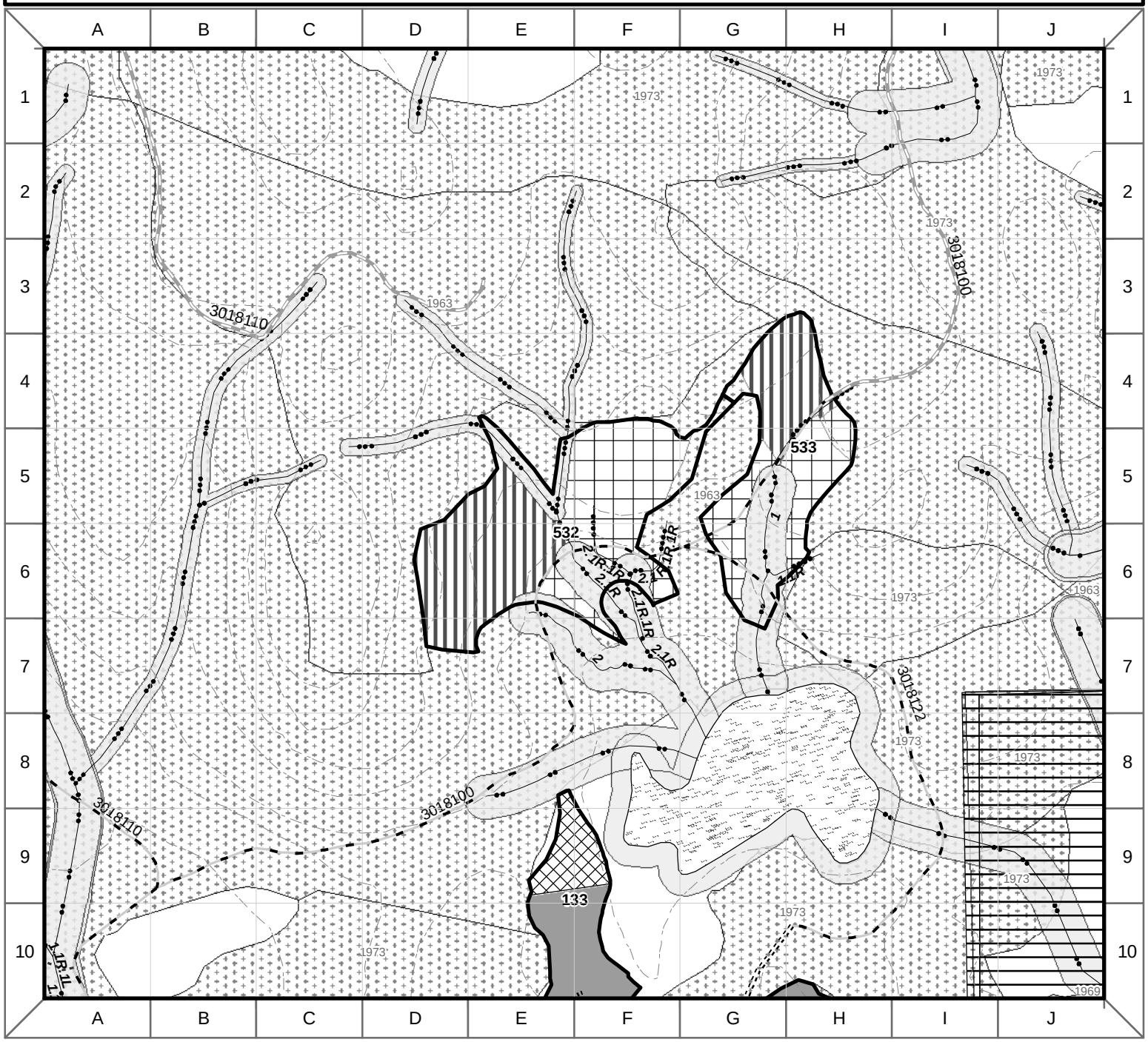
INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Deer Creek.
Stream#: 2 Class: II Flagging: B/W C-Type: PAB, HCO Concerns: none
Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.1R Class: II, IV Flagging: B/W, G/W C-Type: PAB, HCO Concerns: none Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 2.1R.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is in Low SIO and may be partially visible at a distance of 3/4 mile or more from the 30 Road. Thinning is not likely to be very noticeable to the typical forest visitor, particularly with topographic and vegetative screening.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes generally appear to range between about 15% and 85%. Therefore, slopes over 72% are likely to be present. All slopes greater than 72% will be verified prior to implementation. There is approximately 1 acre of moss muskeg in the southeast corner of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again), though a lengthy road would be reconstructed to access the unit.

Appendix 1

Young Growth Unit Number 532 **ROD** **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 533	Alternatives: ROD	Total Unit Acres: 10.3	Prescription: Systematic and Crown Thinning
VCU Number: 586	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 69	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5860100509. The stand origination date is 1963. Approximately 59% of the area within the stand has been pre-commercially thinned. This was primarily completed in 1979 and 1984. The site potential appears to be medium. This unit is in a successional stage of stem exclusion. Approximately 8 acres of the unit lies within the Uplands/Mountain Slopes landscape zone. The remaining approximately 4 acres is in the Deer Winter Range landscape zone. This unit is located in the Thorne Bay NW young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable and shovel yarding to NFS roads 3018100 and 3018122.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3018100 and 3018122, totaling 10,500 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

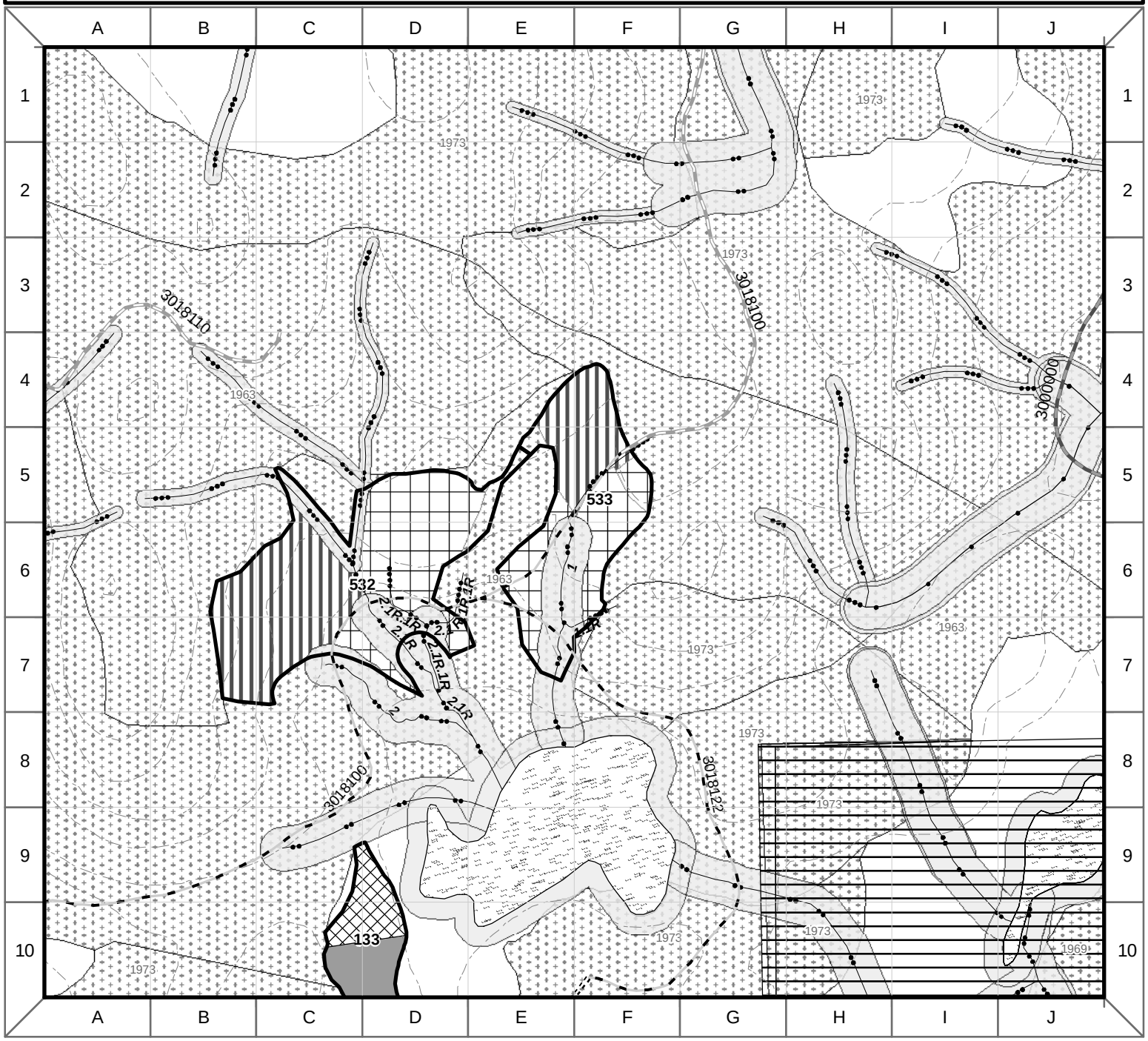
INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Deer Creek.
Stream#: 1 Class: II, IV Flagging: B/W, G/W C-Type: PAB, HCO
Concerns: yarding through RMA
Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.

Appendix 1

Alternatives: ROD	Buffer (RAW): no review needed	Protection: Category A and C
All other streams in unit: Class IV	Flagging: G/W	C-Type: HC and MM
Concerns: none	Buffer (RMA): none	Protection: Category C
GEOLOGY/KARST: No Concerns		
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.		
SCENERY: Unit is in Low SIO and may be partially visible at a distance of 3/4 mile or more from the 30 Road. Thinning is not likely to be very noticeable to the typical forest visitor, particularly with topographic and vegetative screening.		
RECREATION: No Concerns		
SOILS/WETLANDS: Slopes generally range between about 15% and 60%. No slopes over 72% are likely to be present. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.		
WILDLIFE: Commercial thinning will enhance wildlife habitat by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again), though a lengthy road would be reconstructed to access the unit.		

Young Growth Unit Number 533 | **ROD** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 542	Alternatives: ROD	Total Unit Acres: 17.7	Prescription: Systematic Thinning
VCU Number: 585	Yarding System: Cable	Net Harvest Volume (MBF): 138	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5850100502.The stand origination date is 1964. This stand has not been pre-commercially thinned. The site potential in this area appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 9 acres of the unit lies within the Uplands/Mountain Slopes landscape zone. The remaining approximately 7 acres is in the Deer Winter Range landscape zone. Landscape zones and site potential were developed and defined as part of the Prince of Wales Island Young Growth Thinning Feasibility Study (Tetra Tech & Stuntzner Engineering/Forestry, 2011).

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to NFS road 3018252.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3018250 and 3018252, totaling 2700 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: No streams found in unit at time of survey. If streams are found during implementation a fish biologist would be notified and appropriate protections would be applied.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: No Concerns

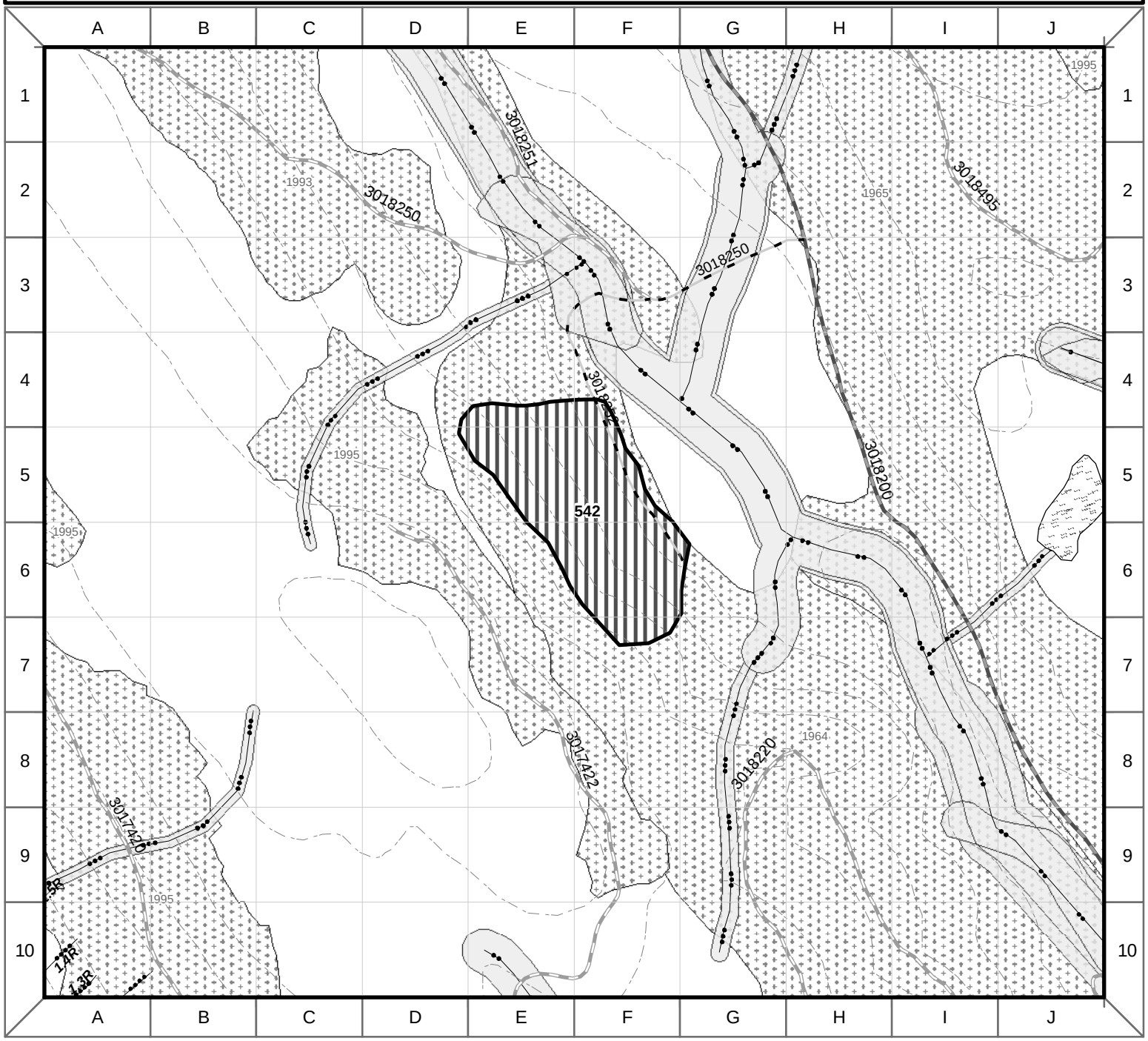
RECREATION: No Concerns

SOILS/WETLANDS: Slopes generally appear to range between about 15% and 80%. Therefore, slopes over 72% are likely to be present. All slopes greater than 72% will be verified prior to implementation. There is approximately 1/4 acre of emergent short-sedge wetland adjacent to the eastern unit boundary (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial

suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial harvest thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Slide Creek by improving forage availability and removing the stand from the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reconstructed to access this isolated unit.

Appendix 1

Young Growth Unit Number 542 **ROD** **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 544	Alternatives: ROD	Total Unit Acres: 15.4	Prescription: Systematic and Crown Thinning
VCU Number: 584	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 100	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: The unit lies primarily within Stand #5840200574. The stand origination date is 1966. Approximately 82% of the stand area has been pre-commercially thinned, which was primarily completed in 2005. Approximately 3 acres of this unit lies within Stand #5840200575. The stand origination date is 1969. This stand has been completely pre-commercially thinned, which was primarily completed in 1984. Approximately 2 acres of the unit lies within Stand #5840300501. The stand origination date is 1966. Approximately 28% of the stand area has been pre-commercially thinned, which was primarily completed in 1983 and 2005. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing retreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to NFS roads 3000000 and 3020000. Cable settings yard to NFS road 3020000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: A small infestation of orange hawkweed was known along the existing road adjacent to the unit. This infestation had been treated in 2010, recommend monitoring and treatment as needed.

FISHERIES: Streams are tributaries to Sal Creek. Stream 1 is Sal Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

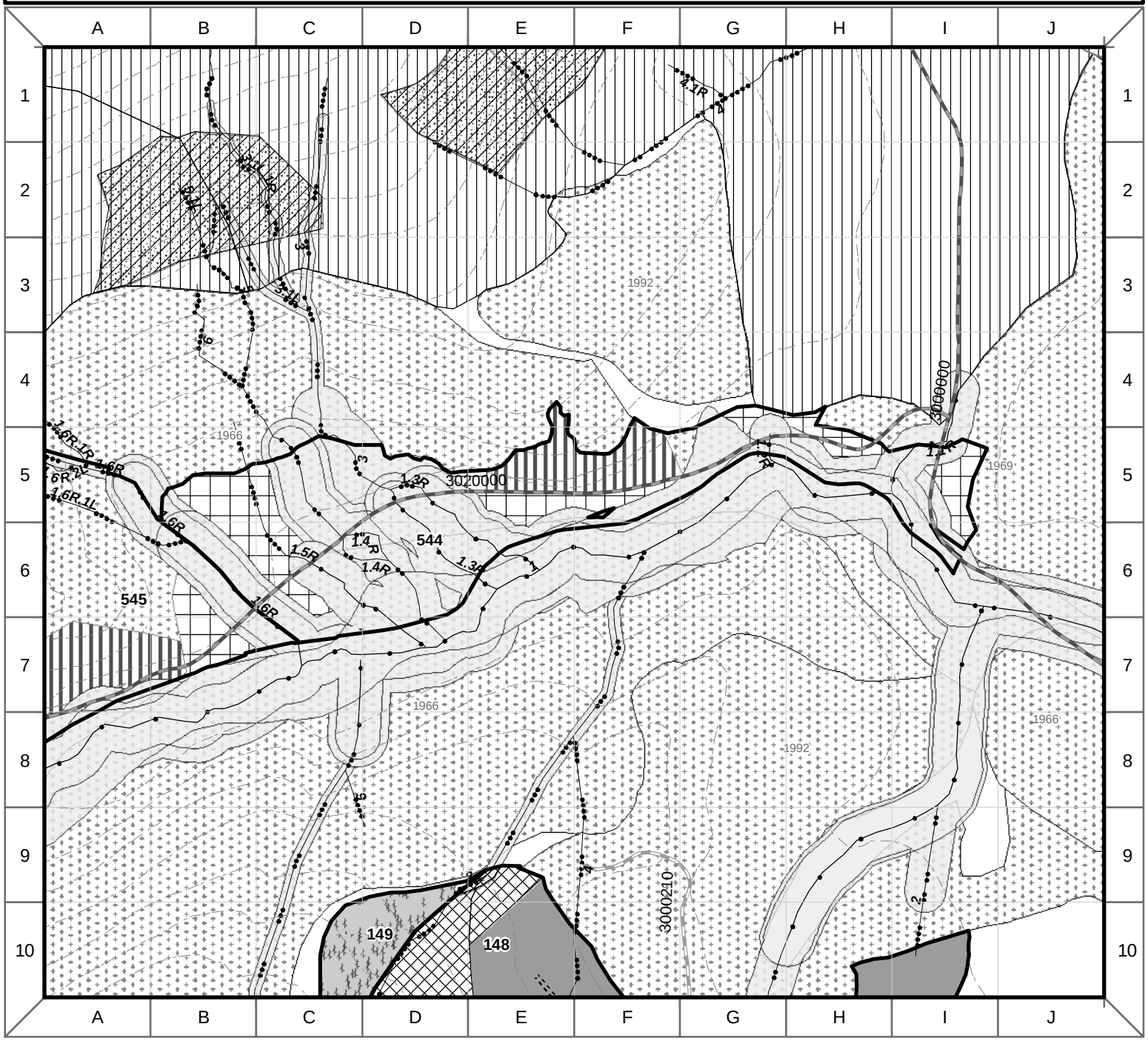
Stream#: 1.1R Class: I Flagging: B/W C-Type: PAO Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.2R Class: I Flagging: B/W C-Type: FPO Concerns: none

Appendix 1

Buffer (RMA): Class I for FPO greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 1.3R Class: I, III Flagging: B/W, O/W C-Type: AFM, AFH, HCM Concerns: none Buffer (RMA): Class I and III for AFM and AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCM to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B Stream#: 1.4R Class: II, IV Flagging: B/W, G/W C-Type: AFM, HCO Concerns: none Buffer (RMA): Class II for AFM greater of 140 feet or active portion of the alluvial fan. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.5R Class: I, IV Flagging: B/W, G/W C-Type: PAB, HCO Concerns: none Buffer (RMA): Class I for PAB greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1.6R Class: I, II, III Flagging: B/W, O/W C-Type: AFM, AFH, HCM Concerns: none Buffer (RMA): Class I and II for AFM and AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCM to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The unit is broken into three separate polygons and includes about 5 acres of Moderate SIO, 1 acre of Low SIO, and 21 acres of Very Low SIO. Because of vegetative and topographic screening, little of the unit would be visible from NFS Road 3000000 or saltwater use areas. A portion of the unit is along NFS Road 3000000 and this will be uniformly thinned.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to be in the range of about 15% to 40%. There are approximately 19 acres of forested wetland in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Sal Creek by improving forage availability and moving the stand from the stem exclusion phase for the duration of rotation (until it is harvested again). Old-growth Reserve in the vicinity of Sal Creek provides connectivity between the beach fringe and the North Thorne drainage to the west.

Young Growth Unit Number 544 **ROD** **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 545	Alternatives: ROD	Total Unit Acres: 190.6	Prescription: Systematic and Crown Thinning
VCU Number: 584	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 1445	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5840200574. The stand origination date is 1966. Approximately 53% of the area within this stand has been pre-commercially thinned, which was completed in 1983 and 2005. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 209 acres of this unit lies within the Deer Winter Range landscape zone. The remaining approximately 1 acre lies within the Uplands/Mountain Slopes landscape zone. This unit is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS roads 3020000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Sal Creek. Stream 1 is Sal Creek.
Stream#: 1 Class: I, II Flagging: B/W C- Type: FPM, MMM, HCM
Concerns: yarding through RMA
Buffer (RMA): Class I and II - greater of 130 feet (for FPM) or 120 feet (for MMM), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.6R Class: I Flagging: B/W C- Type: AFM Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.7R Class: I Flagging: B/W C- Type: PAB Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1B Class: I Flagging: B/W C- Type: PAB Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.8R Class: I, III Flagging: B/W, O/W C- Type: PAB, AFH, HCO, HCD
Concerns: yarding through RMA
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCO and HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.8R.1R Class: I, II, III Flagging: B/W, O/W C- Type: AFM, AFH, HCD
Concerns: yarding through RMA
Buffer (RMA): Class I and II for AFM and AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.41R Class: I, II Flagging: B/W C- Type: MMO, HCO
Concerns: yarding through RMA
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.8R.1L Class: III Flagging: O/W C- Type: HCO Concerns: none
Buffer (RMA): Class III for HCO to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed Protection: Category B

Stream#: 1.8R.3R Class: II Flagging: B/W C- Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.39R Class: II, III Flagging: B/W, O/W C- Type: HCM
Concerns: yarding through RMA
Buffer (RMA): Class II for HCM greater of 100 feet or the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.40R Class: I, II, III Flagging: B/W, O/W C- Type: MMS, AFM, AFH
Concerns: erosion
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I, II, and III for AFM and AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.40R.3R Class: II, III Flagging: B/W, O/W C- Type: HCO, HCD Concerns: erosion
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

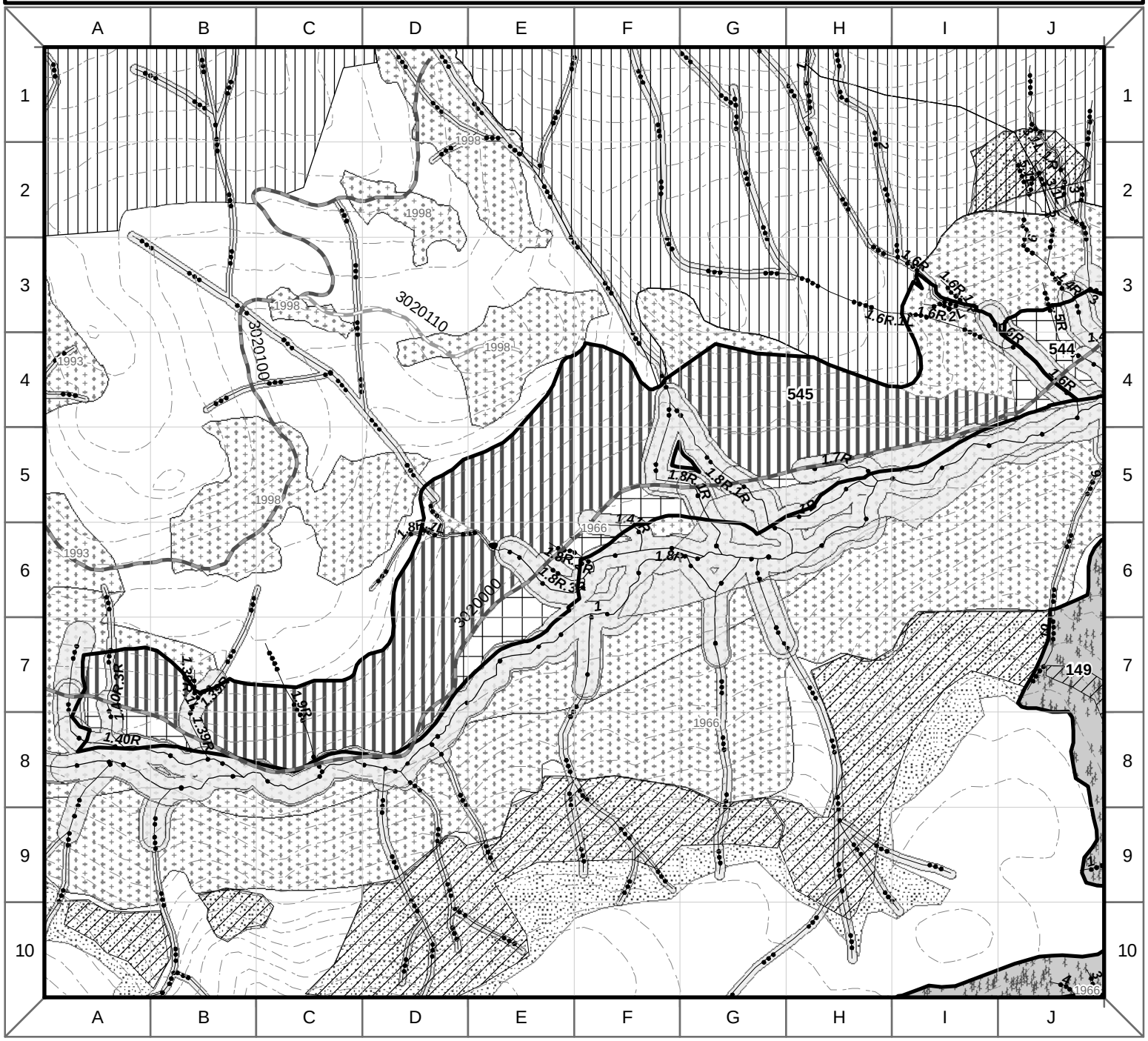
All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was

mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: This unit contains 33 acres in Moderate SIO, 78 acres in Low SIO, and 24 acres in Very Low SIO. It is a very large unit, but most of it is not seen from visual priority routes and use areas. The largest portion that could be seen is considered Background and thinning, even strip thinning, would not be very noticeable from a distance. No concerns.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to be range about 15% to over 70%. All slopes greater than 72% will be verified prior to implementation. There are approximately 106 acres of forested wetland located in the southern half of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Sal Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). Old-growth Reserve in the vicinity of Sal Creek provides connectivity between the saltwater and the North Thorne drainage to the west.

