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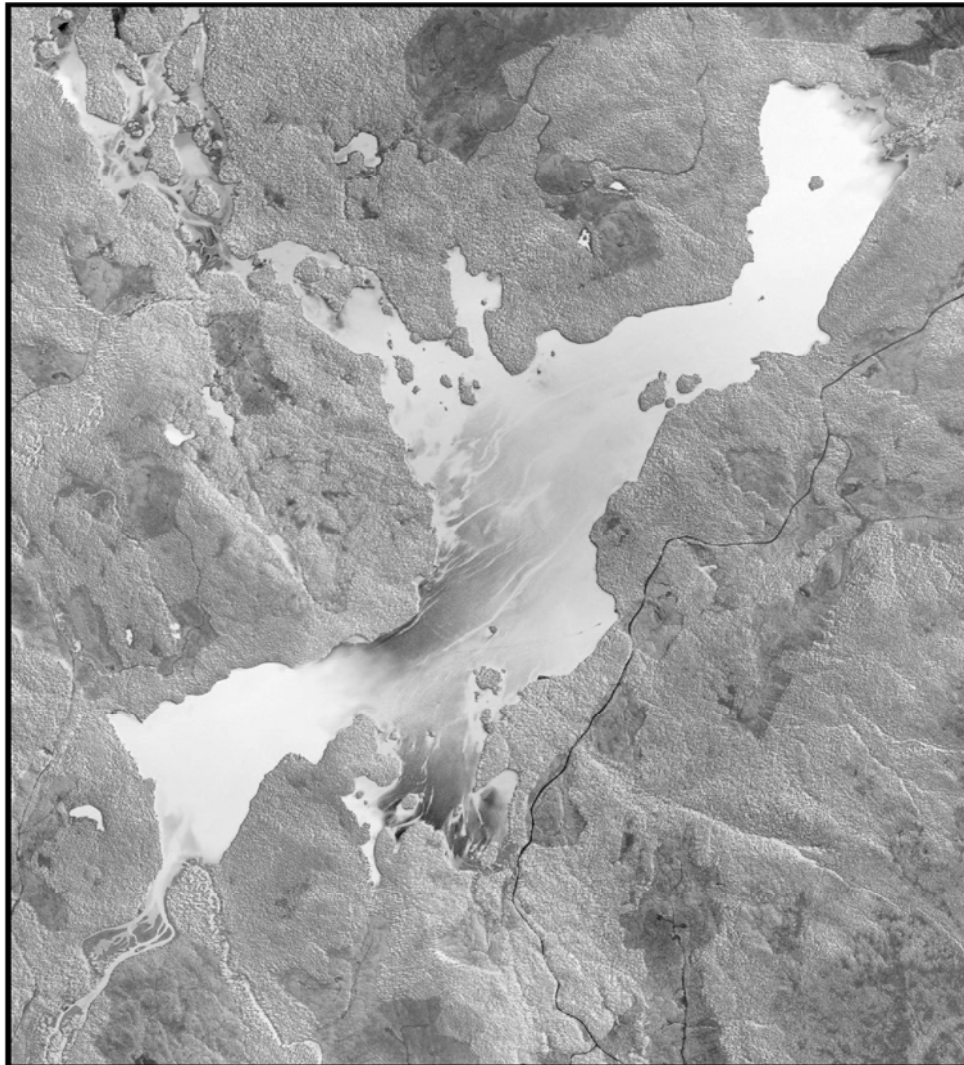
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Draft Environmental Impact Statement Logjam Timber Sale

Thorne Bay Ranger District,
Tongass National Forest

Volume 2: Appendices B, C, and D



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Cover Photo: Aerial Photo of Sweetwater Lake, 1996

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Appendix B—Unit Cards

Appendix B, Unit Cards, is used to explain site-specific information about each unit and any resource concerns and mitigations. Narrative cards and maps for each unit in this Record of Decision are in numerical order and describe the silvicultural prescription, resource concerns, and protection or mitigation measures for each unit. In the Logjam Timber Sale area, most of the economic, wildlife, watershed concerns are mitigated with the silvicultural system. Other resource concerns, such as soils, scenic, and fisheries, are mitigated by unit design and adherence to Forest Plan Standards and Guidelines and Best Management Practices (BMPs).

The section of this introduction, Harvest Treatments, explains the stand description and harvest treatments for this entry. The next section, Resource Concerns and Responses, summarizes how protection measures can be used for resource concerns. These protection measures can be either from the Forest Plan or project-specific.

The unit card narratives and maps, in combination with the more comprehensive specialist reports and GIS map layers, will be used during the implementation process to assure that all aspects of the project are implemented within applicable standards and guidelines. Some minor adjustments to the prescription or changes to unit boundaries can be expected during implementation as needed to better meet specific on-site resource management and protection objectives. If changes are needed during sale implementation, an interdisciplinary team will be consulted regarding the change. The Responsible Official will determine if the change warrants additional analysis and a supplement to this EIS.

The introduction to Appendix B is followed by a map and a narrative card for each proposed harvest unit. These units are in numerical order. Not every unit is in each alternative. The alternatives are listed on the map.

Each unit card has a header block with information used to generally describe the stand's size, location, and volume proposed for harvest. Each header block contains the following information:

Unit Number: This is the number assigned to the unit block during the Logging Systems and Transportation Analysis development.

Total Unit Acres: This is an estimate of total acres within the unit using aerial photos and GIS information. These numbers have been rounded.

Net Harvest Volume (MBF): This is the estimated volume in thousand board feet, available for harvest in the unit as determined from field estimates and stand examination plots.

VCU Number: The value comparison unit (VCU) the proposed harvest area falls predominantly within.

Alternatives: The alternatives the unit falls within as depicted in that particular unit card and map. Some units have different shapes and or harvest systems depending on the alternative.

Harvest System: The method by which the timber is planned to be removed or yarded from the unit.

LUD: The land use designation or designations the proposed harvest unit falls within.

Prescription: The silvicultural system and regeneration method proposed for the unit.

Harvest Treatments

Silvicultural Systems

Silvicultural systems refer to a complete set of treatments used to manage forest stands and forest landscapes over long periods of time. This process includes the harvest or regeneration of the stand, intermediate cuttings, and other treatments necessary for the development and replacement of the forest stand. When there is a windthrow rating it is for the unit. This could be different than the windthrow rating in Fisheries Section.

Silvicultural systems are applied through prescriptions, the written records of the examination, diagnosis, and treatment regimes prescribed for the stand.

A diagnosis and draft silvicultural prescription has been prepared for all proposed harvest units. A final prescription will be completed only for units selected for harvest in the Record of Decision. The final silvicultural prescriptions will include detailed sale layout and marking instructions for each unit.

The Forest Plan (Chapter 4 Standards and Guidelines) and USDA Forest Service Manual 2400 (Timber Management) provide detailed information about the silvicultural systems recommended for the Tongass National Forest. The three systems recommended are: (1) even-aged, (2) two-aged, and (3) uneven-aged. Two of these systems (even-aged and two-aged) are proposed for the Logjam project area. The post-harvest condition of the forest stand for all systems would be dependent upon the existing species composition, the retained canopy structure, and advanced regeneration. Species composition of the regenerated stand would be monitored to ensure that the mix of species is roughly the same as the composition on the existing site.

Even-aged Management, Clearcut

An even-aged system produces stands that consist of trees of the same or nearly the same age. A stand is even-aged if the range in tree ages normally does not exceed 20 percent of the rotation age (the age at which the stand is harvested). The regeneration method chosen to achieve even-aged management is clearcutting. Where this treatment is recommended, it has been determined that it is optimal for the site.

Some supportive reasons for the use of even-aged systems are: (1) compatibility with the use of standard logging systems, (2) favorable harvest economics, (3) the control of disease such as hemlock dwarf mistletoe, (4) minimize the effects of windthrow and (5) the creation of conditions favorable for regeneration of Sitka spruce, Alaska yellow-cedar and western redcedar. (Forest Plan, pg 4-71).

Two-aged Management, Clearcut with Reserves

The two-aged system produces stands that contain two age classes for most of the rotation. The resulting stand may be two-aged or tend towards an uneven-aged condition

as a consequence of both an extended period of regeneration and the retention of reserve trees that may represent one or more age classes. The reserve trees provide structural diversity and a biological legacy. Two-aged management regimes can produce stands of greater structural diversity than even-aged management. This method may be used where windthrow or disease are not major threats or can be tolerated (Forest Plan, p. 4-73). The regeneration method chosen to achieve two-age management is clearcutting with reserves.

Logging System Controls

Log yarding practices are based on slope stability, soil disturbance, channel type, and stream class. Additional measures are taken to protect RMAs from possible disturbance associated with tree felling and yarding. Harvest activities near Class I, Class II, and Class III streams require that trees be felled away from the stream and that trees yarded across or along stream courses be fully suspended to minimize the exposure of mineral soil. Trees near Class IV streams are felled away from the stream whenever feasible and logging debris introduced into Class IV streams is removed. Class IV streams are treated as part of the hillside, under slope stability standards and guidelines. Suspension requirements are used to minimize soil erosion, mass movement, and formation of new channels.

Best Management Practices

The following Best Management Practices (BMPs) would be applied in order to protect water quality in the project area as specified in the Forest Plan (pages C-1 to C-3). The BMPs are cited on the unit cards where appropriate. Not all BMPs apply to every situation.

BMP 12.6 (Riparian Area Designation and Protection) – To identify riparian areas and their associated management activities.

BMP 12.6a (Buffer Design and Layout) – To design streamside buffers to meet objectives defined during the implementation of BMP 12.6.

BMP 12.17 (Revegetation of Disturbed Areas) – To provide ground cover to minimize soil erosion.

BMP 13.5 (Identification and Avoidance of Unstable Areas) – To avoid triggering mass movements and resultant erosion and sedimentation by excluding unstable areas from timber harvest.

BMP 13.9 (Determining Guidelines for Yarding Operations) – To select appropriate yarding systems and guidelines for protecting soil and water resources.

BMP 13.11 (Scheduling and Enforcement of Erosion Control Measures During Timber Sale Operations) – To ensure that the Purchaser's operations are conducted according to the Timber Sale Contract with respect to soil and water resource protection.

BMP 13.14 (Completion of Erosion Control for Unit Acceptance and Sale Closure) – To assure that the required erosion control work is completed before unit acceptance.

BMP 13.16 (Stream Channel Protection – Implementation and Enforcement) – To provide the site-specific stream protection prescriptions consistent with objectives identified under **BMPs 12.6 and 12.6a**. Objectives may include the following:

- Maintain the natural flow regime.
- Provide for unobstructed passage of storm flows.

- Maintain integrity of the riparian buffer to filter sediment and other pollutants.
- Restore the natural course of any stream that has been diverted as soon as practicable.
- Maintain natural channel integrity to protect aquatic habitat and other beneficial uses.
- Prevent adverse changes to the natural stream temperature regime.

BMP 14.1 (Transportation Planning) – To assure soil and water resources are considered in transportation planning activities.

BMP 14.2 (Location of Transportation Facilities) – To assure water resources protection measures are considered when locating roads and trails.

BMP 14.3 (Design of Transportation Facilities) – To incorporate site-specific soil and water resource protection measures into the design of roads and trails.

BMP 14.5 (Road and Trail Erosion Control Plan) – Develop erosion control plans for road or trail projects to minimize or mitigate erosion sedimentation and resulting water quality degradation prior to the initiation of construction and maintenance activities. Ensure compliance through effective contract administration and timely implementation of erosion control measures.

BMP 14.6 (Timing Restrictions for Construction Activities) – Minimize erosion potential by restricting the operating schedule and conducting operations during lower risk periods.

BMP 14.7 (Measures to Minimize Mass Failures) – Minimize the chance and extent of road-related mass failures, including landslides and embankment slumps.

BMP 14.8 (Measures to Minimize Surface Erosion) – Minimize the erosion from cutslopes, fillslopes, and the road surface, and consequently reduce the risk of sediment production.

BMP 14.9 (Drainage Control to Minimize Erosion and Sedimentation) – Minimize the erosive effects of concentrated water flows from transportation facilities and the resulting degradation of water quality through proper design and construction of drainage control systems.

BMP 14.10 (Pioneer Road Construction) – Minimize sediment production associated with pioneer road construction.

BMP 14.11 (Timely Erosion Control Measures for Incomplete Projects) – Minimize erosion of and sedimentation from disturbed ground on incomplete projects by completing erosion control work prior to seasonal or extended shutdowns.

BMP 14.12 (Control of Excavation and Sidecast Material) – Minimize sedimentation from unconsolidated excavated and sidecast material caused by road construction, reconstruction, or maintenance.

BMP 14.14 (Control of In-channel Operations) – Minimize stream channel disturbances and related sediment production.

BMP 14.15 (Diversion of Flows Around Construction Sites) – Identify and implement diversion and de-watering requirements at construction sites to protect water quality and downstream uses.

BMP 14.17 (Bridge and Culvert Design and Installation) – Minimize adverse impacts on water quality, stream courses, and fisheries resources from the installation of bridges, culverts, or other stream crossings.

BMP 14.20 (Road Maintenance) – Maintain all roads in a manner which provides for soil and water resources protection by minimizing rutting, road prism failures, sidecasting, and blockage of drainage facilities.

BMP 14.22 (Access and Travel Management) – Control access and manage road use to reduce the risk of erosion and sedimentation from road surface disturbance especially during the higher risk periods associated with high runoff and spring thaw conditions.

BMP 14.24 (Road Obliteration) – Reduce sediment generated from temporary or short-term roads and return the land to production by obliterating roads at the completion of their intended use.

Resource Concerns and Responses

Old Growth Habitat

Loss of old-growth habitat is a wildlife concern for most of the proposed harvest units. The use of 50 percent retention of the basal area with the retention of tree with differing sizes, and an emphasis on snags and dying trees, helps mitigate this concern. Other areas of concern are mitigated through unit selection by alternative and old-growth habitat reserve selection. Depending upon which alternative is chosen, differing prescriptions and corridor retentions will mitigate many of the concerns for the species selected as Management Indicator Species (MIS) for this project. One unit is in a Value Comparison Unit that would require legacy forest structure if the unit was larger.

Sitka Black-tailed Deer

Changes due to timber harvest in deer habitat may increase populations in the short run. However, if stands are allowed to mature in a natural fashion, the habitat will, over time, decrease in habitat value through plant succession. Several silvicultural treatments are available that may maintain the habitat value to deer and other species. Pre-commercial thinning, commercial thinning, and pruning help maintain the understory in these stands while allowing the trees to grow faster and straighter.

Reduction of fragmentation is also an important component of maintaining deer habitat. Low-elevation, high-value deer habitat occurs on southern slopes with a coarse canopy of older trees. Where practical, corridors will be maintained to allow movement of deer from lower-elevation stands to high-elevation stands. The small old-growth habitat reserve will help mitigate this concern.

A Northern goshawk nest occurs in the project area. The Forest Plan Standards and Guidelines will be implemented with the associated buffers as mitigation.

Riparian Management Areas

Forest Plan Standards and Guidelines direct the design of Riparian Management Areas (RMAs) associated with each stream in the project area.

The Standards and Guidelines prohibit programmed commercial timber harvest in RMAs associated with all Class I, Class II, and most Class III streams, except for right-of-way clearing for road construction. Site-specific adjustments to guidelines may be made only after a detailed watershed analysis and a determination that adjustments are consistent

with the Forest Plan objectives for each stream channel type.

RMAs vary in width from the edge of the stream channel according to channel type (Table B-1) and stream value class (Table B-2). All Class I and Class II streams are protected from commercial timber harvest within a minimum horizontal distance of 100 feet from the bankfull margins. Depending on the channel type, RMA widths can be up to 140 feet wide on either side of some Class I, Class II, and Class III streams. RMAs adjacent to Class III streams are protected from commercial timber harvest, except along palustrine channel types. RMA widths on Class III streams are topographically delineated along channel types with steep side-slopes and are measured to set distances along other channel types.

Unit card maps show the location of all streams and the associated RMAs. RMA widths for each Class I, Class II, and Class III streams are prescribed in the unit card narratives. Unit card narratives also prescribe the location and width of reasonable assurance of windfirmness (RAW) buffers for protecting RMAs, except where windthrow potential is low. A grid system is used to assist the reader in locating the stream. When there is a windthrow and/or landslide rating it is for the stream area.

All road crossing on the unit cards are for temporary roads only. System road crossings are discussed on the road cards.

Process Groups and Channel Types

The Tongass National Forest defines stream channel types according to the Channel Type User Guide (USDA Forest Service, 1992), the foundation upon which aquatic habitat management prescriptions are developed. Channel types are defined within the context of fluvial process groups that describe the interrelationship between watershed runoff, landform relief, geology, and glacial or tidal influences on fluvial erosion and deposition processes. Individual channel type classifications are defined by physical attributes such as channel gradient, channel width, channel pattern, stream bank incision and containment. Table B-1 shows the Forest Plan codes used on the unit card narratives. See the Forest Plan, Figure D-1 (page D-4) for a visual representation of the typical distribution of channel process groups. Each unit card summarizes the protection for a particular unit. Only the channel types found in proposed timber harvest units are listed.

Table B-1 Process Groups and Channel types

Process Group	Channel Type Code	Channel Type Description
Alluvial Fan	AF1	Moderate Gradient Alluvial Fan Channel
	AF2	High Gradient Alluvial Cone Channel
Floodplain	FP3	Narrow Low Gradient Floodplain Channel
	FP4	Low Gradient Floodplain Channel
High Gradient Contained	HC1	Shallowly Incised Muskeg Channel
	HC2	Shallowly to Moderately Incised Footslope Channel
	HC3	Deeply Incised Upper Valley Channel
	HC5	Shallowly Incised Very High Gradient Channel
	HC6	Deeply Incised Mountain Slope Channel
Moderate Gradient Contained	MC1	Narrow Shallow Contained Channel
	MC2	Moderate Width and Incision Contained Channel
Mixed Gradient Mixed Control	MM1	Narrow Mixed Control Channel
Large Contained	LC1	Low Gradient Contained Channel
Palustrine	PA1	Narrow Placid Flow Channel
	PA5	Beaver Dam/Pond Channel

Table B-2 Stream Value Classes

Stream Value Class	Criteria
Class I	Streams and lakes with anadromous or adfluvial fish or fish habitat; or high quality resident fish waters, or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.
Class II	Streams and lakes with resident fish or fish habitat and generally steep (6-25 percent or higher) gradient (can also include streams with a 0-6 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria.
Class III	Streams are perennial and intermittent streams that have no fish populations or fish habitat, but have sufficient flow or sediment and debris transport to directly influence downstream water quality or fish habitat capability. For streams less than 30 percent gradient, special care is needed to determine if resident fish are present.
Class IV	Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have immediate influence on downstream water quality or fish habitat capability. Class IV streams do not have the characteristics of Class I, II, or III streams and have a bankfull width of at least 0.3 meter (1 foot).

Scenery

The following Visual Quality Objectives from the Forest Plan provide standards for management based on the landscape’s scenic characteristics and public viewing concern.

Retention: Changes in the landscape are not visually evident to the average forest visitor.

Partial Retention: Changes in the landscape may be evident to the casual observer but appear as natural occurrences when contrasted with the appearance to the surrounding landscape.

Modification: Changes in the landscape appear very evident but incorporate natural patterns of form, line, color, and texture when contrasted with the appearance of the surrounding landscape.

Maximum Modification: Changes in the landscape appear highly evident and may visually dominate the surrounding landscape, yet when viewed in the background distance these activities appear as natural occurrences.

Scenery Standards and Guidelines

The VQOs within the Logjam Timber Sale area include Maximum Modification for the Timber Production LUD, and partial retention in the Scenic Viewshed LUD

Measures taken to minimize the potential effects of timber harvest of the Logjam project upon scenery were mitigated by design criteria recommended by the project landscape architects of retention left in units 11, 12, 13, 21, 29, 43, 67, 74 and 75.

Heritage Resources

Forest Service archaeologists have conducted a sample-based survey of the Logjam project area in accordance with the current Programmatic Agreement with the State Historic Preservation Office and the Advisory Council for Historic Preservation (USDA FS 2002, as amended 2007). There are no historic properties in the area of potential effects for the project. Under the terms of our existing Programmatic Agreement “the Forest may proceed with the undertaking in lieu of a consensus determination of eligibility pursuant to 36 CFR 800.4”. The complete report of the Heritage analysis for the project will be submitted for programmatic review at the conclusion of the fiscal year.

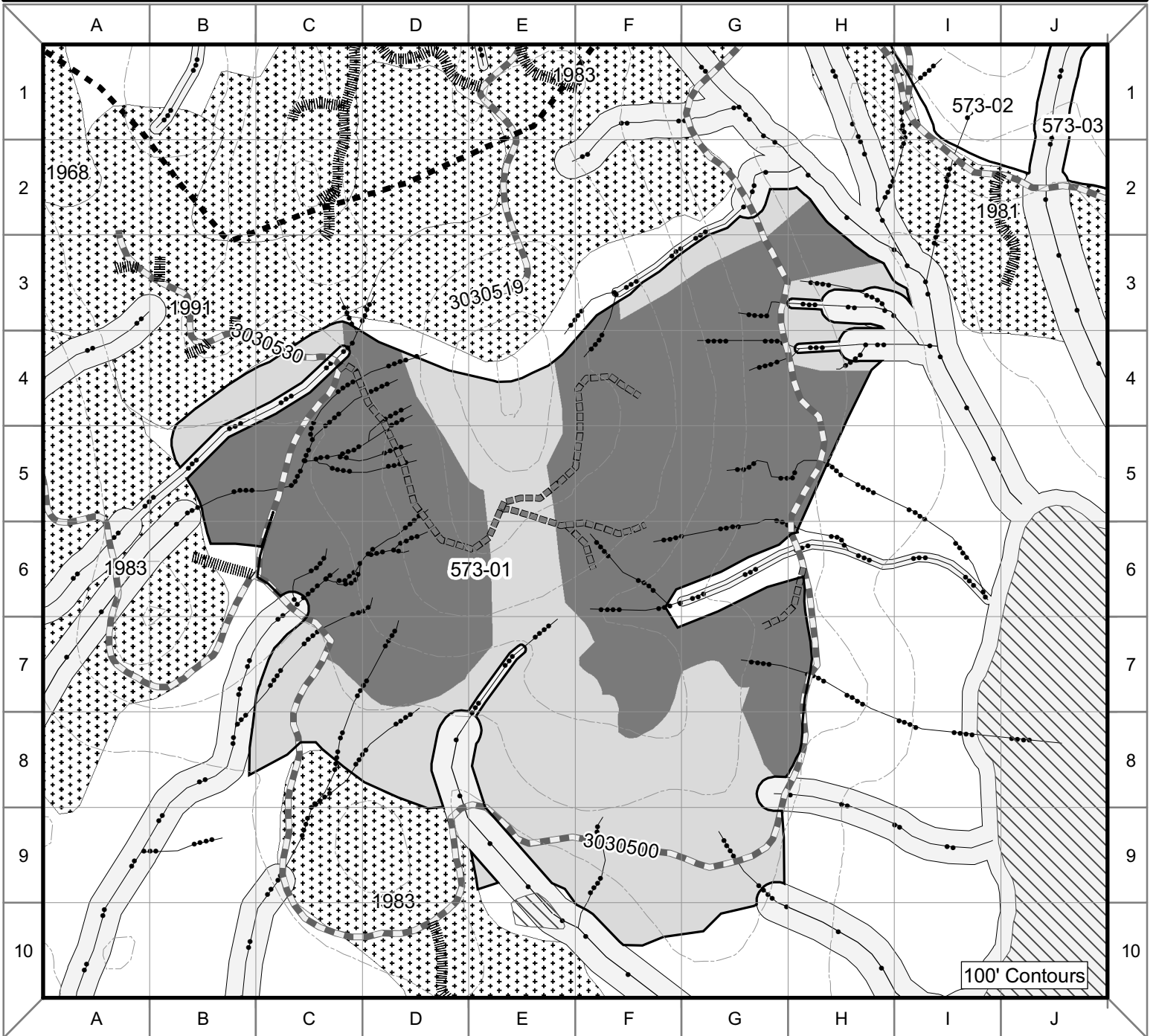
Lands and Special Uses

All lands within and adjacent to the project area are part of the National Forest system. Special use permit outfitter/guide operations have been authorized to conduct activities in the Logjam Timber Sale planning area.

Wetlands

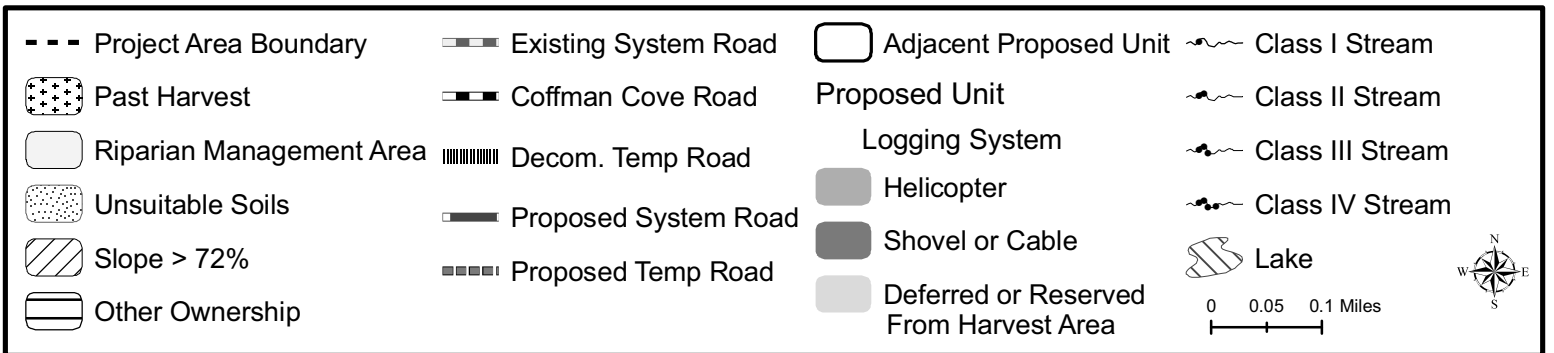
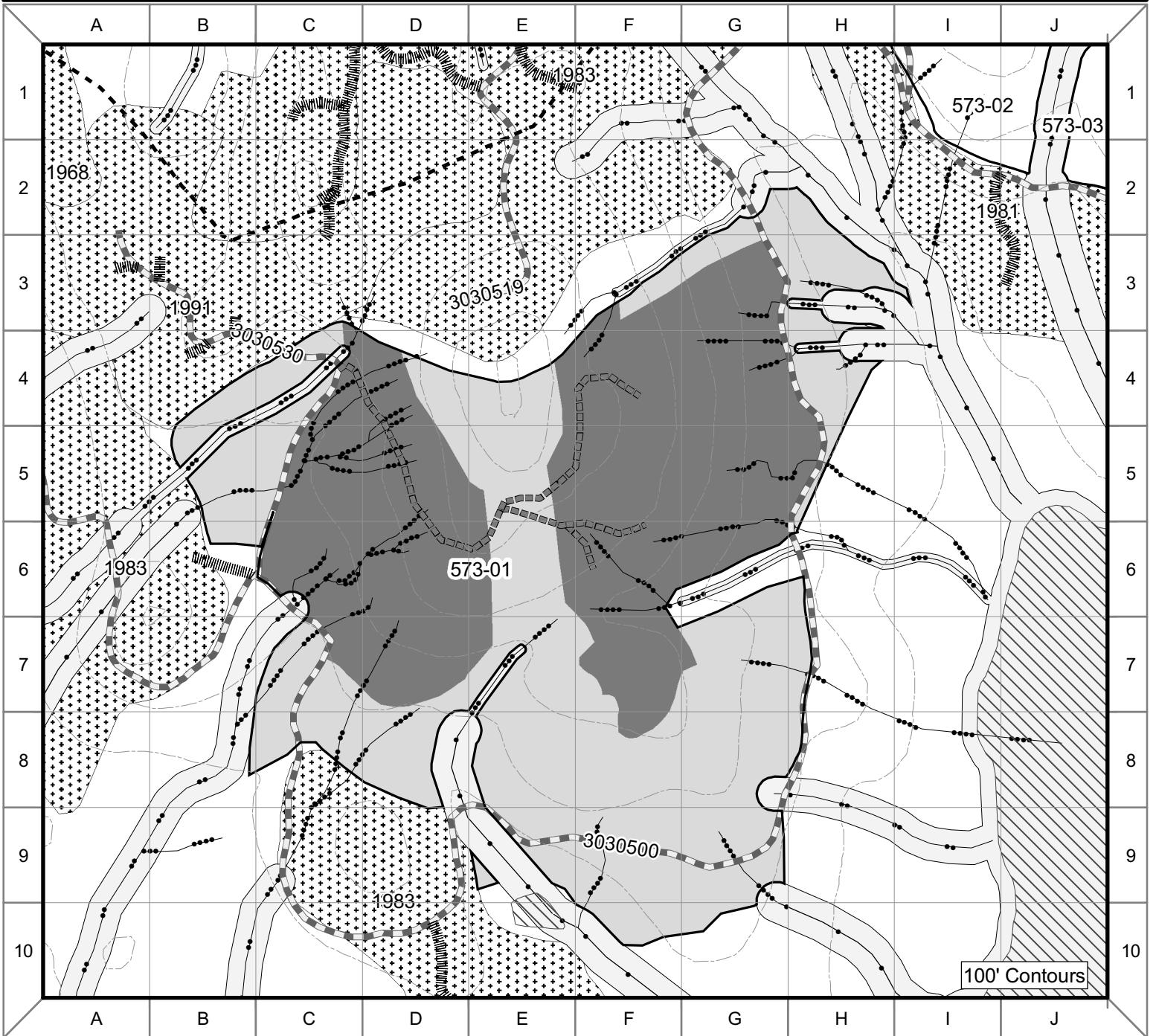
There are some areas of forested wetlands within the proposed harvest units. Forested wetlands are classed as suitable for timber production in the Forest Plan. There are no other wetland types within harvest unit boundaries. When there is a landslide rating it is for the unit. This could be different than the landslide rating in Fisheries Section.

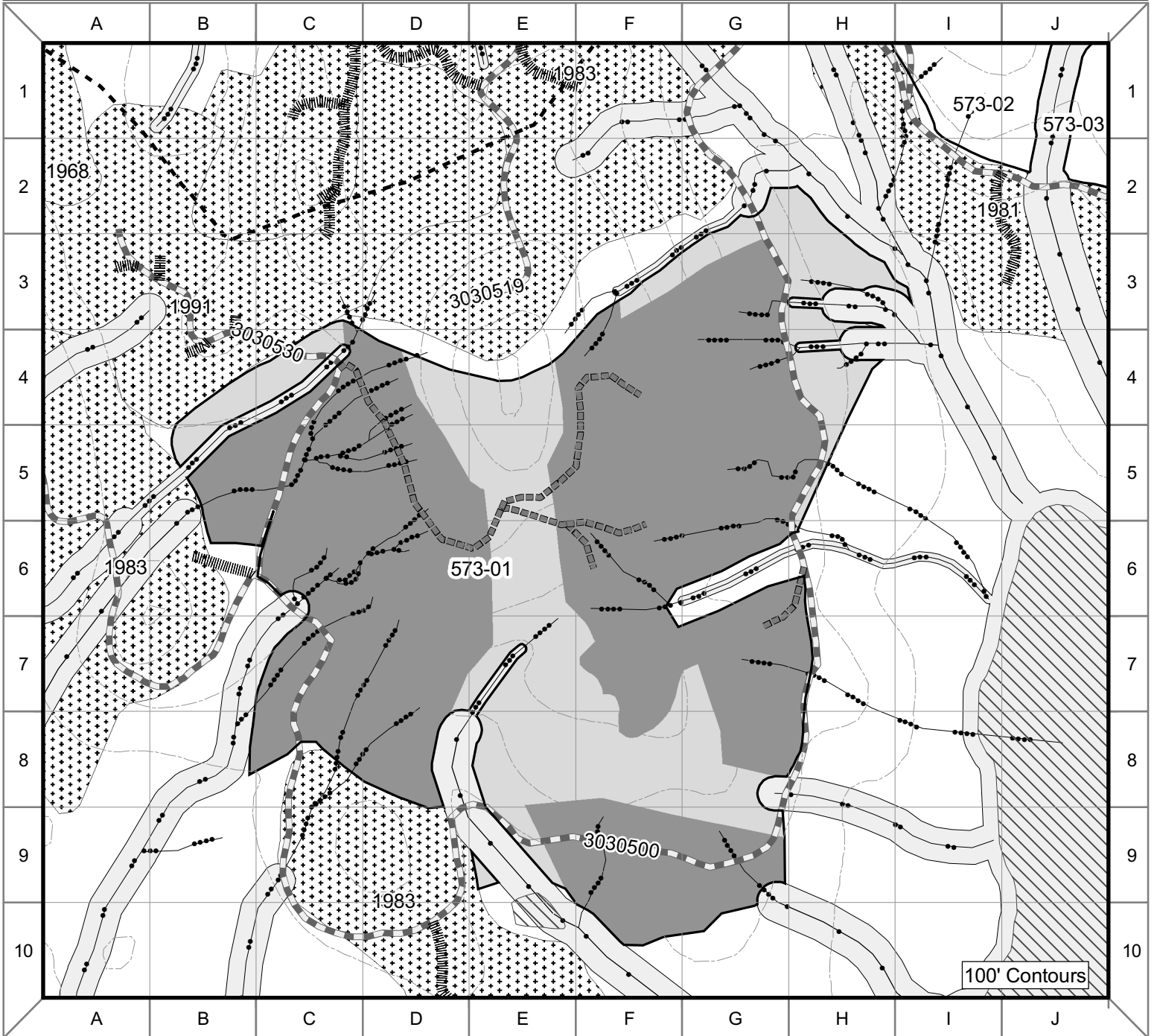
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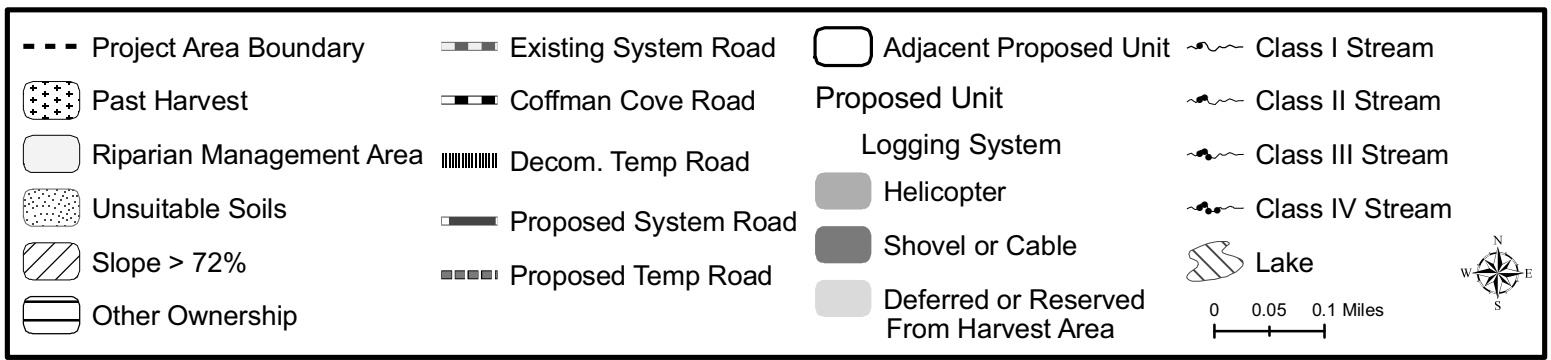
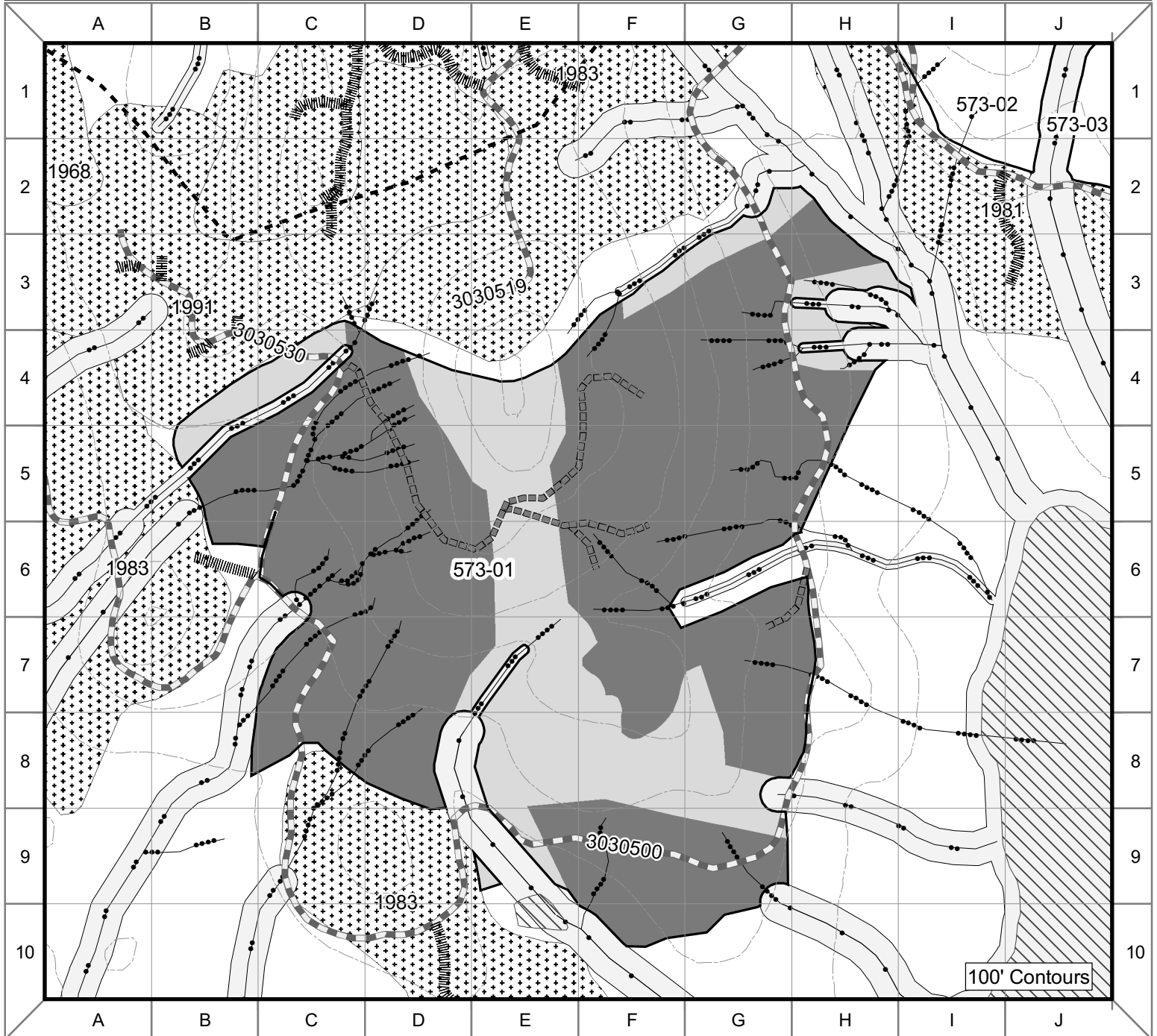
<ul style="list-style-type: none"> --- Project Area Boundary [Cross-hatch] Past Harvest [Light gray] Riparian Management Area [Dotted] Unsuitable Soils [Diagonal lines] Slope > 72% [Horizontal lines] Other Ownership 	<ul style="list-style-type: none"> --- Existing System Road --- Coffman Cove Road [Hatched] Decom. Temp Road --- Proposed System Road --- Proposed Temp Road 	<ul style="list-style-type: none"> [White box] Adjacent Proposed Unit Proposed Unit Logging System <ul style="list-style-type: none"> [Light gray] Helicopter [Dark gray] Shovel or Cable [Medium gray] Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> [Wavy line] Class I Stream [Wavy line] Class II Stream [Wavy line] Class III Stream [Wavy line] Class IV Stream [Wavy line] Lake
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0 0.05 0.1 Miles





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	



Unit 573-01 Alternatives 2, 3, 4, 5

Unit Number: 573-01	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 163 Alt. 3 – 131 Alt. 4 – 199 Alt. 5 - 208	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel/Cable	Net Harvest Volume (MBF): Alt. 2 – 4,072 Alt. 3 – 3,313 Alt. 4 – 4,623 Alt. 5 - 4,845	LUD: Modified Landscape Recreational River

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition / Vegetation: This is a multi-storied old growth stand of average productivity for the area. Alaska yellow-cedar occurs in areas of lower productivity in the north central portion of the stand as well as along the road on the east side of the stand. Disturbance processes are primarily small and frequent. Stand has evidence of some larger less frequent disturbance as would be expected due to exposure to south winds. Wind throw risk is moderate. Mistletoe occurrence is moderate-scattered.

Silvicultural Objective / Desired Future 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-aged management –Clearcut. Maintain separation between east and west harvest area within the unit approximately as shown on the unit card map. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on a proposed temporary spur of NFSR 3030530. Shovel settings are planned for yarding to the proposed temporary roads and to existing NFSR 3030500 and NFSR 3030530. The unit is divided into two separate harvest areas in Alternatives 2 and 3. The unit includes some additional settings to the south and is divided into three separate harvest areas in Alternatives 4 and 5. Individual opening size will not exceed 100 acres.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3030531 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 4, and 5 - accessed by temporary roads 5,300 feet in length. Alternative 3 – accessed by temporary roads 4,800 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-01-1 Location: I4, I3, H3, H2, G2, G1

Class: I Flagging: B/W C-type: MM1, HC2

Concern: heavy blow-down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for HC2) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternative 3 and 4 RAW Buffer: none

Stream#: 573-01-1.1L Location: H2, G2, G3, F3, F4

Class: I, II, III, IV Flagging: B/W, O/W, G/W C-type: HC2, HC1, HC5, HC0

Concern: heavy blow-down along stream adjacent to past harvested unit.

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternative 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-01-1.2L Location: I4, H4, G4

Class: I, II, III, IV Flagging: B/W, O/W, G/W C-type: MM1, HC5, HC0

Concern: heavy blow-down along stream adjacent to past harvested unit.

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: a minimum of 120ft. (for MM1) and 100ft. (for HC5) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternative 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-01-1.2L.1R Location: I4, I3, H3, G3

Class: I, II, III, IV Flagging: B/W, O/W, G/W C-type: MM1, HC5, HC0

Concern: heavy blow-down along stream adjacent to past harvested unit.

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: a minimum of 120ft. (for MM1) and 100ft. (for HC5) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternative 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-01-4 Location: I6, H6, G6, F6

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternative 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-01-6 Location: F10, E10, E9, D9, D8, E8, E7

Class: I, III, IV Flagging: B/W, O/W, G/W C-type: MM1, HC5, HC0

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: a minimum of 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternative 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-01-9 Location: B8, B7, C7, C6

Class: II, IV Flagging: B/W, G/W C-type: HC2, MM1

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: a minimum of 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-01-11 Location: A5, B5, B4, C4, C3, D3

Class: III, IV Flagging: O/W, G/W C-type: HC2, HC1

Concern: moderate blow-down along stream adjacent to past harvested unit.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternative 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-01: All Alternatives - will have seven Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit

harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Low. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 2 & 7.

RECREATION: A portion of this unit is within the Recreation River LUD. Timber harvest is compatible with the Recreation River LUD in this area due to the adjacent LUD being a development LUD.

SOILS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details. Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Intermittent forested wetlands are located throughout the unit. The temporary roads would cross about 2 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

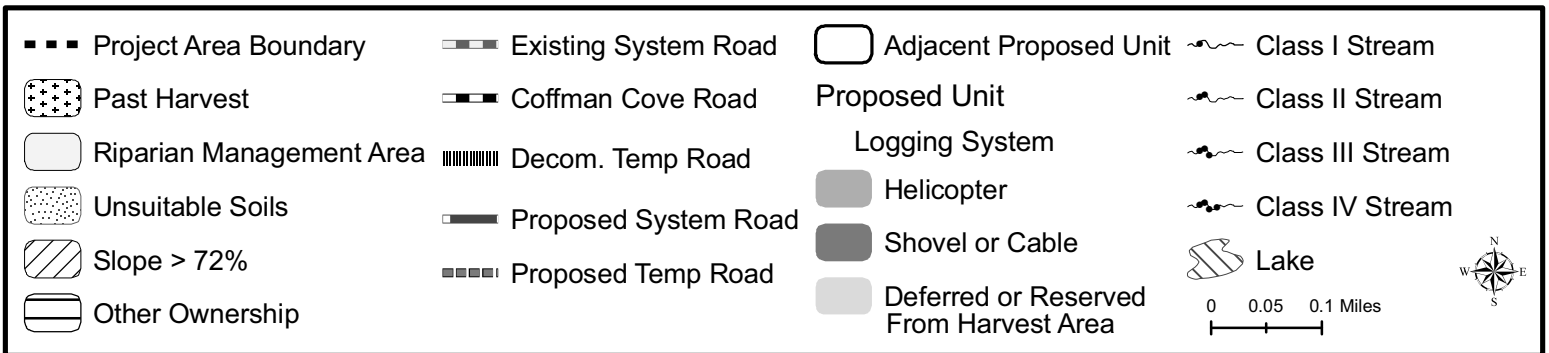
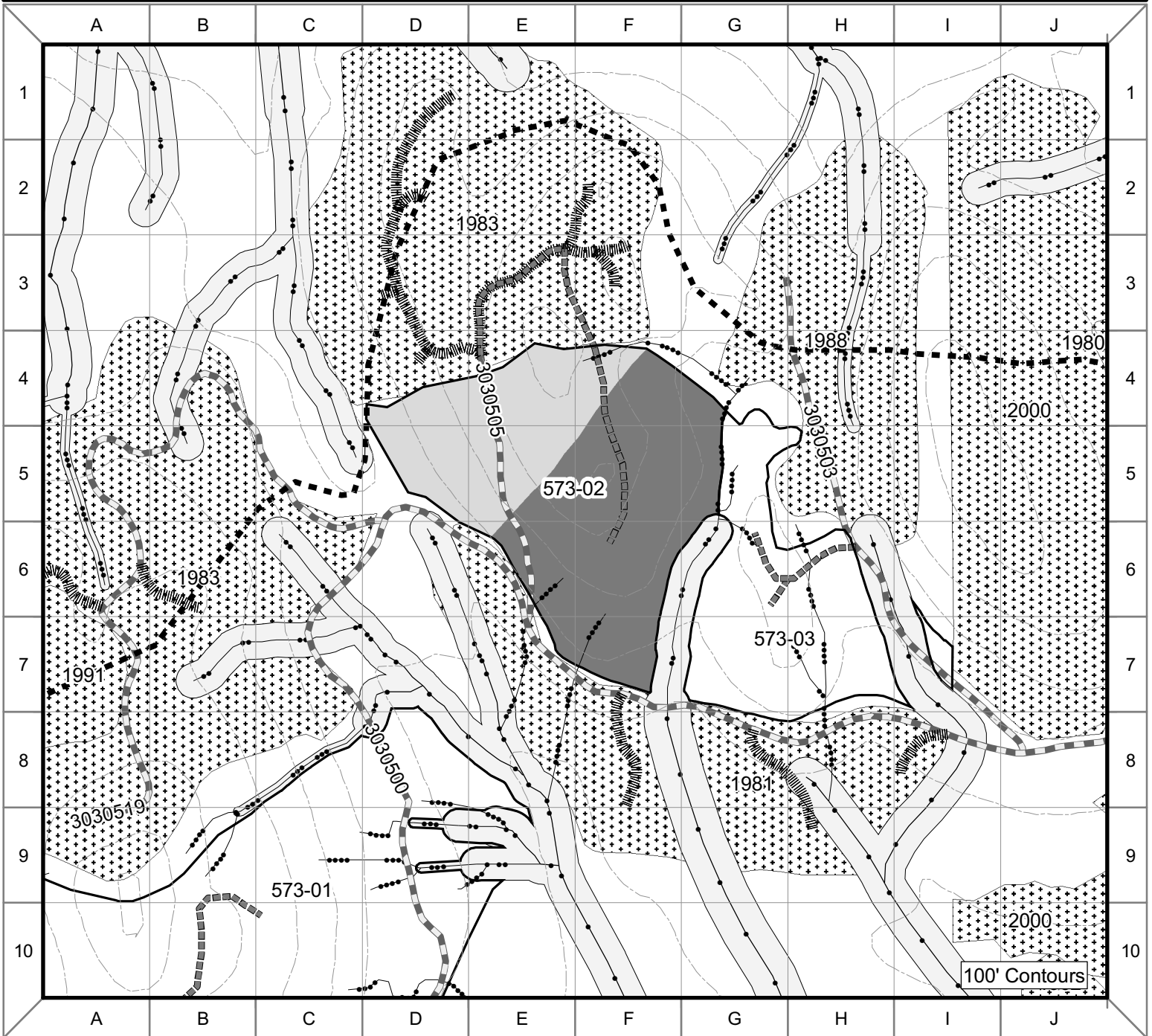
COMMENTS: Concerns in Alternative 2 are for opening size. The intent is to keep opening size to 100 acres or less. Implement leave areas to divide the unit into openings <100 ac to address adjacency concerns. Maximize volume in unit design.

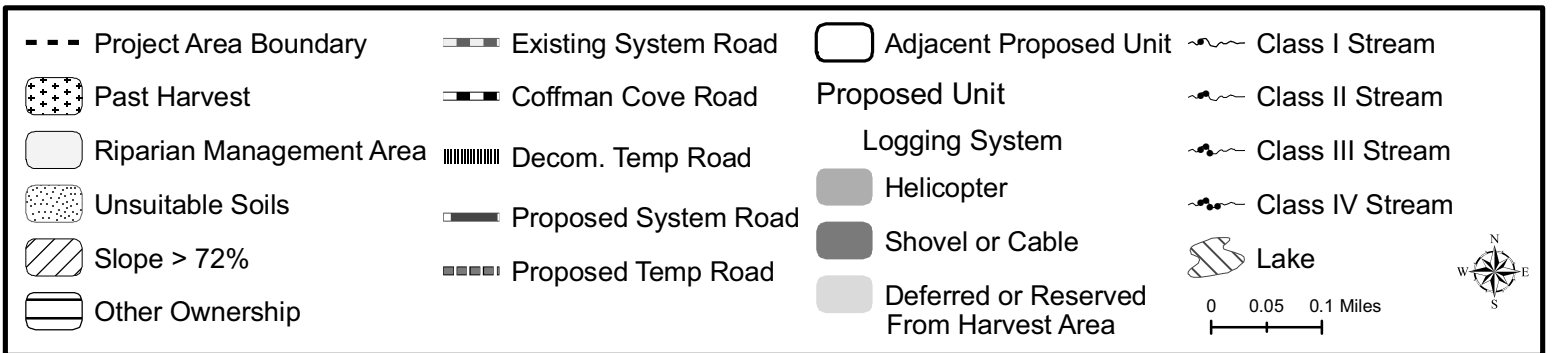
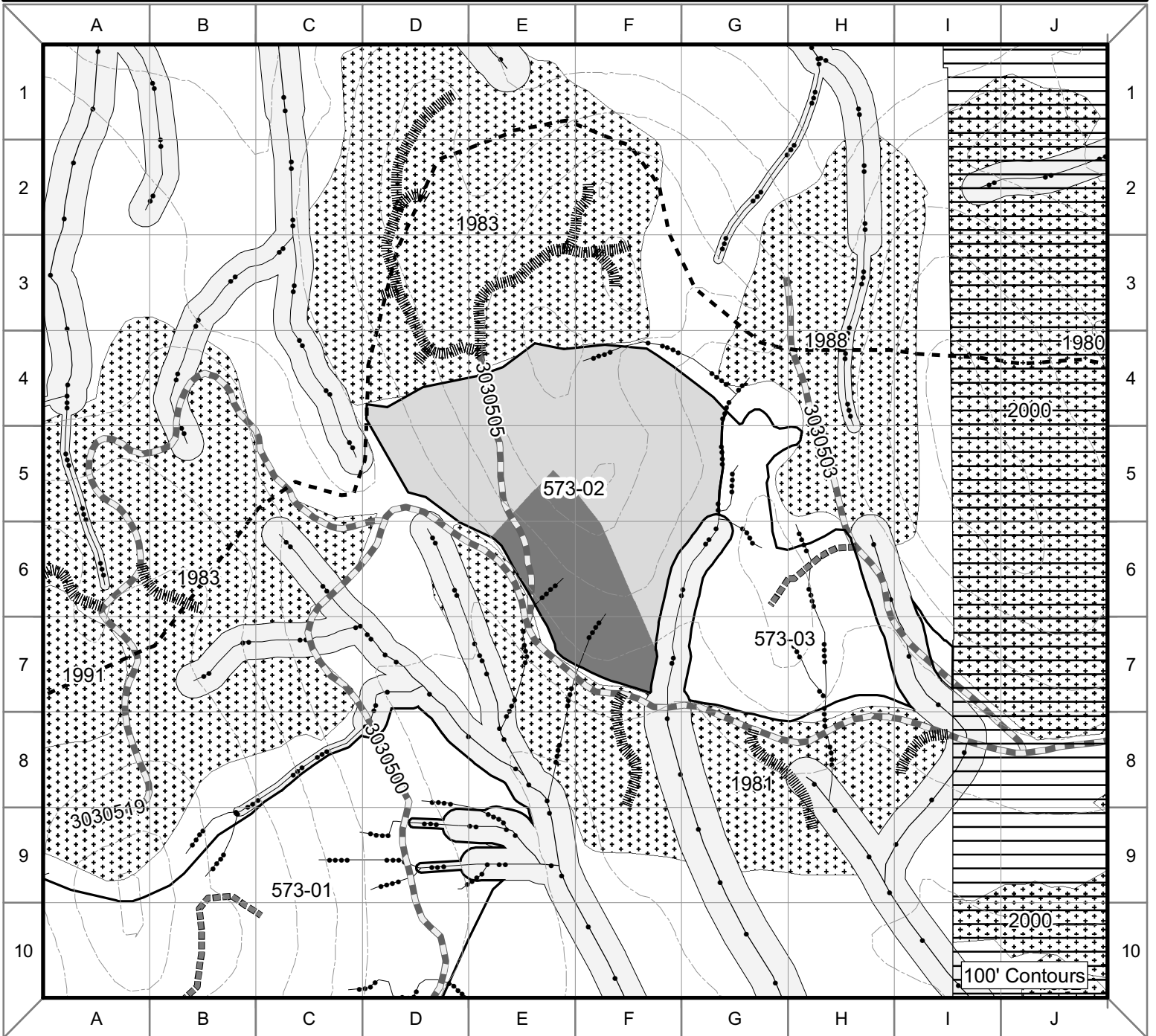
Concerns in Alternative 3 are for blowdown and related water quality concerns. A reserve area has been established between the east and west polygons to divide the unit into openings less than 100ac to address adjacency concerns; Drop all unit portions downslope from the road system to address water quality concerns.

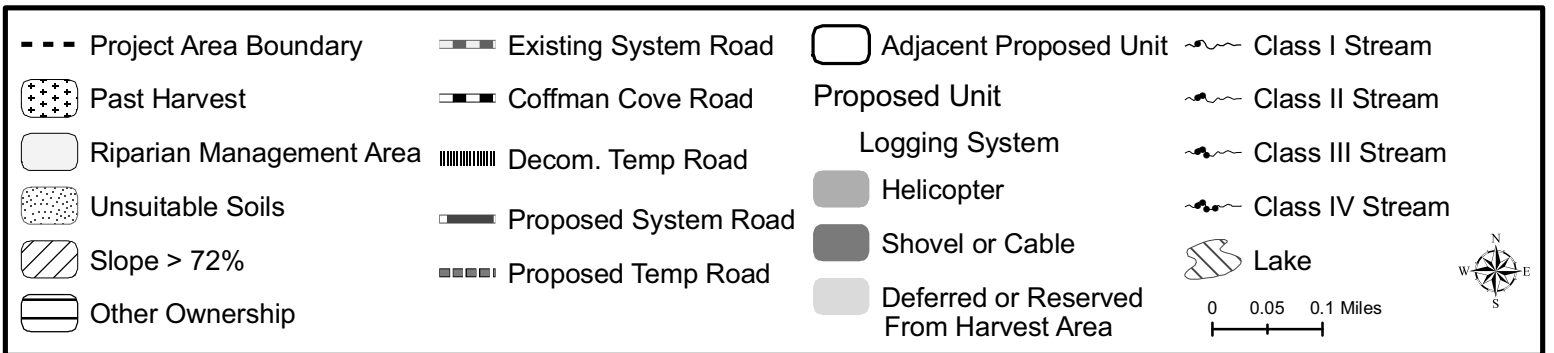
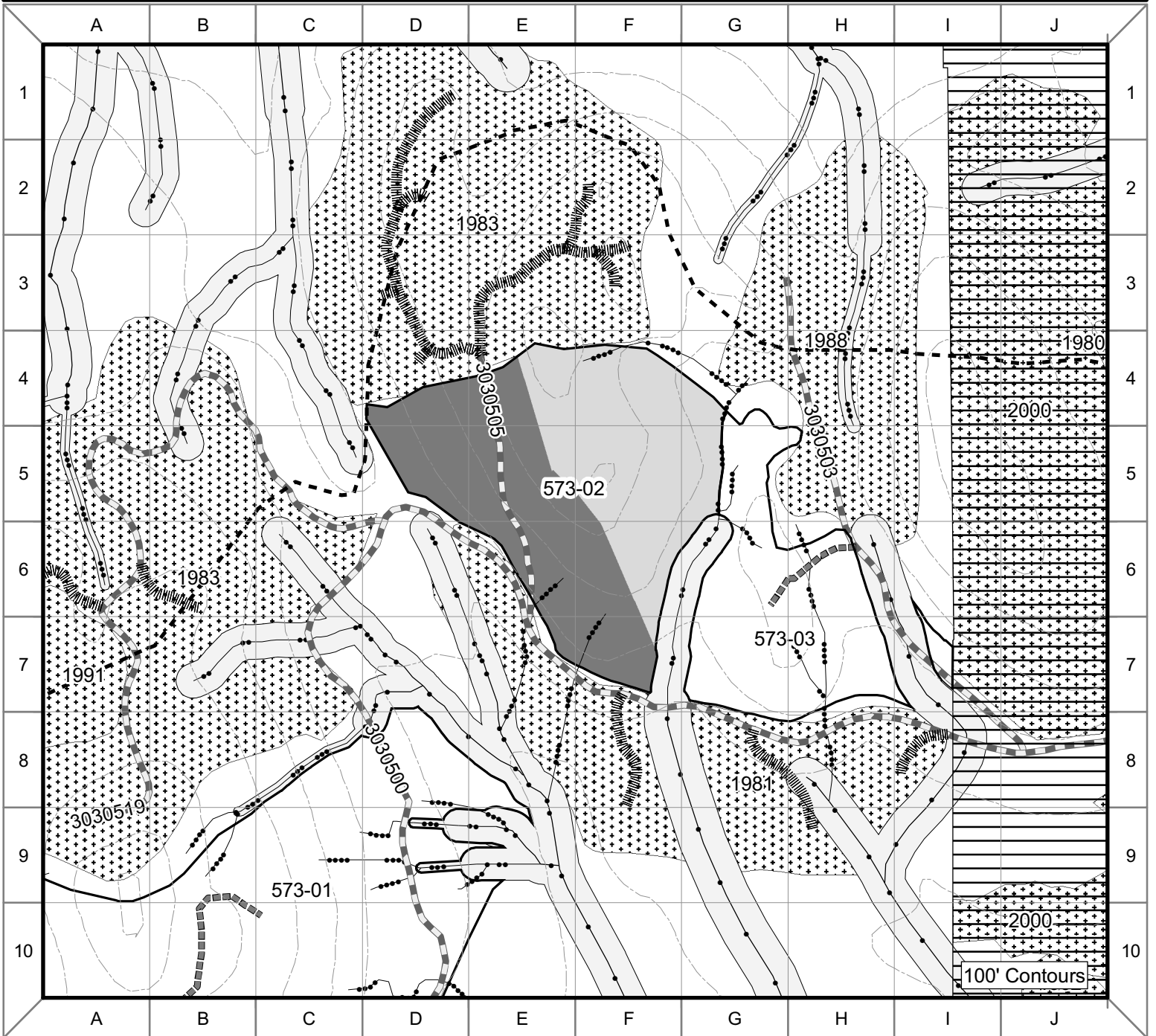
Concerns in Alternative 4 are for wildlife corridor concerns (unit blocks north/south travel route). Drop portion east of existing road and implement reserve area in the center of the unit to maintain a north –south travel route; Combine with drops in units 2 and 3.