Young Growth Unit Number 545 **ROD** **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 546	Alternatives: ROD	Total Unit Acres: 122.1	Prescription: Systematic and Crown Thinning
VCU Number: 584	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 914	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5840100510. The stand origination date is 1964. This area has been entirely pre-commercially thinned, which was completed in 1999. The site potential appears to be medium. This unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary roads and NFS roads 3023000, 3023100 and 3000000. Cable settings yard to the proposed temporary roads and NFS roads 3023000, 3023100, 3023200 and 3000000.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3023000, 3023100 and 3023200, totaling 6,000 feet and two proposed temporary roads, totaling 1,600 feet, constructed over decommissioned road bed. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Clarence Strait and Little Ratz Harbor.
Stream#: 2 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3 Class: II, IV Flagging: B/W, G/W C-Type: PAB, HCO Concerns: blowdown
Buffer (RMA): Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 4 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5 Class: I Flagging: B/W C-Type: MMS Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 5.1L Class: II, III Flagging: B/W, O/W C-Type: PAB, MMS, HCM
Concerns: none
Buffer (RMA): Class I greater of 100 feet (for PAB) or 120 feet (for MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 5.1L.1R Class: III, IV Flagging: O/W, G/W C-Type: HCM Concerns: blowdown
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 5.1L.1L Class: II, III, IV Flagging: B/W, O/W, G/W C-Type: MMS, HCM, HCO
Concerns: blowdown
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C

Stream#: 5.1L.1L.2R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5.1L.2R Class: II, IV Flagging: B/W, G/W C-Type: PAB, MMO Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5.2L Class: II, IV Flagging: B/W, G/W C-Type: MMO, PAB, HCO
Concerns: blowdown
Buffer (RMA): Class I greater of 120 feet (for MMO) or 100 feet (for PAB), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5.3L Class: II, IV Flagging: B/W, G/W C-Type: PAB, HCO Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5.4L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5.6L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary road (reopened decommissioned) for Unit 546: One Class III stream crossings. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

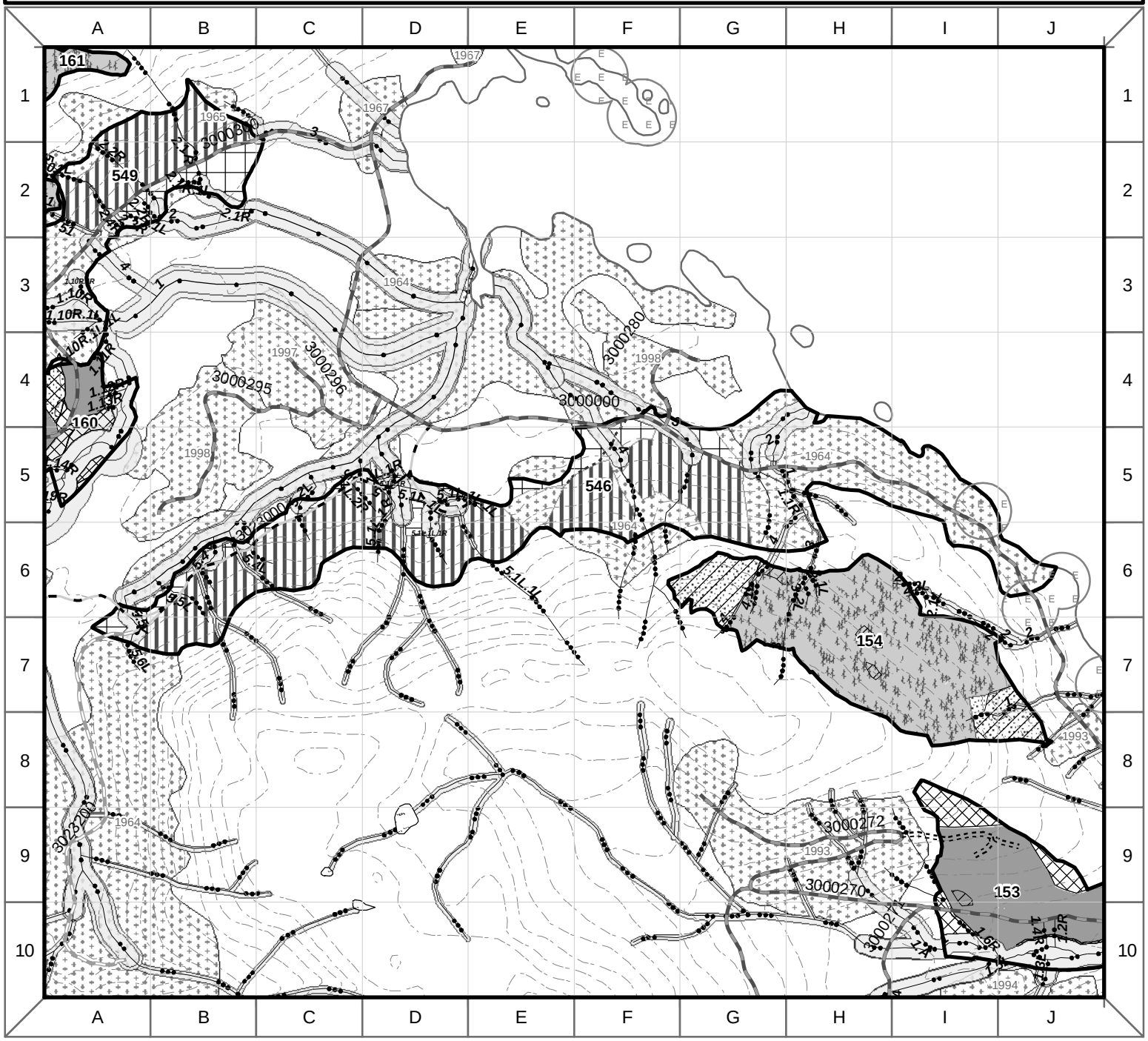
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Appendix 1

SCENERY: Unit has 33 acres of Moderate SIO, 78 acres of Low SIO, and 24 acres of Very Low SIO. Most of the Moderate SIO is in the eastern end of the unit along the 30 Road. Use narrow corridors to minimize visibility in systematic thinning settings further west, where settings are within 1/4 mile of the NFS Road 3000000.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to be range about 15% to 75%, especially on the upper slopes. All slopes greater than 72% will be verified prior to implementation. Less than 2 acres have been affect by landslides. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. There is about 1/2 acre of forested wetland/emergent short sedge complex in the north-central part of the unit and 30 acres of forested wetland predominantly located in the eastern third of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4).
WILDLIFE: Commercial thinning will enhance wildlife habitat near Little Ratz Harbor by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reconstructed to access the unit.

Young Growth Unit Number 546 **ROD** **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 547	Alternatives: ROD	Total Unit Acres: 28.3	Prescription: Systematic and Crown Thinning
VCU Number: 584	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 210	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5840100121. The stand origination date is 1964. This stand has not been pre-commercially thinned. The site potential appears to be high. The unit is in a successional stage of stem exclusion. This unit is in the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3023000.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3023000, totaling 10,600 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Little Ratz Creek. Stream 1 is Little Ratz Creek.
Stream#: 1 Class: II Flagging: B/W C- Type: MCM, PAB, MMM Concerns: none
Buffer (RMA): Class II greater of 100 feet (for PAB) or 120 feet (for MMM), flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for MCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: II Flagging: B/W C- Type: PAB Concerns: none
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM
Concerns: none Buffer (RMA): none Protection: Category C

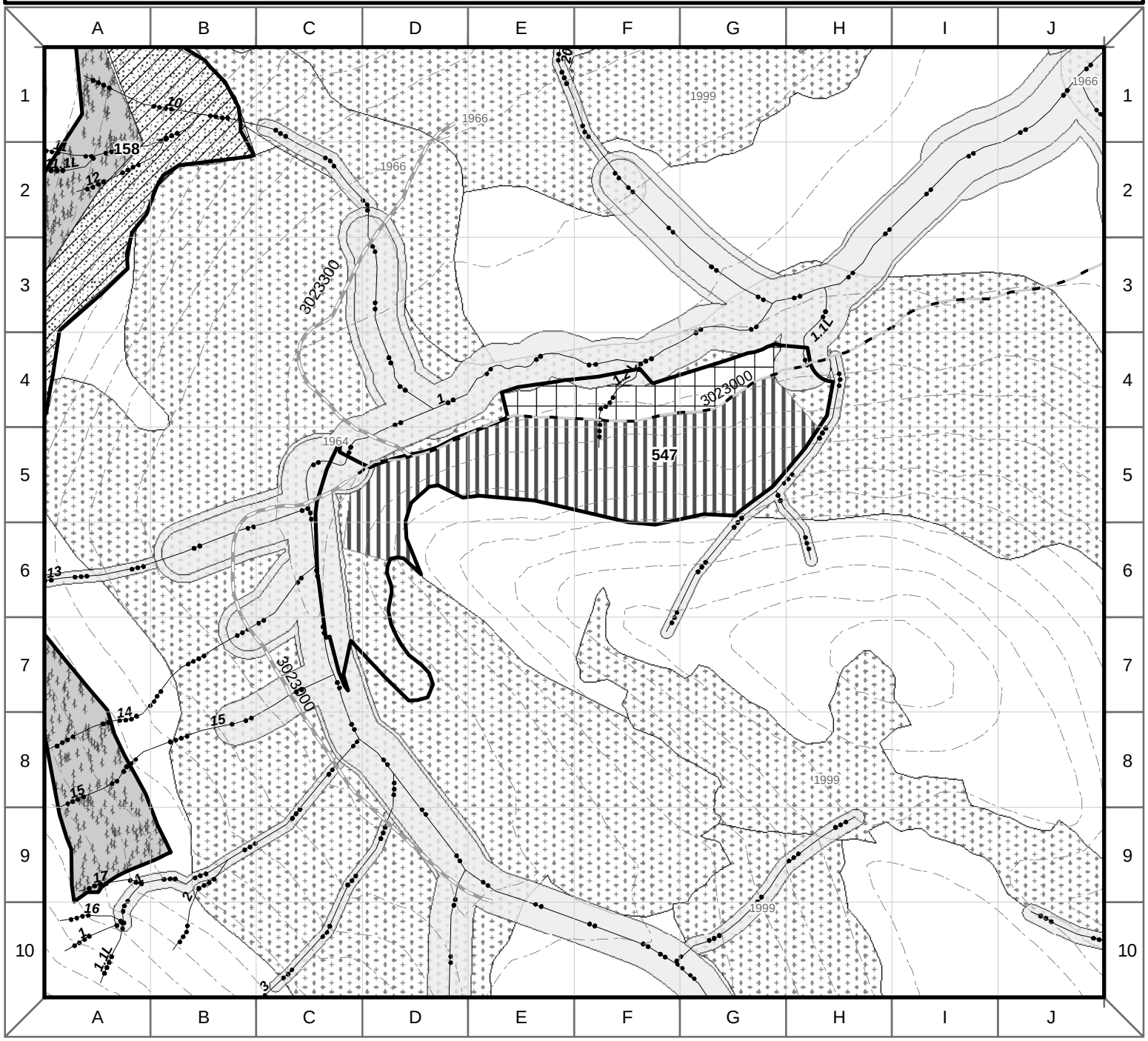
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during

and/or after actual ground disturbance.
SCENERY: Unit has 15 acres in Low SIO and 15 acres in Very Low SIO.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to be range about 25 to 80%. There is approximately 3/4 acre of alpine/subalpine wetland and 6 acres of forested wetland in the central portion of the unit, near the southern unit boundary (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Little Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 547 | **ROD** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit Number: 549	Alternatives: ROD	Total Unit Acres: 47.3	Prescription: Systematic and Crown Thinning
VCU Number: 584	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 346	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5840100524. The stand origination date is 1965. Approximately 17% of the stand area has been pre-commercially thinned, which was completed in 2005. The site potential appears to be medium. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range Landscape Zone, and is located in the Ratz Harbor young-growth study area.

A Tongass Wide Young Growth Study site (POW Little Ratz Experiment #4) is along the the southwestern boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable and shovel yarding to NFS road 3000300.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Little Ratz Creek and Little Ratz Harbor.
Stream#: 2 Class: II, III, IV Flagging: B/W, O/W, G/W C-Type: HCM, HCO Concerns: erosion
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C

Stream#: 2.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

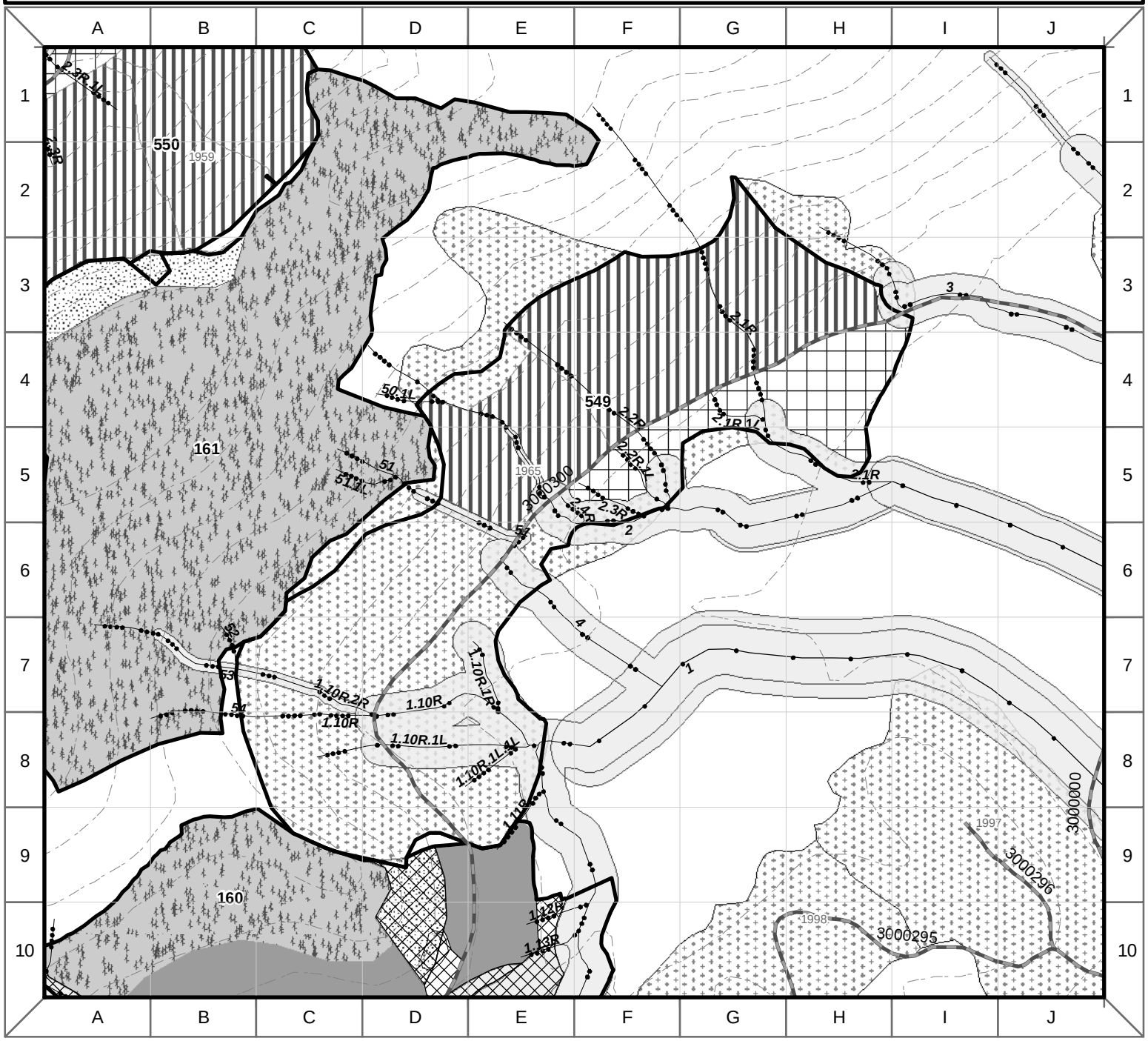
Stream#: 2.2R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break.

Appendix 1

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 4/51 Class: II, III, IV Flagging: B/W, O/W, G/W C-Type: MMO, HCM, HCO Concerns: erosion Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A, B and C All other streams in unit: Class IV Flagging: G/W C-Type: HC and MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit has 54 acres of Low SIO and 25 acres of Very Low SIO. In the two easternmost systematic thinning settings, use narrow corridors to minimize visibility, where settings are relatively close to the 30 Road.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range between 15% and close to 100%. All slopes greater than 72% will be verified prior to implementation. There are approximately 68 acres of forested wetland in all but the southern end of the unit ((R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Little Ratz Harbor/Little Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 549 **ROD** **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 550	Alternatives: ROD	Total Unit Acres: 150.7	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 1111	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200567. The stand origination date is 1959. This portion of the stand has not been pre-commercially thinned. The site potential appears to be primarily high, except for small areas of medium. This unit is in a successional stage of stem exclusion. Approximately 162 acres of the unit lies within the Deer Winter Range landscape zone. The remaining approximately 2 acres is in the Uplands/Mountain Slopes landscape zone. This unit is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable and shovel yarding to NFS roads 3023500 and 3023510.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3023510, totaling 1,000 feet.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Big Lake and Ratz Creek. Lake 1 is Big Lake and Stream L1 is Ratz Creek.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake 1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: L1 Class: I Flagging: B/W C-Type: MMS Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1 Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2 Class: I Flagging: B/W C-Type: PAS Concerns: none
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.1R Class: I, II Flagging: B/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.2R Class: I, II, IV Flagging: B/W, G/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2.3R Class: I, II Flagging: B/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.3R.1L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2.4L Class: II Flagging: B/W C-Type: MMO Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 3.1L Class: I, II Flagging: B/W C-Type: PAB, AFH Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 3.2L Class: I, II, IV Flagging: B/W, G/W C-Type: PAS, AFH, HCO Concerns: none
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3.3L Class: I, II, IV Flagging: B/W, G/W C-Type: HCO, AFH Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break. Class II for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3.3L.1R Class: II, IV Flagging: B/W, G/W C-Type: AFH, HCO Concerns: none
Buffer (RMA): Class II for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3.4L Class: I Flagging: B/W C-Type: AFH Concerns: none
Buffer (RMA): Class II for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 3.5L Class: II, IV Flagging: B/W, G/W C-Type: AFH Concerns: none

Buffer (RMA): Class II for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3.6L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 20 Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 20.1R Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 20.2R Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 21 Class: I Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 22 Class: I, II, IV Flagging: B/W, G/W C-Type: AFH, HCO Concerns: blowdown
Buffer (RMA): Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 22.1L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

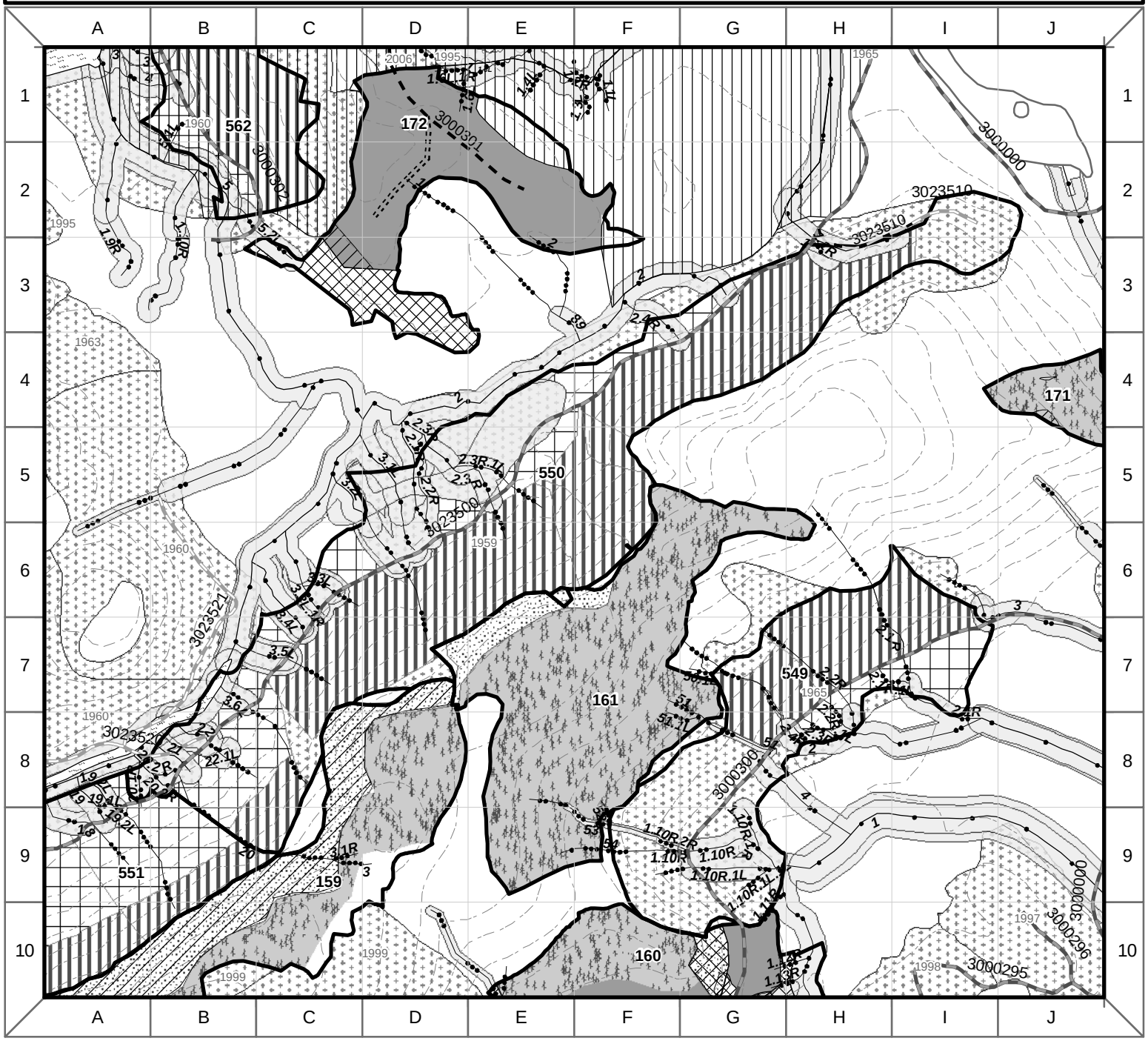
SCENERY: Unit has 141 acres of Low SIO and 23 acres of Very Low SIO. In the easternmost systematic thinning setting, use narrow corridors to minimize visibility.