Concerns in Alternative 5 are for opening size. The intent is to keep opening size to 100 acres or less. Implement leave areas to divide the unit into openings <100 ac to address adjacency concerns. Maximize volume in unit design.

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Unit 573-02 Alternatives 2, 3, 4, 5

Unit Number: 573-02	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 42 Alt. 3 – 17 Alt. 4 – 17 Alt. 5 - 36	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 864 Alt. 3 – 443 Alt. 4 – 443 Alt. 5 - 967	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature old growth stand with average defect. Moderately stocked overstory with well stocked understory. Multi storied to two storied stand. North end is primarily mixed conifer with yellow cedar decline. Central part of stand has evidence of heavy repeated wind damage. Lower elevations are well stocked with Western redcedar and Alaska yellow-cedar. Stand has harvest activity to the north, east and south. Stand has evidence of large scale disturbances centrally, smaller more frequent disturbances to North and South. Wind throw risk is high.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is planned for a combination of shovel and cable yarding and will be accessed from the north by a temporary road extension of NFSR 3030505. Two cable settings in the southern half of the unit are planned for uphill yarding to landings on the proposed temporary road. A shovel setting in the north half of the unit is also planned for yarding to the proposed temporary road. In Alternatives 3, 4 and 5 this unit is planned for cable yarding to landings on the existing NFSR 3030500 and NFSR 3030505. Some shovel yarding will occur in areas adjacent to the existing roads.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 3,000 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Lake Bay Coastal. (Location is depicted from confluence to headwaters.)

Stream#: 573-02/03-1 Location: F8, F7, F6, G6, G5, G4, F4

Class: II, IV Flagging: B/W, O/W, G/W C-type: HC5, MM1, MM0, HC0

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Extend RMA buffer upstream 100 ft (“wagon wheel”) to protect O/W reach above 10 ft falls.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-02-5 Location: C3, C4, C5

Class: II Flagging: B/W C-type: HC2

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-02: Alternative 2 - will have one Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

Alternative 2: Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The temporary roads would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

Alternatives 3,4, 5: Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

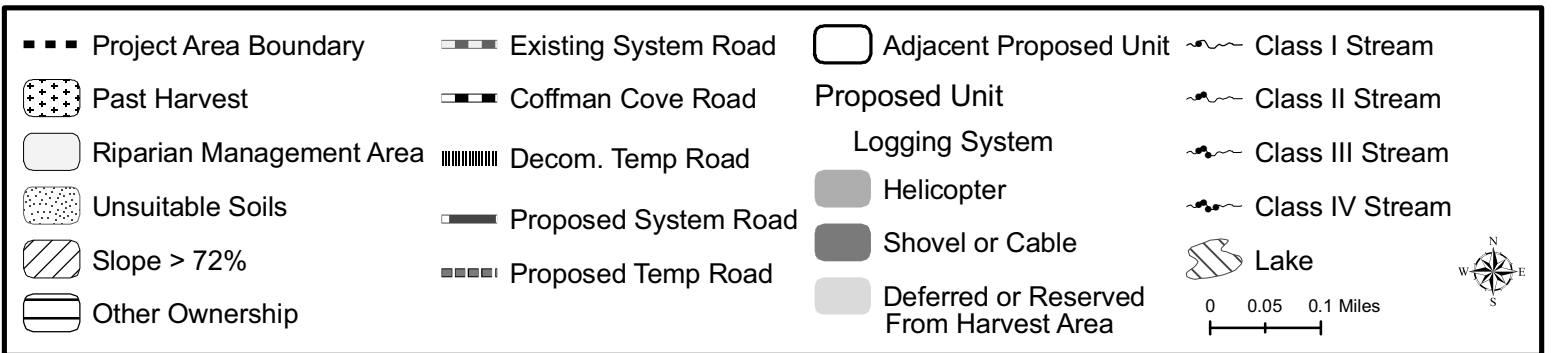
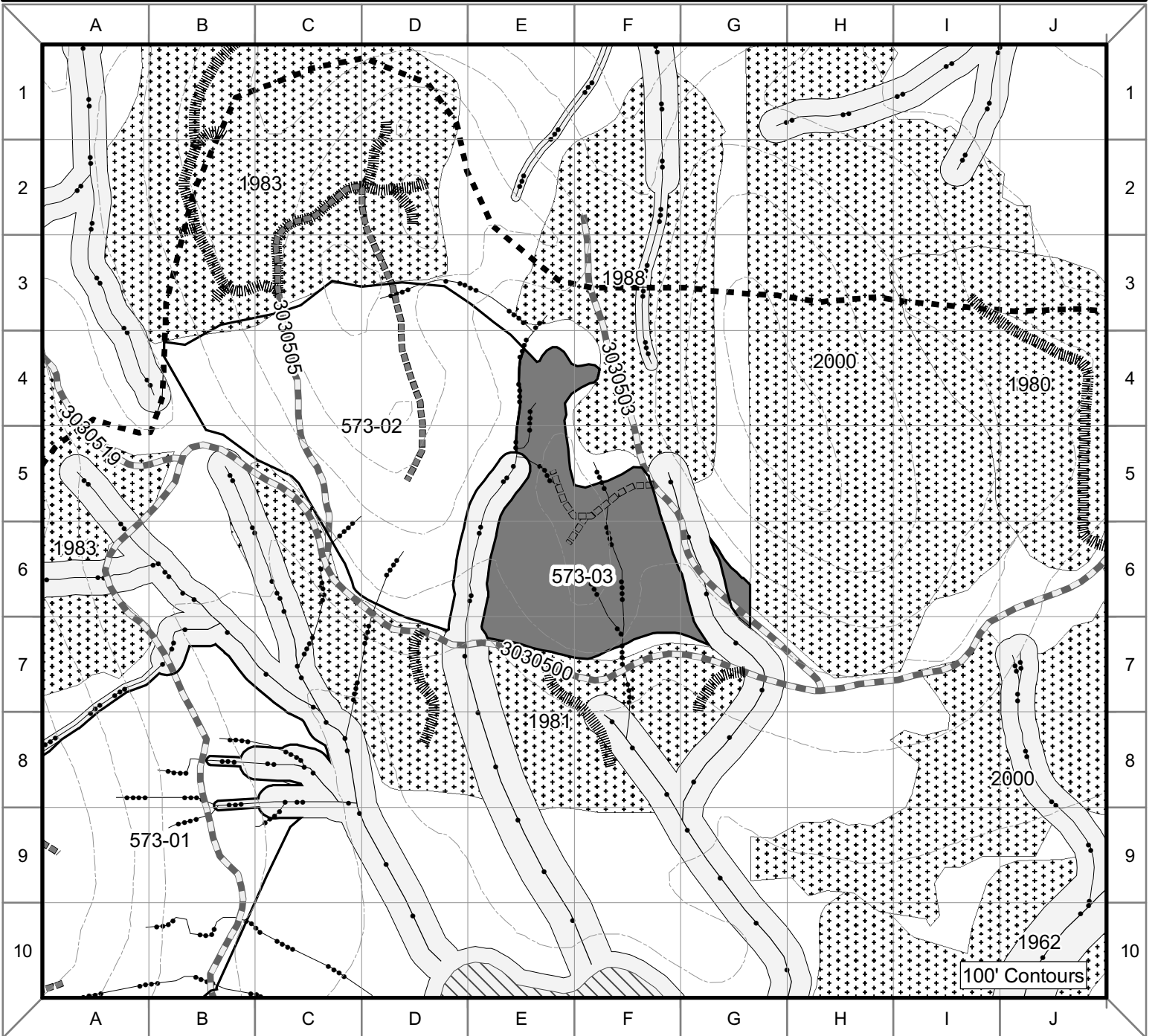
COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.

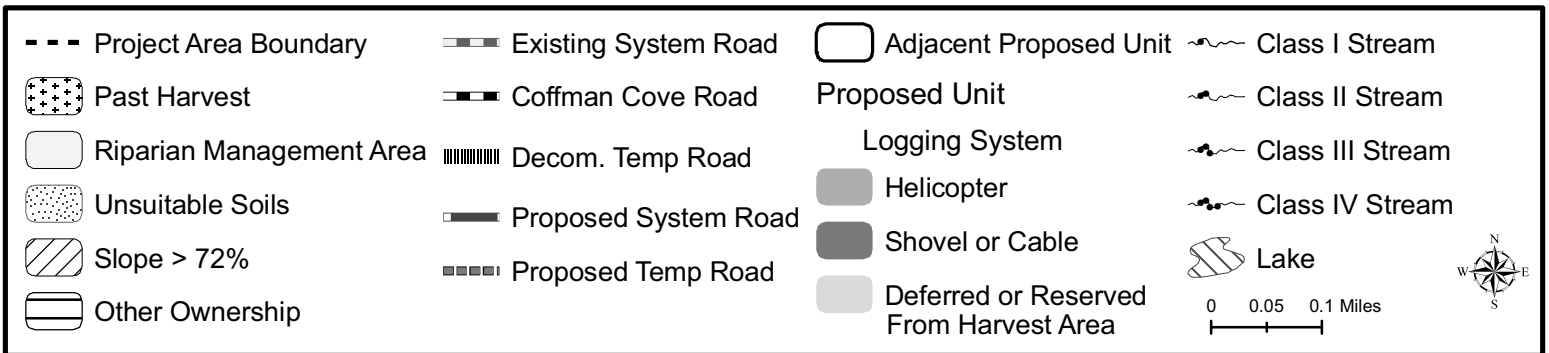
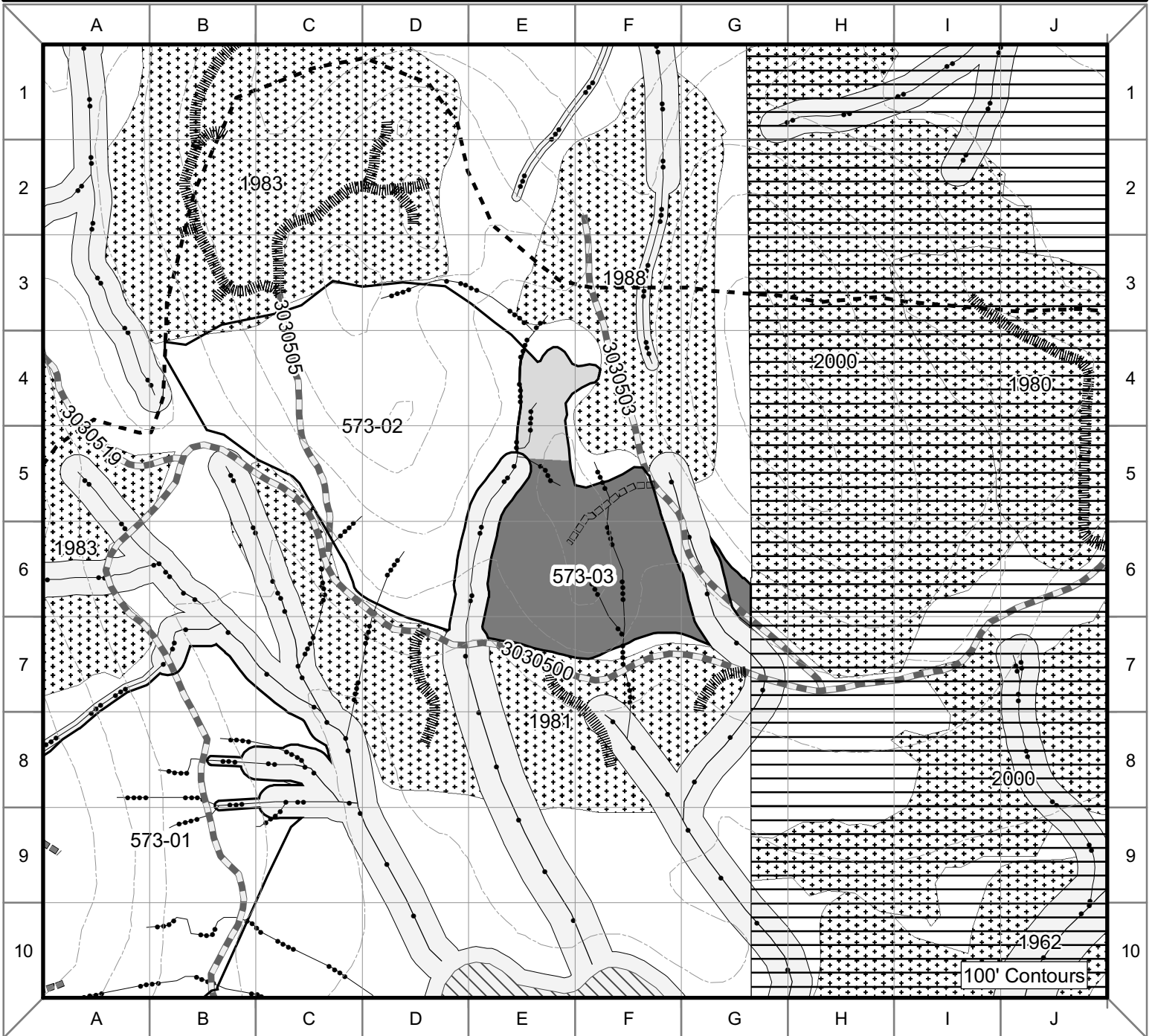
Concerns in Alternative 3 are for potential for blowdown in stream buffers, cumulative effects. Drop proposed road and northern portion of unit to reduce road construction and harvest area. Place a RAW in RMA at the time of the field unit lay-out prior to harvest. Potential for blowdown in stream buffers, cumulative effects.

Concerns in Alternative 4 are for wildlife corridor concerns (unit blocks east/west travel route). Drop proposed road and northern portion of unit to maintain travel route; Combine with drops in units 1 and 3. Unit as planned blocks east –west travel route between old harvest unit and proposed unit.

Concerns in Alternative 5 are the cost of road construction for marginal timber volume/ value. Drop proposed road and northern portion of unit due to economic concerns; harvest timber accessible from existing road system. Cost of road construction for marginal timber volume/ value.

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Unit 573-03 Alternatives 2, 3, 4, 5

Unit Number: 573-03	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 36 Alt. 3 – 30 Alt. 4 – 30 Alt. 5 - 30	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 972 Alt. 3 – 873 Alt. 4 – 873 Alt. 5 - 873	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature Old Growth stand with average defect. Well stocked overstory and understory. Multi storied stand. Small patches of blowdown noted in Northern leg of unit. Small muskeg inclusion noted in north central portion of unit. Small frequent wind disturbance is evident in northern portions of the stand. Wind throw risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for shovel yarding to a proposed temporary spur of NFSR 3030503, as well as existing NFSR 3030500 and NFSR 3030503. The northwestern finger of the unit is deferred in all action alternatives except Alternative 2. An additional short temporary spur is proposed in Alternative 2 to minimize yarding distances.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Follow applicable BMPs during construction and layout. Alternative 2- accessed by temporary roads 1,100 feet in length. Alternatives 3, 4, and 5, accessed by temporary road 700 feet in length.

In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-02/03-1 Location: E8, E7, D7, D6, E6, E5, E4, E3, D3
 Class: II, IV Flagging: B/W, O/W, G/W C-type: HC5, MM1, MM0, HC0
 Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Extend RMA buffer upstream 100 ft (“wagon wheel”) to protect O/W reach above 10 ft falls.
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternative 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-03-2 Location: G7, G6, G5, F5
 Class: I Flagging: B/W C-type: MM1
 Concern: heavy blow down along stream adjacent to past harvested unit.
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 573-03: All Alternative - will have one Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

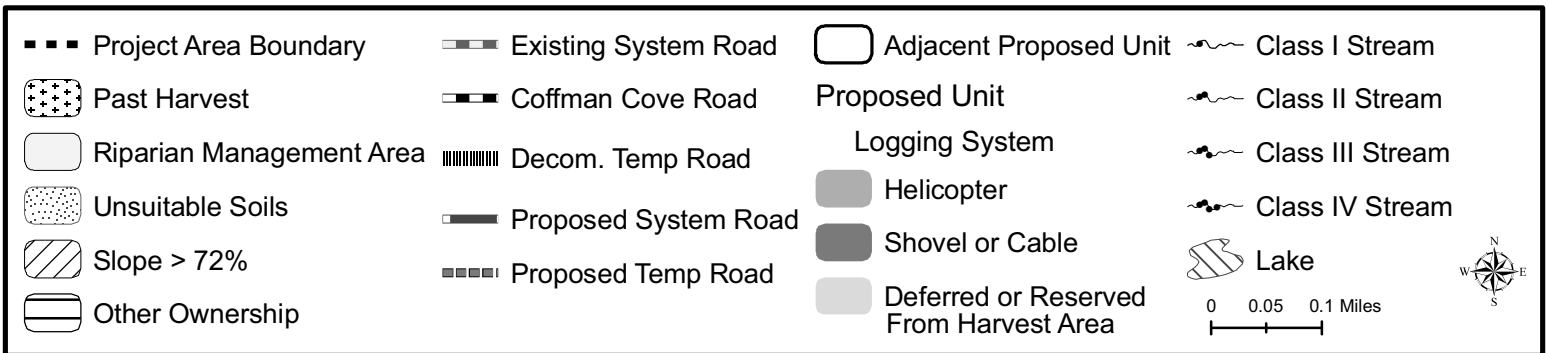
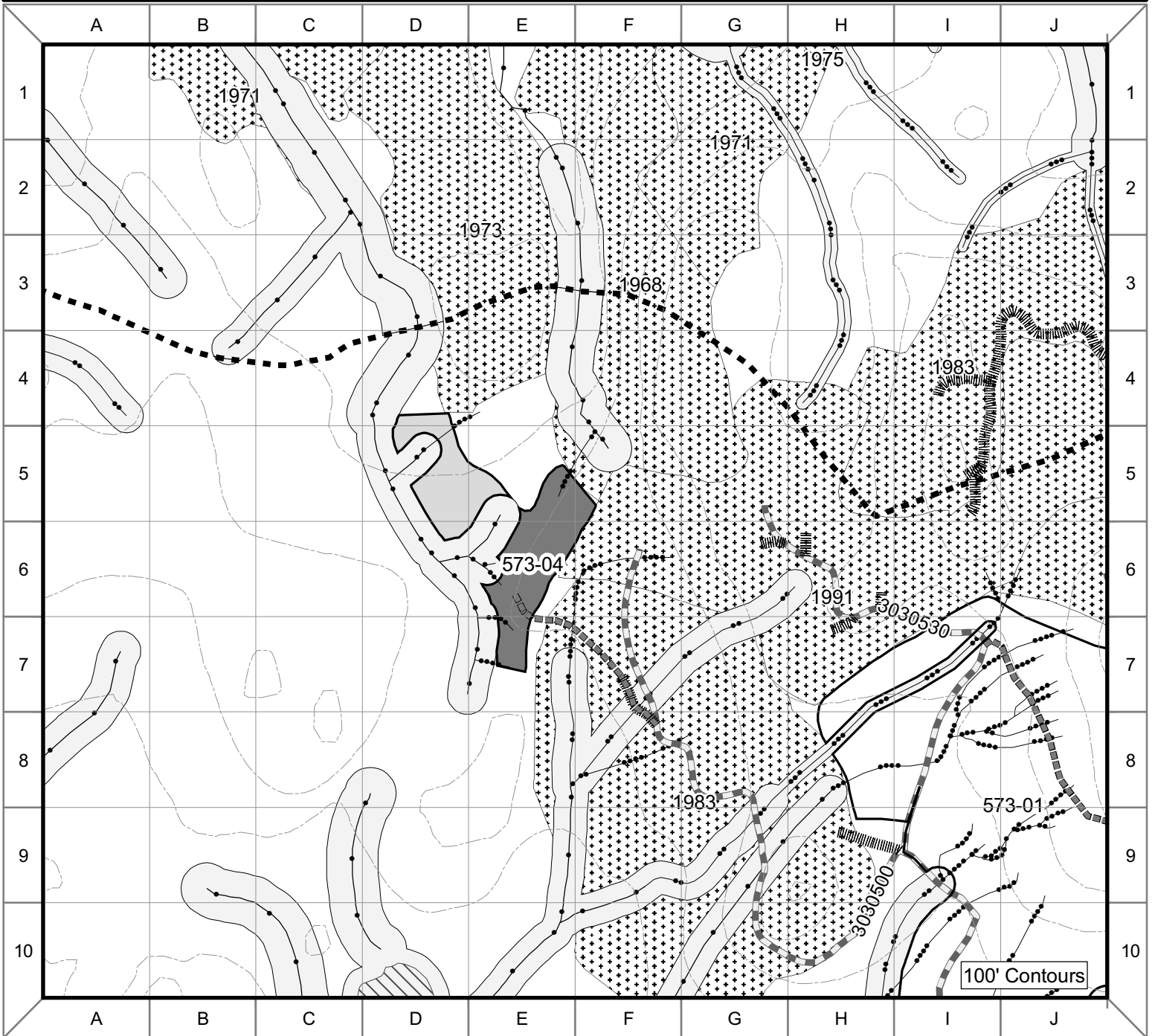
Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. There are no resource concerns with the temporary roads (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are for potential blow-down concerns in far northwest corner. Drop northernmost finger of the unit to reduce blow-down concerns, road construction and harvest area; Review Class I RAW buffer needs during unit layout.

Concerns in Alternative 4 are for wildlife corridor concerns (east-west travel route associated with unit 573-02). Drop northern most finger of unit to maintain travel route; Combine with drops in units 1 and 2.

Concerns in Alternative 5 are for poor economics in northernmost finger due to additional road construction costs. Poor economics in northernmost finger due to additional road construction costs.



Unit 573-04 Alternative 2

Unit Number: 573-04	Alternatives: 2	Total Unit Acres: 9	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel	Net Harvest Volume (MBF): 438	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature Old Growth structured stand. Blowdown along eastern edge due to previous harvest. Boggy area with reported beaver activity in the northwest corner. East and South leg of unit is mixed Western redcedar and western hemlock with numerous gaps from dead and down stems. Heavy non-merchantable regeneration occurs in gaps. Central part (cable area) of unit is near pure western hemlock with heavy defect as well as mistletoe. Northwest corner returns to more mixed western hemlock & western redcedar. Windthrow risk is high. Mistletoe occurrence is heavy
 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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to the proposed temporary road. Unit will be accessed by a proposed temporary spur of NFSR 3030500.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 1,300 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Barnes Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-04-2 Location: D5, D4, E4
 Class: I, IV Flagging: B/W, G/W C-type: PA1, MMO
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2 RAW Buffer: none

Stream#: 573-04-3 Location: D4, D5, D6, E6, E7, D7
 Class: I Flagging: B/W C-type: PA5, PA1, MM1, HC1
 Concern: moderate blow down along stream.
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. (for PA5, PA1, & HC1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-04-3.1L Location: D6, E6, E5
 Class: I Flagging: B/W C-type: MM1
 Concern: moderate blow down along stream.
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-04-3.1L.1R Location: E6

Class: I, IV Flagging: B/W, G/W C-type: MM0, HC0

Concern: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. (for MM0 class I reach) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 573-04: Alternative 2 - will have one Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The temporary road would cross 1/10 of an acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: No concerns. Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

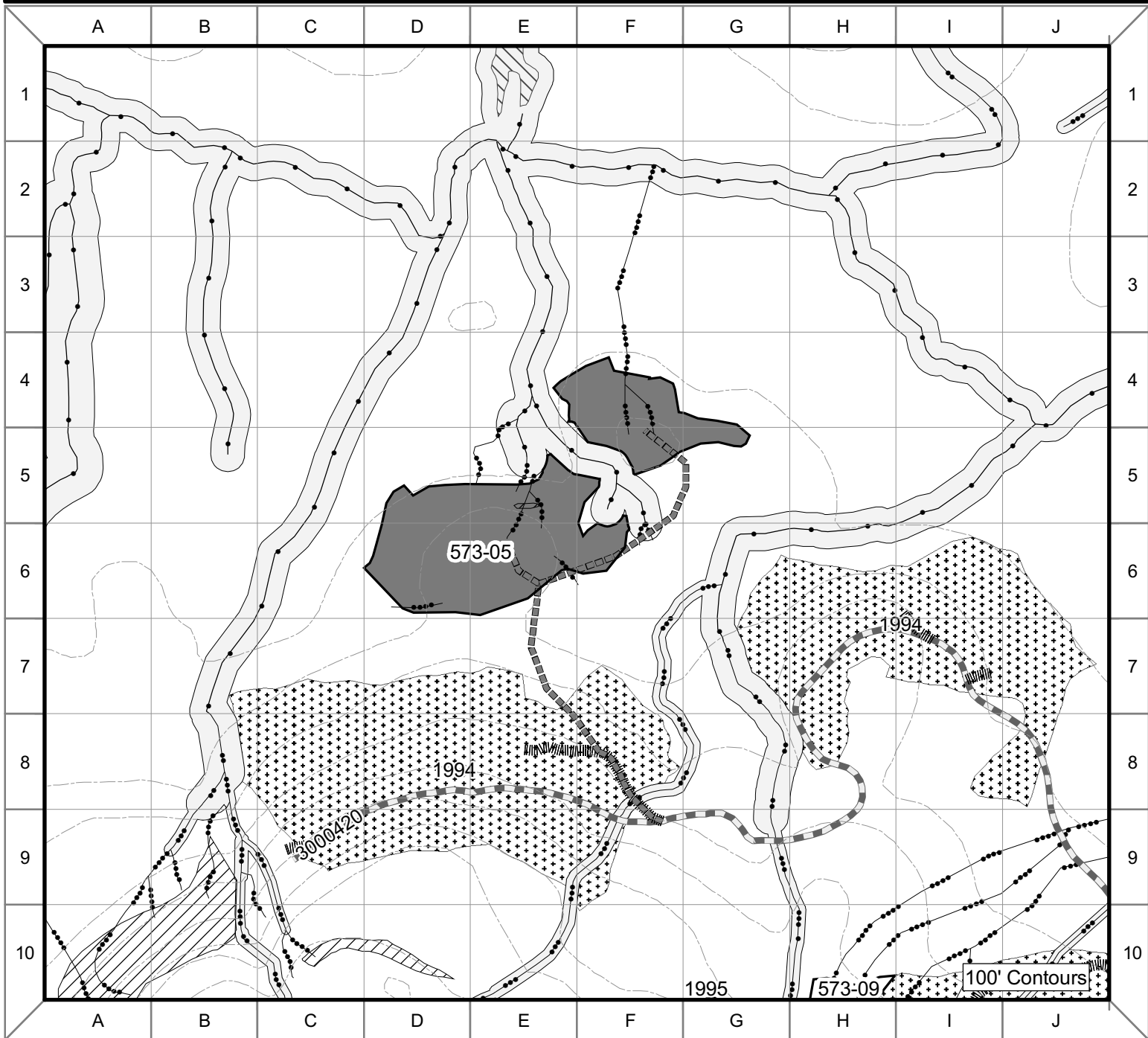
COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.

Concerns in Alternative 3 are – Drop unit. Multiple Class I stream channels; Beaver activity.

Concerns in Alternative 4 are – Drop unit. Poor economics; Beaver activity-not a high concern.

Concerns in Alternative 5 are – Drop unit. High road construction costs for marginal timber volume/value

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<ul style="list-style-type: none"> ■ ■ ■ Project Area Boundary ▤ Past Harvest □ Riparian Management Area ▤ Unsuitable Soils ▨ Slope > 72% ▨ Other Ownership 	<ul style="list-style-type: none"> ▬ Existing System Road ▬ Coffman Cove Road ▬ Decom. Temp Road ▬ Proposed System Road ▬ Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit Proposed Unit Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▨ Lake
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0 0.05 0.1 Miles

Unit 573-05 Alternative 2

Unit Number: 573-05	Alternatives: 2	Total Unit Acres: 35	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel	Net Harvest Volume (MBF): 954	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Lower site old Growth multi-storied stand. Western hemlock mixed with western redcedar and Alaska yellow-cedar on wetter / lowest site areas. Tree diameters range up to 38 inches; Alaska yellow-cedar snags are abundant. Alaska yellow-cedar is mostly dead above 20" DBH, Alaska yellow-cedar live DBH is from 8-20". Most live large sawtimber is western red cedar, with DBH ranges from 12-38". Western hemlock makes up most of lower layers. Western hemlock is most commonly from 1" to 20" DBH. Disturbance occurs frequently and on a small scale, defined by breakage due to high defect. Windthrow risk is low. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is divided into two separate harvest areas and planned for shovel yarding. Unit will be accessed by a proposed temporary spur of NFSR 3000420 and will require at least one additional short spur to minimize yarding distances.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 3,900 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-05-2 Location: E3, E4, E5, F5
 Class: I Flagging: B/W C-type: MC1, PA1
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2 RAW Buffer: none

Stream#: 573-05-2.1R Location: E4, E5
 Class: I, IV Flagging: B/W, G/W C-type: PA1
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. (for Class I reach) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2 RAW Buffer: none

Stream#: 573-05-2.2L Location: F5, F6
 Class: I, IV Flagging: B/W, G/W C-type: MC1, HC1
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. (for Class I reach) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2

RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 573-05: Alternative 2 - will have one Class III and three Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. A small cliff about 0.1 acres in size with slopes greater than 72% was identified in the unit and suitable for harvest. See unit report in Project File for details.

This unit is relatively flat with several drumlin deposit mounds located in the north central portion of the unit. Slopes range from about 20 to 30% across the mounds. Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The majority of the unit is comprised of forested wetland and forested wetland/emergent short sedge fen complex. The temporary roads would cross about 2 acres of forested wetland and emergent short sedge wetland complexes (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

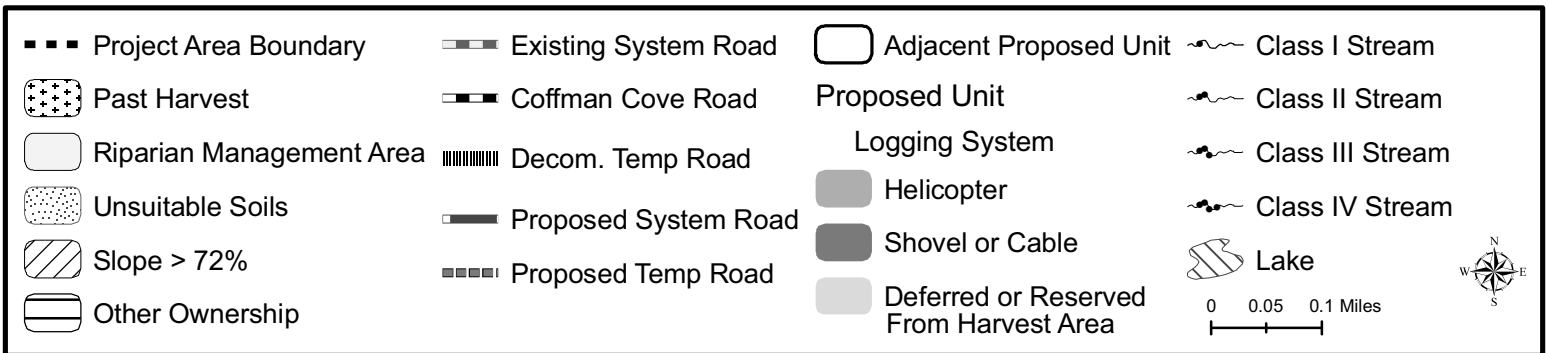
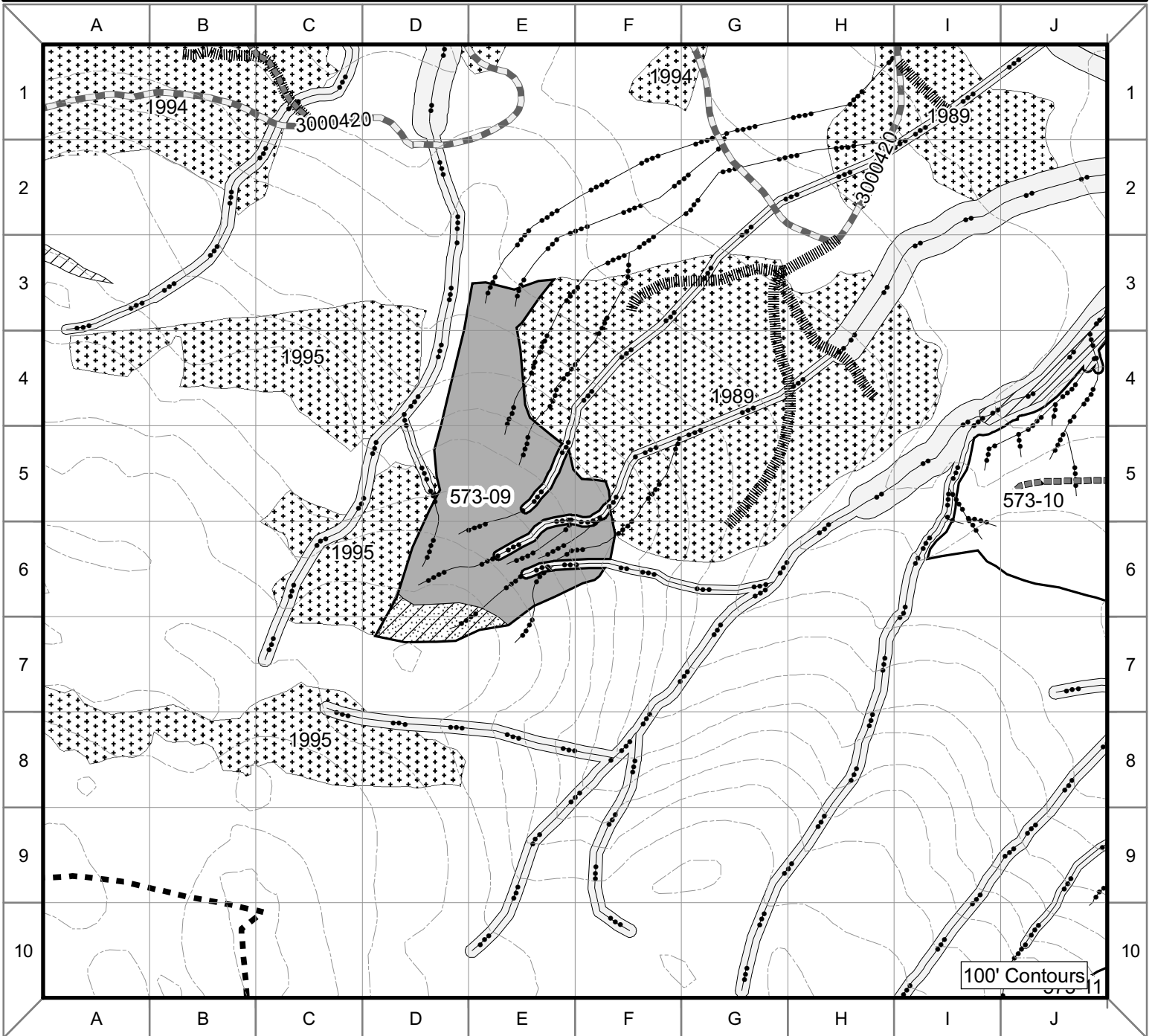
COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.

Concerns in Alternative 3 are – Drop unit. Poor economics, marginal timber; Extensive wetlands.

Concerns in Alternative 4 are – Drop unit. Unit adjacent to OGR and serves as a travel route; Poor economics, marginal timber; IRA.

Concerns in Alternative 5 are – Drop unit. Poor economics, high road construction costs for marginal timber volume/value.

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Unit 573-09 Alternatives 2, 3, 4, 5

Unit Number: 573-09	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 35 Alt. 3 – 35 Alt. 4 – 35 Alt. 5 - 35	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): Alt. 2 – 434 Alt. 3 – 434 Alt. 4 – 434 Alt. 5 - 434	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stand structure, mature Western hemlock with scattered large Sitka spruce. Alaska yellow-cedar is in higher elevations and south 1/2 of unit. PA is 110 - 130 in north 1/2 of unit and 210 in southeastern 1/3. Western hemlock, Sitka spruce and Alaska yellow-cedar all occur as large sawtimber. Disturbance process is defined by small scale frequent events. Multi-storied stand with Western hemlock occurring in lower layers almost exclusively. Windthrow risk is low. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking

Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In all action alternatives this unit is planned for helicopter yarding. Proposed landing is located on a temporary spur of NFSR 3000420.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-09-3 Location: D2, D3, D4, D5, D6
 Class: III, IV Flagging: O/W, G/W C-type: HC6, HC5, HC0
 Concerns: Bank side-slopes are steep and have active erosion in the higher elevations.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of side slope break.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-09-5 Location: G2, G3, F3, F4, E4, E5, E6, D6
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of side slope break.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-09-7 Location: H4, G4, G5, F5, E5, E6, D6
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of side slope break.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-09-8 Location: G6, F6, E6, D7
 Class: III, IV Flagging: OW C-type: HC5

Concerns: Bank slope instability, active erosion, and soil slumps.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-09-8.1L Location: E6, E7

Class: IV Flagging: O/W C-type: HC5

Concern: Bank side-slope instability, large older soil slump at the headwaters, soil slumps along stream, and active erosion.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

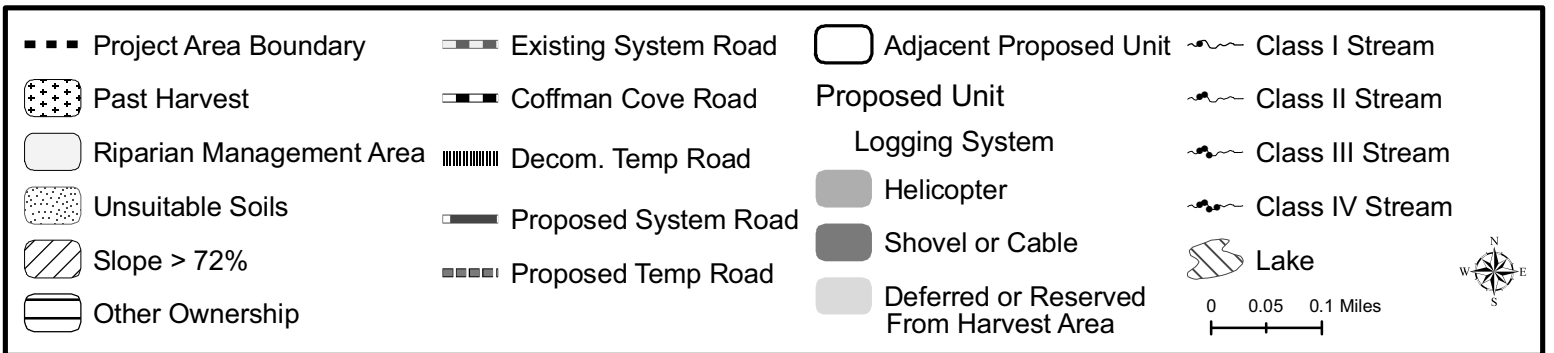
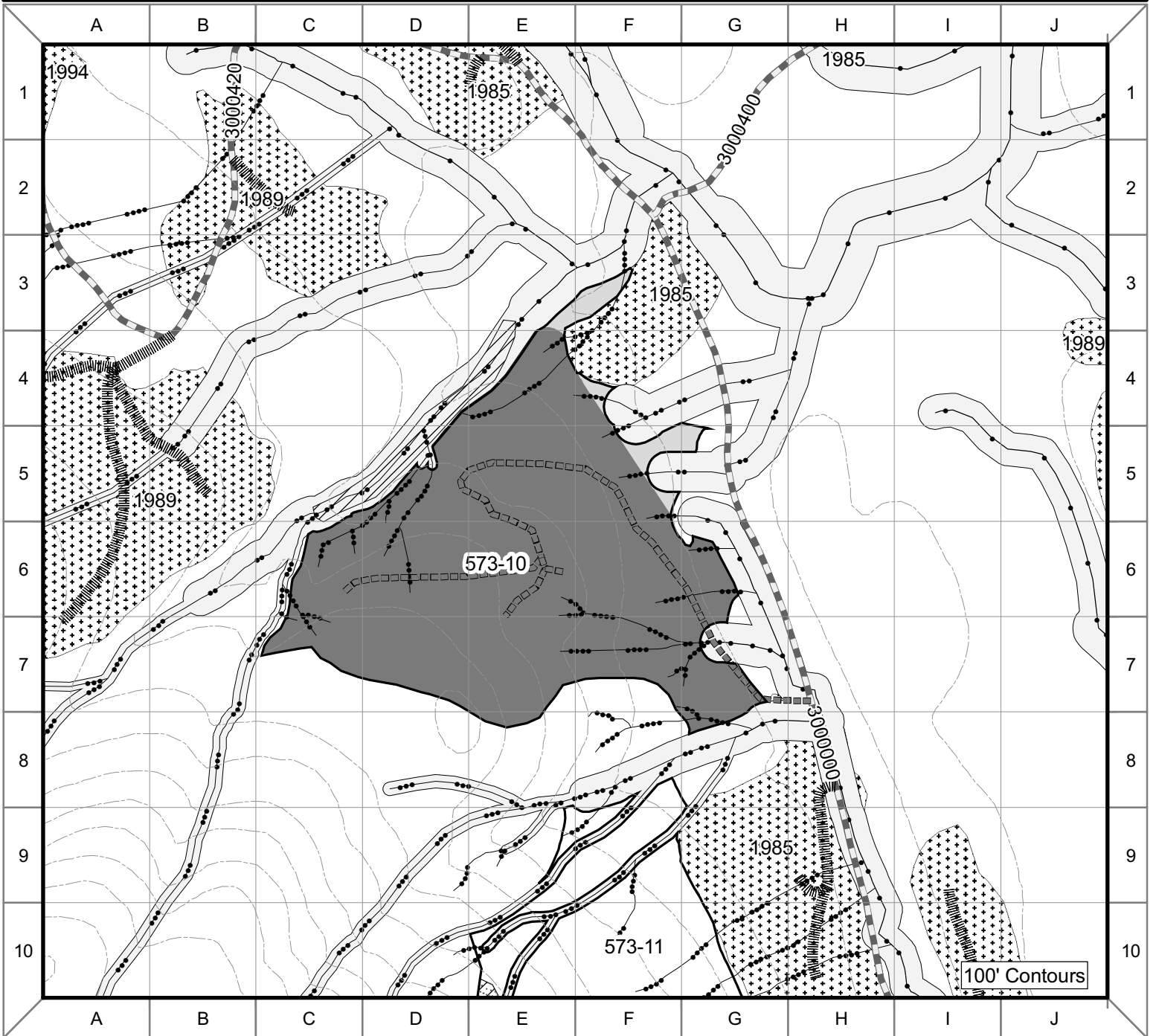
An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following field reconnaissance to defer 3.5 acres of unsuitable soils and slopes >72% located in the southern tip of the unit. See soils report for details. Slopes range from 30 to 50% across the existing unit. Partial suspension is required across the unit to protect soils and wetland resources (BMPs 12.5, 13.5, and 13.9). Approximately 75% of the unit is comprised of forested wetlands (BMP 12.5).

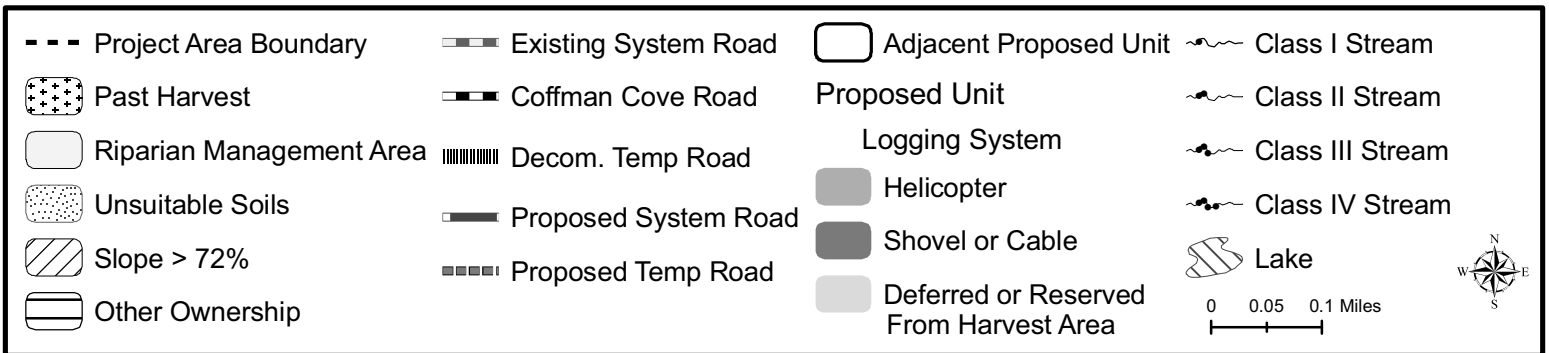
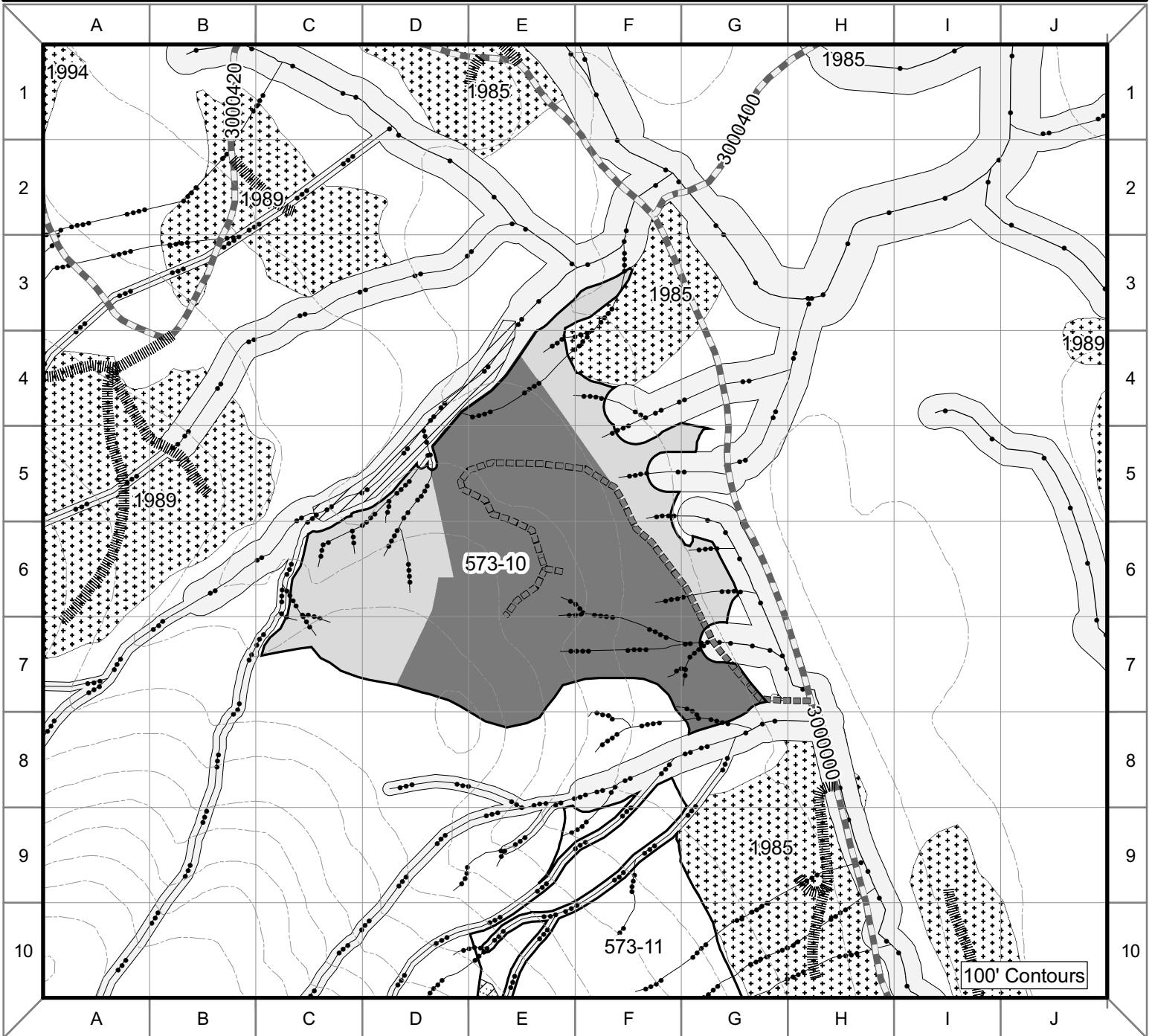
See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

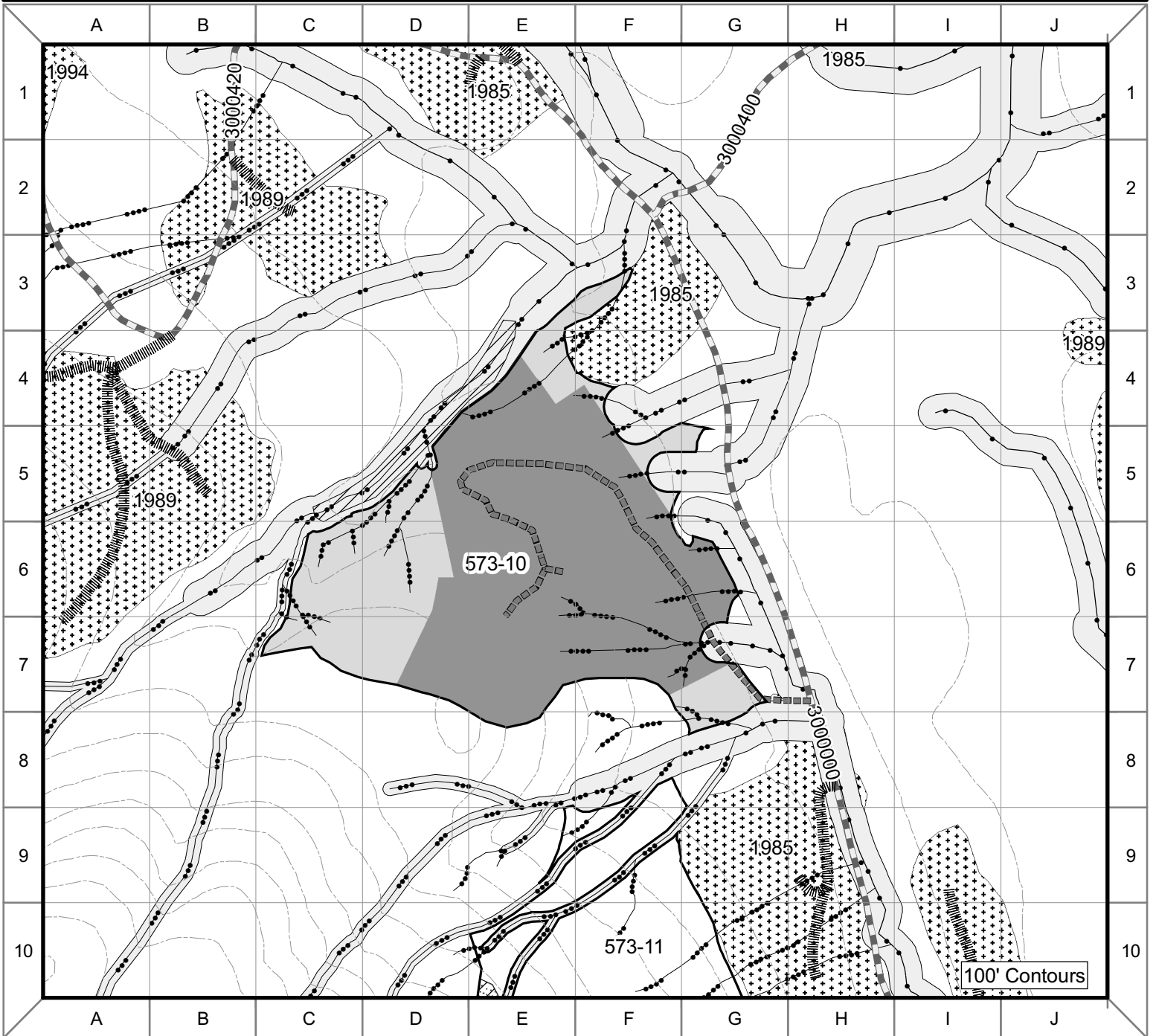
WILDLIFE: No concerns. Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Helicopter-Partial cut not to exceed 50% of basal area. Heli-harvest will address Class III concerns; Remove the southwest corner from proposed unit for unsuitable soil.

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 573-10 Alternatives 2, 3, 4, 5

Unit Number: 573-10	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 99 Alt. 3 – 65 Alt. 4 – 71 Alt. 5 - 99	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 2,876 Alt. 3 – 1,829 Alt. 4 – 2,066 Alt. 5 - 2,876	LUD: Modified Landscape Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Productive old growth structured stand of predominantly western hemlock and western redcedar. Western hemlock and Sitka spruce on steepest slopes. Tree diameters range up to 48"DBH with heavy stocking in mid to large sawtimber sizes. Multi storied stand with mid and lower tree canopies comprised of western hemlock and some western redcedar. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for combination of shovel and cable yarding. Unit will be accessed by a proposed temporary spur of NFSR 30. All settings are planned for yarding to landings on this road. Additional short temporary spurs are planned to reach proposed landing locations and minimize shovel yarding distances. All cable settings are planned for uphill yarding. Westernmost settings and associated spur roads are deferred in Alternatives 3 and 4. Opening size in all alternatives will not exceed 100 acres.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2 and 5 - accessed by temporary roads 5,700 feet in length. Alternatives 3 and 4 – accessed by temporary roads 4,400 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Galligan Creek. (Location is depicted from confluence to headwaters.)

Stream#: 573-10/11-1 Location: H8, G8, F8

Class: I, II Flagging: B/W C-type: MM1, HC4

Concern: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 100ft. (for HC4) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 4 RAW Buffer: none

Stream#: 573-10-2 Location: H8, H7, G7, G6, G5, F5

Class: I, IV Flagging: B/W, G/W C-type: PA1, MM1, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-2.2L Location: G7, F7, F6, E6

Class: I, IV Flagging: B/W, O/W, G/W C-type: PA1, MM1, HC1, HC0

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-3 Location: H4, G4, G5, F5

Class: II, IV Flagging: B/W, G/W C-type: MM1, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-4 Location: H4, G4, F4, F5

Class: II, IV Flagging: B/W, G/W C-type: MM1, MM2, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum and 120ft. (for MM1 & MM2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-4.1R Location: F4, E4

Class: II, IV Flagging: B/W, G/W C-type: MM2, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 120ft. (for MM2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-7 Location: F2, F3, E3, E4, D4, D5, C5, C6, B6

Class: I, II Flagging: B/W C-type: MM2, MC2, HC3

Concern: moderate blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum of 100ft. (for MC2 and HC3) and 120ft. (for MM2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-10-7.1L Location: D5, D6, C6

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-7.1L.1L Location: D5, D6

Class: IV Flagging: O/W, G/W C-type: HC5, HC2, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-10-7.2L Location: C5, C6, C7, B7

Class: III Flagging: O/W C-type: HC5

Concerns: Bank side-slopes have active erosion and soil slumps – moderate blow down found along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-10: Alternative 2 - will have four Class IV stream crossings; Alternative 3 and 4 - will have two Class IV stream crossings; and Alternative 5 - will have three Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is within Scenic Viewshed LUD however is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. Five acres of slopes >72% were identified in the stream buffer on the northern stream boundary and is deferred from harvest activities. Slopes range from 0 to 40 percent in the lower elevations and up to 60 percent in the higher elevations of the unit. See unit report in Project File for details.

Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The majority of the unit is covered by forested wetlands (BMP 12.5). Due to the abundance of tall sedge fen below in the lower elevations of the unit, wetland avoidance is not feasible. Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

Alternatives 2, 5: The temporary roads would cross about a ½ acre of forested wetland/emergent short sedge and a ¼ acre of tall sedge fen (BMP 12.5).

Alternatives 3, 4: The temporary roads would cross about a ¼ acre of forested wetland/emergent short sedge and a ¼ acre of tall sedge fen (BMP 12.5).