RECREATION: Unit is near mouth of Big Lake. Maintain fishing access to Big Lake and outlet stream.

SOILS/WETLANDS: Slopes are estimated to range between 15% to near 100%. All slopes greater than 72% will be verified prior to implementation. Debris avalanches are mapped near the southwest corner of the unit. There are approximately 18 acres of forested wetland/emergent short sedge complex, 6 acres of emergent short sedge wetland and 48 acres of forested wetland in the northeastern half of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.

WILDLIFE: Commercial thinning will enhance wildlife habitat near Ratz Harbor/Big Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reconstructed to access part of the unit. This unit will enhance a low elevation travel route.

Young Growth Unit Number 550 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 551	Alternatives: ROD	Total Unit Acres: 157.1	Prescription: Crown and Systematic Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 1026	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200567. The stand origination date is 1959. Approximately 2% of the stand area has been pre-commercially thinned, which was completed in 2006. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. Approximately 153 acres of the unit lies within the Deer Winter Range landscape zone. The remaining approximately 18 acres is in the Uplands/Mountain Slopes landscape zone. This unit is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3023500.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: An infestation of orange hawkweed is known along the existing road adjacent to the unit. Monitoring is recommended to ensure that the infestation does not spread as a result of the project activities.

FISHERIES: Streams are tributaries to Big Lake and Ratz Creek. Lake 1 is Big Lake.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake 1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 9 Class: I, II, IV Flagging: B/W, G/W C-Type: AFM, HCO Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 10 Class: II, III Flagging: B/W, O/W C-Type: HCO, HCD Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 11 Class: II, IV Flagging: B/W, G/W C-Type: AFO, HCO Concerns: blowdown
Buffer (RMA): Class II for AFO greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 11.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 13/1 Class: II, III Flagging: B/W, O/W C-Type: HCO, HCM, HCD Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCO, HCM and HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 13/2 Class: III, IV Flagging: O/W, G/W C-Type: HCD, HCO Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#:18 Class: II, IV Flagging: B/W, G/W C-Type: AFO, HCO Concerns: none
Buffer (RMA): Class II for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 19 Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 19.1L Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCV greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 19.2L Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 20 Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 20.1R Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 20.2R Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

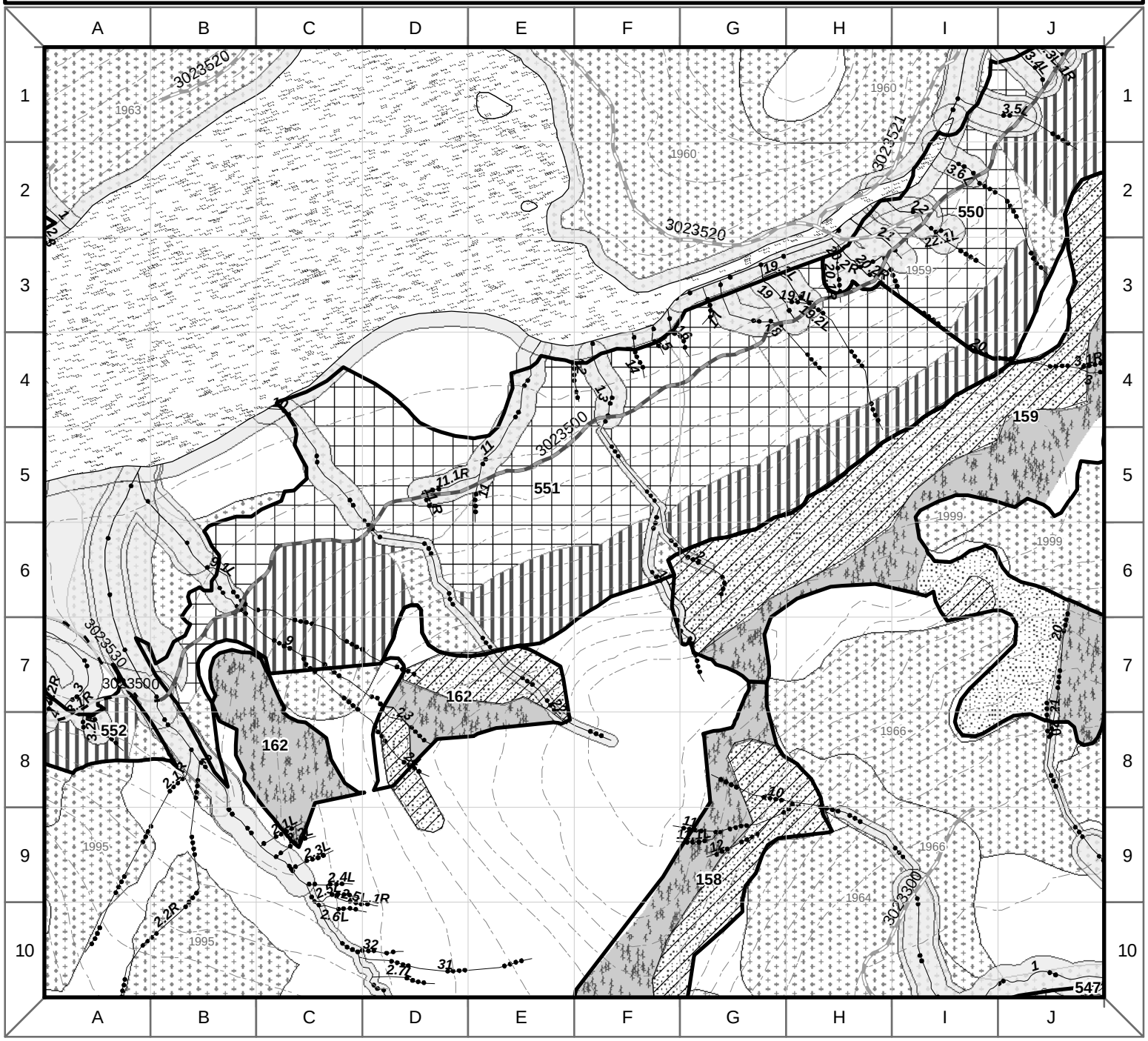
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the

Appendix 1

Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit has 118 acres in Low SIO and 54 acres in Very Low SIO. About 2/3 of the unit is planned for uniform thinning and 1/3 is planned for systematic thinning.
RECREATION: Unit is borders the Big Lake RMA and is between NFS Road 3023500. Maintain fishing access to Big Lake to the extent practical, during and after harvest.
SOILS/WETLANDS: Slopes are estimated to range from about 20% to over 100%. All slopes greater than 72% will be verified prior to implementation. Debris avalanches initiated in 1997 and transect through the unit.There are approximately 5 acres of forested wetland/emergent short sedge complex and 18 acres of forested wetland near the northern edge of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Big Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). This unit will enhance a low elevation travel route.

Young Growth Unit Number 551 **ROD** **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 552	Alternatives: ROD	Total Unit Acres: 24.0	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 176	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200567. The stand origination date is 1959. This portion of the stand has not been pre-commercially thinned. The site potential appears to be medium. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3023500.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3023500, totaling 2,300 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Big Lake.
Stream #: 2 Class: I, II Flagging: B/W C-Type: AFM, HCV Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCV greater of 100 feet or the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream #: 3 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream #: 3.1R Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream #: 4 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream #: 5 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream #: 6 Class: II, IV Flagging: B/W, G/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream #: 7 Class: II, IV Flagging: B/W, G/W C-Type: PAO, HCO Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is entirely categorized as Very Low SIO. No concerns.

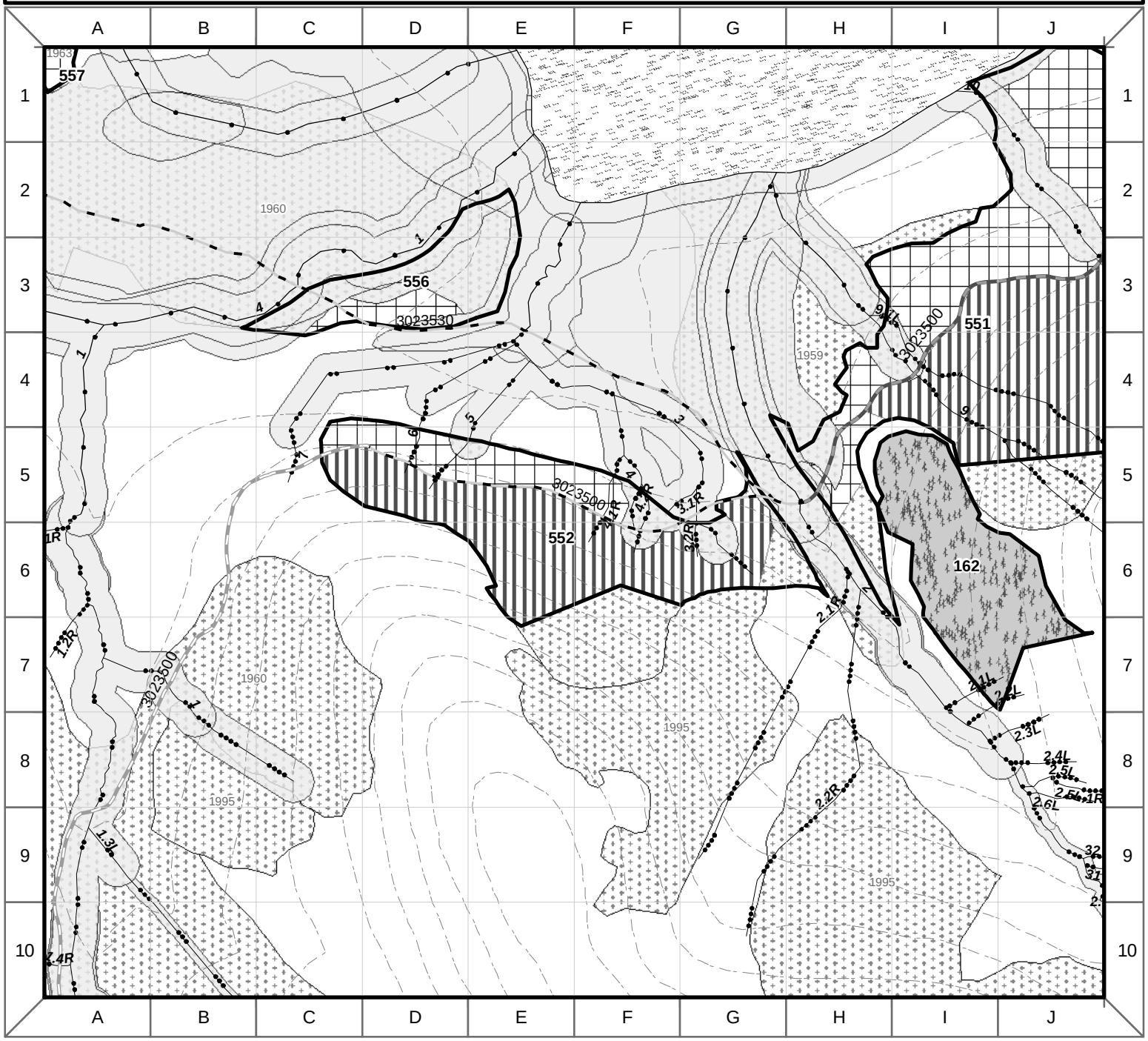
RECREATION: No Concerns

SOILS/WETLANDS:
Slopes are estimated to range from about 20% to about 100%. All slopes greater than 72% will be verified prior to implementation. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.

WILDLIFE:
Commercial thinning will enhance wildlife habitat near Big Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 552 | **ROD** | **VCU: 583**



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Unit Number: 555	Alternatives: ROD	Total Unit Acres: 27.1	Prescription: Systematic Thinning
VCU Number: 583	Yarding System: Cable	Net Harvest Volume (MBF): 211	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200502. The stand origination date is 1963. This stand has not been pre-commercially thinned. The site potential appears to be medium. This unit is in a successional stage of stem exclusion. Approximately 15 acres of the unit lies within the Deer Winter Range landscape zone. The remaining approximately 11 acres is in the Uplands/Mountain Slopes landscape zone. This unit is located in the Ratz Harbor young growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to NFS road 3023535.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3023500 and 3023535, totaling 8,300 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek.
Stream#: 5 Class: II, III Flagging: B/W, O/W C-Type: HCL, HCD Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

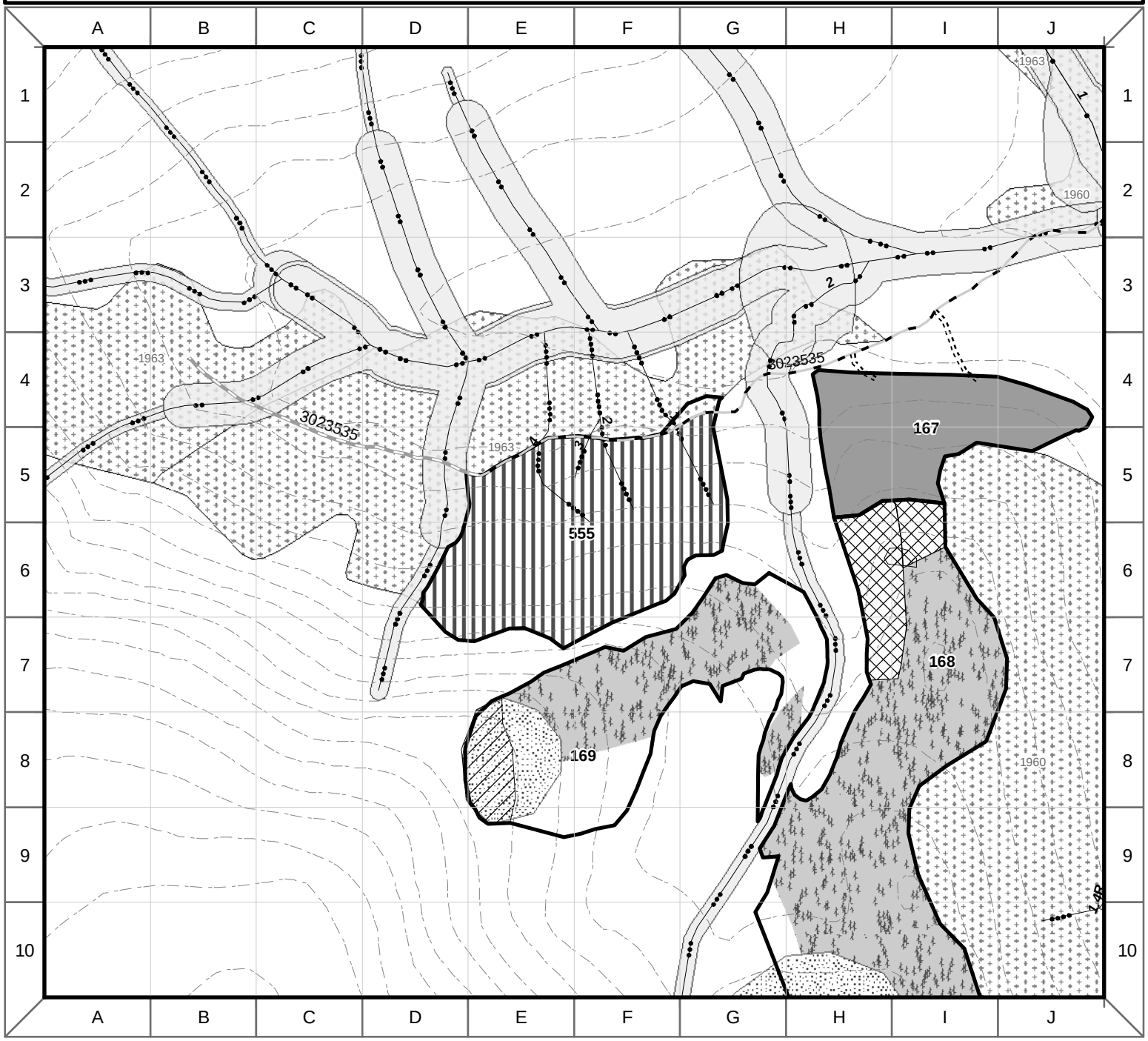
SCENERY: Unit is entirely categorized as Very Low SIO. No Concerns

RECREATION: No Concerns

SOILS/WETLANDS:
Slopes are estimated to range from about 20% to about 80%. All slopes greater than 72% will be verified prior to

implementation. There is about 1/2 acre of forested wetland adjacent to the southeastern boundary of the unit (BMP 12.5). (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat along Ratz Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again), though a road would be reconstructed to access the unit. Unit is not a priority on the landscape from a thinning perspective because it is isolated.

Young Growth Unit Number 555 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Appendix 1

Unit Number: 556	Alternatives: ROD	Total Unit Acres: 1.9	Prescription: Crown Thinning
VCU Number: 583	Yarding System: Shovel	Net Harvest Volume (MBF): 11	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit is entirely within Stand #5830300578. The stand origination date is 1960. The entire area within this small unit was pre-commercially thinned in 2006 and it may be a number of years before it is ready for commercial thinning. The site potential appears to be medium. This unit is in a successional stage of stem exclusion; however, precommercial thinning has opened the canopy. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3023530.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3023500 and 3023530, totaling 2,600 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Big Lake. Stream 1 is Ratz Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 7 Class: II Flagging: B/W C-Type: PAO Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

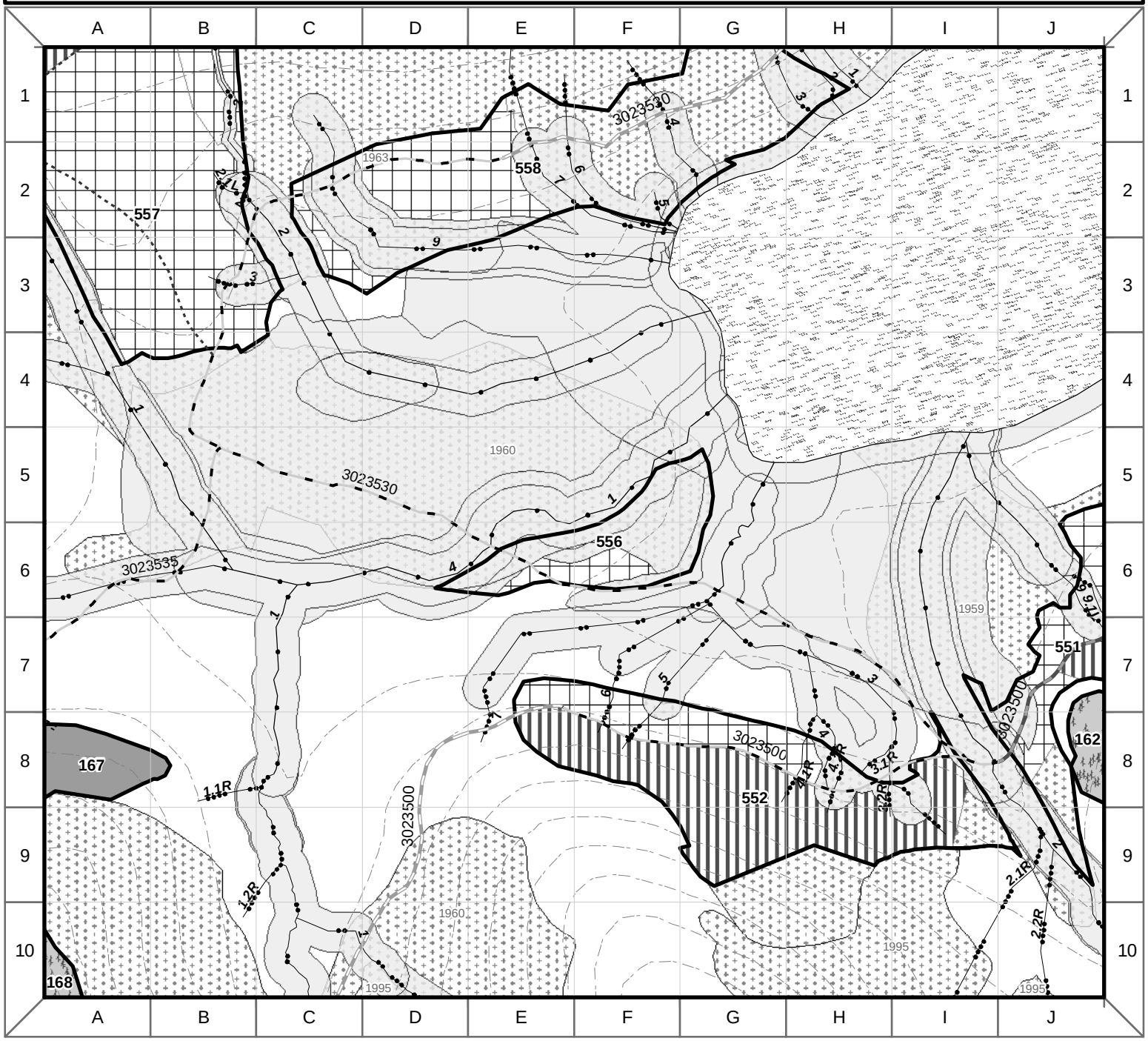
SCENERY: Unit is entirely categorized as Very Low SIO. No concerns.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes are gentle and up to about 20%. There are approximately 3 acres of forested wetland /emergent short sedge complex and 1 acre of tall sedge fen in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.

WILDLIFE: Commercial thinning will enhance wildlife habitat along Ratz Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reconstructed to access the unit.

Young Growth Unit Number 556 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 557	Alternatives: ROD	Total Unit Acres: 58.1	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 387	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830300577. The stand origination date is 1963. Approximately 41% of the stand area has been pre-commercially thinned, which was completed in 2005. Some portions of the unit may require a number of years before they are ready for commercial thinning. The site potential in this unit appears to be medium. This unit is in a successional stage of stem exclusion. Approximately 55 acres of the unit lies within the Deer Winter Range landscape zone. The remaining approximately 8 acres lies within the Uplands/Mountain Slopes landscape zone. This unit is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road and NFS road 3023530. Cable settings yard to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3023500 and 3023530, totaling 5,500 feet and a proposed temporary road of 2,800 feet, constructed over decommissioned road bed. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Big Lake and Ratz Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: HCL, HCV Concerns: erosion
Buffer (RMA): Class I for HCL and HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1R Class: III Flagging: O/W C-Type: HCV Concerns: erosion
Buffer (RMA): Class III for HCV to the top of the side-slope break.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 1.1R.1R Class: III, IV Flagging: O/W, GW C-Type: HCV, HCO
Concerns: Blowdown, erosion
Buffer (RMA): Class III for HCV to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B and C

Stream#: 2 Class: I, III Flagging: B/W, O/W C-Type: PAS, AFM, HCD, HCM, HCO
Concerns: erosion and blowdown
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCD, HCM and HCO to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 2.1L Class: II, IV Flagging: B/W, GW C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 177-3 Class: III Flagging: O/W C-Type: HCD Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category B

Stream#: 3 Class: II, IV Flagging: B/W, GW C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Temporary road (reopened decommissioned) for Unit 523: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is entirely categorized as Very Low SIO. No concerns.