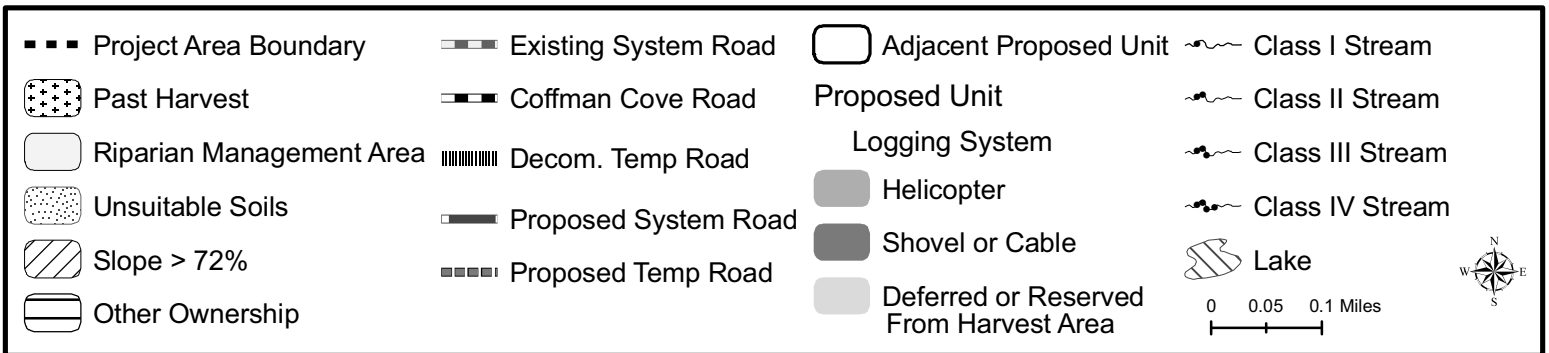
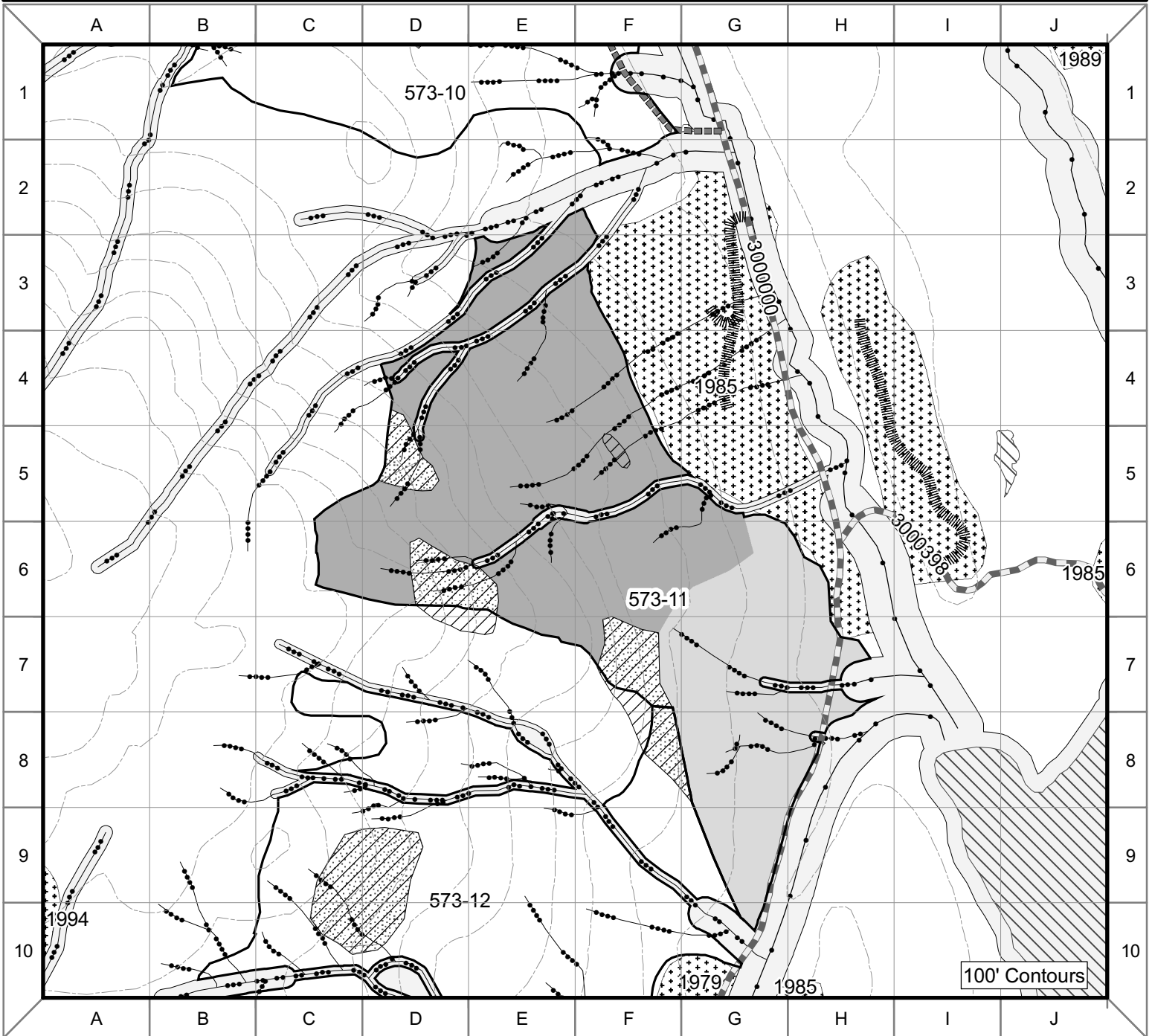
See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

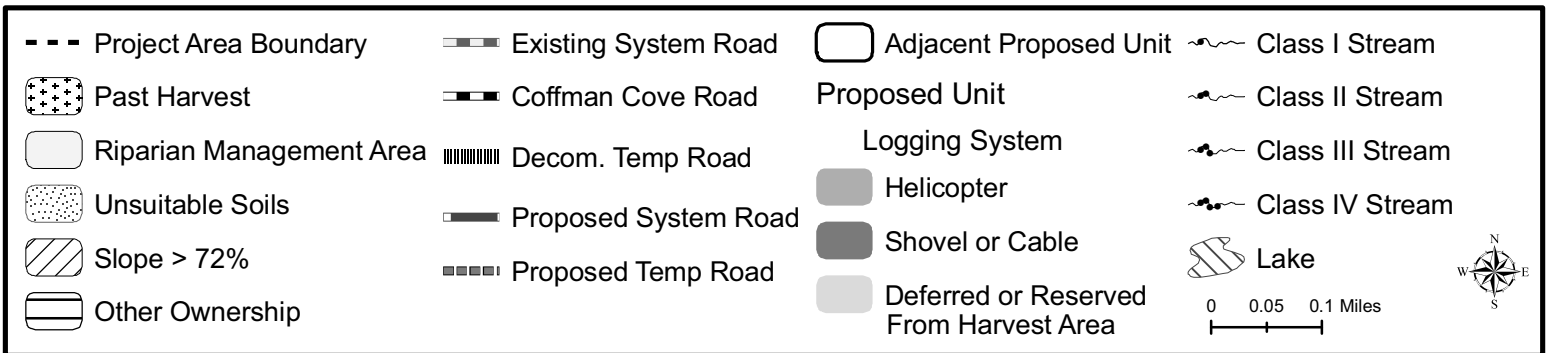
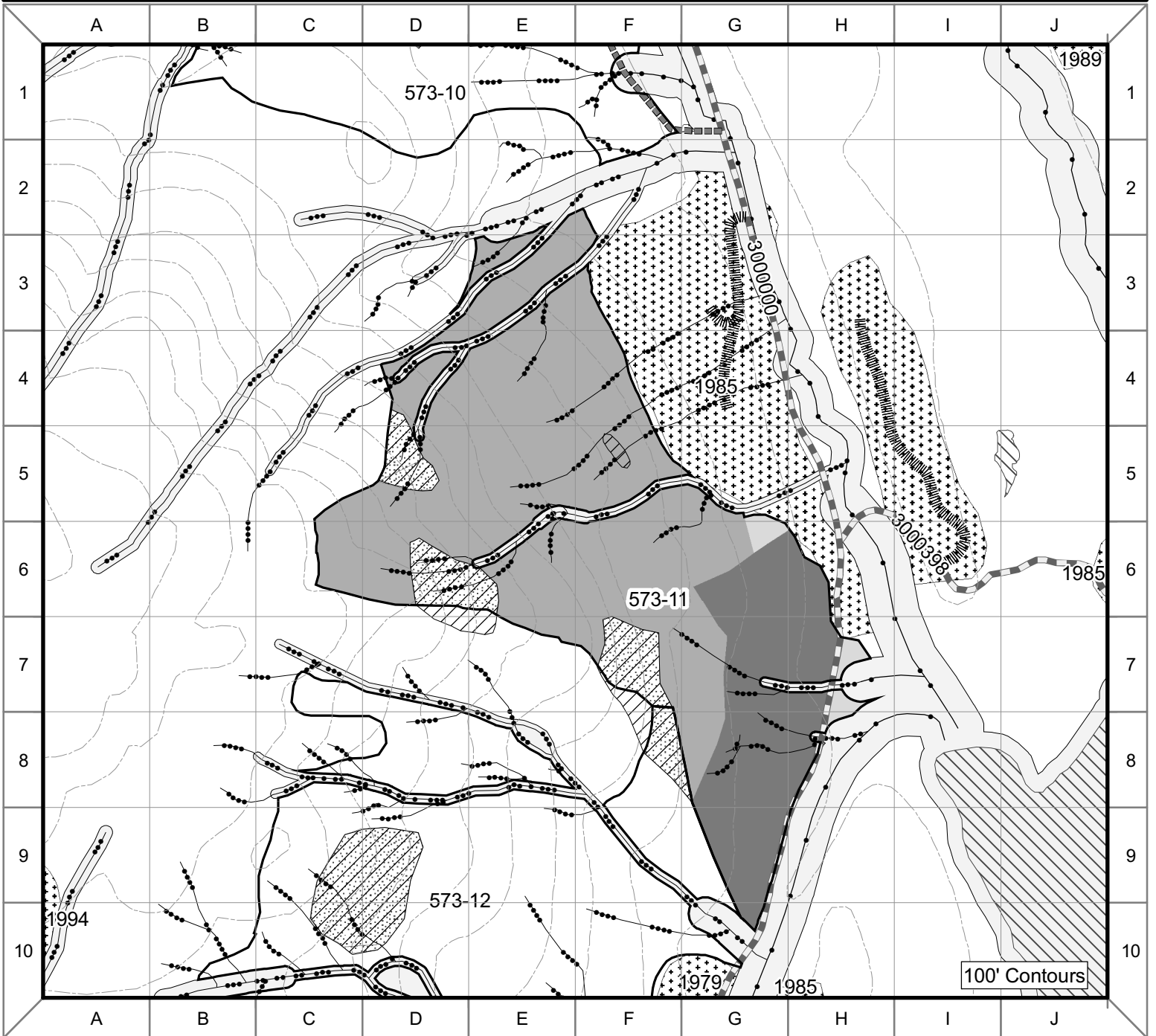
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

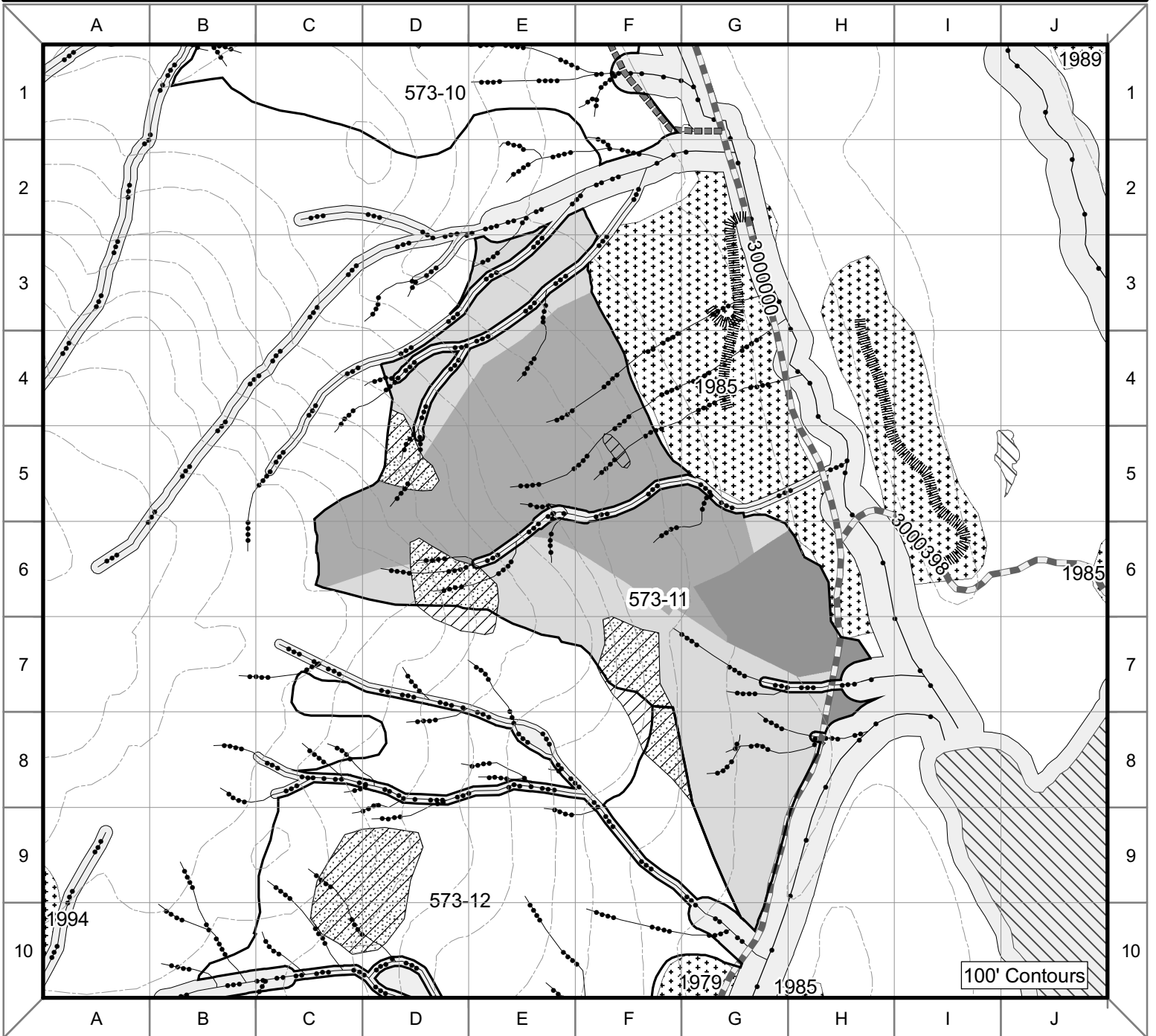
COMMENTS: Concerns in Alternatives 2 and 5 are for marginal timber volume/ value.

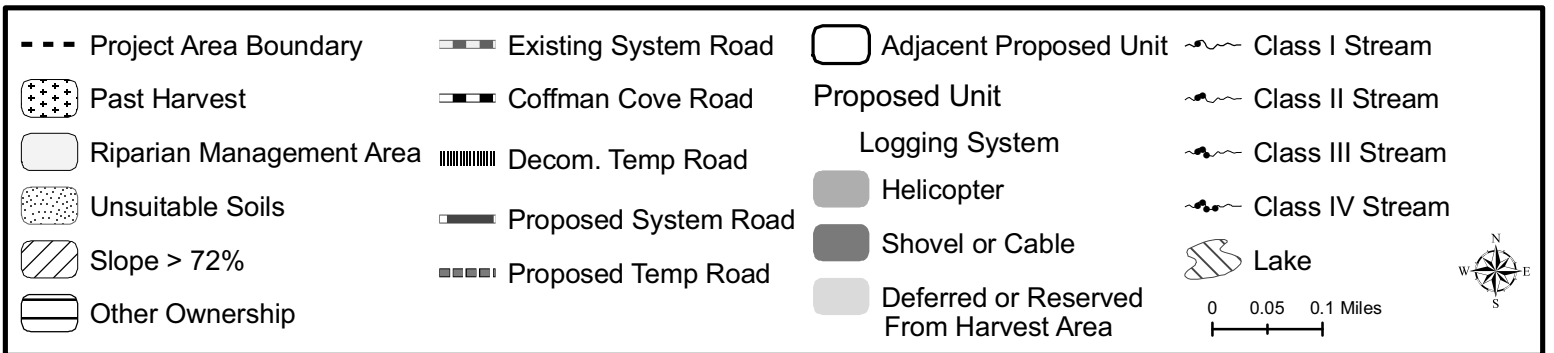
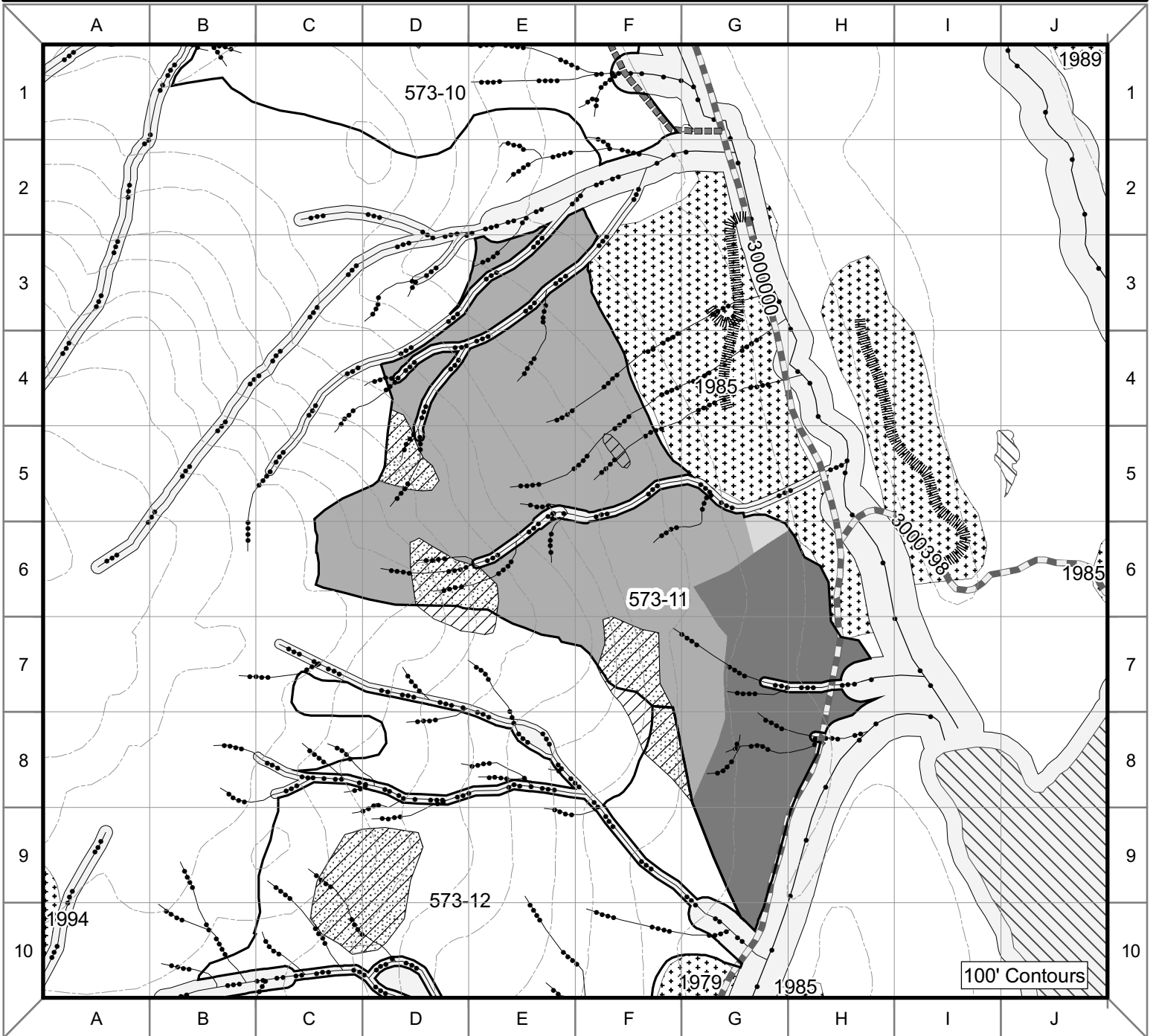
Concerns in Alternative 3 are - Drop east edge and do not harvest below proposed road prism (based on multiple stream channel concerns); Exclude the northwest portion due to multiple Class IV streams; Drop the proposed west spur road to reduce road lengths and associated Class III water quality concerns. Wind concerns from southeast; Multiple Class IV stream channel concerns; Water quality concerns regarding harvest near stream channels.

Concerns in Alternative 4 are - Drop western edge and northwestern edge to maintain travel route; Drop southeast lobe to maintain southern travel corridor. Elevation travel route along northwestern edge of unit; East-west (elevation) travel route along southern edge of unit; Unit as proposed is near OGR.









Unit 573-11 Alternatives 2, 3, 4, 5

Unit Number: 573-11	Alternatives: 2, 3,4,5	Total Unit Acres: Alt. 2 – 86 Alt. 3 – 126 Alt. 4 – 73 Alt. 5 - 128	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,187 Alt. 3 – 2,274 Alt. 4 – 1,266 Alt. 5 - 2,349	LUD: Recreational River Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth multi-storied stand. Mainly western hemlock and western redcedar with scattered Sitka spruce and patches of Alaska yellow-cedar on lower sites. Very good western redcedar values in this stand mainly in middle and lower elevations. Mostly western hemlock in higher elevations. Most western hemlock and western redcedar are in medium to large sawtimber size classes, Sitka spruce ranges up to 40+ inches and western redcedar up to 70"+. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription

Areas visible to important viewpoints: Helicopter Yarding, Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Areas not visible to important viewpoints: Cable or Shovel Yarding, Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is planned for helicopter yarding to proposed landings on NFSR 30 and on the temporary road proposed to access unit 573-10. In Alternatives 3, 4 and 5 this unit is planned for a combination of helicopter and shovel yarding. Those upper portions of the unit that can be seen from Sweetwater Lake will be helicopter yarded to proposed landings on NFSR 30 and on the temporary road proposed to access unit 573-10. The more gentle terrain in the southeastern portion of the unit that cannot be seen from the lake is planned for shovel yarding to the existing NFSR 30.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-10/11-1 Location: G2, F2, E2, D2, D3, C3
Class: I, II, III Flagging: B/W, O/W C-type: HC4, HC6

Concerns: heavy blow down along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternatives 2, 3, and 4 RAW Buffer: none

Alternatives 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-11-1.1L Location: F2, E2, E3, D3, D4, C4, C5, B5, B6
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1

Concerns: Incision is variable and where it is a low incision stream has deposit bedload onto the forest floor. Heavy blow down was encountered along stream near confluence with stream 1.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11-1.2L Location: F2, F3, E3, E4, D4, D5

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11-1.2L.1R Location: D4, C4, C5

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11-6 Location: H5, G5, F5, E5, E6, D6

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC2, HC0

Concerns: moderate blow down found along the stream in the higher elevations.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11-2A Location: I7, H7, G7, F7

Class: I, III, IV Flagging: B/W, O/W, G/W C-type: MM1, PA1, HC5, HC1

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11-1A Location: H8, G8

Class: II, III, IV Flagging: B/W, O/W, G/W C-type: MM1, HC5, MM0

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11/12-3 Location: G10, G9

Class: II, III Flagging: B/W, O/W C-type: HC5

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Moderate. The unit is within Scenic Viewshed LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 1, 3 & 6. Use even age harvest systems (clearcutting with reserves) with reduced acreage only where visual analysis simulations have shown harvest areas will not be seen. Where simulations illustrate harvest will be seen, use single tree selection or less than 2 acre canopy openings. Areas of the unit using single tree selection must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: A portion of this unit is within the Recreation River LUD. Timber harvest is compatible with the Recreation River LUD in this area due to the adjacent LUD being a development LUD

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 14 acres of steep slopes and unstable soils. See unit report in Project File for details.

Slopes average 20 to 50% in the lower elevations of the unit. The higher elevations and southern tip of the unit have slopes averaging 60 to 120%. Most of these slopes occur in the deferred area. The benches between the steep slopes in the higher elevations in the unit are suitable for harvest with full suspension requirements. There is less than a ½ acre of slopes >72% suitable for harvest in with partial suspension in the lower elevations of the unit. Partial suspension would be required in the remainder of the unit to protect soils and wetlands (BMPs 12.5, 13.5, and 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands cover the majority of slopes <50% (BMP 12.5). Road construction is not recommended in this unit due to inability to avoid unstable soils and steep slopes (BMP 14.7). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

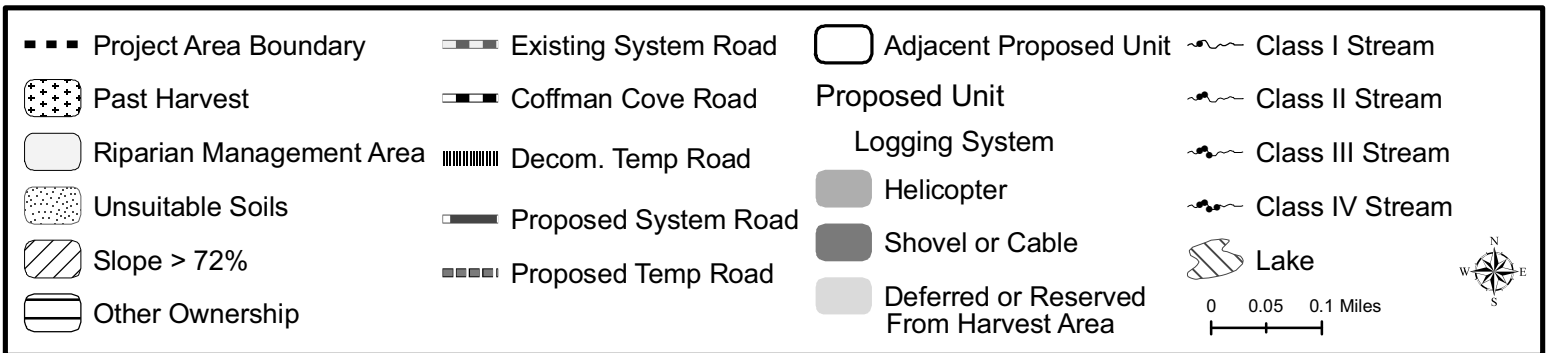
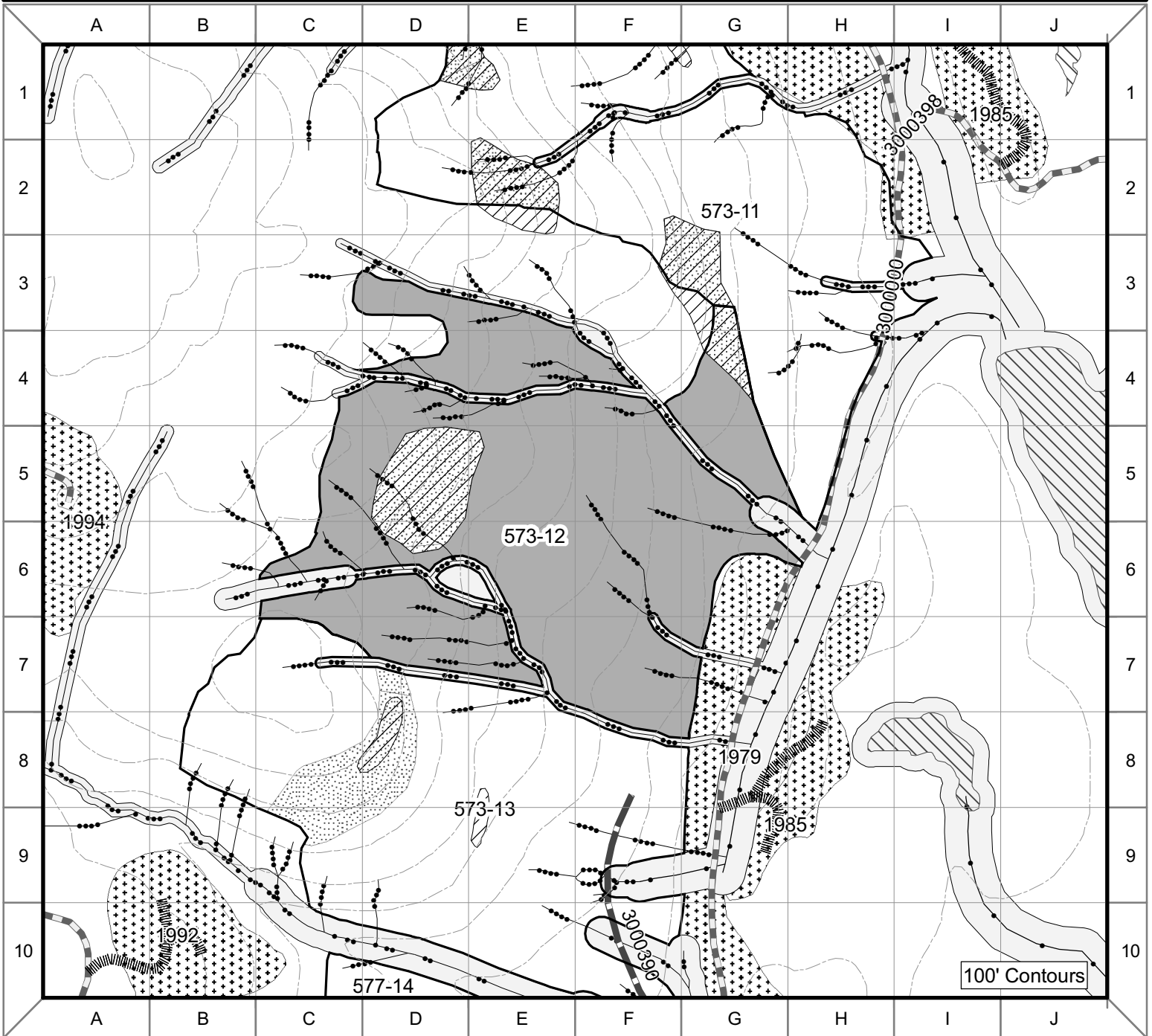
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

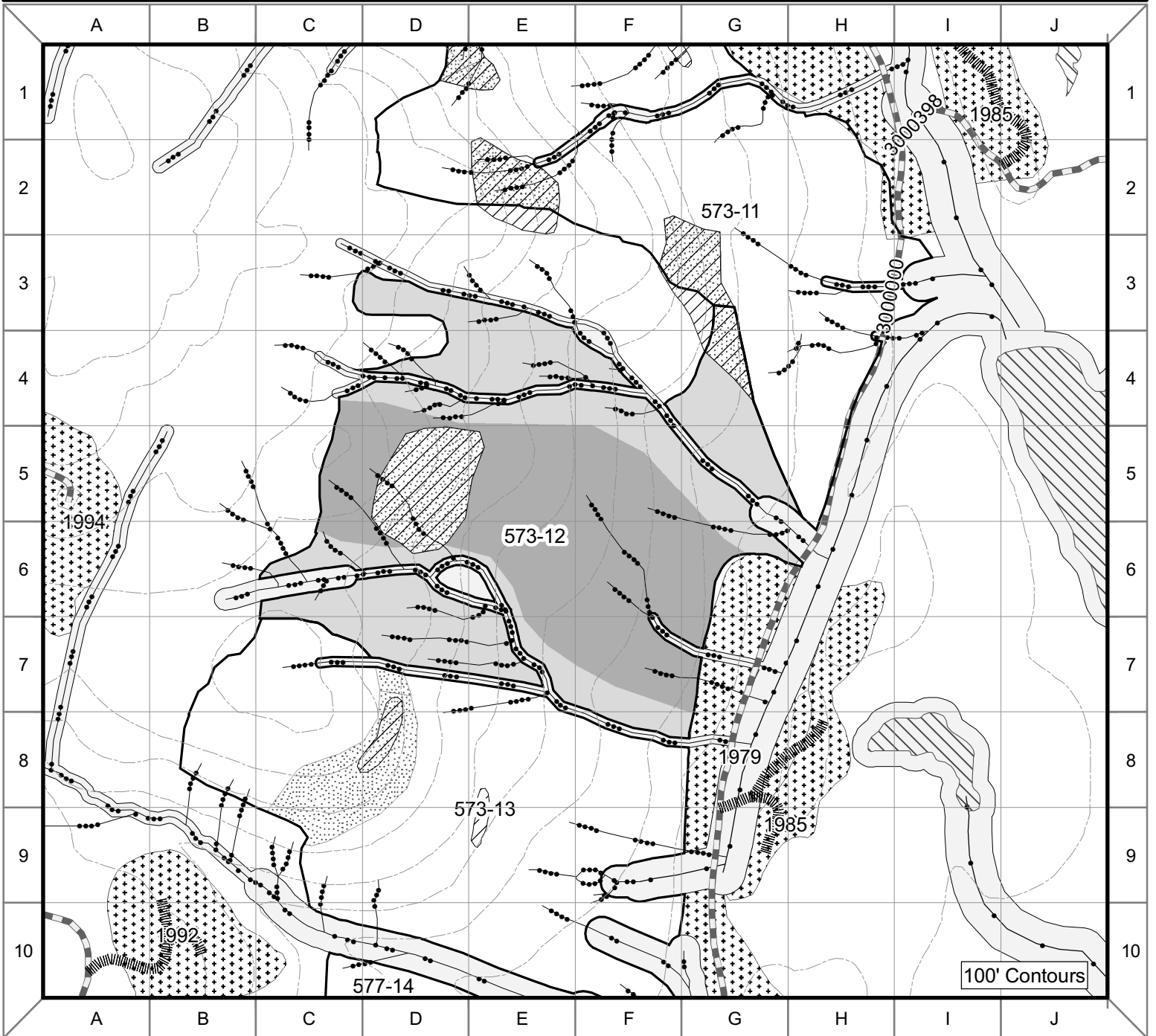
COMMENTS: Concerns in Alternatives 2 and 5 are - Partial cut not to exceed 50% of basal area to address scenery S&Gs and visuals.

Concerns in Alternative 3 are - Helicopter-Partial cut not to exceed 50% of basal area (11A) Shovel yard to existing road; Portion below Forest Road 3000 excluded based on fish-water quality concerns. Visual concerns; Fish and water quality concerns; Orange and white stream channel below FR 30 and a green and white above; Sediment storage (fish and water quality concerns) Class IV orange and white stream located within unit; Scattered soil instability concerns (approximately 14 acres) of steep slopes and unsuitable soils.

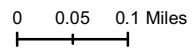
Concerns in Alternative 4 are - Helicopter-Partial cut not to exceed 50% of basal area, Drop northern and southern edges of the unit for elevation travel routes to OGR. East-west (elevation) travel route along northern edge of unit; East-west (elevation) travel route along southern edge of unit; Unit as proposed is near OGR.

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--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	



Unit 573-12 Alternatives 2, 3, 4, 5

Unit Number: 573-12	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 120 Alt. 3 – 57 Alt. 4 – 57 Alt. 5 - 120	Prescription: Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): Alt. 2 – 1,646 Alt. 3 – 737 Alt. 4 – 737 Alt. 5 - 1,646	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth multi-storied stand. Mainly mixed stand of western redcedar, western hemlock, Alaska yellow-cedar and Sitka spruce. Very good western redcedar values in lower elevations of unit. Good to excellent overall Alaska yellow-cedar, Sitka spruce, and western redcedar values in middle to large sawtimber size classes. Understory mainly western hemlock, with some non-merchantable to pole size Alaska yellow-cedar, western hemlock and Sitka spruce. Good mid-story of western redcedar and Alaska yellow-cedar. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking.

Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In all action alternatives this unit is planned for helicopter yarding. Proposed landings are located on existing NFSR 30 and on proposed NFSR 3000390 for Alternatives 2, 4 and 5. All volume will be yarded to existing NFSR 30 under Alternatives 3 and 4. Southern and northern portions of the unit are deferred in Alternatives 3 and 4.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: Uncommon plants outside boundary along north edge.

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-12/13-2 Location: G8, F8, E7, E6, D6, C6, B6
Class: III Flagging: O/W C-type: HC5, HC3

Concerns: Side-slopes are steep and very saturated. Numerous soil slumps and small slides have occurred in the side-slopes. Moderate blow down occurred along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12-2.DL Location: E6, D6
Class: III Flagging: O/W C-type: HC5

Concerns: This is a braid of stream 2.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12/13-2.9L Location: E7, D7, C7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1

Concerns: The stream banks in the higher elevations are very saturated and unstable. The banks give way and collapse with minimal weight placed on them. Moderate blow down was found along the stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-11/12-3 Location: H6, G6, G5, F5, F4, F3, E3, D3, C3
Class: II, III Flagging: B/W, O/W C-type: HC5, HC1

Concerns: heavy blow down along stream

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12-3.DL Location: F4, F3

Class: III Flagging: O/W C-type: HC5

Concerns: This is a divergence of stream 3 caused by a downed tree.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12-3.6L Location: F4, E4, D4, C4

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1

Concerns: This stream has a high bedload and sediment transport rate that accumulates within the benches along the slope.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12-3.6L.7L Location: D4, C4

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12-4 Location: G7, F7, F6, F5

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Moderate. The unit is within Scenic Viewshed LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 1, 3 & 6. Use even age harvest systems (clearcutting with reserves) with reduced acreage only where visual analysis simulations have shown harvest areas will not be seen. Where simulations illustrate harvest will be seen, use two –aged prescription or less than 2 acre canopy openings. Areas of the unit using two –aged prescription must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 12 acres of steep slopes, a landslide, and

unstable soils. See unit report in Project File for details.

Slopes range from 40 to 70% with the majority of slopes averaging 50% in the current unit configuration. Partial suspension is required to meet soil quality standards and to protect wetland resources throughout the entire unit (BMPs 12.5, 13.5, 13.9). The unit contains about 60% forested wetland mostly located in the lower elevations of the unit (BMP 12.5). Road construction is not recommended in this unit due to inability to avoid unstable soils and steep slopes (BMP 14.7). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

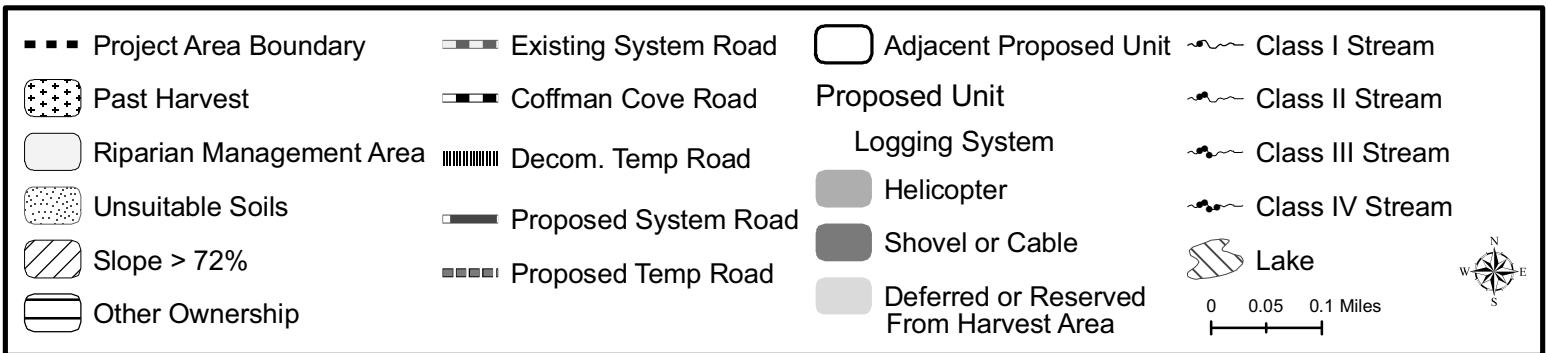
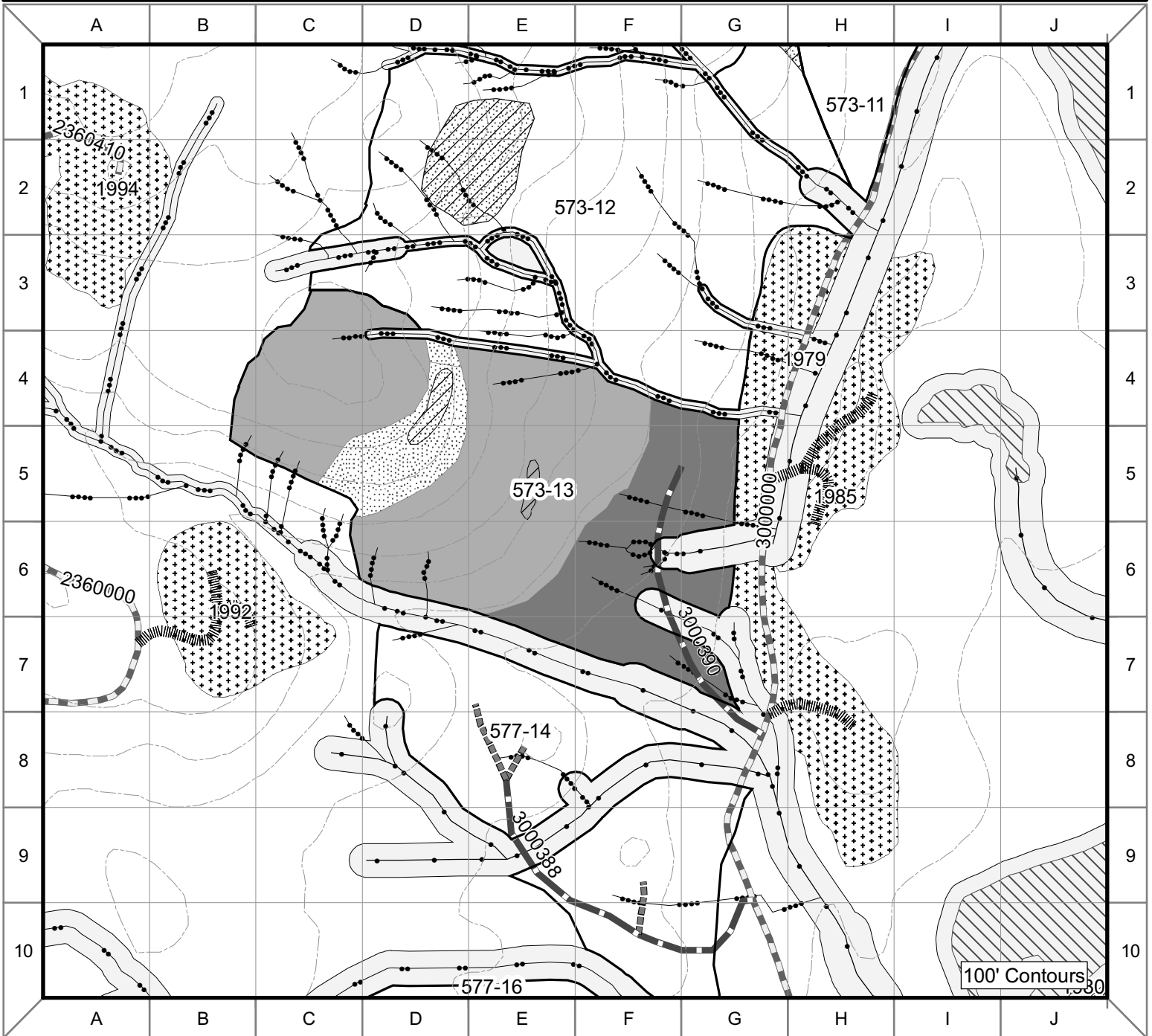
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

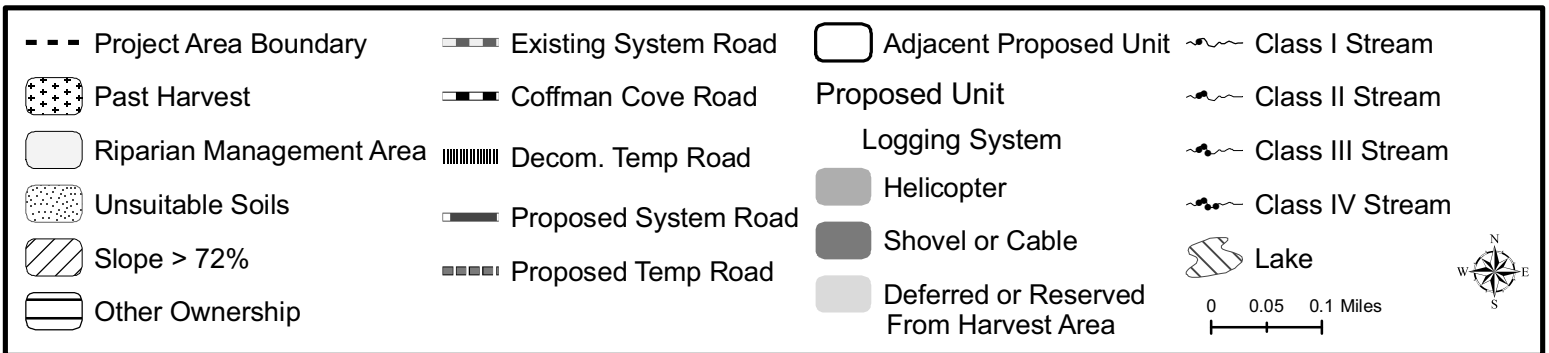
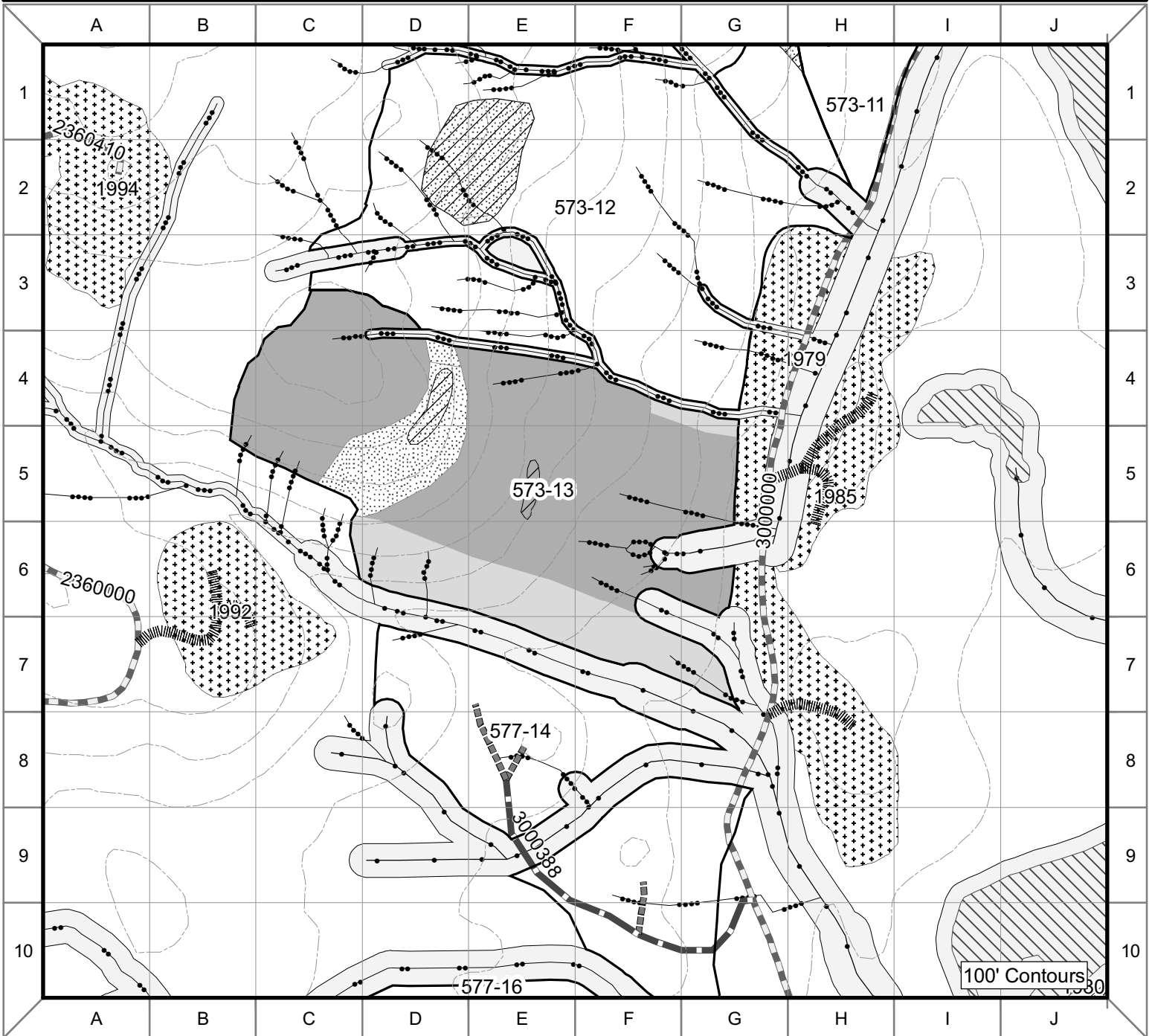
COMMENTS: Concerns in Alternatives 2 and 5 are - Helicopter-Partial cut not to exceed 50% of basal area and drop proposed road to meet scenery S&Gs.

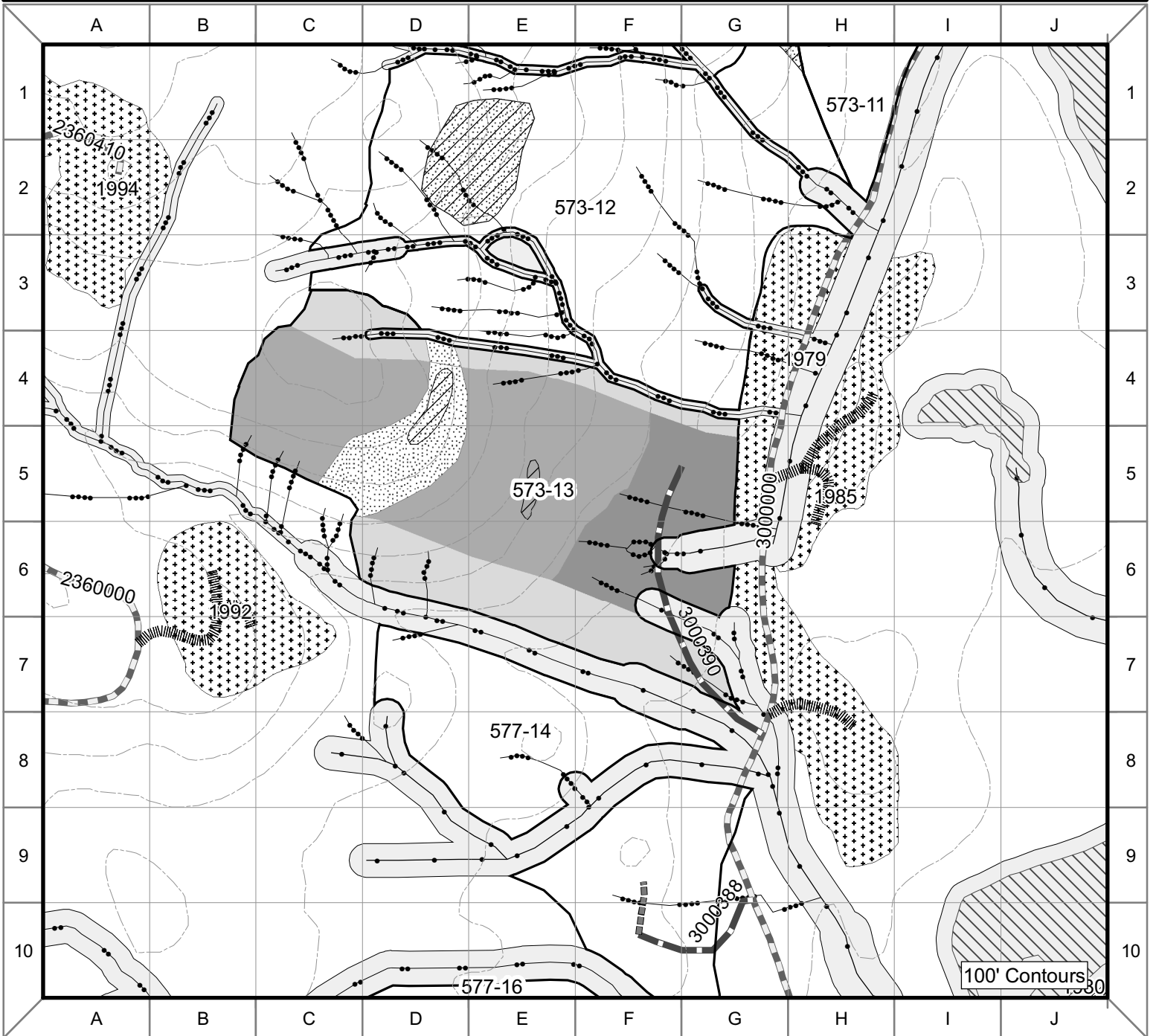
Concerns in Alternative 3 are - Helicopter-Partial cut not to exceed 50% of basal area and drop proposed road to meet scenery S&Gs. Remove the confined Class III section of stream 2 and 2 dl; Remove the southern and northern portions of unit 573-12 to address water quality stream concentrations. Slope concerns in northwest and southwest corners; Concerns related to a Class III stream channel identified as stream 2 and 2dl located in central and northern unit section.

Concerns in Alternative 4 are - Helicopter-Partial cut not to exceed 50% of basal area. Drop areas along northern and southern edge to maintain travel routes and maintain access to OGR. East-west (elevation) travel route along northern edge of unit; East-west (elevation) travel route along southern edge of unit; Unit as proposed is near OGR.

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 573-13 Alternatives 2, 3, 4, 5

Unit Number: 573-13	Alternatives: 2, 3,4,5	Total Unit Acres: Alt. 2 – 98 Alt. 3 – 77 Alt. 4 – 68 Alt. 5 – 98	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,865 Alt. 3 – 1,099 Alt. 4 – 1,252 Alt. 5 – 1,865	LUD: Modified Landscape Scenic Viewshed Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth multi-storied stand. Mainly mixed stand of western hemlock and western redcedar with areas of Alaska yellow-cedar and scattered Sitka spruce. Stand progresses more to western hemlock from middle to upper elevations. Alaska yellow-cedar is mid to smaller sawtimber size classes, western redcedar, Sitka spruce and western hemlock in middle to large sawtimber classes. Understory is mainly Western hemlock non-merchantable to small sawtimber. Mid-story is mainly western hemlock with some Alaska yellow-cedar and western redcedar. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription

Areas visible to important viewpoints: Helicopter Yarding, Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Areas not visible to important viewpoints: Cable or Shovel Yarding, Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2, 4 and 5 this unit is planned for a combination of helicopter and shovel yarding. Those upper portions of the unit that can be seen from Sweetwater Lake will be helicopter yarded to a landing on proposed NFSR 3000390. The eastern portion of the unit that cannot be seen from the lake is planned for shovel yarding to the proposed NFSR 3000390. Southern and northern portions of the unit are deferred in Alternative 4 to maintain wildlife travel corridors. In Alternative 3 this unit is planned for helicopter yarding. Proposed landings are located on existing NFSR 30 and on a temporary extension of proposed NFSR 3000388 in unit 573-14.

ENGINEERING/ROADS: In alternatives 2, 3, and 5 unit is accessed by proposed NFS road 3000390 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Logjam Creek. (Location is depicted from confluence to headwaters.)

Stream#: 573-13/14-1 Location: H9, G9, G8, G7, F7, E7, D7, D6, C6, C5, B5

Class: I, II, III Flagging: B/W, O/W C-type: MM1, AF2, HC2, HC6

Concerns: The forested slopes had rills and small slides where near this stream and its tributaries.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1), 140ft. (for AF2) and 100ft. (for HC2 and HC6) or to the extent of

floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 4 RAW Buffer: none

Stream#: 573-13-1.4R Location: D6

Class: IV Flagging: O/W C-type: HC5

Concerns: Heavy blow down along this stream, saturated soils with active erosion and soil slumps.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-13-1.5R Location: C6, C5

Class: IV Flagging: O/W C-type: HC5

Concerns: Heavy blow down along this stream, saturated soils with active erosion and soil slumps.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-13-1.5R.1L Location: C6, C5

Class: IV Flagging: O/W C-type: HC5

Concerns: Heavy blow down along this stream, saturated soils with active erosion and soil slumps.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-13-1.6R Location: C6, C5

Class: IV Flagging: O/W C-type: HC5

Concerns: Heavy blow down along this stream, saturated soils with active erosion and soil slumps.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-13-1.7R Location: C5

Class: IV Flagging: O/W C-type: HC5

Concerns: Heavy blow down along this stream, saturated soils with active erosion and soil slumps.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-13-1.8R Location: B5

Class: IV Flagging: O/W C-type: HC5

Concerns: Heavy blow down along this stream, saturated soils with active erosion and soil slumps.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12/13-2 Location: H4, G4, F4, E3, E2, E3, D3, C3
 Class: III Flagging: O/W C-type: HC5, HC3
 Concerns: Side-slopes are steep and very saturated. Numerous soil slumps and small slides have occurred in the side-slopes. Moderate blow down occurred along stream.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of side slope break.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-12/13-2.9L Location: F4, E4, D4, C4
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1
 Concerns: The stream banks in the higher elevations are very saturated and unstable. The banks give way and collapse with minimal weight placed on them. Moderate blow down was found along the stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of side slope break.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-13-3 Location: G6, F6
 Class: I, II, IV Flagging: B/W, G/W C-type: MM1, MM0, HC0
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I and II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
 Alternatives 3 RAW Buffer: none

Stream#: 573-13-5 Location: G8, G7, F6
 Class: II, IV Flagging: B/W, G/W C-type: HC1, HC0
 Concerns: Heavy blow-down along stream.
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
 Alternatives 3 RAW Buffer: none

Stream#: 573-13-5.1R Location: G7
 Class: II Flagging: B/W C-type: MM0
 Concerns: Heavy blow-down along stream.
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
 Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects

SCENERY: Scenic Integrity Objective for this unit is Moderate. The unit is within Scenic Viewshed LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 1, 3 & 6. Use even age harvest systems (clearcutting with reserves) with reduced acreage only where visual analysis simulations have shown harvest areas will not be seen. Where simulations illustrate harvest will be seen, use single tree selection or less than 2 acre canopy openings. Areas of the unit using single tree selection must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 11 acres of steep slopes and unstable soils. See

unit report in Project File for details.

Slopes range from 30 to 85% across the unit. The majority of slopes range from 45 to 60%. There are 0.6 acres of slopes >72% suitable for harvest in with partial suspension in the middle of the unit. Full suspension, partial suspension, and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Full suspension is required in the southern strip of the unit near the blue and white stream and in the western portion of the unit above the deferred area. Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The unit contains about 50% forested wetland mostly located in the lower elevations of the unit and the gentle slopes in the higher elevations (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

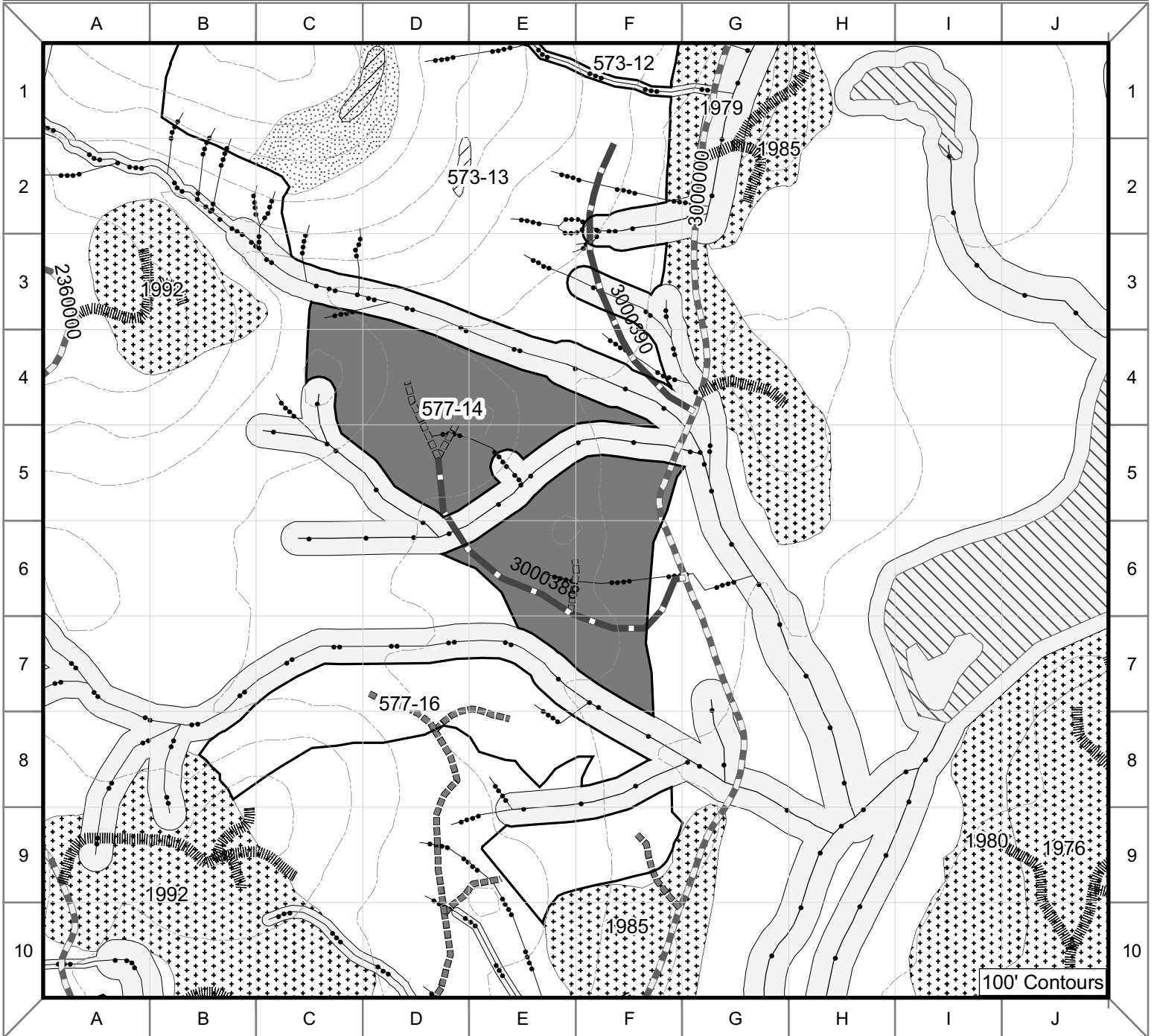
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

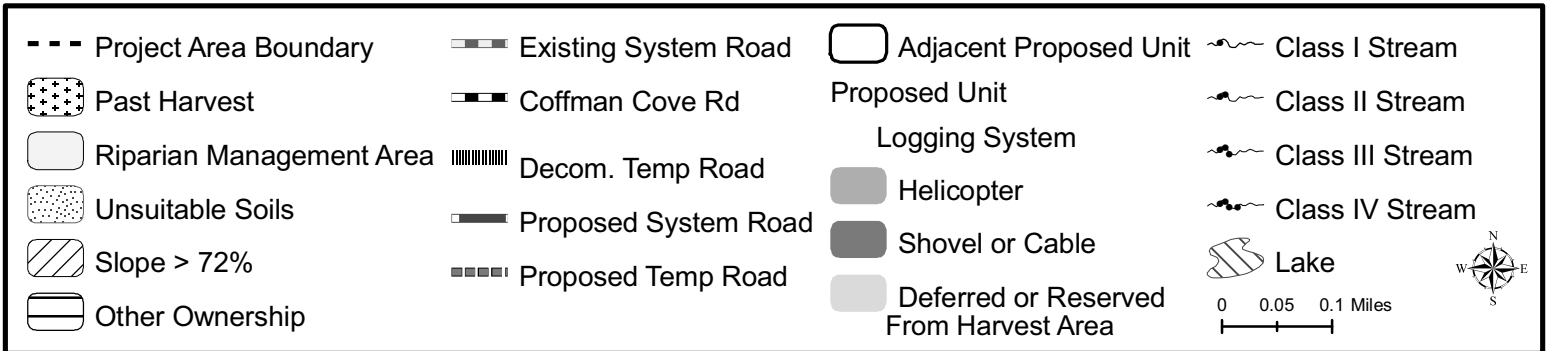
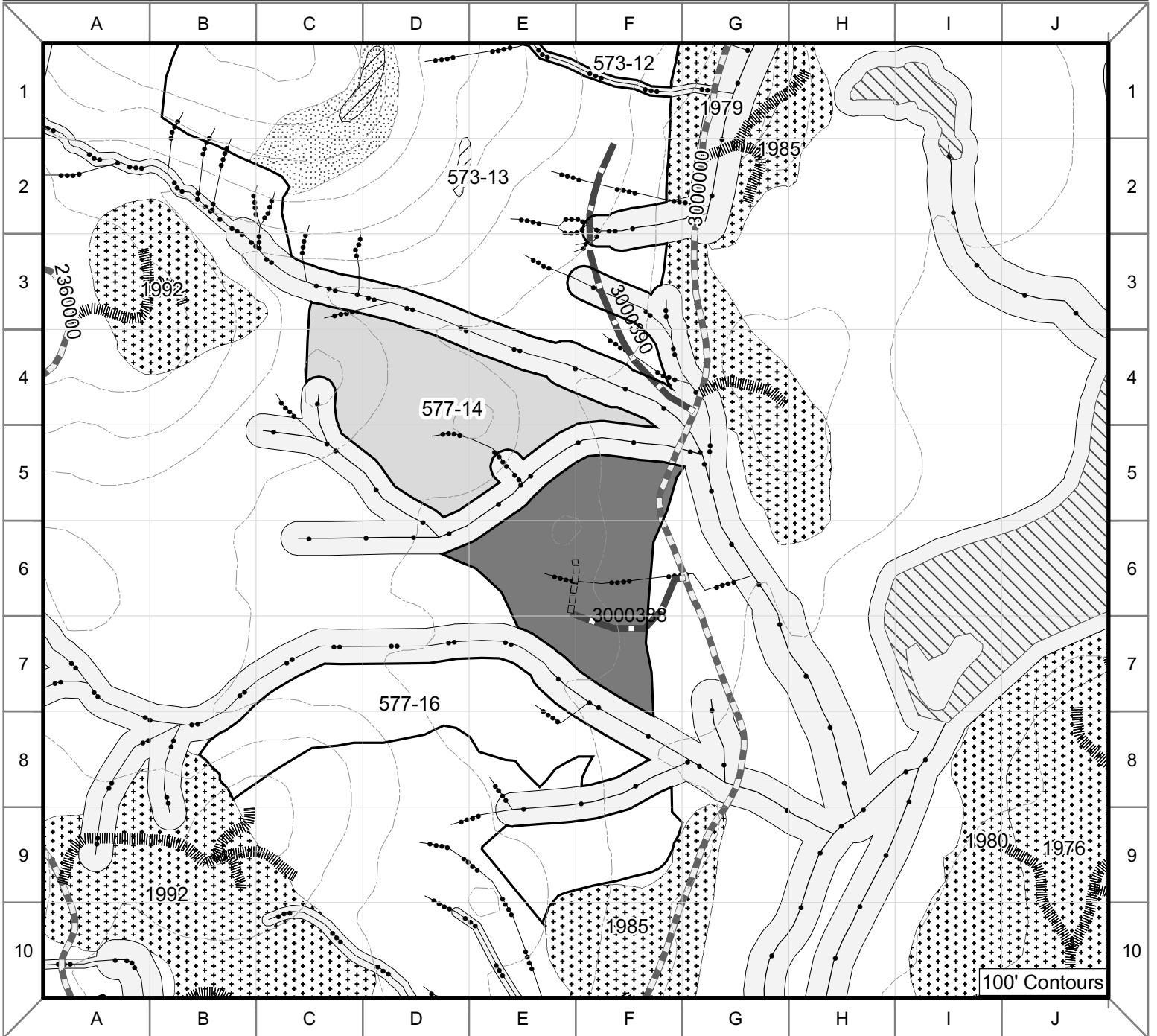
COMMENTS: Concerns in Alternatives 2 and 5 are - Helicopter-Partial cut not to exceed 50% of basal area in seen area and Shovel Clearcut in unseen area. Shorten road to access only shovel setting and provide heli landing. Visuals.