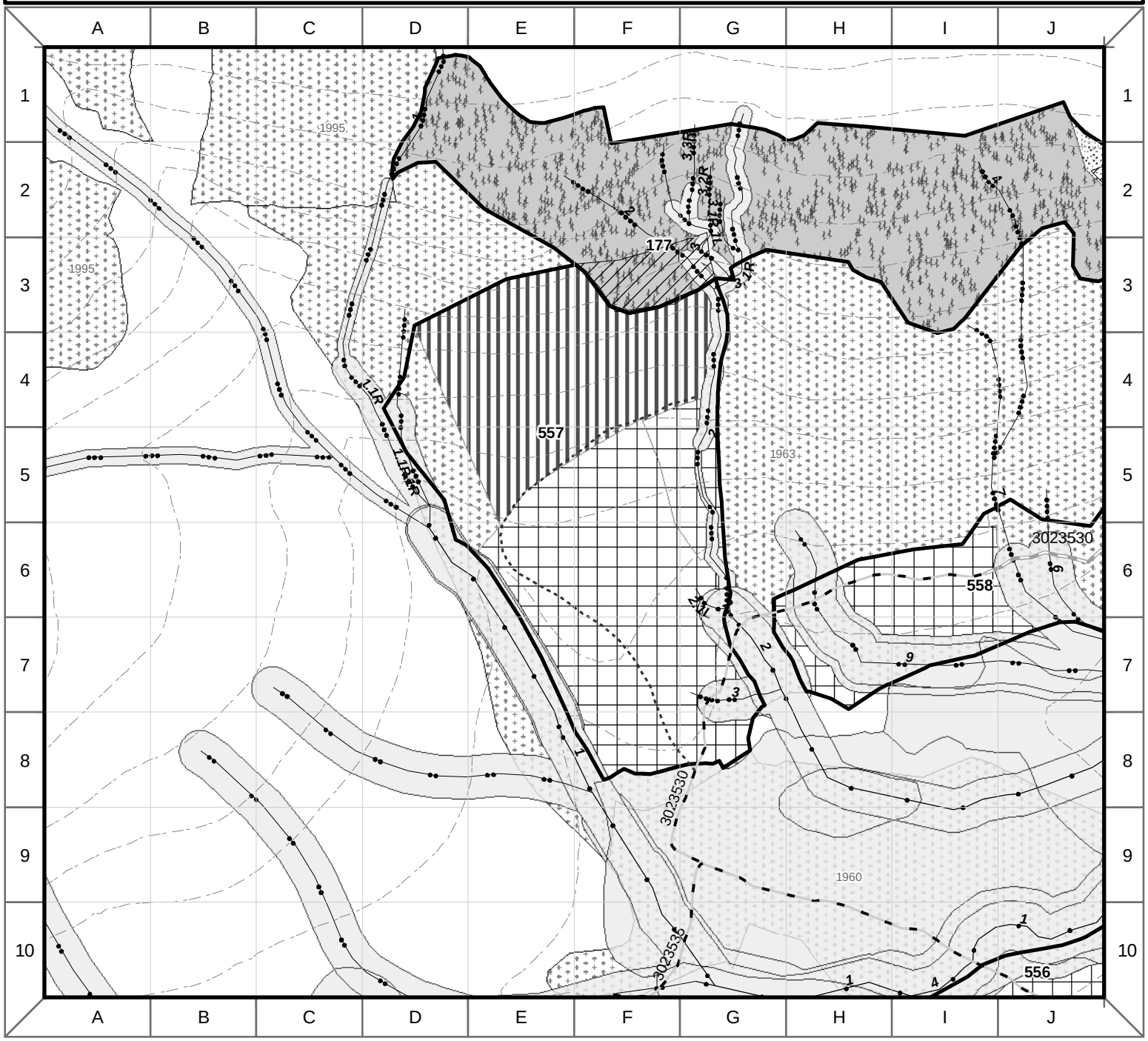
RECREATION: No Concerns

SOILS/WETLANDS:
Slopes are estimated to range from about 10% in the lower portions of the unit to near 100% in the upper elevations. All slopes greater than 72% will be verified prior to implementation. A debris torrent initiated in 1977. There is approximately 1 acre of forested wetland adjacent to the southeastern corner of the unit boundary ((R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.

WILDLIFE:
Commercial thinning will enhance wildlife habitat near Big Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reopened to access the unit. Habitat value is relatively high because of south-facing slopes.

Appendix 1

Young Growth Unit Number 557 | **ROD** | **VCU: 583**



Unit Number: 558	Alternatives: ROD	Total Unit Acres: 9.1	Prescription: Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 53	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830300577. The stand origination date is 1963. Approximately 41% of the stand area has been pre-commercially thinned, which was completed in 2005. The site potential in this unit appears to be high. This unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area. The eastern, thinned portion of this unit coincides with a TWYG research site and will likely need to be dropped.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

A Tongass Wide Young Growth Study site (POW Ratz Experiment #4) is along the eastern boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/YARDING: Shovel yarding to NFS road 3023530.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3023500 and 3023530, totaling 8,500 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Big Lake.
Stream#: 2 Class: I Flagging: B/W C-Type: AFM Concerns: blowdown
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 7 Class: II, IV Flagging: B/W, G/W C-Type: HCL, HCO Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 9 Class: II Flagging: B/W C-Type: AFH, HCM Concerns: none
Buffer (RMA): Class II for AFH greater of 140 feet or active portion of the alluvial fan. Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

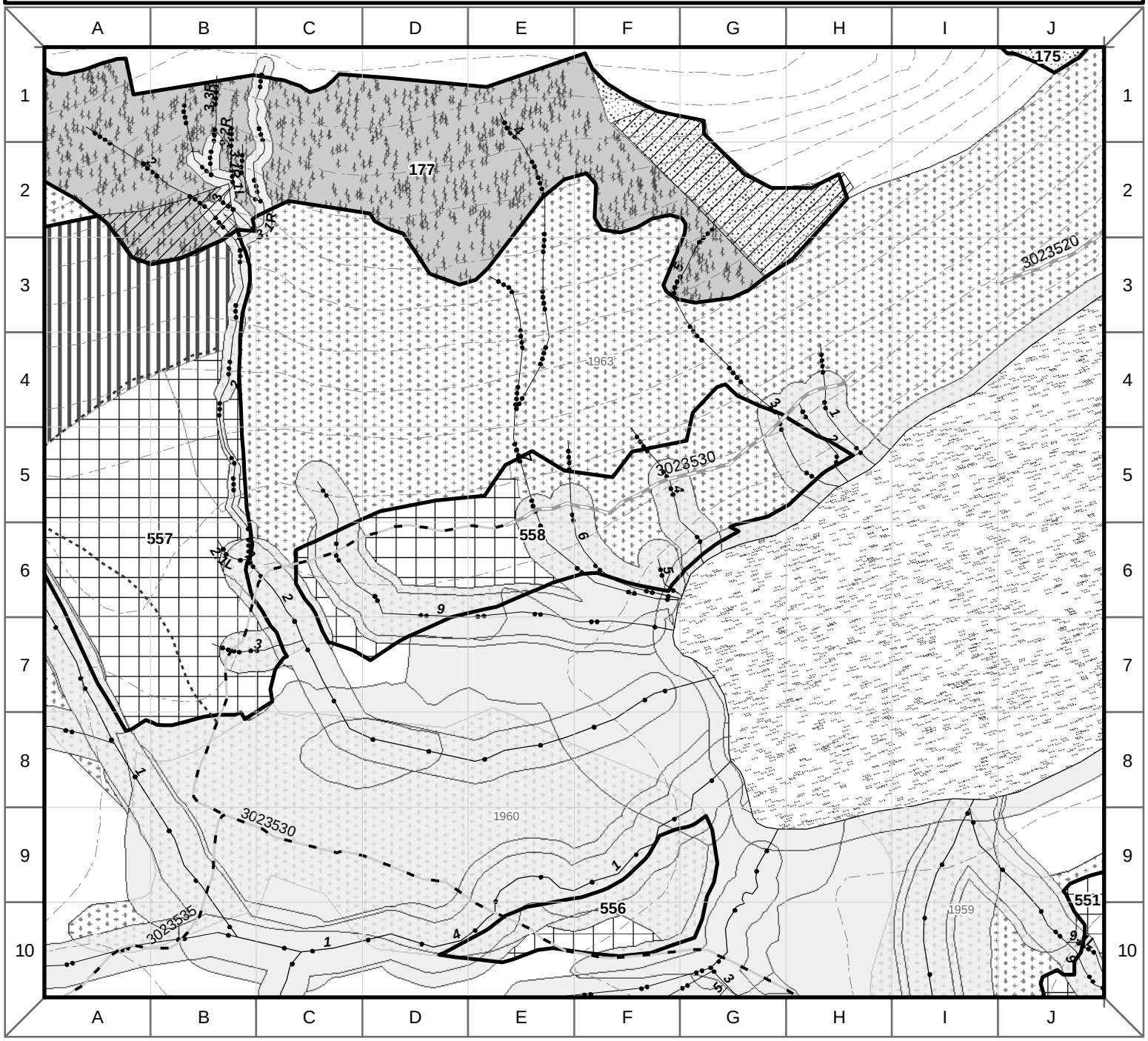
SCENERY: Unit is entirely categorized as Very Low SIO. No concerns.

RECREATION: No Concerns

SOILS/WETLANDS:
Slopes are estimated to range from about 15% to about 60%. There are approximately 8 acres of forested wetland in

adjacent to the southern unit boundary (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat in this south-facing unit near Big Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reopened to access the unit.

Young Growth Unit Number 558 **ROD** **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 559	Alternatives: ROD	Total Unit Acres: 14.4	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 95	LUD: Old Growth Habitat

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200551. The stand origination date is 1960. The stand area within the unit has not been pre-commercially thinned. The site potential in this unit appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies inside a small OGR and is within the Old-growth Habitat LUD landscape zone. The unit is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Old-Growth Habitat):
The management objectives of young-growth treatments in Landscape Zone B are to accelerate development of advanced seral stand structure in order to restore the ecological integrity of habitat. Characteristics needed for wildlife habitat vary with the forest type and site potential of each stand. Treatments are intended to improve habitats, corridors, and connectivity for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with maritime-influenced habitat.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to NFS 3000303. Cable settings yard to NFS 30000301.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS roads 3000301 and 3000303, totaling 1,800 feet. See road cards for information on NFS roads.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Ratz Harbor.
Stream#: 1 Class: II Flagging: B/W C-Type: HCM Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

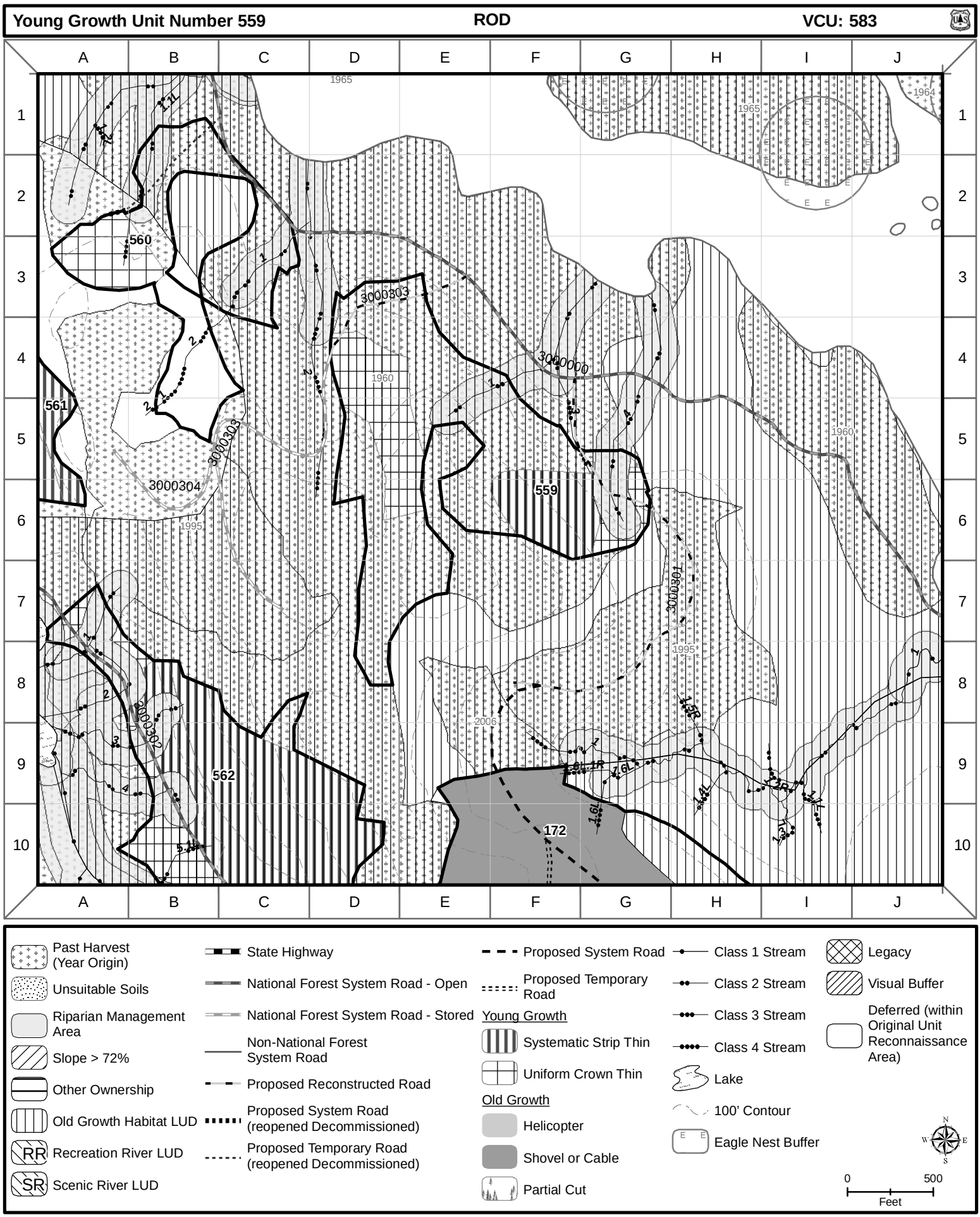
Stream#: 2 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 4 Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM

Concerns: none	Buffer (RMA): none	Protection: Category C
GEOLOGY/KARST: No Concerns		
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.		
SCENERY: Unit is entirely in High SIO because it is in a small OGR. Only 10 acres are prescribed for systematic thinning. In these areas, implement narrow thinning corridors to minimize visibility.		
RECREATION: No Concerns		
SOILS/WETLANDS: Slopes are estimated range from about 20% to about 55%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.		
WILDLIFE: Commercial thinning will enhance wildlife habitat in small OGR near Ratz Harbor by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again), though a road would be reopened to access the unit. Unit is within a small OGR (consistent with Forest Plan) in all alternatives; create and maintain narrow thinning corridors in systematic thinning areas.		

Appendix 1



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Unit Number: 560	Alternatives: ROD	Total Unit Acres: 4.5	Prescription: Crown Thinning
VCU Number: 583	Yarding System: Shovel	Net Harvest Volume (MBF): 27	LUD: Modified Landscape, Old Growth Habitat

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200551. The stand origination date is 1960. The stand area within this unit has not been pre-commercially thinned. The site potential in this unit appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range Landscape Zone and is located in the Ratz Harbor young growth study area.

Silvicultural Objective/Desired Condition (Old-Growth Habitat):
Under Alternatives 4 and 5, the management objectives of young-growth treatments in Landscape Zone B are followed. These objectives are to accelerate development of advanced seral stand structure in order to restore the ecological integrity of habitat. Characteristics needed for wildlife habitat vary with the forest type and site potential of each stand. Treatments are intended to improve habitats, corridors, and connectivity for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with maritime-influenced habitat.

Silvicultural Objective/Desired Condition (Deer Winter Range):
Under Alternative 3, the management objectives of this landscape zone are followed. The management goal of young growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 900 feet, approximately 800 feet will be constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Ratz Creek.
Stream#: 1 Class: II Flagging: B/W C-Type: HCL Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

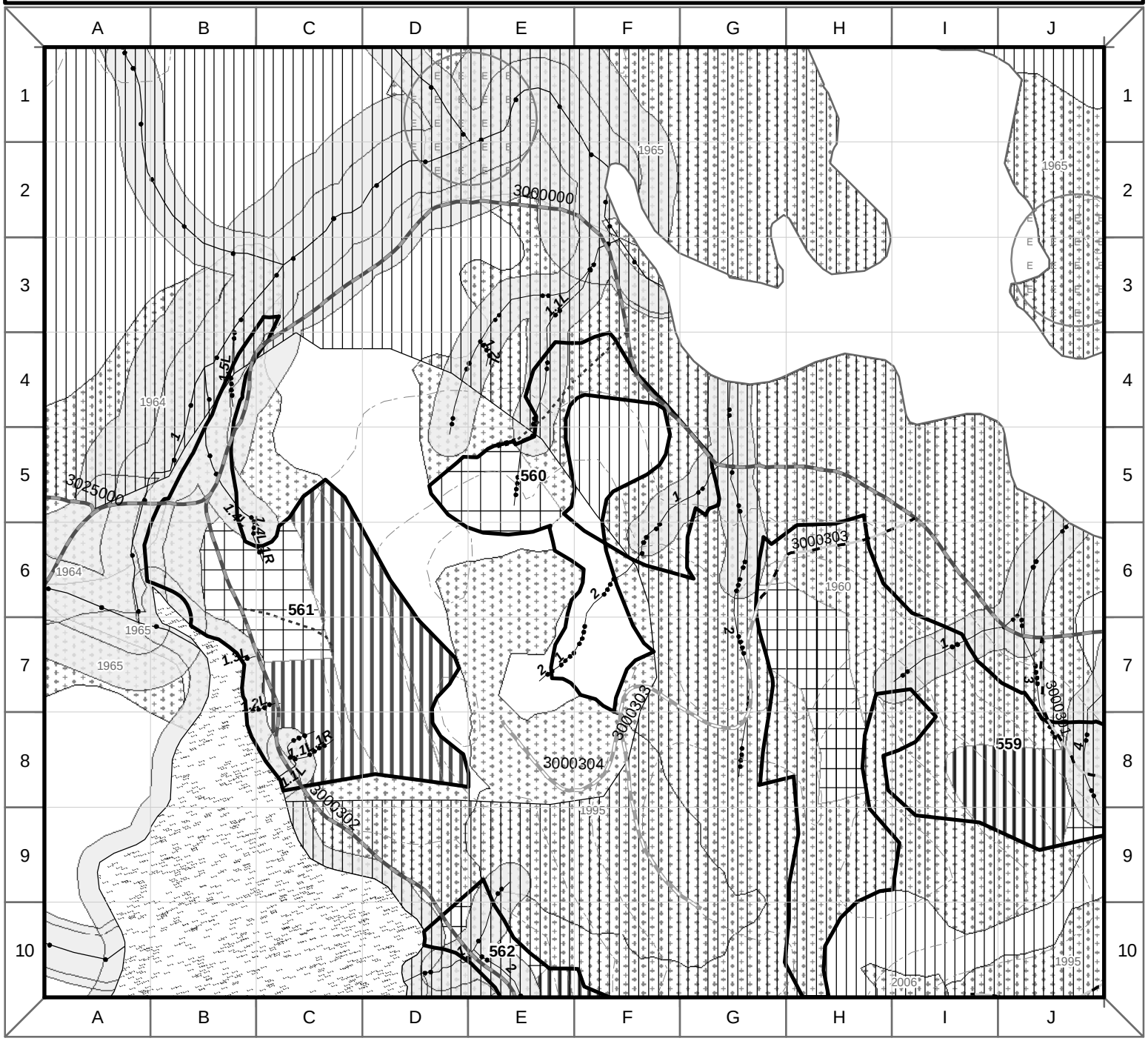
Stream#: 2 Class: II Flagging: B/W C-Type: HCL, HCO Concerns: none
Buffer (RMA): Class II for HCL and HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary roads (new and reopened decommissioned) for Unit 560: One class II stream crossing. Stream#: 1.1L Class: II C-Type: HCO. A log culvert is recommended. Dolly Varden char were identified at the proposed Class II crossings and will require a timing window of June 15 to September 1. If any additional crossings are found they will be approved by the USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class II crossing will be designed to provide fish passage using a log culvert or bridge, will be installed under current timing constrictions, and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.14, 14.3, and 14.5, 14.20, and 14.8.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Alternative 3: Unit is in Very Low SIO. No concerns. Alternatives 4 and 5: Unit is entirely in High SIO because it is in a small OGR in these alternatives.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range from about 15% to about 50%. There is about 1/4 acre (2% of the unit) of forested wetland/emergent sedge complex and 2 acres of forested wetland that covers the unit except for the western tip (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards. A temporary road will impact less than 0.25 acres of forested wetland within the unit and less than 0.25 acres of forested wetland outside the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove drainage structures, and close road after harvest. Follow R10 BMPs12.5 and 14.9 and National Core BMPs AqEco-2, AqEco-4, Road-2, and Road-7.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Trumpeter Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reopened to access the unit. Unit is adjacent to a small OGR.

Young Growth Unit Number 560 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 561	Alternatives: ROD	Total Unit Acres: 26.3	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 191	LUD: Modified Landscape, Old Growth Habitat

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200551. The stand origination date is 1960. Approximately 5.3 acres along the western edge of the unit was pre-commercially thinned in 2006. The site potential in this unit appears to be medium. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range Landscape Zone and is located in the Ratz Harbor young growth study area.

Silvicultural Objective/Desired Condition (Old-Growth Habitat):
Under Alternatives 4 and 5, the management objectives of young-growth treatments in Landscape Zone B are followed. These objectives are to accelerate development of advanced seral stand structure in order to restore the ecological integrity of habitat. Characteristics needed for wildlife habitat vary with the forest type and site potential of each stand. Treatments are intended to improve habitats, corridors, and connectivity for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with maritime-influenced habitat.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary road and NFS road 3000302.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 500 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Ratz Creek and Trumpeter Lake. Lake 1 is Trumpeter Lake and Stream 1 is Ratz Creek.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1 Class: I Flagging: B/W C-Type: FPL Concerns: none
Buffer (RMA): Class I for FPL greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: I, IV Flagging: B/W, G/W C-Type: HCO, MMO Concerns: blowdown
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.3L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 1.4L Class: I Flagging: B/W C-Type: MMS, MMO Concerns: none
Buffer (RMA): Class I for MMS and MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary road (reopened decommissioned) for Unit 561: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit has about 9 acres in Moderate SIO and 22 acres in Very Low SIO.

RECREATION: No Concerns

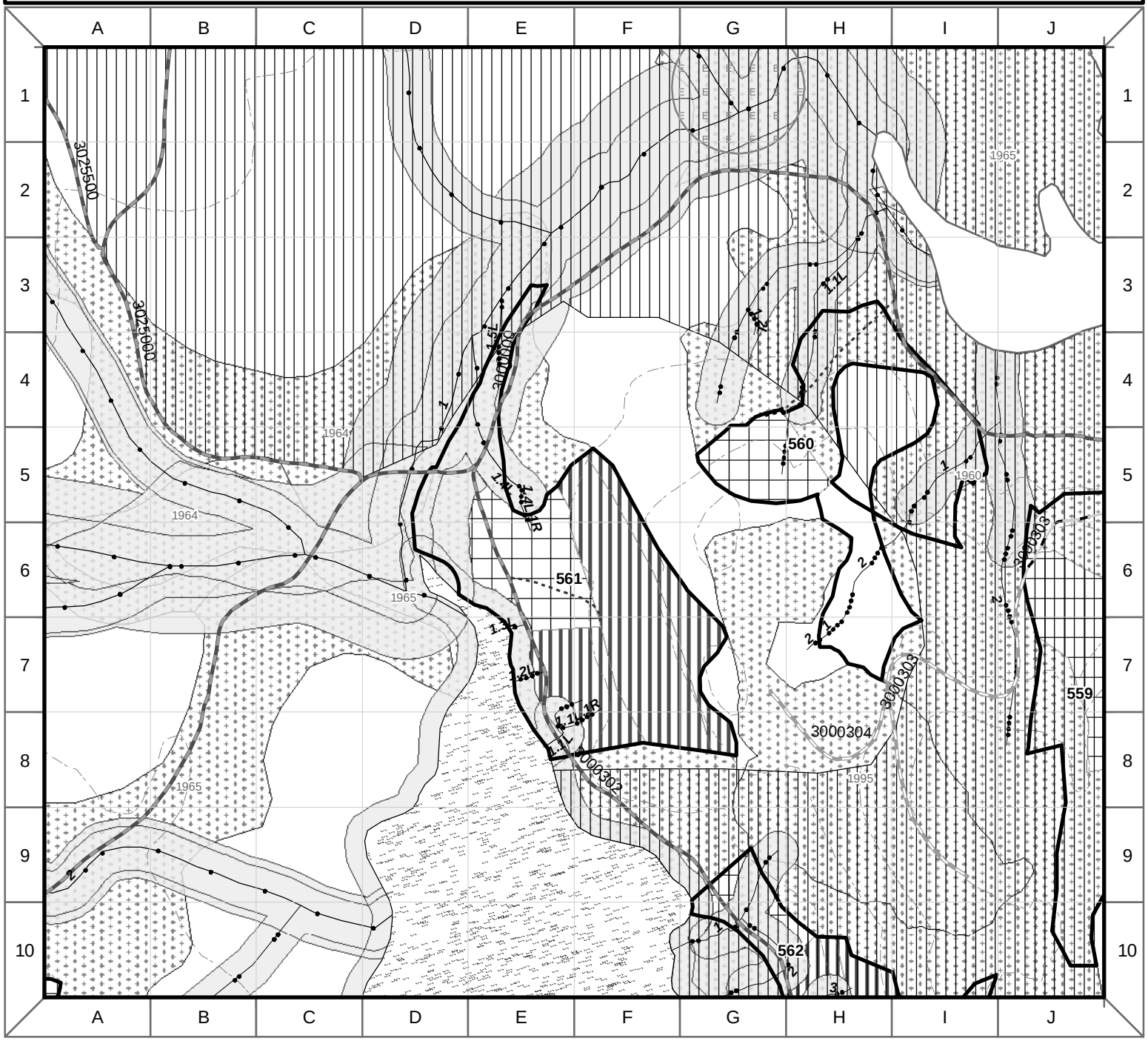
SOILS/WETLANDS: Slopes are estimated to range from about 15% to about 60%. There are approximately 24 acres of forested wetland located primarily in the western polygon (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.

WILDLIFE:
Commercial thinning will enhance wildlife habitat near Trumpeter Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Unit is adjacent to a small OGR.