Concerns in Alternative 3 are - Helicopter-Partial cut not to exceed 50% of basal area. Drop all proposed roads. Drop along northern and southern edges. Visual concerns; Originally proposed road crosses a fish bearing stream reach; Special concern; orange and white stream in southwest corner related to water quality concerns impacting fish habitat (stored sediments); Cumulative effects.

Concerns in Alternative 4 are - Helicopter Partial cut-not to exceed 50% of basal area; Drop along northern and southern edges to maintain travel routes; Shovel Clearcut in unseen area. Shorten road to access only shovel setting and provide heli landing. East-west (elevation) travel route along northern edge of unit; East-west (elevation) travel route along southern edge of unit.

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Unit 577-14 Alternatives 2, 3, 4, 5

Unit Number: 577-14	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 61 Alt. 3 – 61 Alt. 4 – 30 Alt. 5 – 61	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,561 Alt. 3 – 1,561 Alt. 4 – 760 Alt. 5 – 1,561	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Gentle topography, Old growth multi-storied stand. Unit has lower site boggy areas with numerous snags. Western redcedar dominates the site. Western redcedar is large sawtimber with western hemlock in small sawtimber to poles. Sitka spruce is mainly scattered and found as med sawtimber size. Minor Alaska yellow-cedar in NW corner. Mountain hemlock in understory. Boggy areas reduce capable growing area by 20%. Mid-story is western hemlock and good western redcedar, understory heavy & mainly western hemlock and Sitka spruce with a few western redcedar and mountain hemlock. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is divided into two separate harvest areas by a class I stream. In all action alternatives, the unit is planned for shovel yarding. In Alternatives 2, 4 and 5 the unit is planned for access by proposed NFSRR 3000388 and three short temporary spurs to minimize shovel yarding distances. In Alternative 3, the harvest area and associated proposed roads northwest of the class I stream is deferred.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3000388 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 3, and 5 - accessed by temporary roads 1,100 feet in length. Alternative 4 – accessed by temporary road 350 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: Uncommon plants located in higher elevation area outside of unit (western edge)

INVASIVE SPECIES: No concerns

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

Stream#: 577-13/14-1 Location: G6, G5, F4, E4, D3, C3, B3

Class: I, II, III Flagging: B/W, O/W C-type: MM1, AF2, HC2, HC6

Concerns: The forested slopes had rills and small slides where near this stream and its tributaries.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1), 140ft. (for AF2) and 100ft. (for HC2 and HC6) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 4 RAW Buffer: none

Stream#: 577-14-1.1.1 Location: G5, F5, E5, D6, C6

Class: I Flagging: B/W C-type: HC2

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-14-1.1.1.1 Location: E5, D5
Class: II, IV Flagging: B/W, G/W C-type: HC2
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-14-1.1.1.2 Location: D6, D5, C5
Class: I Flagging: B/W C-type: HC2
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 577-14-1.1.1.2.1 Location: C5, C4
Class: I Flagging: B/W C-type: HC2
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 577-14/16-1.1 Location: G8, F8, F7, E7, D7
Class: I, II Flagging: B/W C-type: MM1, HC2
Concerns: heavy blow down along upper reaches of stream.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-14: Alternatives 2, 3, and 5 – two Class IV stream crossings and Alternative 4 – one Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5.

Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

Alternatives 2, 3, 4, 5: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes range from 30 to 65%. Shovel yarding would meet soils and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline

applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The unit contains 80% forested wetland and emergent short sedge complexes. The proposed temporary road would cross about a ½ of an acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

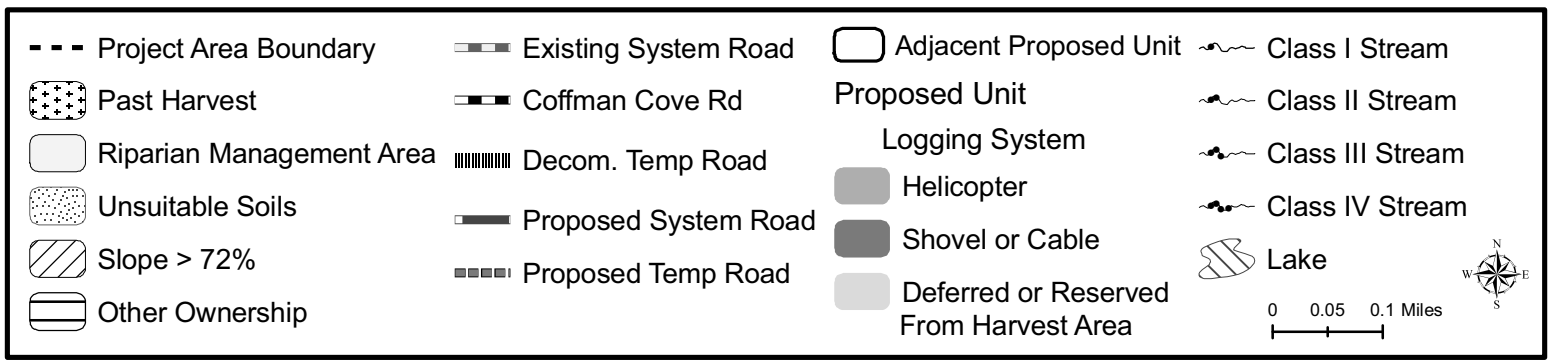
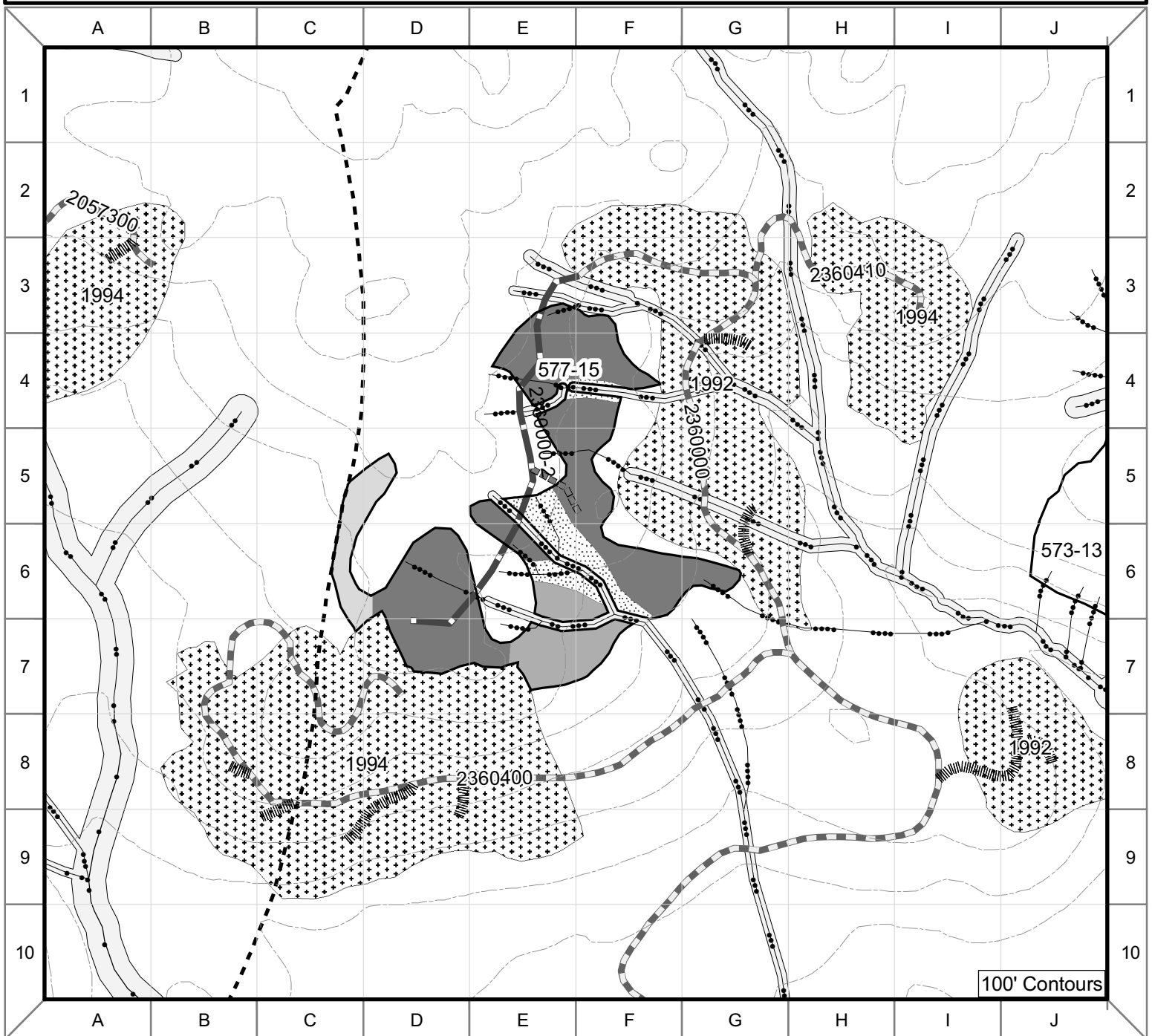
WILDLIFE: Bear den in proposed drop area. Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2 and 5 are for marginal timber volume/ value.

Concerns in Alternative 3 are - The Class I stream channel will require a buffer; Log stringer bridges will be required to cross the Class I stream channel; Provide RAW buffers on streams on the north and south edge of unit to be determined during layout. Beaver dam present in this area; Class I streams present within unit; South and west edges of the unit are wet.

Concerns in Alternative 4 are - Drop along northern edge to maintain east-west travel route and exclude Bear den and sensitive plants. Beaver activity in this area; East-west (elevation) travel route along northern edge of unit; Bear den; Uncommon plants located in higher elevation area outside of unit (western edge).

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Unit 577-15 Alternative 2

Unit Number: 577-15	Alternatives: 2	Total Unit Acres: 40	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): 841	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Low volume, high elevation mixed conifer stand. Primary merchantable volume is in small diameter stems of Alaska yellow-cedar and western hemlock. Understory is primarily Alaska yellow-cedar, western hemlock and mountain hemlock. Open canopy with heavy brush understory. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription:

Helicopter Yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for a combination of shovel, cable and helicopter yarding. Access is planned from the north by proposed NFS road 2360000-2. Three cable settings in the northern half of the unit and a shovel setting in the southeastern corner of the unit are all planned for yarding to the proposed road. Areas within the unit that cannot be yarded using cable or shovel are planned for helicopter yarding to landings on NFSRR2360000-2.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 2360000 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 450 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-15-1 Location: G4, G3, F3, E3
 Class: III Flagging: O/W C-type: HC5 RMA Buffer: none
 Concerns: stream is not in unit.
 Alternatives 2 RAW Buffer: none

Stream#: 577-15-1.1L Location: F3, E3
 Class: III Flagging: O/W C-type: HC5
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of side slope break.
 Alternatives 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-15-2 Location: G4, F4, E4
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1, HC0
Concerns: heavy blow down along stream.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class: to the top of side slope break.
Alternatives 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-15-6 Location: G7, F7, E7, E6, D6
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of side slope break.
Alternatives 2 RAW Buffer: none

Stream#: 577-15-6.2R Location: F6, E6, E5
Class: III Flagging: O/W C-type: HC5
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of side slope break.
Alternatives 2 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for Unit 577-15 – No known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 7 acres of unstable soils. See unit report in Project File for details.

Slopes range from 10 to 50%. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5). This unit is not suitable for shovel yarding due to high amounts of wetlands and very poorly drained soils (BMPs 12.5 and 13.9). Greater than 90% of the unit contains forested wetland, shrub-scrub, and emergent sedge muskegs. The proposed temporary road would cross about a ½ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Heron nest outside of unit boundary. Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

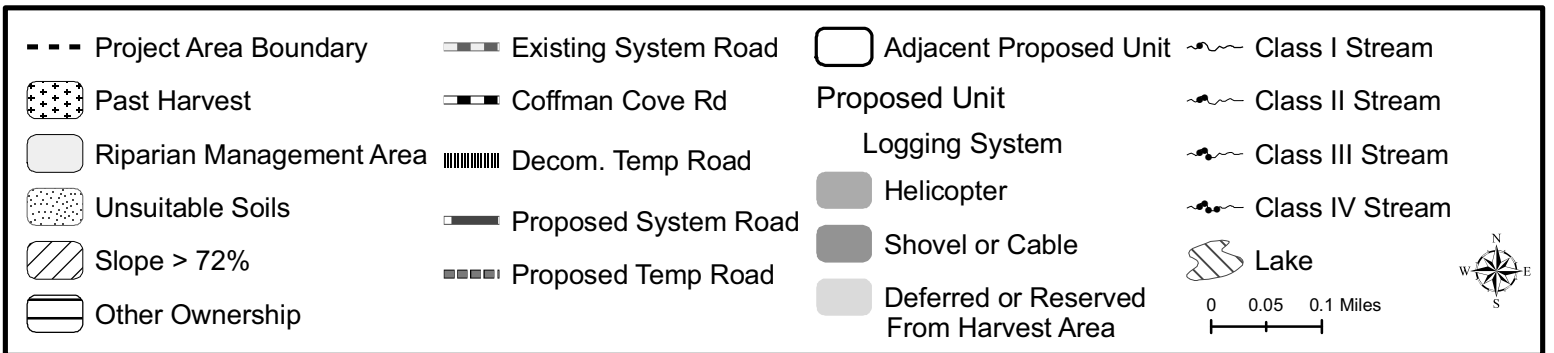
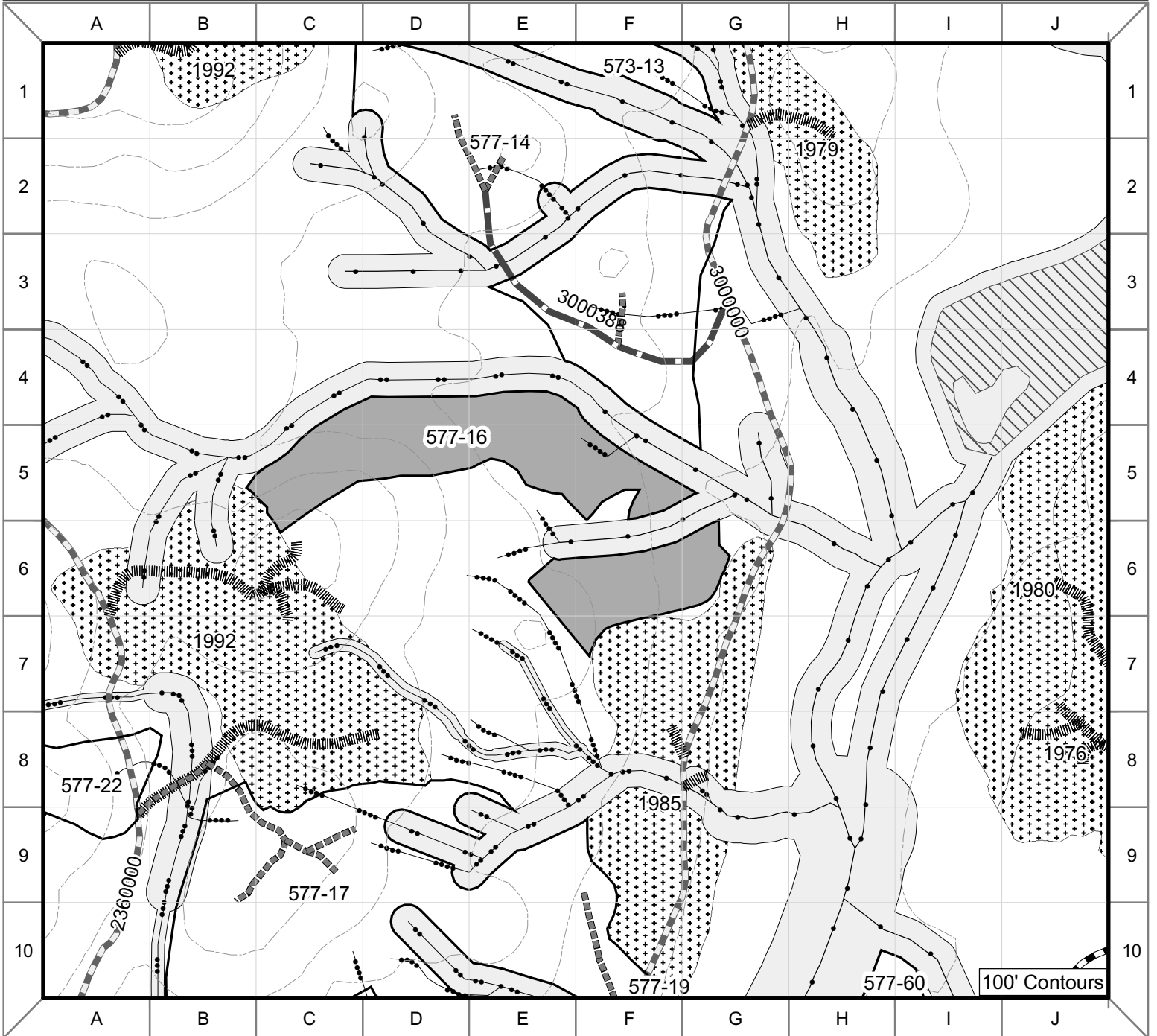
COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.
Concerns in Alternative 3 are – Drop unit. Soils recommends partial harvest; Very poor timber quality and economics
Concerns in Alternative 4 are – Drop unit. No wildlife concerns; Poor economics; Heron nest outside of unit boundary
Concerns in Alternative 5 are – Drop unit. Poor economics, high road construction costs for marginal timber volume/value

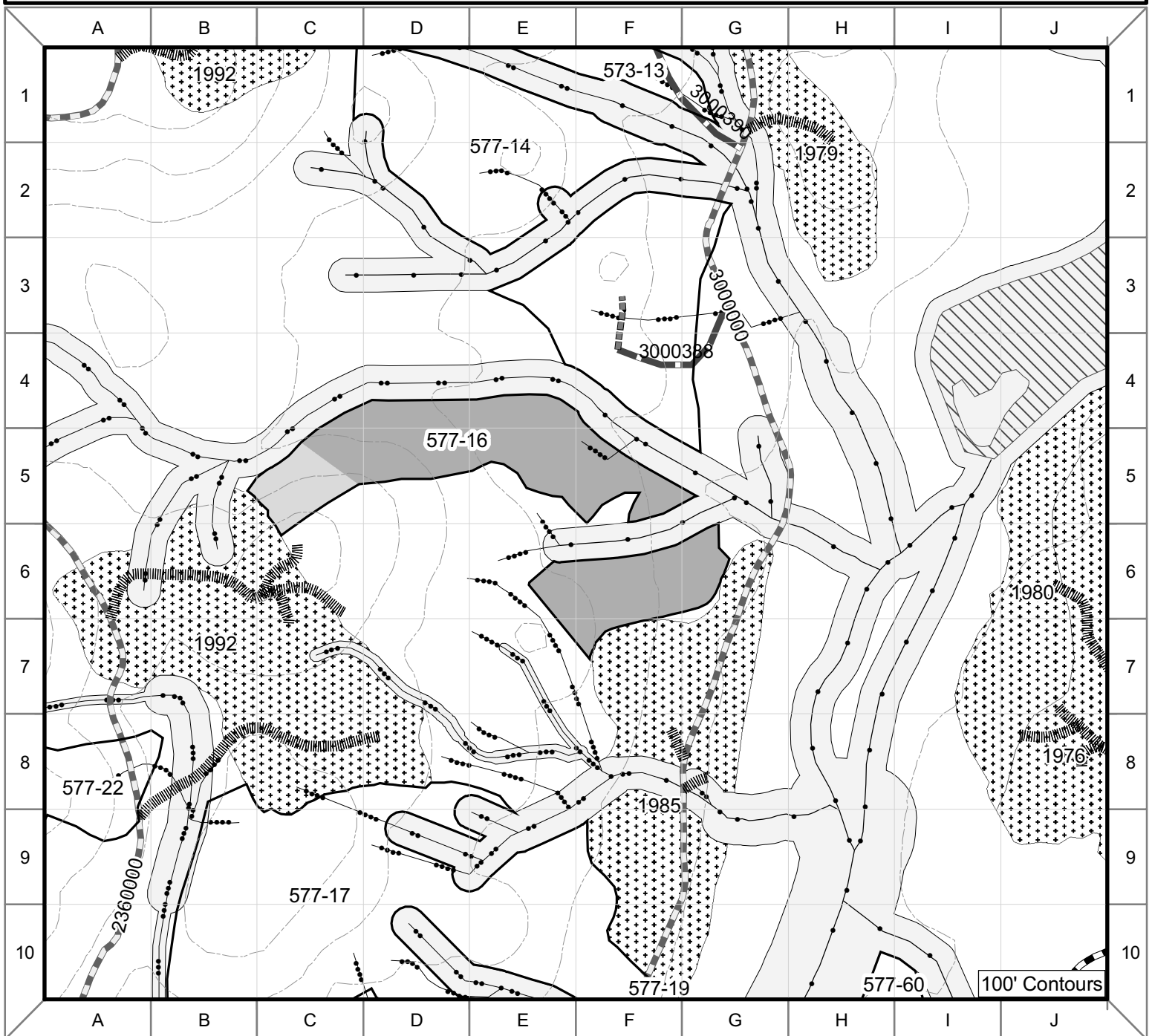
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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles





--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-16 Alternatives 2, 3, 4, 5

Unit Number: 577-16	Alternatives: 2, 3,4,5	Total Unit Acres: Alt. 2 – 41 Alt. 3 – 41 Alt. 4 – 37 Alt. 5 – 41	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 1,056 Alt. 3 – 558 Alt. 4 – 497 Alt. 5 – 558	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth, multi-storied stand, decadent western hemlock with large western redcedar and some small Alaska yellow-cedar in patches. Pure western hemlock occurs in patches on steeper slopes. Patchy blowdown on unit edges next to previous harvests. Windthrow risk is moderate. Mistletoe occurrence is light-in most hemlock.

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.

Silviculture Prescription: **Helicopter Yarding areas:** Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2, this unit is planned for a combination of shovel, cable and helicopter yarding. Access is planned from the south by a temporary extension of proposed NFSR 3000386 and a short temporary spur of NFSR 30. Two cable settings are planned for uphill yarding to short temp spurs in the eastern half of the unit and one cable setting in the is planned for downhill yarding in the west. Areas adjacent to proposed roads on more gentle terrain are planned for shovel yarding. The westernmost portion of the unit that cannot be reached using cable is planned for helicopter yarding to a landing on the proposed temporary spur. In Alternatives 3, 4 and 5 this unit is planned for helicopter yarding. Proposed landings are located on existing NFSR 30 and proposed NFSR 3000388 in unit 573-14.

ENGINEERING/ROADS: No proposed road construction. Alternative 2, 3 and 5 – accessed by temporary roads 3,900 feet in length.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-14/16-1.1 Location: H6, G5, F5, F4, E4, D4, C4, C5, B5

Class: I, II Flagging: B/W C-type: MM1, HC2

Concerns: heavy blow down along upper reaches of stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 577-16-1.1.1 Location: G5, F6, E6

Class: I, IV Flagging: B/W, G/W C-type: HC2, HC5

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-16: Alternative 2 — Three Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes mostly range from 30 to 50%. In the western tip of the unit slopes range up to 70%. These slopes are suitable with full suspension requirements. Full suspension, partial suspension, and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands cover about 50% of the unit in the southern portion of the unit. The proposed temporary road would cross about 1.5 acres of forested wetland/emergent short sedge complex and 1.5 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

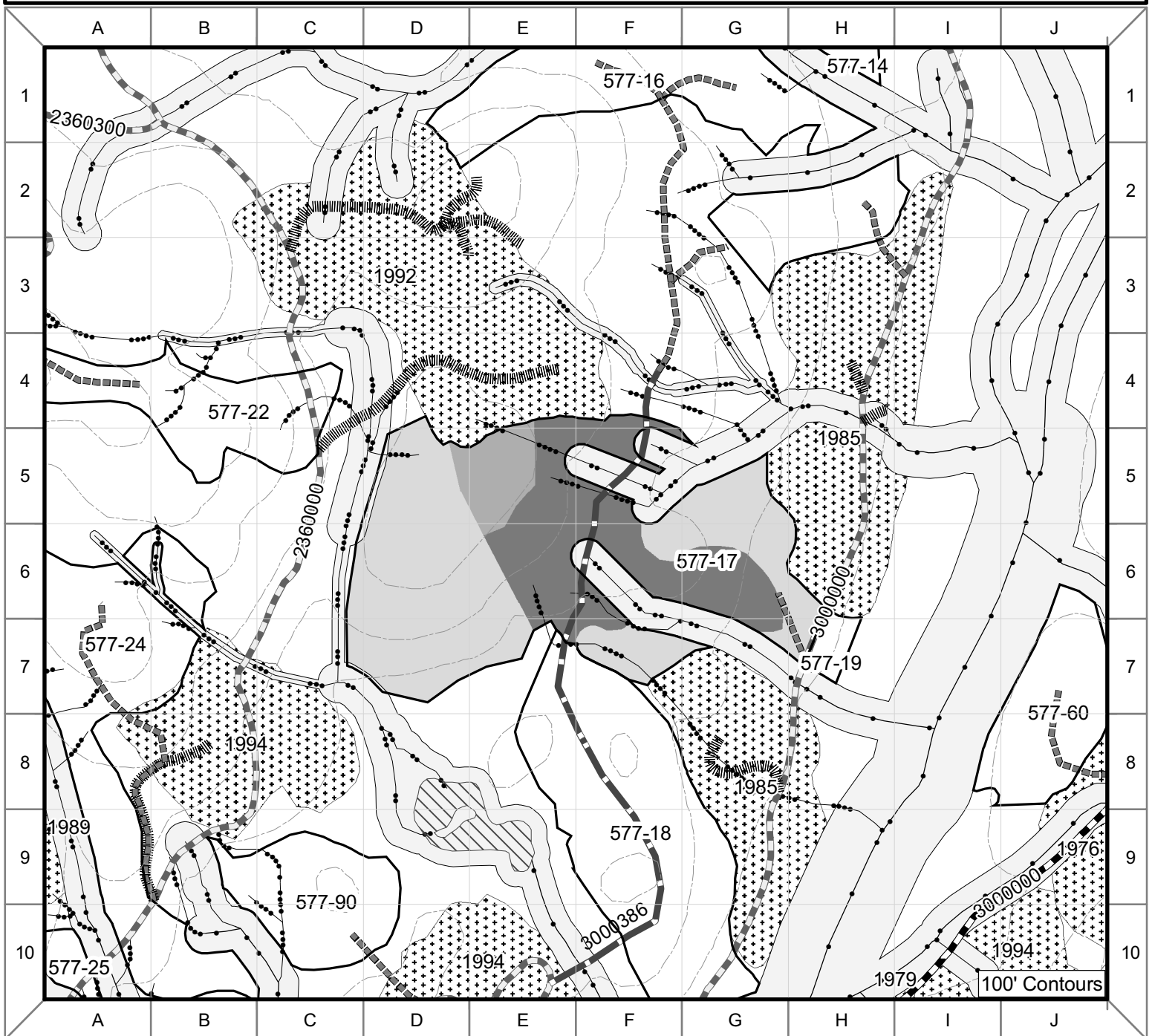
COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.