Appendix 1

Young Growth Unit Number 561 **ROD** **VCU: 583**



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Unit Number: 562	Alternatives: ROD	Total Unit Acres: 35.1	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 262	LUD: Old Growth Habitat

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830200551. The stand origination date is 1960. The stand area within this unit has not been pre-commercially thinned. The site potential in this unit appears to be high. The unit is in a successional stage of stem exclusion. This unit lies within the Old-growth Habitat landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Old-Growth Habitat):
The management objectives of young-growth treatments in Landscape Zone B are to accelerate development of advanced seral stand structure in order to restore the ecological integrity of habitat. Characteristics needed for wildlife habitat vary with the forest type and site potential of each stand. Treatments are intended to improve habitats, corridors, and connectivity for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with maritime-influenced habitat.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3000302.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Trumpeter Lake. Lake 1 is Trumpeter Lake.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

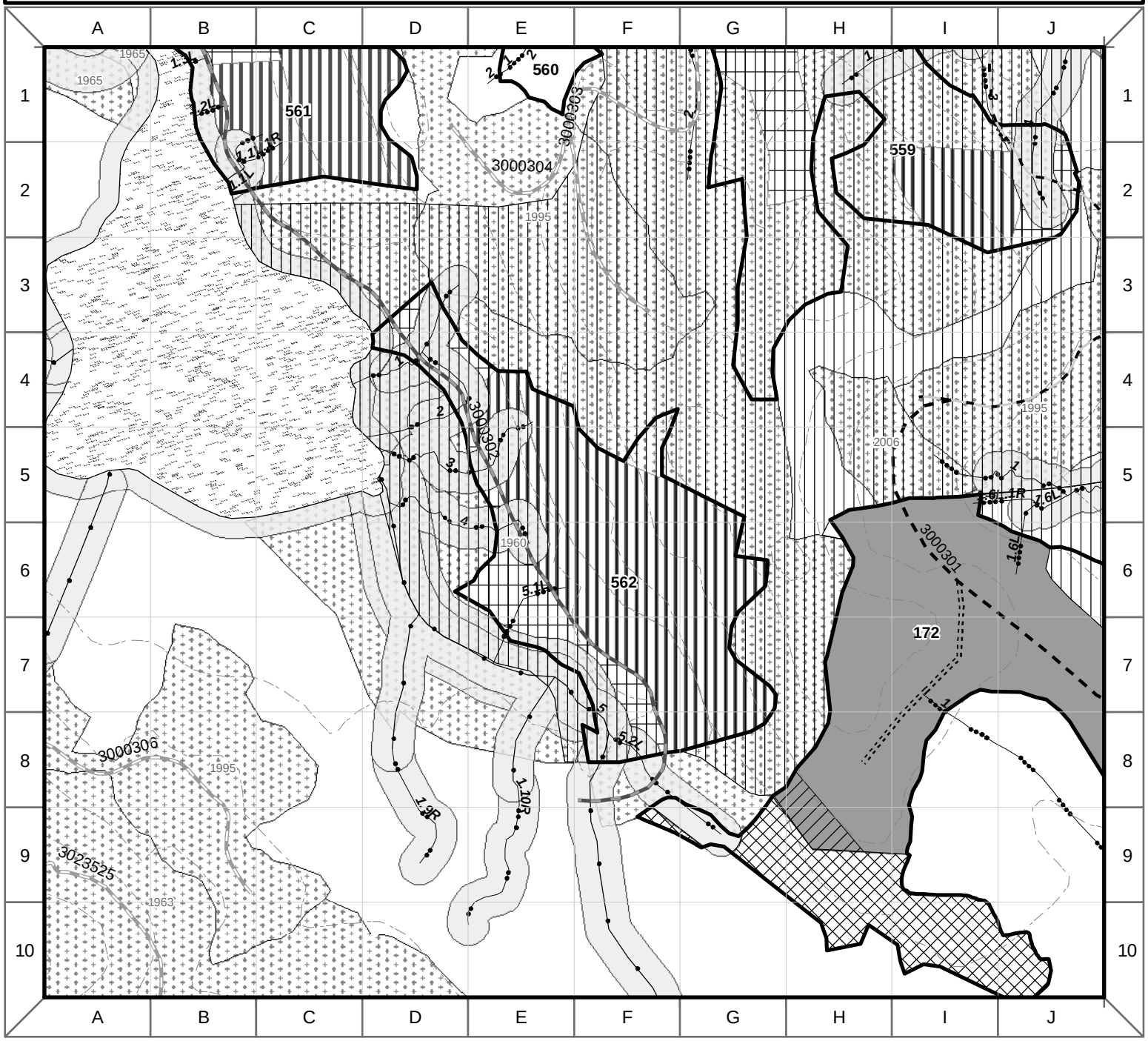
Stream #: 1 Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream #: 2 Class: II Flagging: B/W C-Type: MCO Concerns: none
Buffer (RMA): Class II for MCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream #: 3 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream #: 4 Class: II Flagging: B/W C-Type: PAO, MCO Concerns: none Buffer (RMA): Class II for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for MCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream #: 5 Class: I Flagging: B/W C-Type: FPM, MCM Concerns: none Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MCM greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream #: 5.2L Class: II Flagging: B/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely in High SIO because it is in an OGR. About 33 acres are planned for systematic thinning. Implement narrow thinning corridors in order to minimize visibility.
RECREATION: Unit is close to the Big Lake Fish Pass Wildlife Viewing site. Although this is not a heavily used site, it is a developed recreation site. Thinning should take place outside the fish window so that access is not restricted during the peak visitor use period and should be neat and clean in appearance near the fish pass. During thinning operations, minimize access restrictions.
SOILS/WETLANDS: It is estimated that slopes range from about 15% to near 70% in the southeast upper slopes. All slopes greater than 72% will be verified prior to implementation. Isolated pockets of forested wetland is found in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Trumpeter Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again), though a road would be reopened to access unit. Unit is within a small OGR (consistent with Forest Plan); create and maintain narrow thinning corridors in systematic thinning areas.

Young Growth Unit Number 562 | **ROD** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 563	Alternatives: ROD	Total Unit Acres: 44.2	Prescription: Systematic and Crown Thinning
VCU Number: 583	Yarding System: Cable	Net Harvest Volume (MBF): 328	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830300524. The stand origination date is 1965. This stand has been entirely pre-commercially thinned, which was primarily completed in 1994. The site potential in this unit appears to be high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS roads 3000306 and 3000000.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3000306, totaling 1,700 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Trumpeter Lake.
Stream#: 2 Class: I, IV Flagging: B/W, G/W C-Type: AFM, HCM, HCO Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class I for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

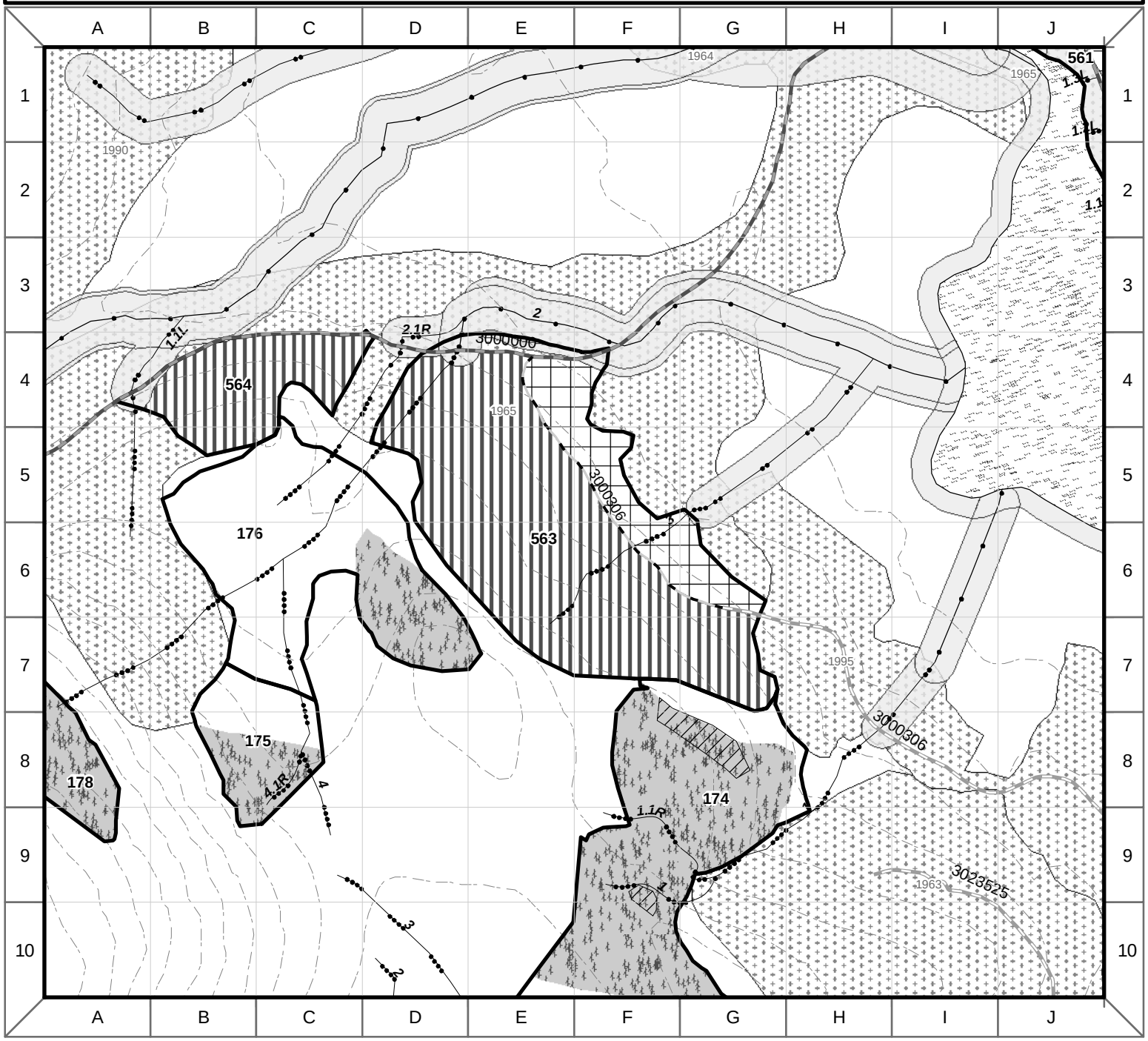
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during

and/or after actual ground disturbance.
SCENERY: About 14 acres in Moderate SIO, 26 acres in Low SIO, and 4 acres in Very Low SIO. About 10 acres of the Moderate SIO area is prescribed for systematic thinning, along with almost all of the Low SIO areas. Implement narrow thinning corridors in order to minimize visibility, at least for those that are perpendicular to the 30 Road. Corridors can be widened along the 3000306 Road if they can run parallel to the 30 Road to make them less visible.
RECREATION: No Concerns
SOILS/WETLANDS: It is estimated that slopes range from about 20% to about 60%. A debris avalanche initiated in 1988. There are approximately 16 acres of forested wetland adjacent to the northern and eastern edges of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Trumpeter Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 563 **ROD** **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 564	Alternatives: ROD	Total Unit Acres: 9.5	Prescription: Systematic Thinning
VCU Number: 583	Yarding System: Cable	Net Harvest Volume (MBF): 74	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5830300524. The stand origination date is 1965. This stand has been entirely pre-commercially thinned, which was primarily completed in 1994. The site potential in this unit appears to be high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone, and is located in the Ratz Harbor young-growth study area.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Ratz Creek.
Stream#: 1 Class: II Flagging: B/W C-Type: HCM Concerns: none
Buffer (RMA): Class II for HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit is entirely Moderate SIO and includes about 10 acres of systematic thinning. Implement narrow thinning corridors in order to minimize visibility of harvest from 30 Road.

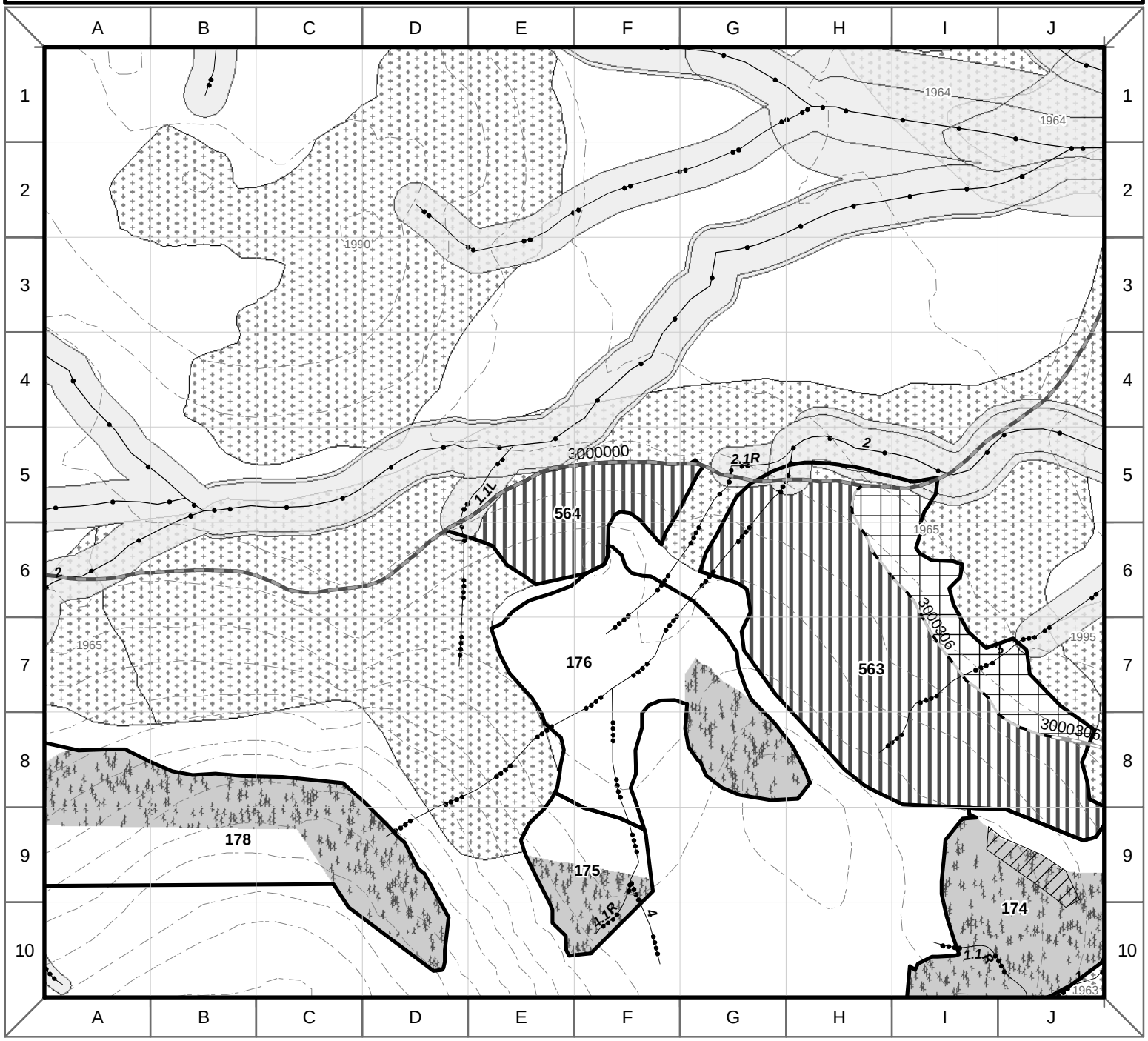
RECREATION:
No Concerns

SOILS/WETLANDS:
It is estimated that slopes range from about 30% to near 70%. All slopes greater than 72% will be verified prior to implementation. There are approximately 3 acres of forested wetland/emergent sedge complex and 2 acres of forested wetland adjacent to the northern edge of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow

Appendix 1

R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Trumpeter Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 564 **ROD** **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 565	Alternatives: ROD	Total Unit Acres: 2.1	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 12	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5810200504. The stand origination date is 1969. Approximately 66% of the stand area has been pre-commercially thinned, which was completed in 1989. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. The unit is in the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek.
Stream#: 2 Class: II Flagging: B/W C-Type: MMO Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2.1R Class: II, IV Flagging: B/W, G/W C-Type: MMO Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit consists of about 3 acres with Moderate SIO and 1 acre with Low SIO and includes all uniform thinning. Attempt to minimize visibility from the 30 Road.

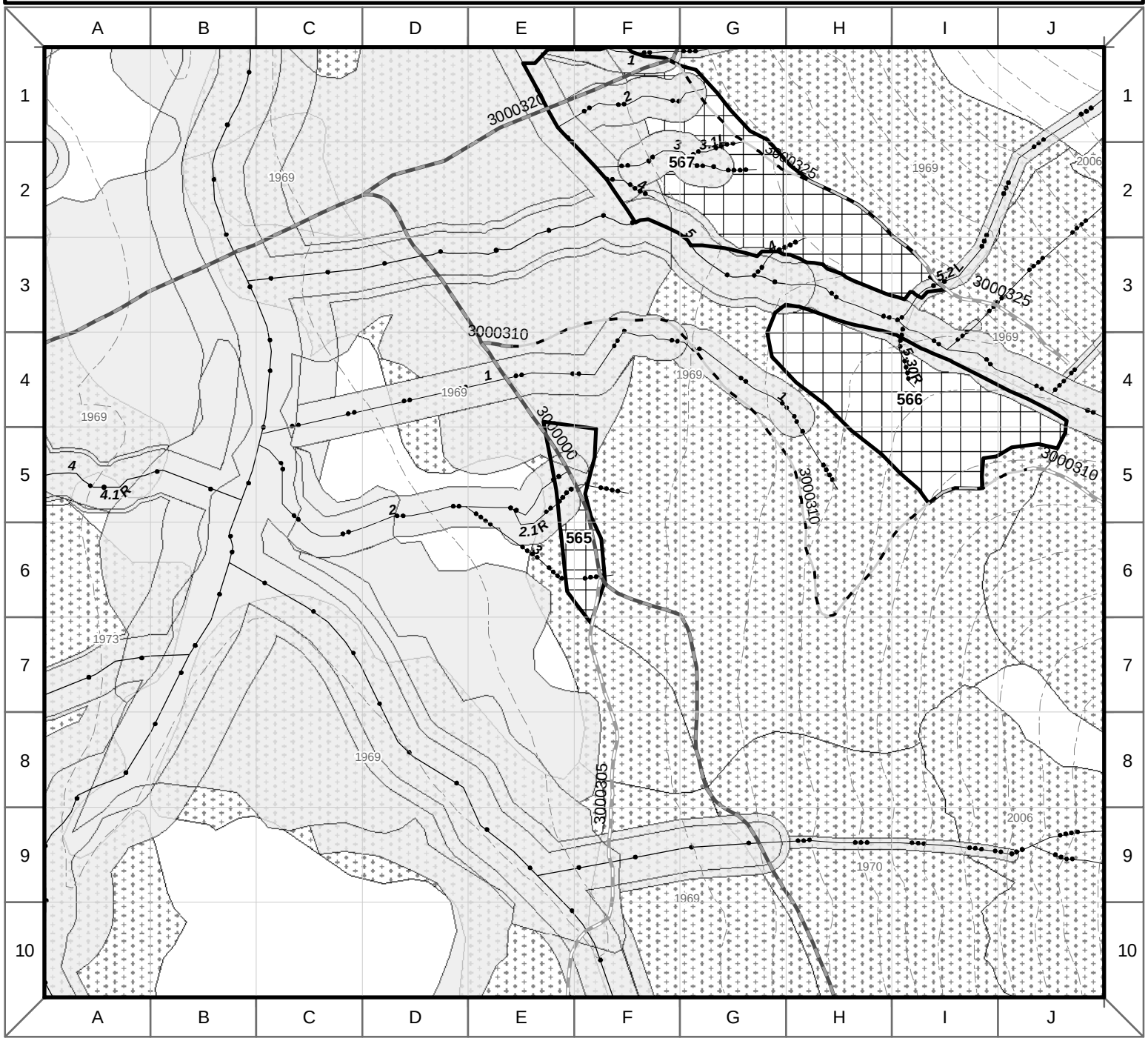
RECREATION:
No Concerns

SOILS/WETLANDS:
It is estimated that slopes range from about 10% to about 30%. There are approximately 2 acres of forested wetland/emergent sedge complex adjacent to the western unit boundary ((R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the

introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 565 **ROD** **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Unit Number: 566	Alternatives: ROD	Total Unit Acres: 14.5	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Cable	Net Harvest Volume (MBF): 85	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5810200504. The stand origination date is 1969. Approximately 87% of the stand area was pre-commercially thinned in 1989. The site potential appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable yarding to NFS road 3000310.

ENGINEERING/ROADS: Unit is accessed by reconstruction of NFS road 3000310, totaling 3,800 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams tributaries to Luck Creek.
Stream#: 1 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 5 Class: I, II Flagging: B/W C-Type: AFH, HCD Concerns: none
Buffer (RMA): Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class II for HCD greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit consists of about 13.5 acres of Low SIO and 1.5 acres of Very Low SIO and is prescribed for uniform thinning. No concerns.

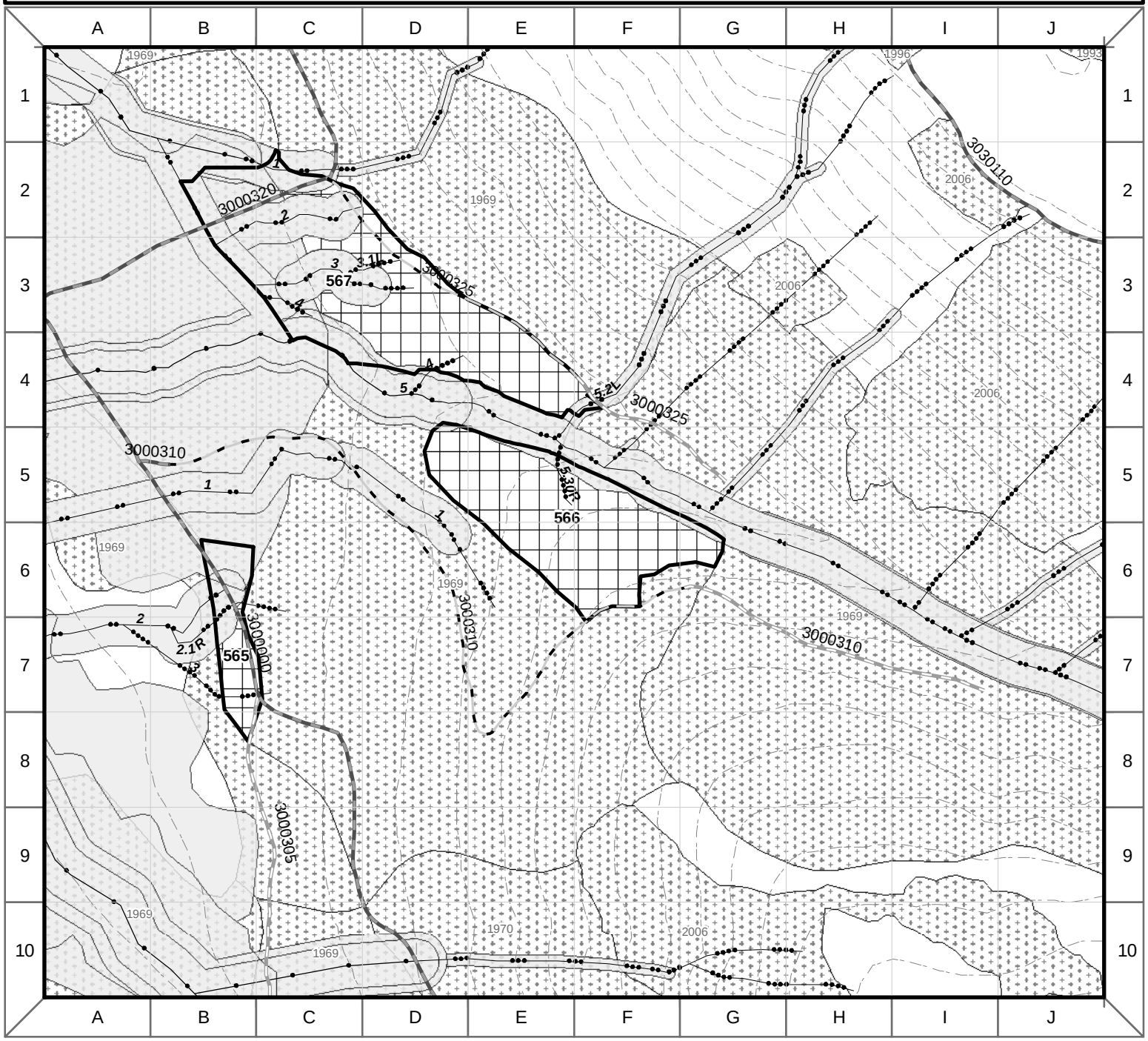
RECREATION: No Concerns

SOILS/WETLANDS:
It is estimated that slopes range from about 15% to about 45%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-5, and Veg-6. Partial harvest with partial suspension thinning will meet soil quality standards.

WILDLIFE:
Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing

the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reconstructed to access the unit.

Young Growth Unit Number 566 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 567	Alternatives: ROD	Total Unit Acres: 11.9	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 70	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5810200504. The stand origination date is 1969. Approximately 87% of the stand area was pre-commercially thinned in 1989. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. The unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3000325.

ENGINEERING/ROADS: This unit is accessed by reconstruction of existing NFS road 3000325, totaling 1,600 feet. See corresponding road card for detailed information.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek and Luck Lake.
Stream#: 1 Class: I, II, III Flagging: B/W, O/W C-Type: MMS, HCO, HCM
Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 1.1R Class: II, IV Flagging: B/W, G/W C-Type: MMO, HCO Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

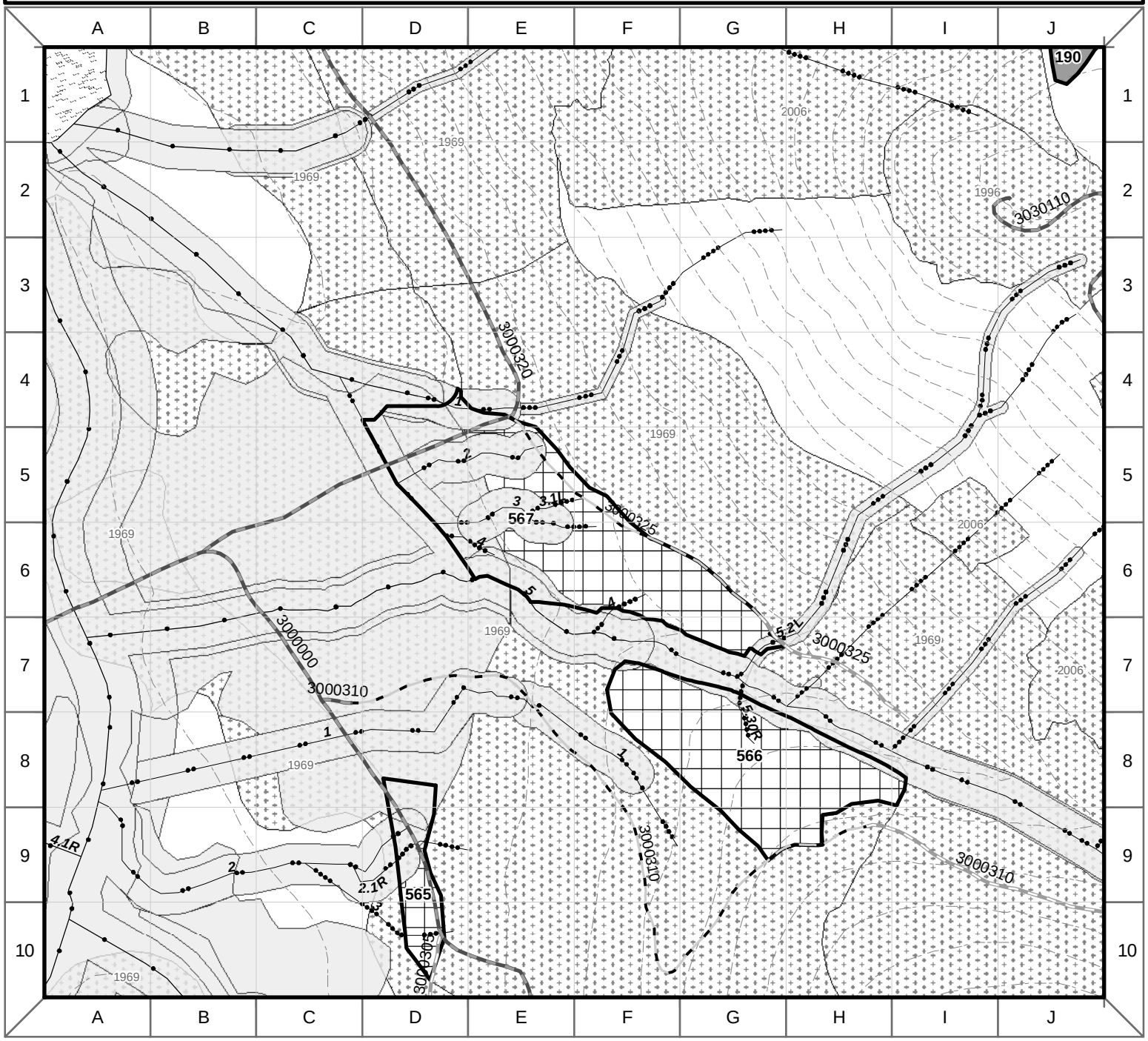
Stream#: 5 Class: I, II Flagging: B/W C-Type: AFH, HCD Concerns: none
Buffer (RMA): Class I for AFH greater of 140 feet or active portion of the alluvial fan. Class II for HCD greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 5.2L Class: III Flagging: O/W C-Type: HCD Concerns: none

Buffer (RMA): Class III for HCD to the top of the side-slope break.			
Alternatives: ROD	Buffer (RAW): no review needed		Protection: Category B
All other streams in unit:	Class IV	Flagging: G/W	C-Type: HC or MM
Concerns: none	Buffer (RMA): none		Protection: Category C
GEOLOGY/KARST: No Concerns			
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.			
SCENERY: Unit consists of about 3 acres of Low SIO and 13 acres of Very Low SIO, and is prescribed for uniform thinning. No concerns.			
RECREATION: No Concerns			
SOILS/WETLANDS: It is estimated that slopes range from less than 10% to about 40%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.			
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be constructed to access the unit.			

Appendix 1

Young Growth Unit Number 567 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 568	Alternatives: ROD	Total Unit Acres: 2.0	Prescription: Crown and Systematic Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 12	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: Approximately 2 acres of the unit lies within Stand #5810400501. The stand origination date is 1969. Approximately 45% of the stand area was pre-commercially thinned in 1985. Approximately 2 acres of the unit lies within Stand #5810300501. The stand origination date is 1968. This stand has not been pre-commercially thinned. The site potential appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS Road 3030000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Lake.
Stream#: 4 Class: I, II Flagging: B/W C-Type: MMS, HCO Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4.1R Class: II Flagging: B/W C-Type: MMO, MMS Concerns: none
Buffer (RMA): Class II for MMO and MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

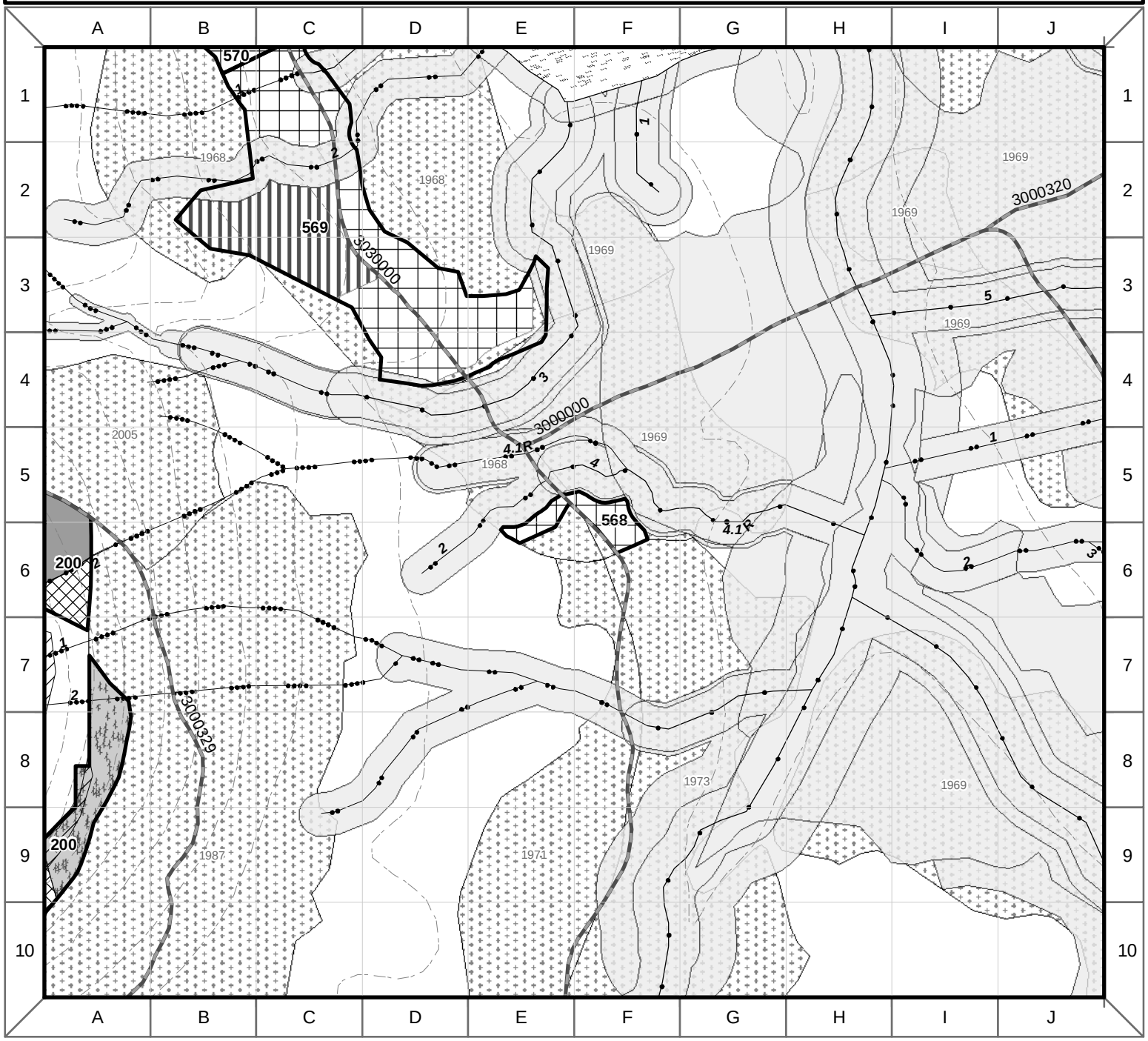
SCENERY: Unit is mapped as Moderate SIO, but is only 4 acres and is uniform thinning. No concerns.

RECREATION: No Concerns

Appendix 1

SOILS/WETLANDS: Slopes range from less than 10% to about 40%. There are approximately 2 acres of forested wetland in the western half of the southern polygon and less than 1/4 acre of forested wetland/ emergent sedge complex in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 568 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 569	Alternatives: ROD	Total Unit Acres: 21.9	Prescription: Systematic and Crown Thinning
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 142	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: The majority of this unit lies within Stand #5810100511. The stand origination date is 1968. Approximately 95% of the stand area was pre-commercially thinned in 1987. Approximately 8 acres of the unit lies within Stand #5810100512. The stand origination date is 1968. This stand has had approximately 92% of the stand area precommercially thinned, which was completed in 1987. Approximately 1 acre of the unit lies within Stand #5810100513. The stand origination date is 1969. This stand has not been pre-commercially thinned. The site potential appears to range from medium to high. The unit is in a successional stage of stem exclusion.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3030000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Lake.
Stream#: 1 Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2 Class: II Flagging: B/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 3 Class: I, II Flagging: B/W C-Type: FPM, AFM, AFH, HCV Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for AFM and AFH greater of 140 feet or active portion of the alluvial fan. Class II for HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

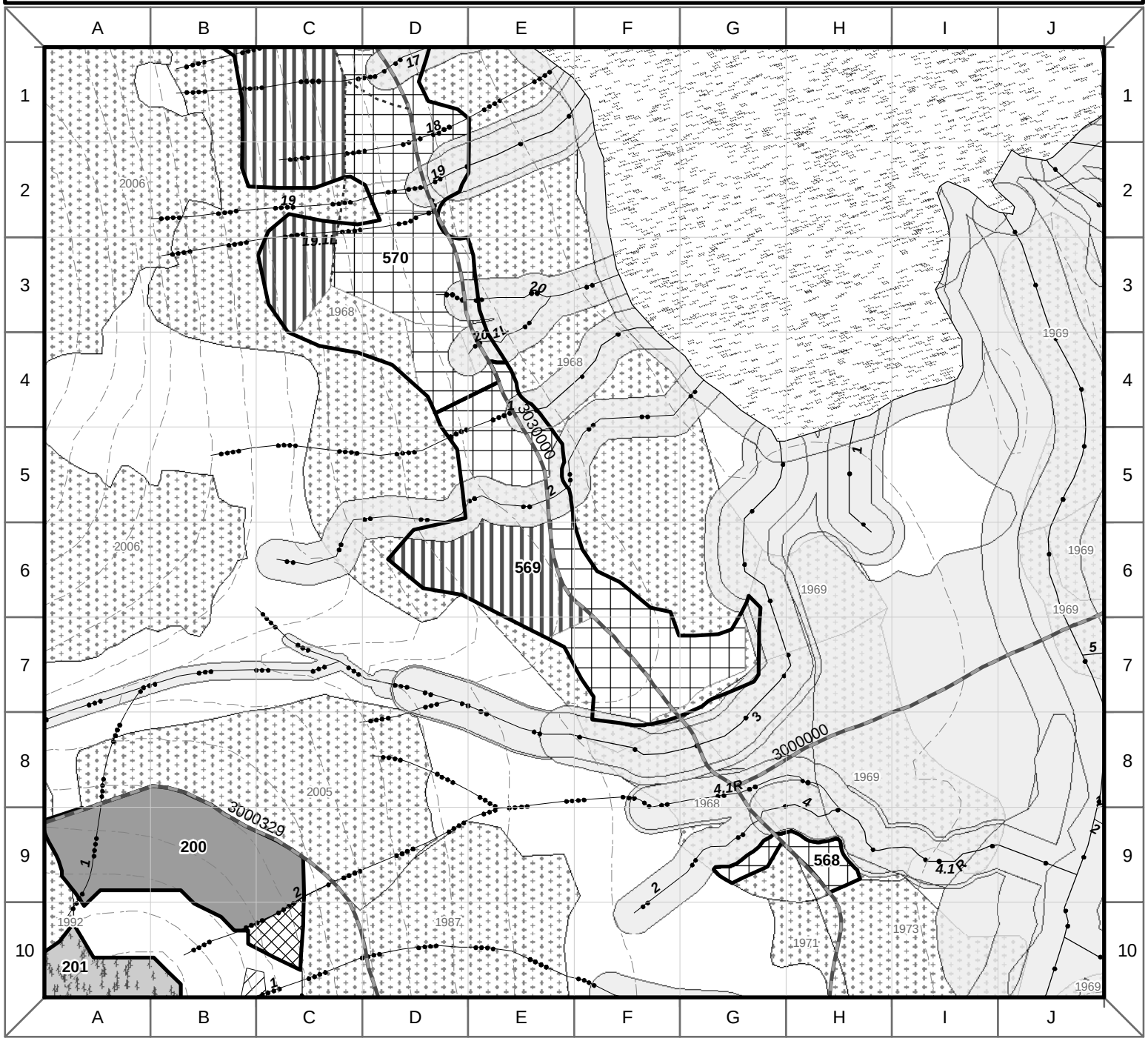
GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement

(PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: About 24 acres with Moderate SIO and 1 acre with Low SIO; about 9 acres of unit are prescribed for systematic thinning. Implement narrow thinning corridors in systematic thinning settings to minimize visibility from 3030 Road.
RECREATION: No Concerns
SOILS/WETLANDS: It is estimated that slopes range from about 15% to about 60%. There is less than 1/4 acre of forested wetland near the western edge of the unit boundary (BMP 12.5). (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 569 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit Number: 570	Alternatives: ROD	Total Unit Acres: 139.2	Prescription: Systematic and Crown Thinning
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 894	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: Approximately 31 acres of the unit lies within Stand #5810100510. The stand origination date is 1968. This stand was entirely pre-commercially thinned in 1987. Approximately 36 acres of the unit lies within Stand #5810100521. The stand origination date is 1968. This stand was entirely pre-commercially thinned in 1987. Approximately 11 acres of the unit lies within Stand #5810100512. The stand origination date is 1968. Approximately 92% of the stand was pre-commercially thinned in 1987. Approximately 76 acres of the unit lies within Stand # 5810100511. The stand origination date is 1968. Approximately 95% of the stand area was pre-commercially thinned in 1987. The site potential in the unit appears to range from medium to high. This unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel setting yard to NFS road 3030000. Cable settings yard to NFS road 3030000 and proposed temporary roads.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 5800 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Lake. Lake 1 is Luck Lake.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1 Class: I, II, III Flagging: B/W, O/W C-Type: AFM, HCM, HCD Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 2 Class: I, II, IV Flagging: B/W, G/W C-Type: MMO, HCO Concerns: none

Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 2.1L Class: I, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I for HCO greater of 100 or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3 Class: I, II, IV Flagging: B/W, GW C-Type: AFO, HCO Concerns: none
Buffer (RMA): Class I for AFO greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 4 Class: I, II, IV Flagging: B/W, O/W C-Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 6 Class: I, III Flagging: B/W, O/W C-Type: AFM, HCM Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

Stream#: 7 Class: I, II, IV Flagging: B/W, G/W C-Type: AFO, HCO Concerns: none
Buffer (RMA): Class I for AFO greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 8 Class: I, II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 9 Class: I, II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 10 Class: I, II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 12 Class: I, II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 14 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 15 Class: I, II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 17 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

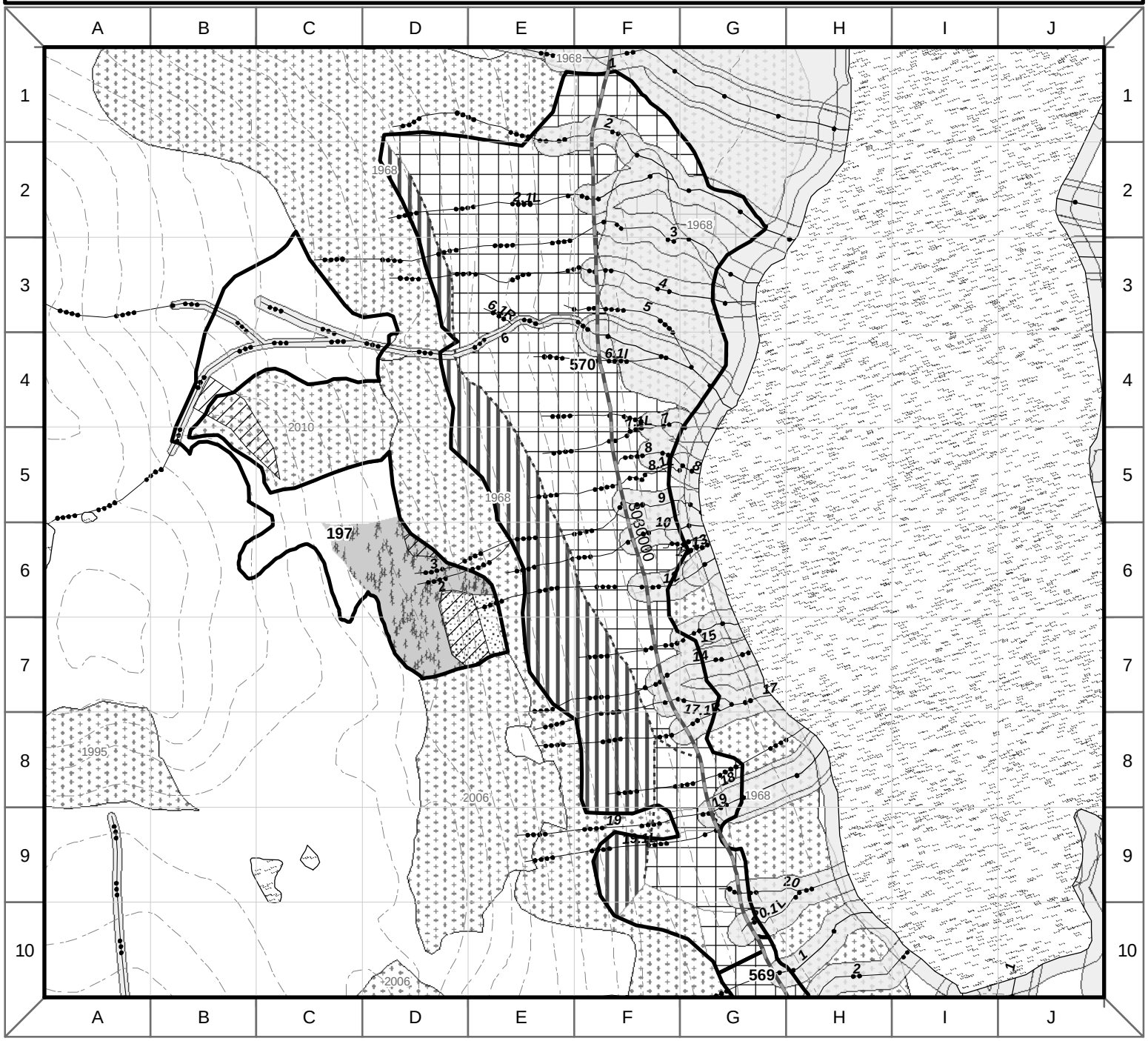
Stream#: 17.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 19 Class: I, II, IV Flagging: B/W, GW C-Type: AFM, HCO Concerns: none

Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 20 Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 20.1L Class: II Flagging: B/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM Concerns: none Buffer (RMA): none Protection: Category C Temporary roads (reopened decommissioned) for Unit 570: One Class III and thirteen class IV stream crossings. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: About 106 acres with Moderate SIO and 48 acres with Low SIO; only about 14 acres of the Moderate SIO areas are prescribed for systematic thinning. Implement narrow thinning corridors in systematic thinning settings to minimize visibility from 3030 Road.
RECREATION: No Concerns
SOILS/WETLANDS: It is estimated that slopes range from less than 10% to about 80% in places. All slopes greater than 72% will be verified prior to implementation. About 1 acre has been disturbed by a mapped debris torrent. There are approximately 35 acres of forested wetland in the northwest quarter of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake (low elevation, east-facing slopes) by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reopened to access the unit.

Appendix 1

Young Growth Unit Number 570 | **ROD** | **VCU: 581**



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Unit Number: 571	Alternatives: ROD	Total Unit Acres: 16.6	Prescription: Crown and Systematic Thinning
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 118	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: Approximately 10 acres of unit lies within Stand #5810100510. The stand origination date is 1968. This stand was entirely pre-commercially thinned in 1986. Approximately 5 acres of the unit lies within Stand #5810100508. The stand origination date is 1968. . This stand was entirely pre-commercially thinned in 1986. Approximately 5 acres of the unit lies within Stand #5810100507. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1986.This stand was entirely pre-commercially thinned in 1986.The site potential in this unit appears to range from medium to high. This unit is in a successional stage of stem exclusion.The unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health,while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions intreated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to NFS road 3030000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

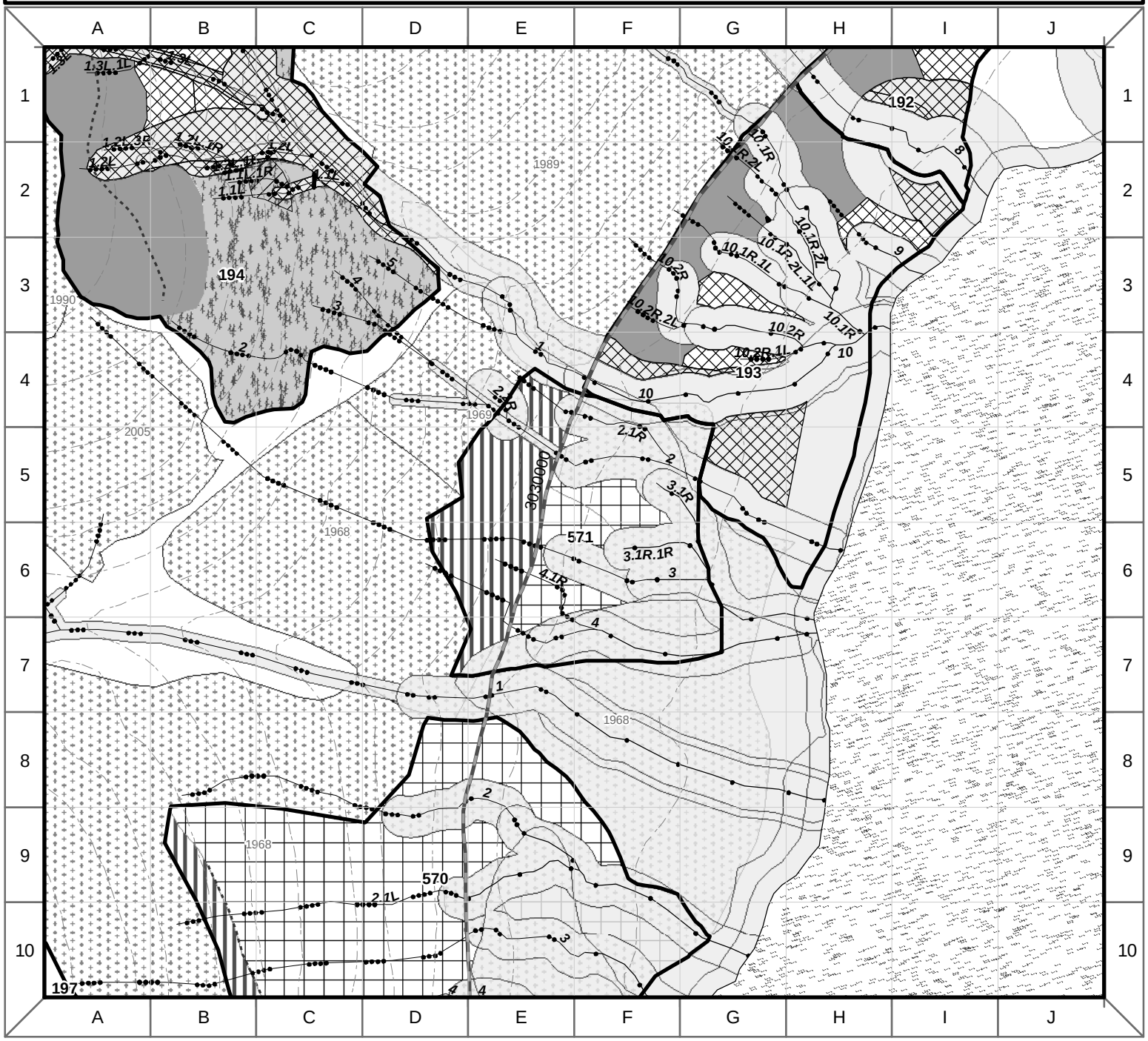
FISHERIES: Streams are tributaries to Luck Lake. Lake 1 is Luck Lake.
Stream#: Lake 1 Class: I Flagging: B/W C-Type: L Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 10/1 Class: I, II Flagging: B/W C-Type: MMS, HCL, HCM
Concerns: blowdown, erosion within incision
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCL and HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 2 Class: II, III Flagging: B/W, O/W C-Type: HCL, HCM
Concerns: blowdown, erosion within incision
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B Stream#: 2.1R Class: II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 3 Class: I, II, IV Flagging: B/W, G/W C-Type: MMO, HCO, HCM Concerns: none Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 3.1R Class: I, II Flagging: B/W C-Type: MMO, HCO Concerns: none Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 3.1R.1R Class: I Flagging: B/W C-Type: MMO Concerns: none Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A Stream#: 4 Class: I, II, IV Flagging: B/W, G/W C-Type: HCO Concerns: none Buffer (RMA): Class I and II for HCO greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C Stream#: 1 Class: II Flagging: B/W C-Type: HCM Concerns: none Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Alternatives: ROD Buffer (RAW): no review needed Protection: Category A All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM Concerns: none Buffer (RMA): none Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely in Moderate SIO; only about 10 acres are prescribed for systematic thinning. Implement narrow thinning corridors in systematic thinning settings to minimize visibility from 3030 Road.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from less than 10% to about 40%. There are approximately 10 acres of forested wetland in the southern half of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake (low elevation, east-facing slopes) by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 571 **ROD** **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 572	Alternatives: ROD	Total Unit Acres: 23.0	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 135	LUD: Modified Landscape, Old Growth Habitat

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5810100524. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1989. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion.The majority of this unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Old-Growth Habitat):
The management objectives of young-growth treatments in Landscape Zone B are to accelerate development of advanced seral stand structure in order to restore the ecological integrity of habitat. Characteristics needed for wildlife habitat vary with the forest type and site potential of each stand. Treatments are intended to improve habitats, corridors, and connectivity for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with maritime-influenced habitat.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: The two western settings are isolated from roads preventing economic access and are no longer planned to be thinned. The map is incorrect.
Shovel yarding to the proposed temporary road and NFS roads 3030100 and 3030108.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 600 feet, constructed over decommissioned road bed. NFS road 3030108 will be reconstructed to access unit 465, and will also provide access to eastern portion of Unit, decreasing yarding distances. See road card for information on NFS road.

BOTANY: A small portion of one population of lesser round-leaved orchid, with three plants, is within the proposed harvest for this unit. The remaining portion of the population is within the indirect effects area. Another population of lesser round-leaved orchid, with 207 plants, is within the indirect effects area for the furthest west setting of proposed thinning. To the extent feasible, minimize direct effects in the vicinity of known plants.

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek. Stream 1 is Eagle Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: MML, FPL, PAM
Concerns: Yarding through RMA may be required.
Buffer (RMA): Class I - greater of 120 feet (MML),130 feet (FPL), or 100 feet (PAM), or to the extent of the flood plain, riparian vegetation or soils, or riparian associated wetland fens .
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4 Class: I Flagging: B/W C-Type: AFM
Concerns: Yarding through RMA may be required.
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4.1R Class: I Flagging: B/W C-Type: PAO Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens .

Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4.1R.1R Class: I Flagging: B/W C-Type: PAB Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens .
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4.2R Class: I Flagging: B/W C-Type: MMO Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens .
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 4.3R Class: I, II Flagging: B/W C-Type: MMS, HCO
Concerns: Yarding through RMA may be required.
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens . Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary roads (reopened decommissioned) for Unit 572: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: About 21 acres has a Moderate SIO and 10 acres has a Low SIO. The prescription is uniform thinning and the topography is relatively flat, so visual impacts are expected to be low.

RECREATION: No Concerns

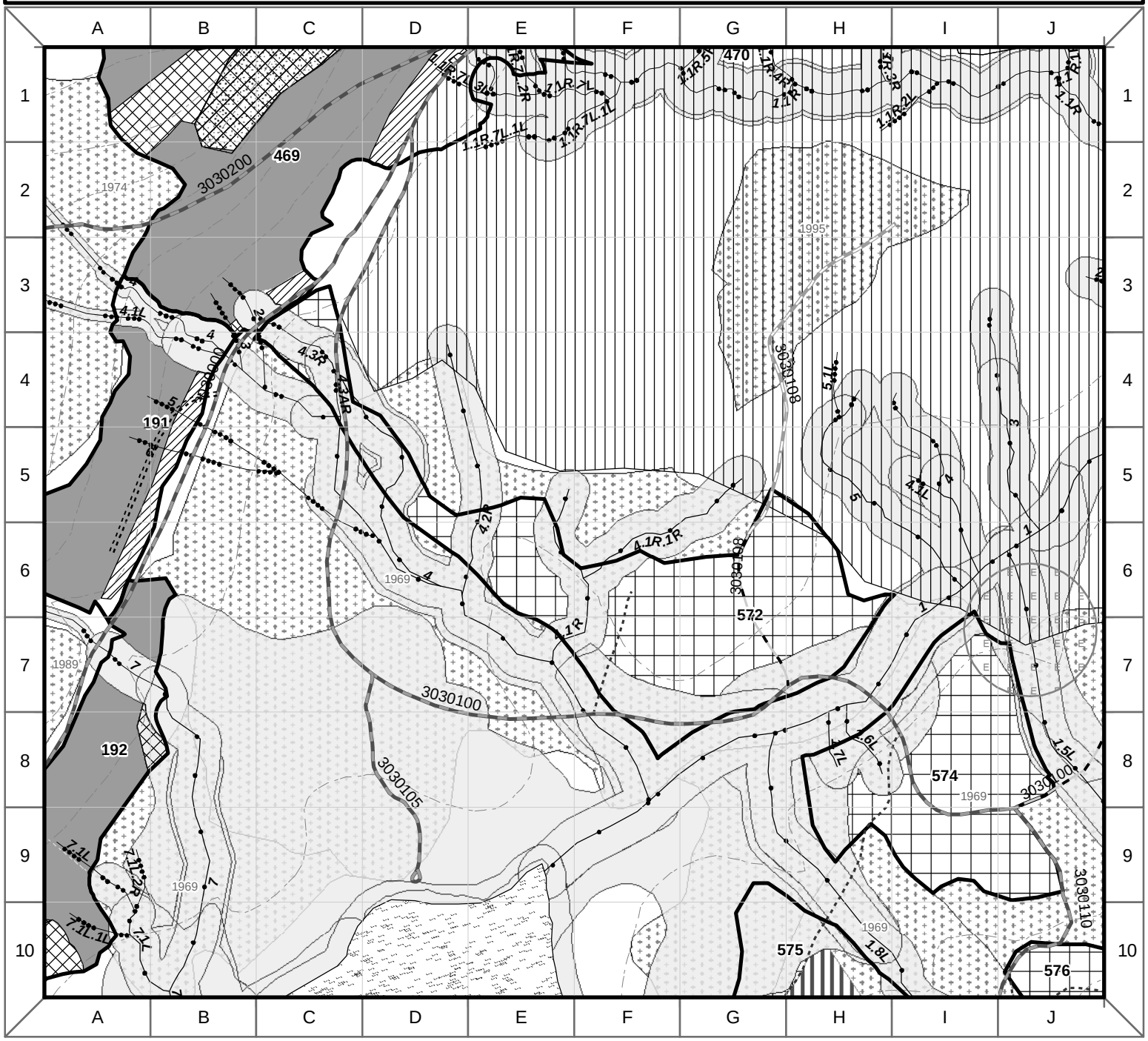
SOILS/WETLANDS: Slopes are nearly flat to about 20%. There are approximately 4 acres of forested wetland/emergent sedge complex in the middle of the unit and 1 acres of emergent short sedge wetland in the north end of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.

WILDLIFE: Commercial thinning will enhance wildlife habitat near Eagle Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again), though a road would be reopened to access the unit.

Eagle nest located near east end of unit. Nest activity will be determined prior to implementation; timing restrictions may apply.

Appendix 1

Young Growth Unit Number 572 **ROD** **VCU: 581**



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Unit Number: 574	Alternatives: ROD	Total Unit Acres: 17.2	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 101	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5810200501. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1989. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. The unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to the proposed temporary road and NFS road 3030100.

ENGINEERING/ROADS: No road construction or reconstruction is required. Unit may utilize the proposed temporary road constructed to access Unit 575.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek. Stream 1 is Eagle Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: MML, FPL Concerns: none
Buffer (RMA): Class I greater of 120 feet (for MML) and 130 feet (for FPL) or to the extent of the flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.5L Class: I Flagging: B/W C-Type: MMS, AFM Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.6L Class: I Flagging: B/W C-Type: PAO Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet , flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

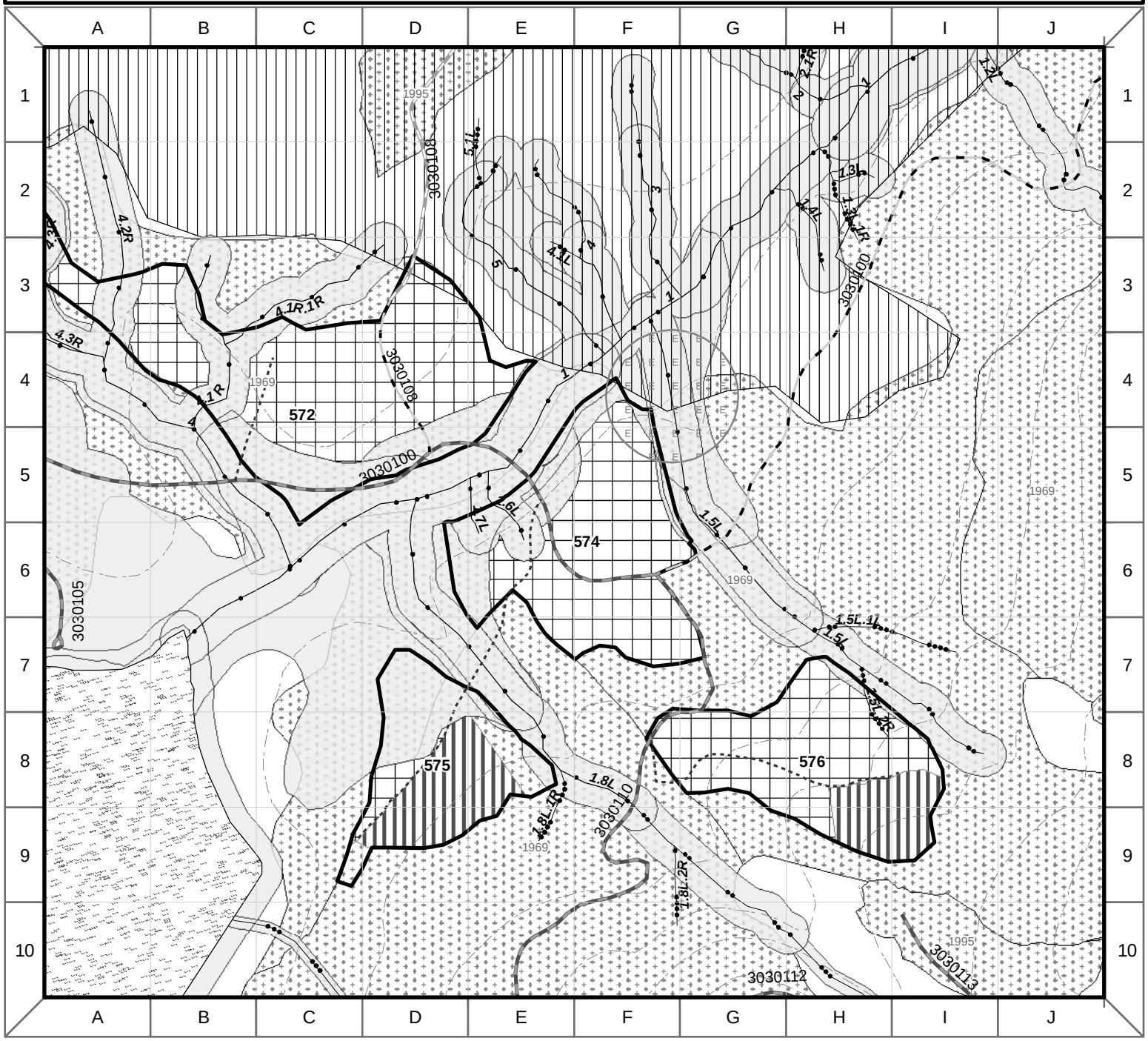
Stream#: 1.7L Class: I Flagging: B/W C-Type: FPO Concerns: none
Buffer (RMA): Class I for FPO greater of 130 feet , flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.8L Class: I Flagging: B/W C-Type: AFM Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Temporary roads (reopened decommissioned) for Unit 574: No known stream crossings. Stream #: 1.6L This stream originates as a wet area with diffuse flow immediately downslope of the existing decommissioned temporary road and the road is in the upper extent of the stream's riparian area. This temporary road continues to access Unit

575. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: About 6 acres with Moderate SIO and 8 acres with Very Low SIO. The entire unit is prescribed for uniform thinning and topography is relatively flat to rolling so visibility from Luck Lake or Eagle Creek is unlikely.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to be less than 25%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Eagle Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). Eagle nest near northen end of unit. Nest activity will be determined prior to implementation; timing restrictions may apply.

Young Growth Unit Number 574 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Appendix 1

Unit Number: 575	Alternatives: ROD	Total Unit Acres: 7.5	Prescription: Crown and Systematic Thinning
VCU Number: 581	Yarding System: Shovel, Cable	Net Harvest Volume (MBF): 56	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: The majority of this unit lies within Stand # 5810200502. The stand origination date is 1969. Approximately 67% of the stand area has been pre-commercially thinned. This was primarily completed in 1989. Less than an acre of the unit lies within Stand #5810200501. The stand origination date is 1969. This stand was entirely precommercially thinned in 1989. The site potential in this unit appears to range from medium to high. This unit is in a successional stage of stem exclusion. The unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 2,000 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek.
Stream#: 1.8L Class: I Flagging: B/W C-Type: AFM, HCM Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or the active portion of the alluvial fan. Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

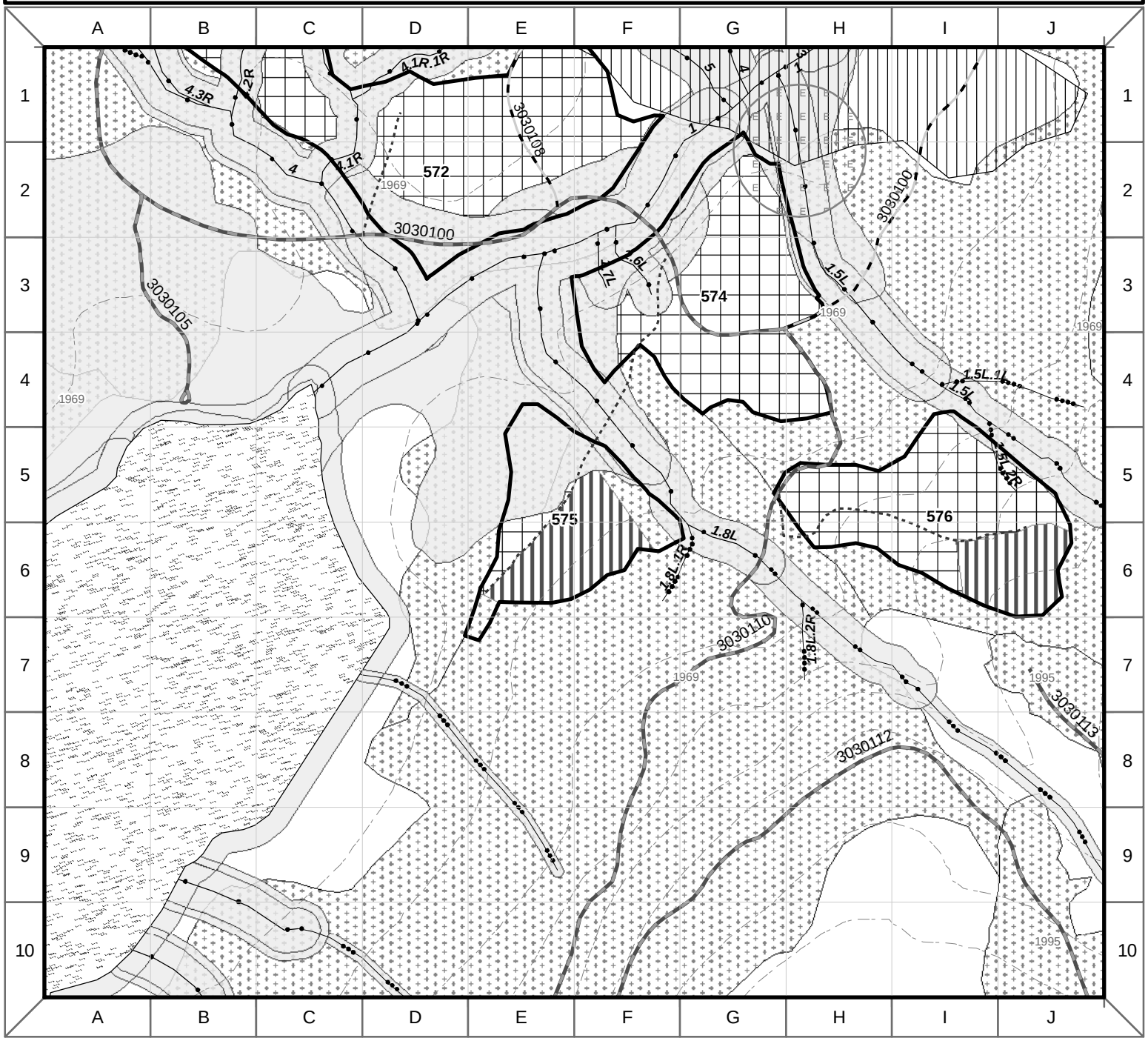
All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary roads (reopened decommissioned) for Unit 575: one Class I stream crossing. Stream#: 1.8L Class: I C-Type: AFM. Coho salmon were identified near the proposed Class I crossings and will require a timing window of June 15 to September 1. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class I crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: About 6 acres with Low SIO and less than 1 acre with Moderate SIO. Only a fraction of an acre of Moderate SIO is prescribed for systematic thinning. Implement narrow thinning corridors in systematic thinning settings to minimize visibility from Luck Lake or Eagle Creek.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range from about 10% to about 50%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Appendix 1

Young Growth Unit Number 575 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Unit Number: 576	Alternatives: ROD	Total Unit Acres: 18.9	Prescription: Crown and Systematic Thinning
VCU Number: 581	Yarding System: Shovel, Cable	Net Harvest Volume (MBF): 119	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #5810200501. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1989. The site strata potential appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road and NFS road 3030110. Cable settings yard to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,500 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Eagle Creek.
Stream#: 1.5L Class: I, II Flagging: B/W C-Type: AFM, HCM Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.8L Class: I, II Flagging: B/W C-Type: HCM Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

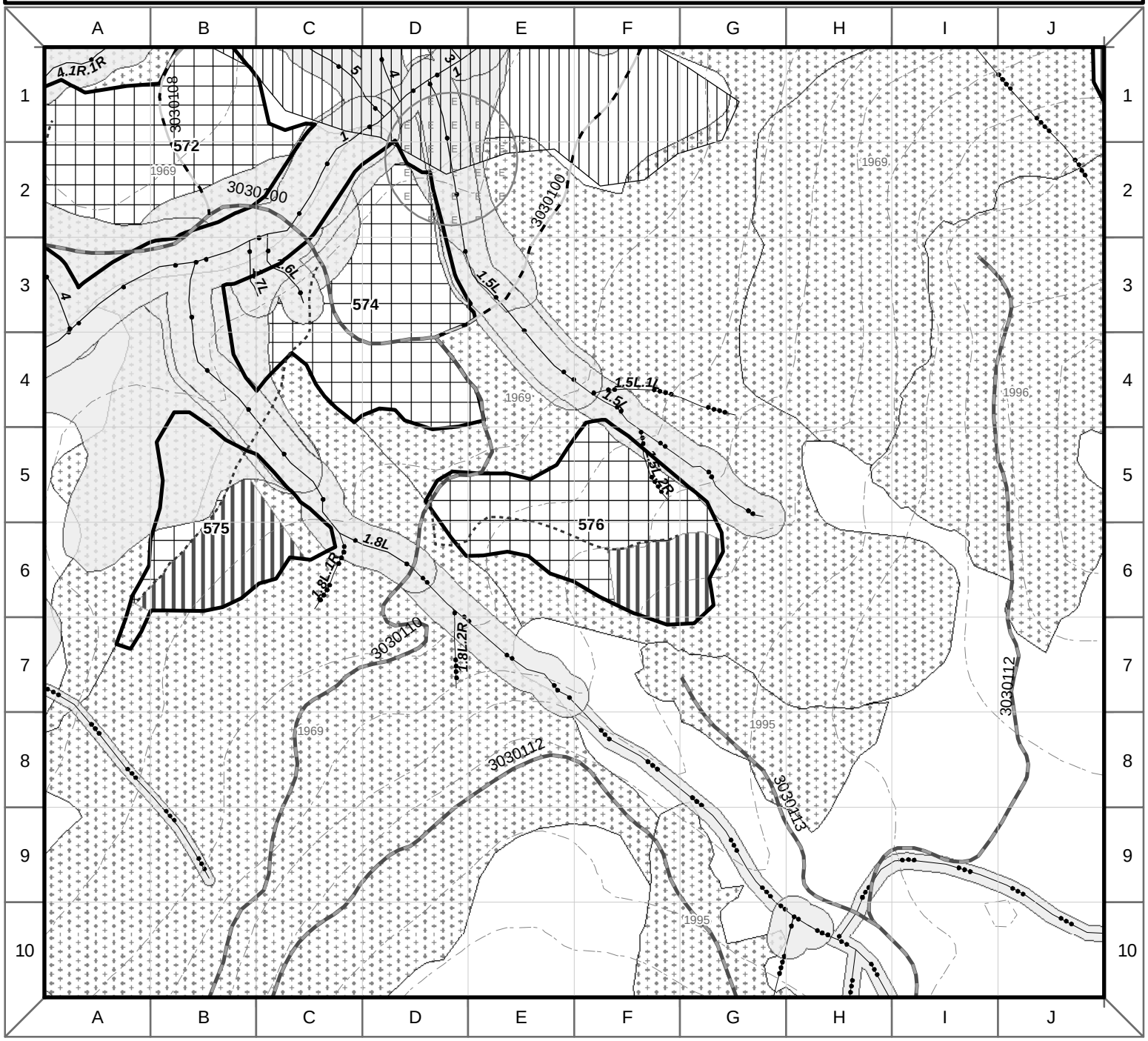
All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary road (reopened decommissioned) for Unit 576: No known stream crossings. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

Appendix 1

GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is almost entirely in Low SIO. Only about 5 acres are prescribed for systematic thinning. Implement narrow thinning corridors on these acres to minimize visibility from the Luck Lake and Eagle Creek area.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range from about 15% to about 30%. There is approximately 1 acre of forested wetland in the southern tip of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 576 | **ROD** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Appendix 1

Unit Number: 577	Alternatives: ROD	Total Unit Acres: 53.4	Prescription: Crown and Systematic Thinning
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 395	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies primarily within Stand #5810200008. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1991. Approximately 17 acres of the unit lies within Stand #5810200007. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1992. The site potential in this unit appears to range from medium to high. The unit is in a successional stage of stem exclusion. The unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Cable settings yard to the southern proposed temporary road and NFS road 3030100. Shovel settings yard to the northern proposed temporary road and NFS 3030100.

ENGINEERING/ROADS: Unit is accessed by two proposed temporary roads, totaling 1,600 feet, constructed over decommissioned road bed and reconstruction of the NFS road 3030100, totaling 8,700 feet. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams drain to Clarence Strait.
Stream#: 3 Class: II Flagging: B/W C-Type: MMS Concerns: none
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 3.1R Class: II, IV Flagging: B/W, GW C-Type: HCO, PAM, PAB, MMO Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class II greater of 120 feet (for MMO) and 100 feet (for PAM and PAB) or to the extent of the flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

Stream#: 3.1R.2L Class: II, IV Flagging: B/W, G/W C-Type: HCO, PAS Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit:	Class: IV	Flagging: G/W	C-Type: HC or MM
Concerns: none	Buffer (RMA): none		Protection: Category C

Temporary road (reopened decommissioned) for Unit 577: One class IV stream crossing. The proposed road line on the ground is immediately upstream of the class break. If proposed road line is adjusted during implementation or if any additional stream crossings are found, crossings structures and locations will need to be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has about 50 acres with Low SIO and 3 acres with Very Low SIO; about 42 acres of unit are prescribed for systematic thinning. Avoid wide thinning corridors in systematic thinning settings to reduce visibility from saltwater areas.

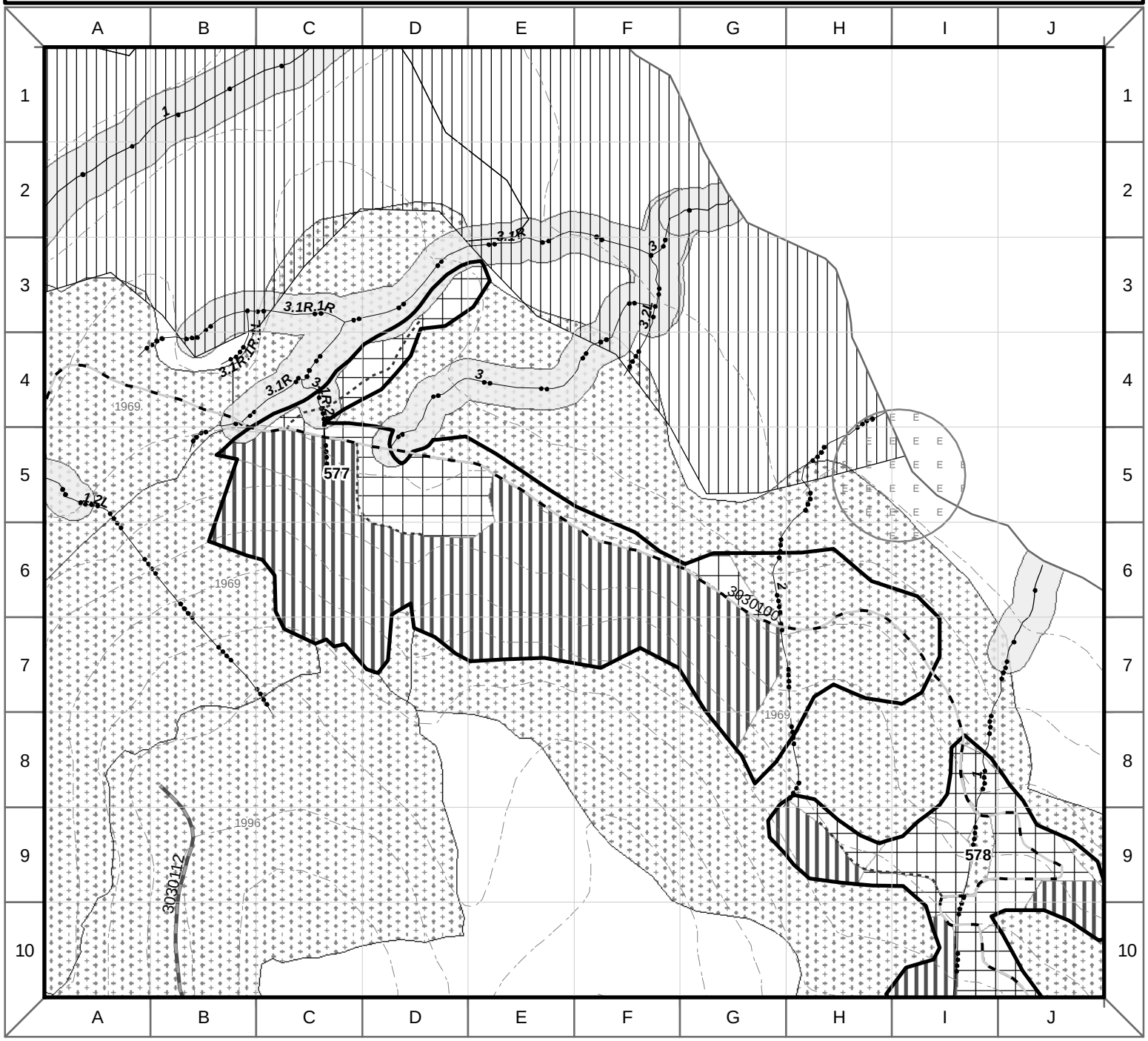
RECREATION: No Concerns

SOILS/WETLANDS: Slopes are estimated to range from about 15% to near 70%. All slopes greater than 72% will be verified prior to implementation. About 1acre is affected by mapped debris torrents initiated in 1988. There are approximately 10 acres of forested wetland along the southwest edge of the southern polygon (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.

WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again), though a road would be reconstructed to access the unit. Unit is not a priority on the landscape from a thinning perspective because it is surrounded by young-growth.

Appendix 1

Young Growth Unit Number 577 **ROD** **VCU: 581**



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Unit Number: 578	Alternatives: ROD	Total Unit Acres: 33.8	Prescription: Crown and Systematic Thinning
VCU Number: 581	Yarding System: Shovel, Cable	Net Harvest Volume (MBF): 230	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE: Existing Conditions: This unit lies entirely within Stand #581020008. The stand origination date is 1969. This stand was entirely pre-commercially thinned in 1991. The site potential appears to range from medium to high. This unit is in a successional stage of stem exclusion. The unit lies primarily within the Deer Winter Range landscape zone. The remaining approximately 1 acre is in the Uplands/Mountain Slopes landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Objective/Desired Condition (Uplands/Mountain Slopes):
The management goal of young-growth treatments in this landscape zone is to manage for a sustained yield, even flow of an industrial wood supply, while meeting multiple resource objectives, wherever possible. Treatments should improve growth and productivity, improve forest health, and promote forest stand conditions that will provide a diverse array of marketable forest products.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

Silvicultural Prescription: Systematic Thinning
Apply systematic thinning strips in portions of the unit unsuitable for uniform thinning. Systematic thinning should be applied primarily in downhill settings where full suspension cannot be achieved or other areas where uniform thinning will result in unacceptable levels of residual tree damage or otherwise is operationally infeasible. Systematic thinning should remove all trees within corridors 20 to 60 feet wide depending on operational feasibility, visual concerns and /or windthrow potential. Maintain a 60-120 foot distance between cut corridors resulting in at least a 50% basal area retention. Where visuals are of concern, cut corridors should be kept to approximately 20 feet in width pending scenery direction. Although parallel strips are likely to be most common, there are options for fan shapes, depending on landing/road locations.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel and cable yarding to the proposed temporary road and NFS road 3030100.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 800 feet and reconstruction of the NFS road 3030100, totaling 11,800 feet. The proposed temporary road will be constructed over decommissioned road bed. See road card for information on NFS road.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: All streams drain into Clarence Strait.
All streams in unit: Class: IV Flagging: G/W C-Type: HC
Concerns: none Buffer (RMA): none Protection: Category C

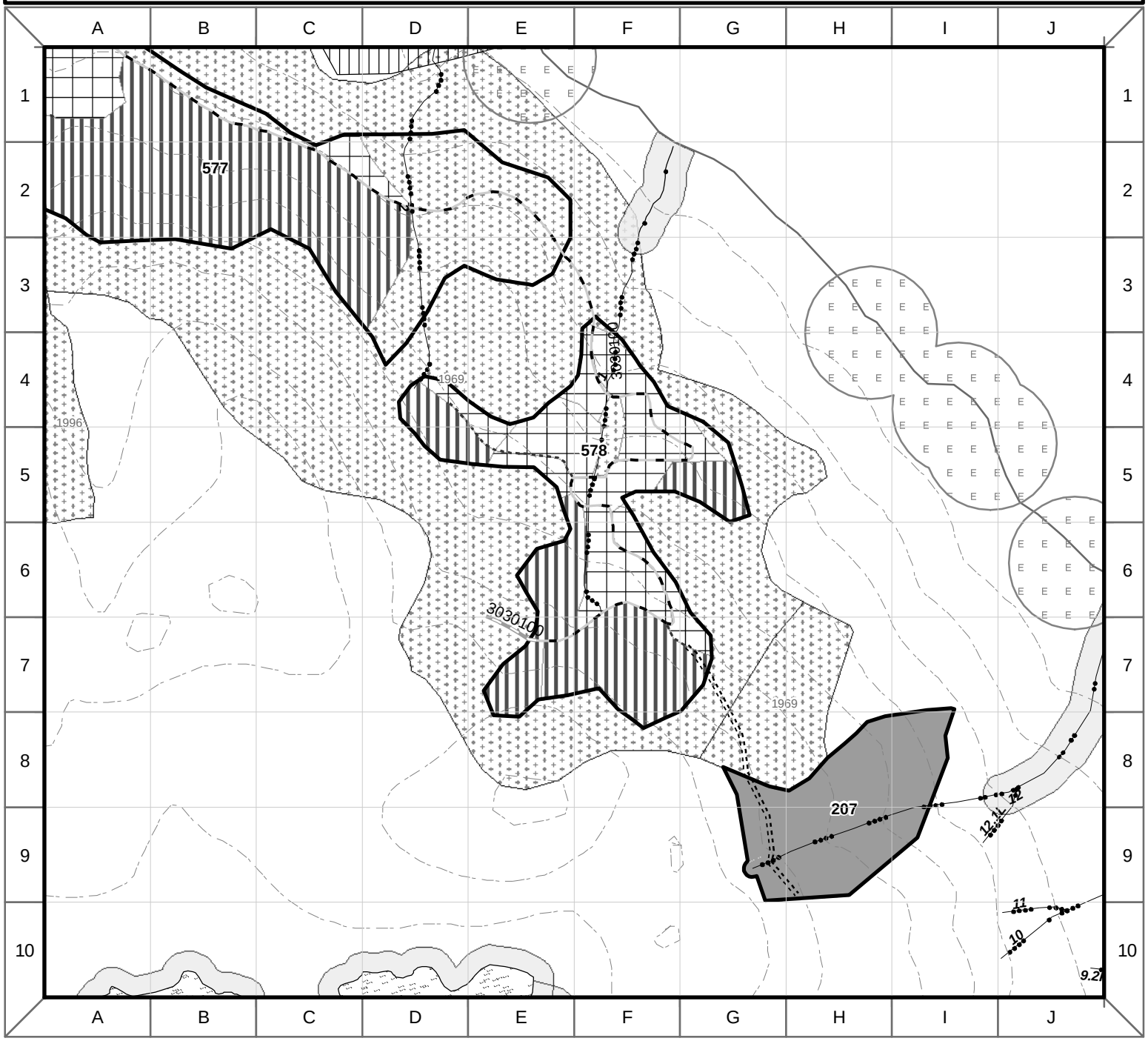
Temporary road (reopened decommissioned) for Unit 578: No known stream crossings.
If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was

mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit is entirely in an area with Low SIO; about 15 acres of unit are prescribed for systematic thinning. Avoid wide thinning corridors in systematic thinning settings to reduce visibility from saltwater areas.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are estimated to range from about 25% to about 65%. There is about 1/4 acre of forested wetland in the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial harvest with ground-based removal and partial suspension thinning will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again), though a road would be reconstructed to access the unit. Unit is not a priority on the landscape from a thinning perspective because it is surrounded by young-growth.

Young Growth Unit Number 578 **ROD** **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 579	Alternatives: ROD	Total Unit Acres: 28.4	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Cable, Shovel	Net Harvest Volume (MBF): 166	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5810200502. The stand origination date is 1969. The stand has had approximately 67% of the stand area pre-commercially thinned. This was primarily completed in 1989. The site potential appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel settings yard to the proposed temporary road. Cable settings yard to the proposed temporary road and NFS road 3030110.

ENGINEERING/ROADS: Unit is accessed by a proposed temporary road of 1,000 feet, constructed over decommissioned road bed.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Lake.
Stream#: 2 Class: II, IV Flagging: B/W, GW C-Type: HC0 Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and C

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

Temporary road (reopened decommissioned) for Unit 579: There are 2 class IV stream crossings. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit has about 19 acres with Low SIO and less than 1 acre with Moderate SIO. Entire unit is prescribed for uniform thinning; no concerns.

RECREATION: No Concerns

SOILS/WETLANDS:
Slopes are estimated to range from about 10% to about 50%. There are approximately 12 acres of forested wetland in the southern two-thirds of the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for a minimum of partial suspension cable yarding or shovel yarding and should follow R10 BMPs 12.5, 13.2 and 13.9 and National Core BMPs Plan-2, Veg-2, Veg-4, Veg-5, and Veg-6. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core Veg-4). Partial

harvest with ground-based removal and partial suspension thinning will meet soil quality standards. A decommissioned temporary road will be used for access, thus reducing soil disturbance.
WILDLIFE: Commercial thinning will enhance wildlife habitat near Luck Lake by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again). A road would be reopened to access the unit.

Appendix 1

Young Growth Unit Number 579 | **ROD** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
E E Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number: 581	Alternatives: ROD	Total Unit Acres: 3.9	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 23	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: Approximately 6 acres of this unit lies within Stand #5810400512. The stand origination date is 1969. Approximately 92% of the stand area was pre-commercially thinned in 1994. Approximately 5 acres of the unit lies within Stand #5810200506. The stand origination date is 1971. This stand was entirely pre-commercially thinned in 1992.The site potential in this unit appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Habitat landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek.
Stream#:1 Class: I Flagging: B/W C-Type: MMM Concerns: none
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L.7L Class: I, II Flagging: B/W C-Type: AFM, HCO Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L.8L Class: I, II, III Flagging: B/W, O/W C-Type: AFM, HCO Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY: Unit is mapped entirely with Low SIO and is entirely prescribed for uniform thinning. No concerns.

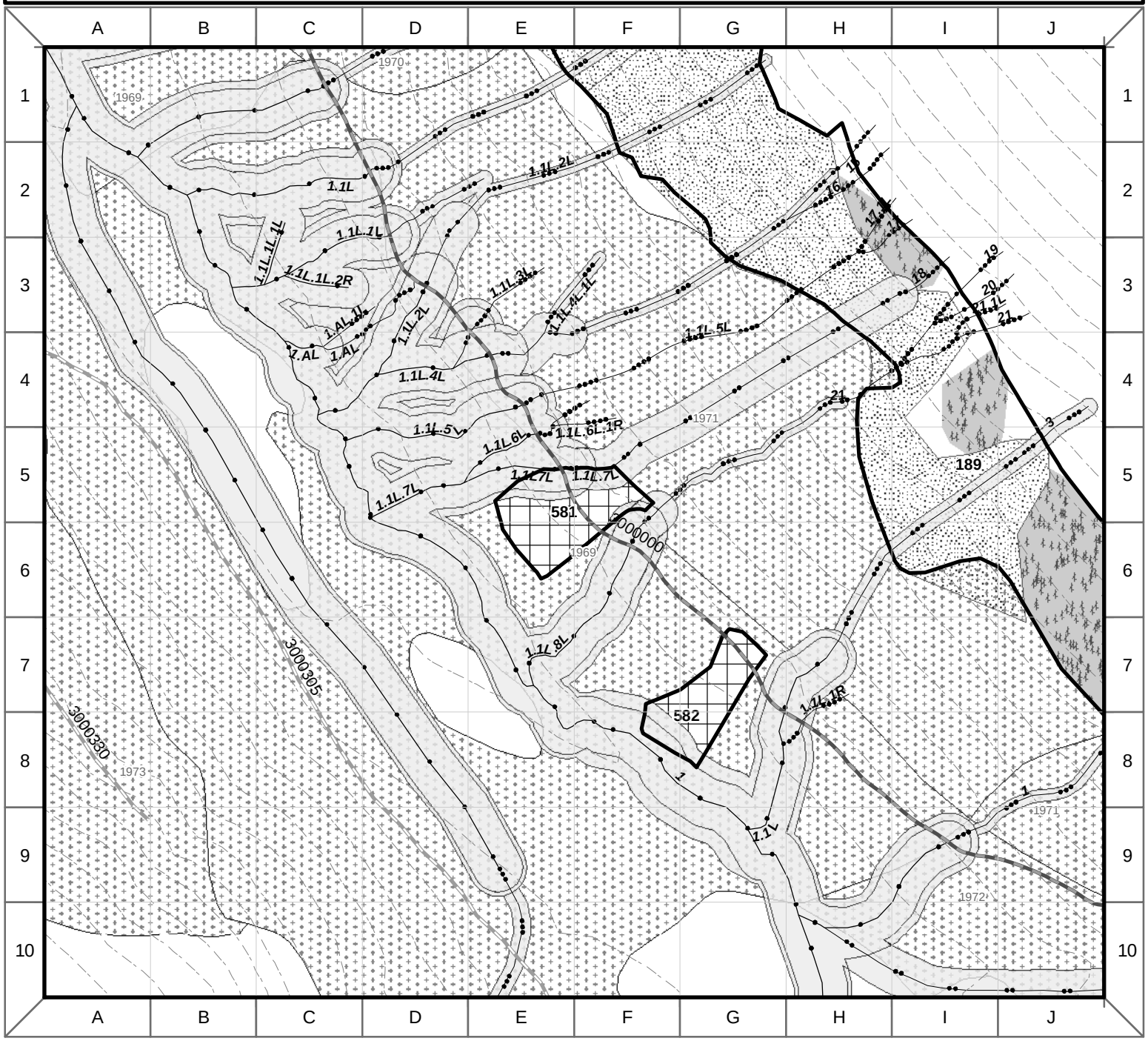
RECREATION: No Concerns

SOILS/WETLANDS:
Slopes are estimated to range from about 15% to about 40%. Forested wetlands are intermixed throughout the unit (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.

Appendix 1

WILDLIFE: Commercial thinning will enhance wildlife habitat along a tributary to Luck Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 581 **ROD** **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Old Growth
Helicopter
Shovel or Cable
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Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Appendix 1

Unit Number: 582	Alternatives: ROD	Total Unit Acres: 3.2	Prescription: Crown Thinning
VCU Number: 581	Yarding System: Shovel	Net Harvest Volume (MBF): 18	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Conditions: This unit lies entirely within Stand #5810400512. The stand origination date is 1969. Approximately 92% of the stand area was pre-commercially thinned in 1994. The site potential appears to range from medium to high. The unit is in a successional stage of stem exclusion. This unit lies within the Deer Winter Range landscape zone.

Silvicultural Objective/Desired Condition (Deer Winter Range):
The management goal of young-growth treatment in this landscape zone is to improve growth, productivity, and forest health, while managing for a sustained yield, even flow of an industrial wood supply and improving deer winter range conditions in treated stands for the remainder of the rotation.

Silvicultural Prescription: Intermediate Treatment Crown Thinning
Apply crown thinning at approximately stand age 50. Crown thinning should retain at least 50% of the existing pretreatment stand basal area at that time. Retain trees in a generally uniform pattern. Skips or thickets may be left where logging system difficulties occur, in portions of settings where windthrow risk is expected to be unacceptable after thinning like along exposed stand edges or knobs, and in any areas where wildlife dens or nests are found. Gaps may occur where cable corridors come together near landings or other areas where extra room is needed to facilitate yarding or meet specific wildlife objectives.

The treatments being proposed are based on the analysis of current data for this stand projected forward in time using growth modeling. Marking guidelines covering the specifics of the treatment, such as species to favor for retention will be developed at the time of treatment.

TIMBER/YARDING: Shovel yarding to NFS road 3000000.

ENGINEERING/ROADS: No proposed road construction or reconstruction.

BOTANY: No Concerns

INVASIVE SPECIES: No Concerns

FISHERIES: Streams are tributaries to Luck Creek.
Stream#: 1 Class: I Flagging: B/W C-Type: FPM Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A

Stream#: 1.1L Class: I Flagging: B/W C-Type: AFH Concerns: none
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: ROD Buffer (RAW): no review needed Protection: Category A and B

All other streams in unit: Class IV Flagging: G/W C-Type: HC or MM
Concerns: none Buffer (RMA): none Protection: Category C

GEOLOGY/KARST: No Concerns

HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

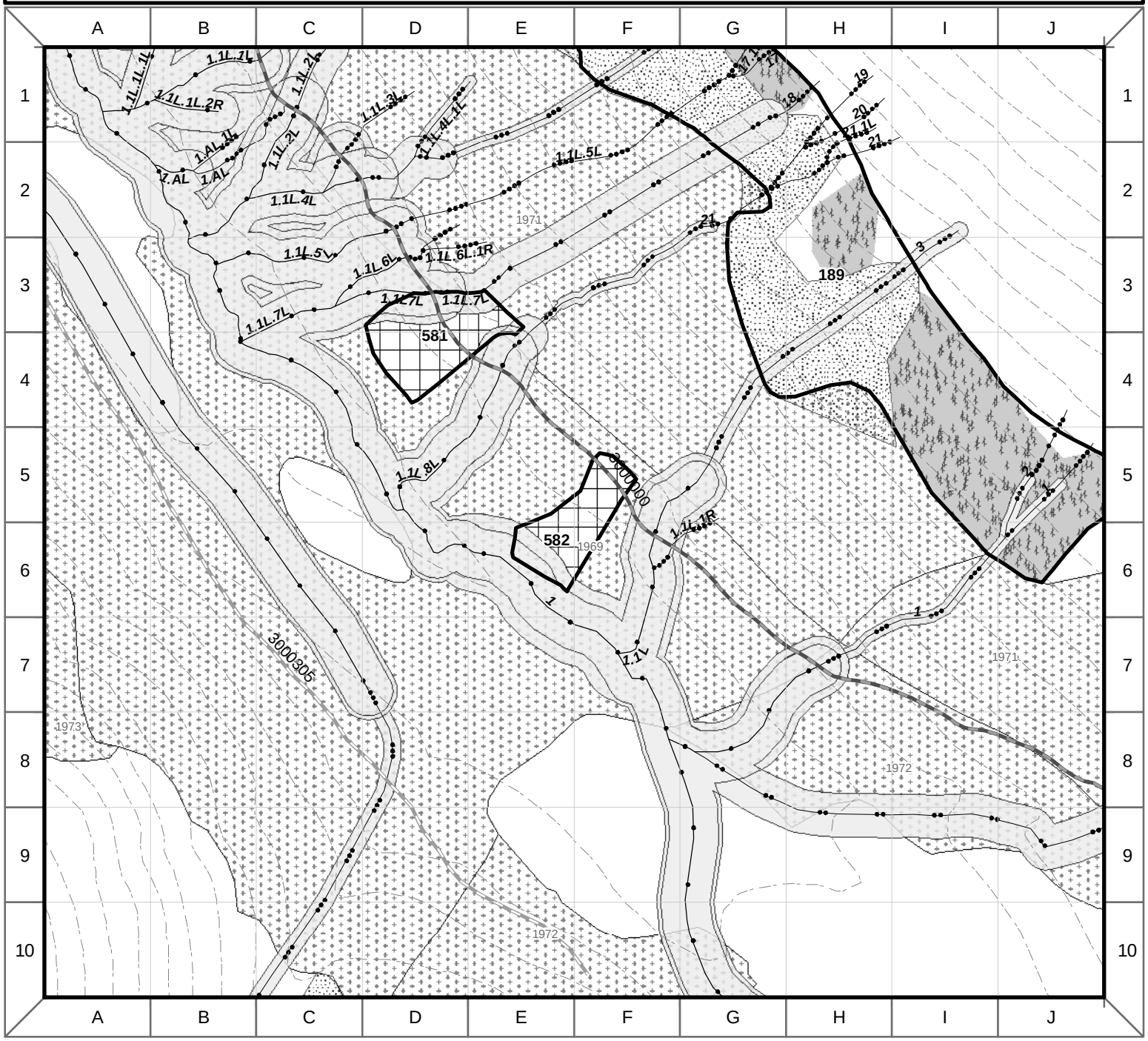
SCENERY: Unit is mapped entirely with Low SIO and is entirely prescribed for uniform thinning. No concerns.

RECREATION: No Concerns

SOILS/WETLANDS: Slopes are estimated to range from about 15% to about 30%. There is about 1/2 acre of forested wetland adjacent to the southwestern unit boundaries (R10 BMP 12.5 and National Core BMPs AqEco-2 and AqEco-4). The soils and wetlands are suitable for shovel yarding. Follow shovel yarding guidelines outlined in the introductions to unit cards (R10 BMP 13.9 and National Core BMPs Plan-2, Veg-2, and Veg-4). Partial harvest with ground-based removal will meet soil quality standards.

WILDLIFE:
Commercial thinning will enhance wildlife habitat along a tributary to Luck Creek by improving forage availability and removing the stand for the stem exclusion phase for the duration of rotation (until it is harvested again).

Young Growth Unit Number 582 **ROD** **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
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RR Recreation River LUD
SR Scenic River LUD

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National Forest System Road - Stored
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N W E S

0 500
Feet

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