Concerns in Alternative 3 are - Will require a high cost of road construction for timber volume; Full suspension required in northwest corner (probably to be deferred) due to Soils concerns.

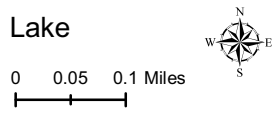
Concerns in Alternative 4 are - Drop extreme northwestern lobe of unit to maintain travel route Concerns in Alternative 5 are the cost of road construction for marginal timber volume/ value. Travel route along western edge, High road construction costs for timber volume.

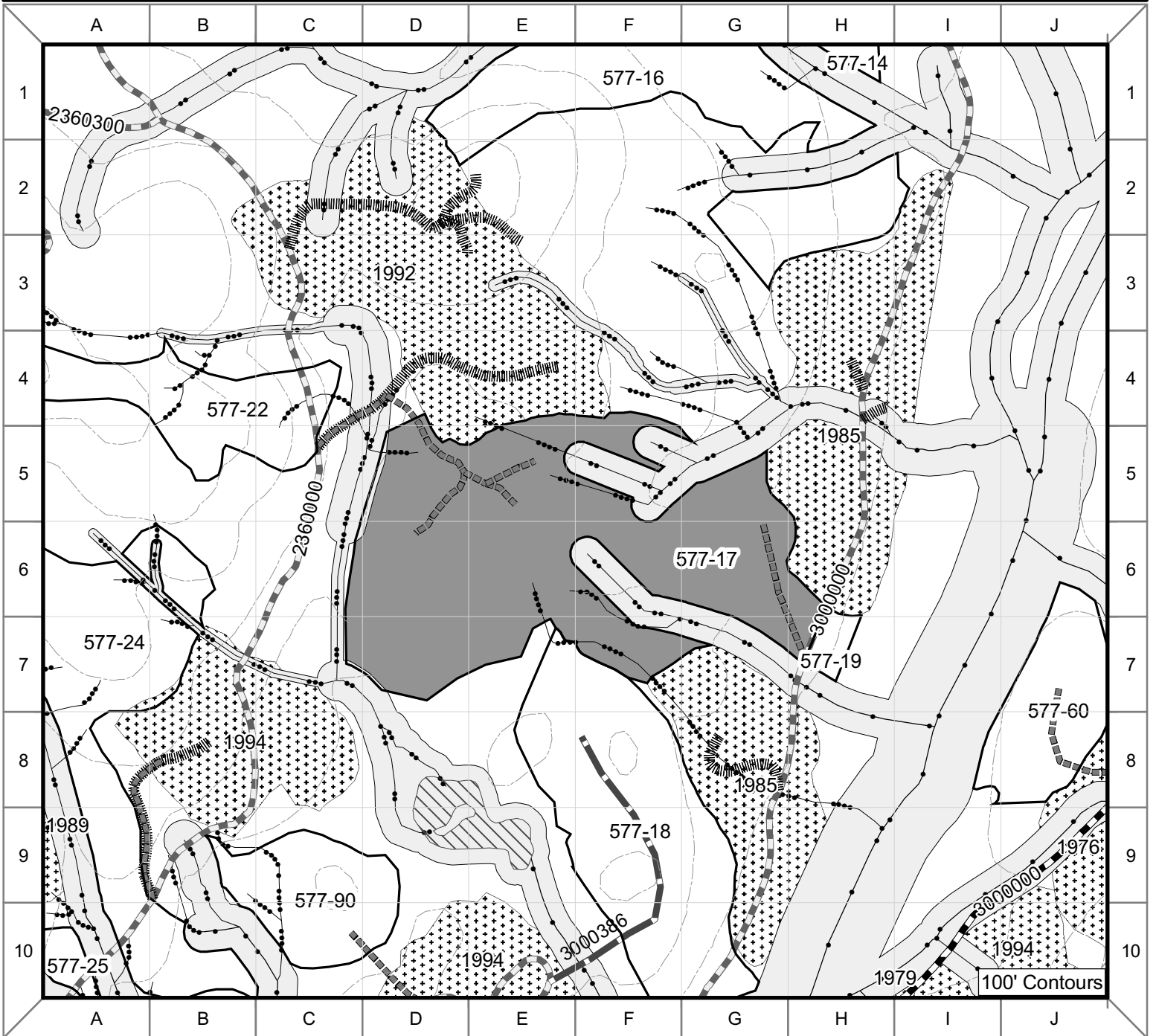
Concerns in Alternative 5 are – High road construction costs for timber volume.

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit Logging System	Class II Stream
Riparian Management Area	Decom. Temp Road	Helicopter	Class III Stream
Unsuitable Soils	Proposed System Road	Shovel or Cable	Class IV Stream
Slope > 72%	Proposed Temp Road	Deferred or Reserved From Harvest Area	Lake
Other Ownership			





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-17 Alternatives 2, 3, 5

Unit Number: 577-17	Alternatives: 2, 3,5	Total Unit Acres: Alt. 2 – 33 Alt. 3 – 82 Alt. 5 – 82	Prescription: Clearcut/Clearcut With reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 745 Alt. 3 – 2,063 Alt. 5 – 2,063	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth mult-storied stand, heavy cedar content with good mix of large western redcedar and med sawtimber Alaska yellow-cedar. Western hemlock is med to small sawtimber and also makes up most of mid story where present as well as majority of understory in the stand. Sawtimber size western hemlock is mostly decadent with heavy defect. Lower site area in center of unit has old high defect western redcedar but solid Alaska yellow-cedar. NW corner of unit and north edge is scrubby Alaska yellow-cedar. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is planned for a combination of shovel, cable and helicopter yarding. Access is planned from the south by proposed NFSR 3000386 and a short temporary spur of NFSR 30. One cable setting is planned for downhill yarding to proposed NFSR 3000386. Areas below the proposed road are planned for shovel yarding. The westernmost portion of the unit that cannot be reached using cable is planned for helicopter yarding to a landing on proposed NFSR 3000386. In Alternatives 3 and 5 this unit is planned for a combination of shovel and cable yarding. Access is planned from the west by a proposed temporary spur of NFSR 2360 and two associated spurs. Areas adjacent to these roads are planned for shovel yarding and the areas to the south and east are planned for uphill cable yarding to landings on the proposed spurs. The westernmost setting is planned for shovel yarding downhill to a proposed temporary spur of NFSR 30. Some isolated portions of the unit along the boundary of 573-18 will be shovel yarded to the terminus of NFSR 3000386.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 500 feet in length. Alternatives 3 and 5 – accessed by temporary roads 3,500 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-17-1.1 Location: H7, G7, F6
Class: I, II Flagging: B/W C-type: HC2, HC5

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-17-1.2 Location: H4, G4, G5, F5, E5, E4
Class: I, II, IV Flagging: B/W, G/W C-type: MM1, HC2, HC5

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC2 and HC5) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-17-1.2.1 Location: G5, F5
Class: II Flagging: B/W C-type: HC2

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-17-1.2.2 Location: F5, E5
Class: II, IV Flagging: B/W, G/W C-type: HC2, HC5

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-17/22-3 Location: D8, D7, C7, C6, C5, D5, D4
Class: II, III Flagging: B/W, O/W C-type: MM1, HC2

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: a minimum of 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of the side slope break.

Alternatives 2, 3, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-17: Alternative 2 — no known crossings and Alternatives 3 and 5 - one Class III stream and two Class IV stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes average 50% throughout most of the unit with a several acre area in the central portion ranging up to 70%. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline

applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetland covers >50% mostly in the lower portion of the unit. The proposed temporary road would cross about 2.5 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

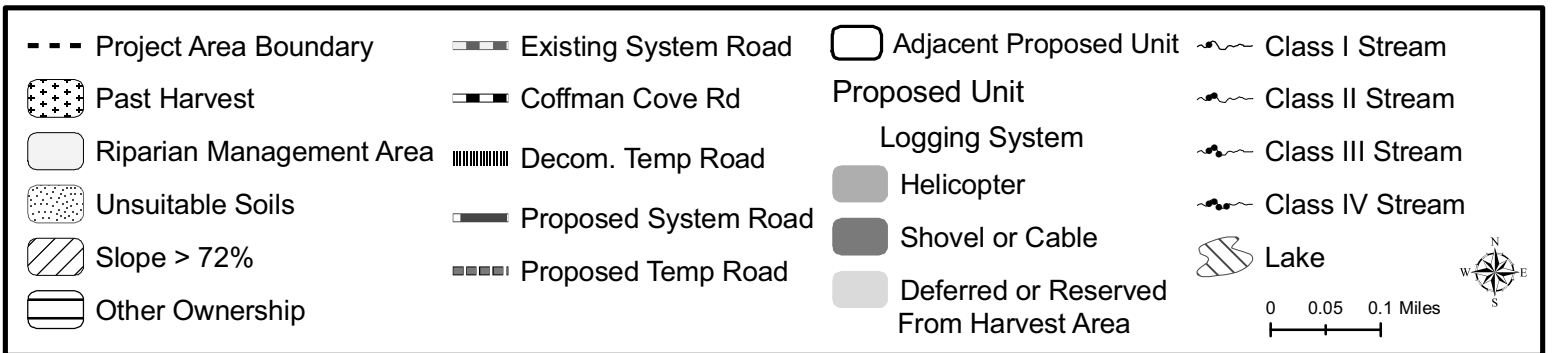
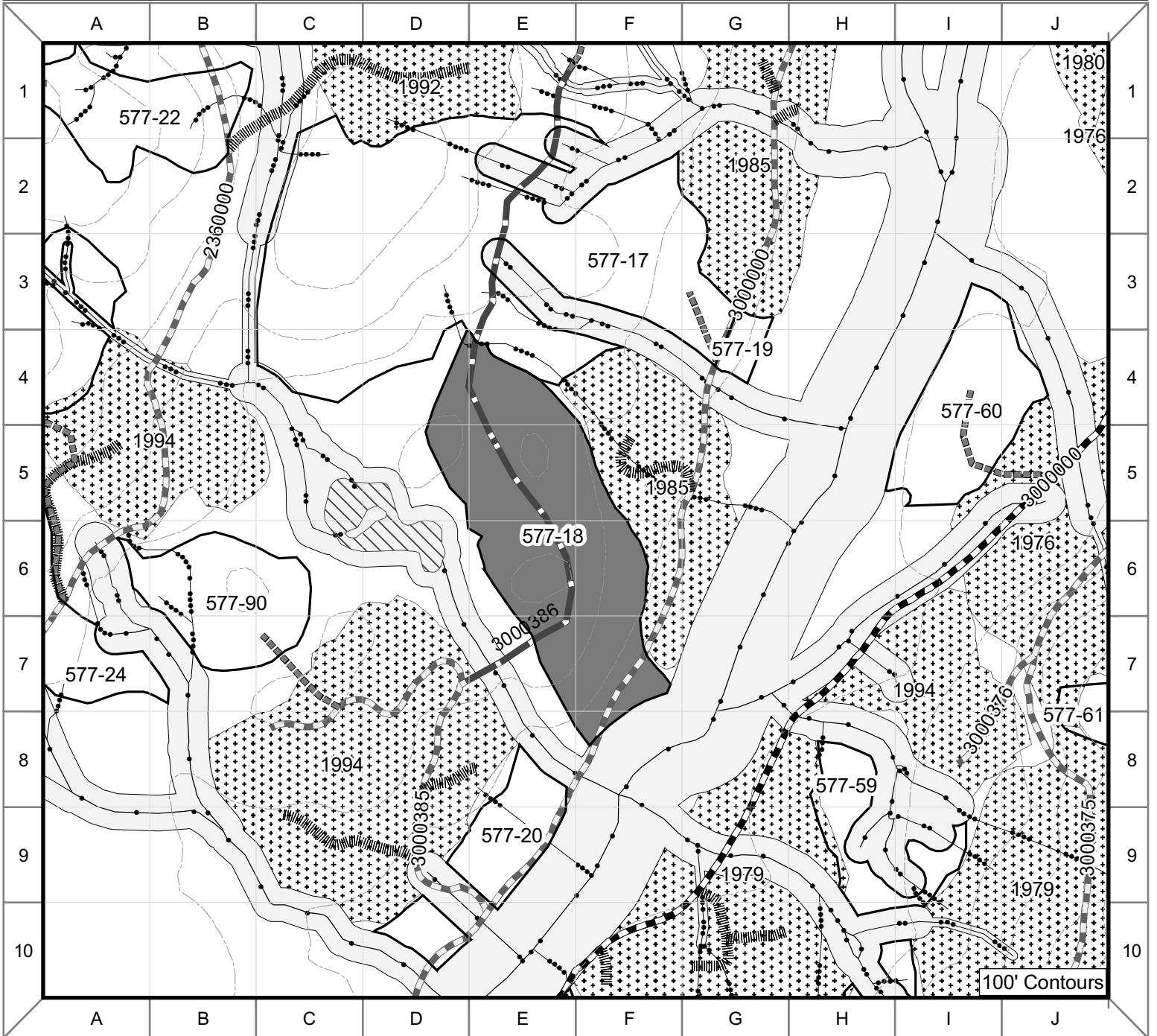
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

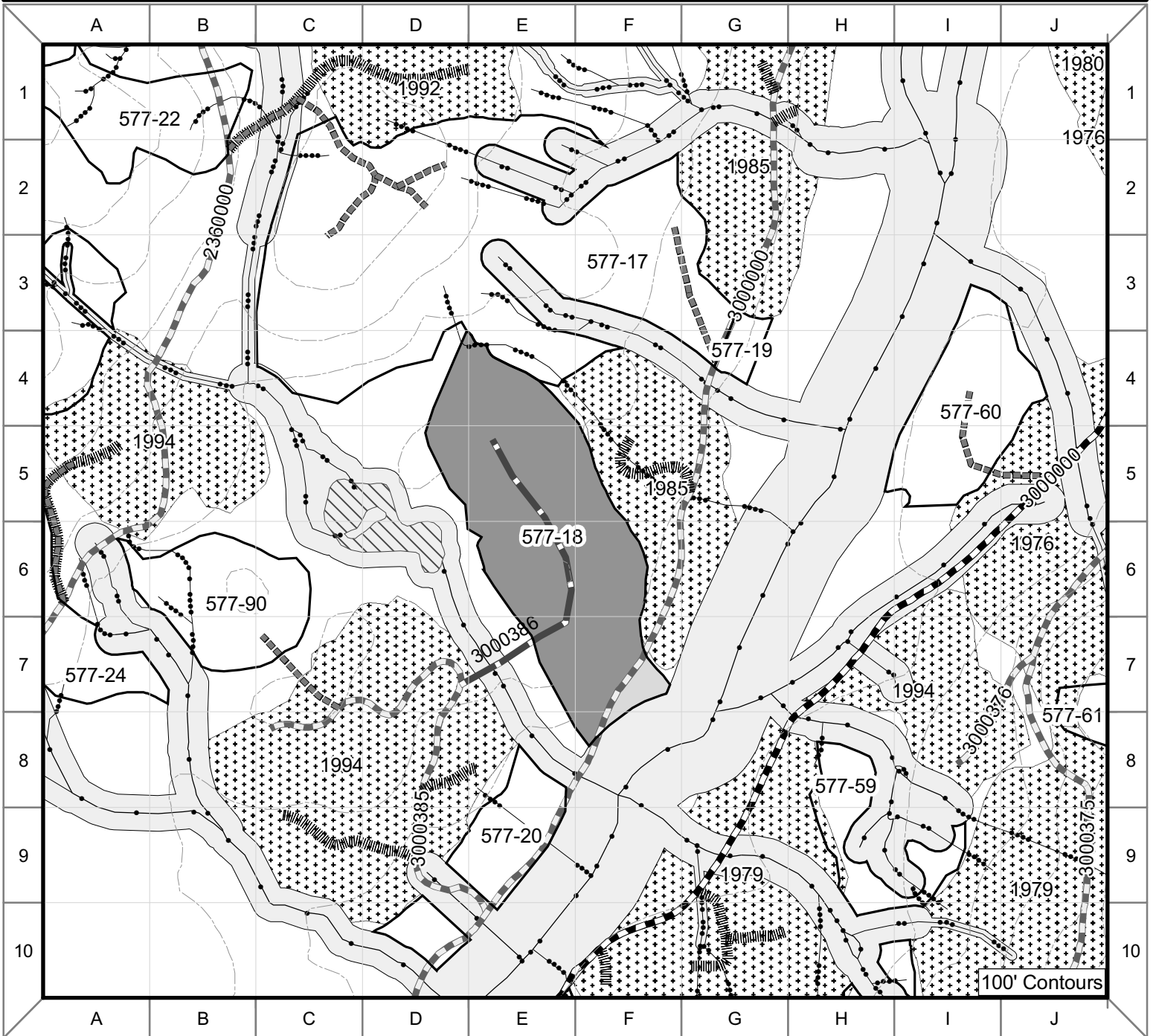
COMMENTS: Deferrals in Alternative 2 are for marginal timber volume/ value.

Concerns in Alternatives 3 and 5 are - Add shovel setting to the east above FR 30 and shovel/ cable setting to the west (17A and 17B). Drop central road and add temp spurs to the east and west. Additional settings to the E and W would increase volume and economics while reducing overall road construction per mmbf.

Concerns in Alternative 4 are - Drop unit. Harvesting unit would impede east west travel .

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-18 Alternatives 2, 3, 4, 5

Unit Number: 577-18	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 46 Alt. 3 – 44 Alt. 4 – 44 Alt. 5 – 46	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,137 Alt. 3 – 1,081 Alt. 4 – 1,081 Alt. 5 – 1,137	LUD: Timber Production Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old Growth multi-storied stand of mixed western hemlock and western redcedar. Some scattered Alaska yellow-cedar and Sitka spruce. Good western redcedar in medium to large sawtimber size classes with western hemlock as medium sawtimber mainly. Numerous dead tops in overstory western redcedar. Understory and mid-story is primarily western hemlock and some healthy western redcedar and Sitka spruce Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to the proposed NFSR 3000386. The southeastern edge of the unit is planned for shovel yarding to the existing NFSR 30.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3000386 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-18-Lake 1 Location: D5, D6

Class: II Flagging: B/W C-type: L

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft.or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-18/20-1.4 Location: F8, E8, E7, D7, D6

Class: I Flagging: B/W C-type: HC5

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft.or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

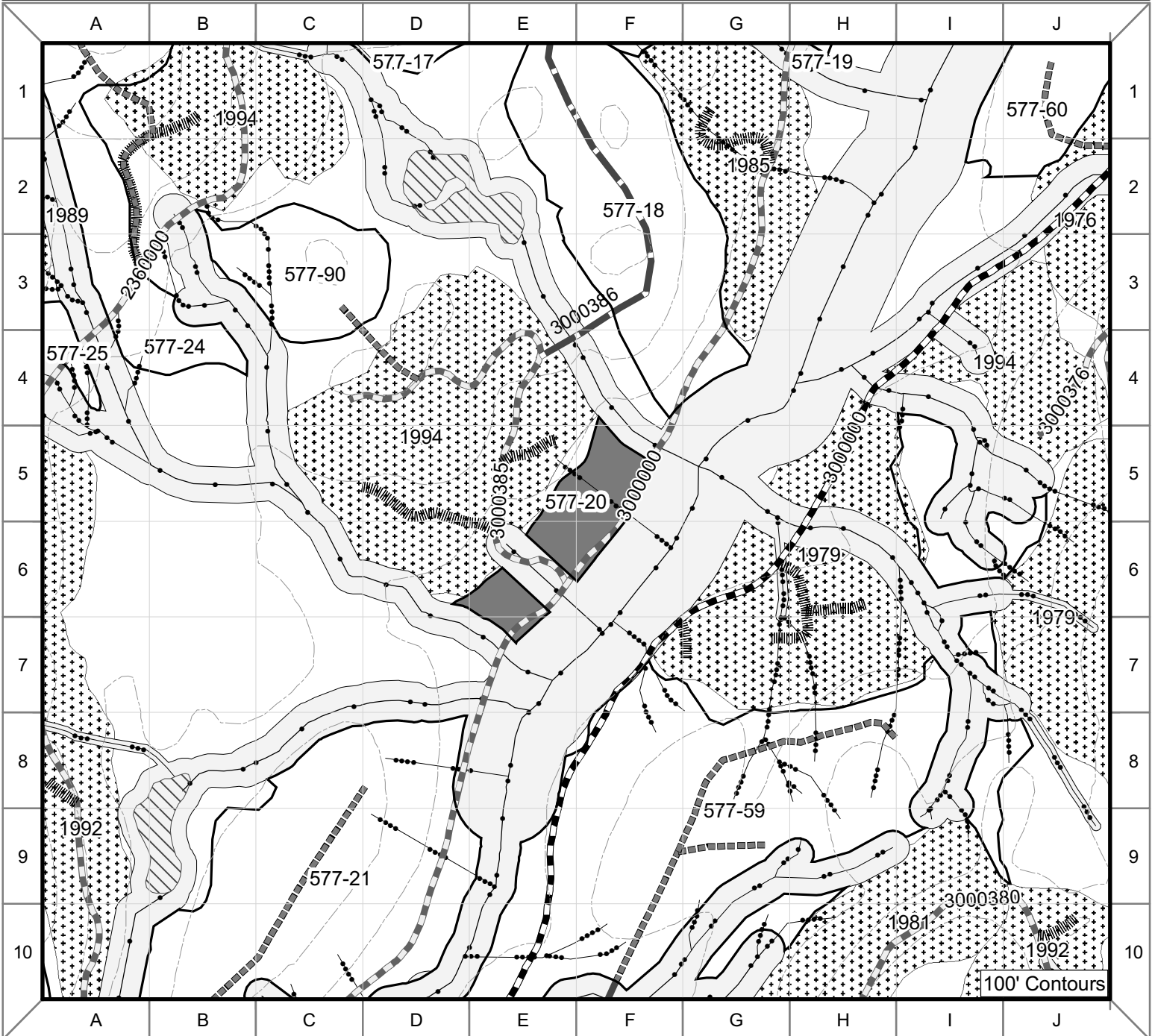
SOILS/WETLANDS: – Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. No soil or slope concerns were identified; therefore no field reconnaissance was completed by the soil scientist. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Construct only road needed to harvest unit. Drop unit area east of main 30 road. Visual concerns; proximity to the Logjam River.

Concerns in Alternative 4 are - Construct only road needed to harvest unit Drop area below road to maintain travel route along Logjam Creek; Buffer along western stream will function as corridor. Proposed unit will block north-south travel route; Area below road will decrease travel route along Logjam Creek. Either unit 17 or 18 should be dropped to maintain travel route.

Concerns in Alternative 5 are - Construct only road needed to harvest unit.



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-20 Alternatives 2, 3, 4, 5

Unit Number: 577-20	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 12 Alt. 3 – 9 Alt. 4 – 12 Alt. 5 – 12	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 329 Alt. 3 – 244 Alt. 4 – 329 Alt. 5 – 329	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stand of western hemlock with scattered dominant Sitka spruce. Multi -storied with heavy western hemlock understory. Blowdown was noted in south end of unit. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is divided into two settings by a Class I stream. In all action alternatives, this unit is planned for shovel yarding to the existing NFSR 30 and NFSR 3000385. The area southwest of the class I stream is deferred in Alternative 3.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-20-1 Location: G4, G5, F6, F7, E7
Class: I Flagging: B/W C-type: FP5
Concerns: This is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-20-1.1 Location: E7, D7, D6
Class: I Flagging: B/W C-type: HC2

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-20-1.2 Location: F7, F6, E6
Class: I Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-18/20-1.4 Location: G5, F5, F4
Class: I Flagging: B/W C-type: HC5

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

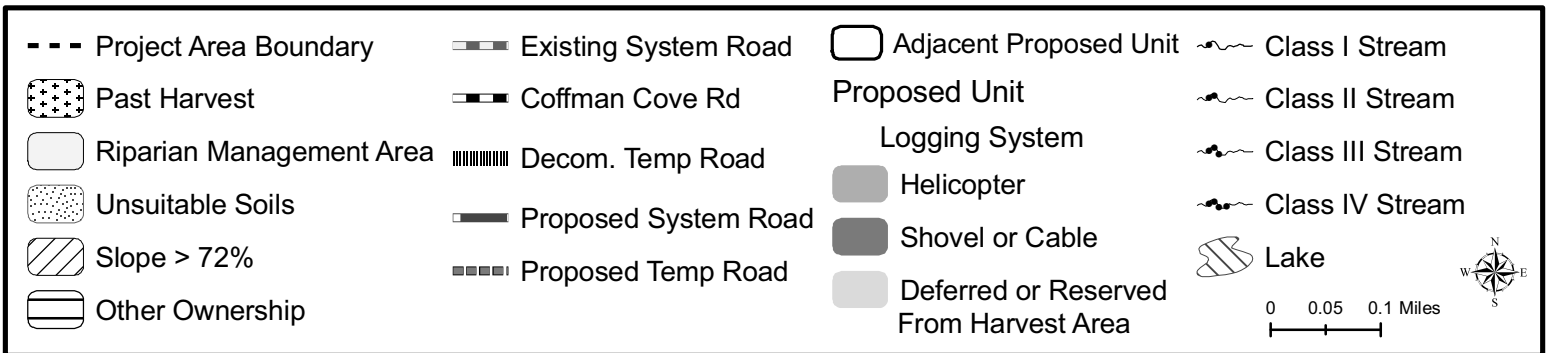
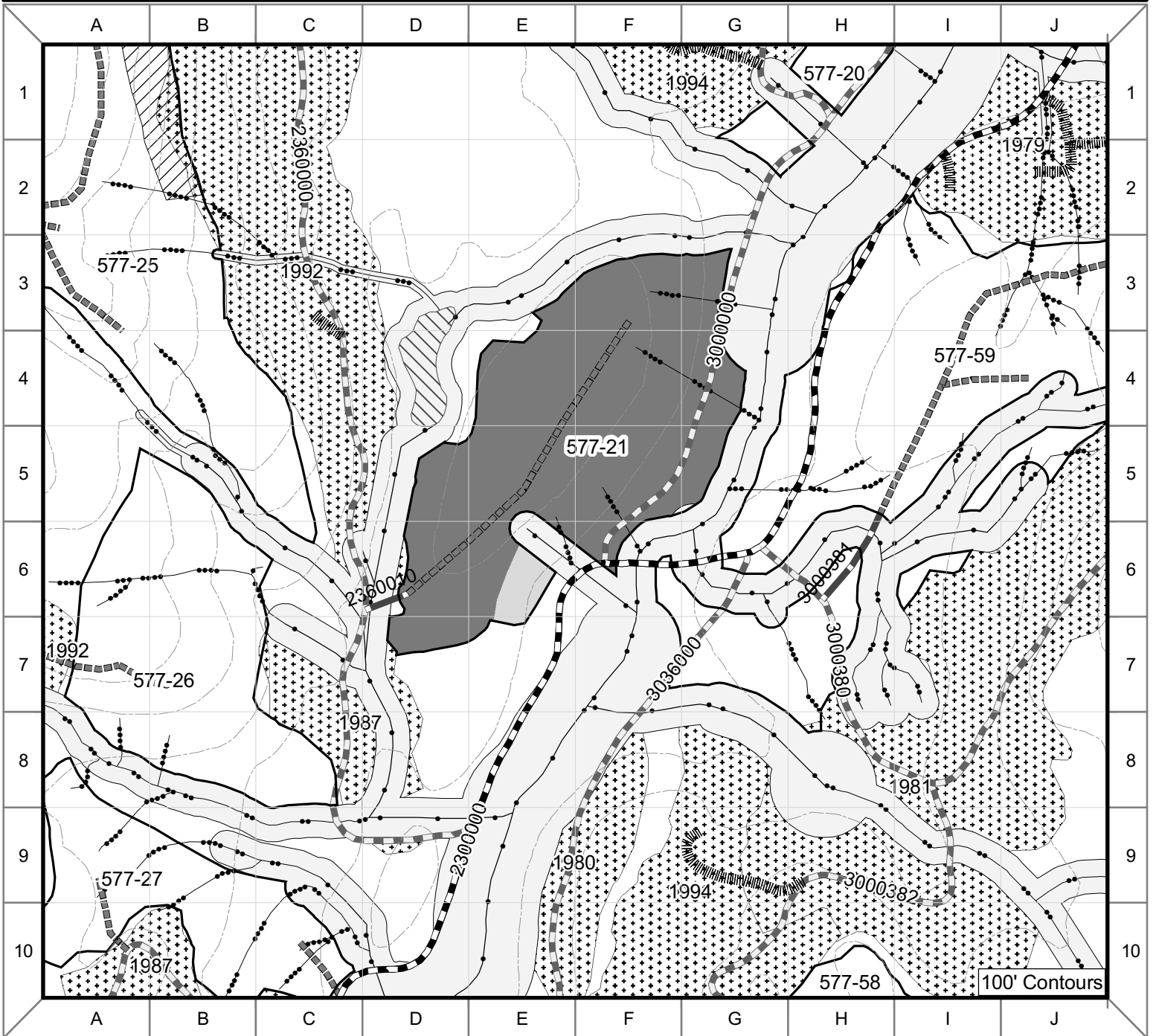
SOILS/WETLANDS: Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

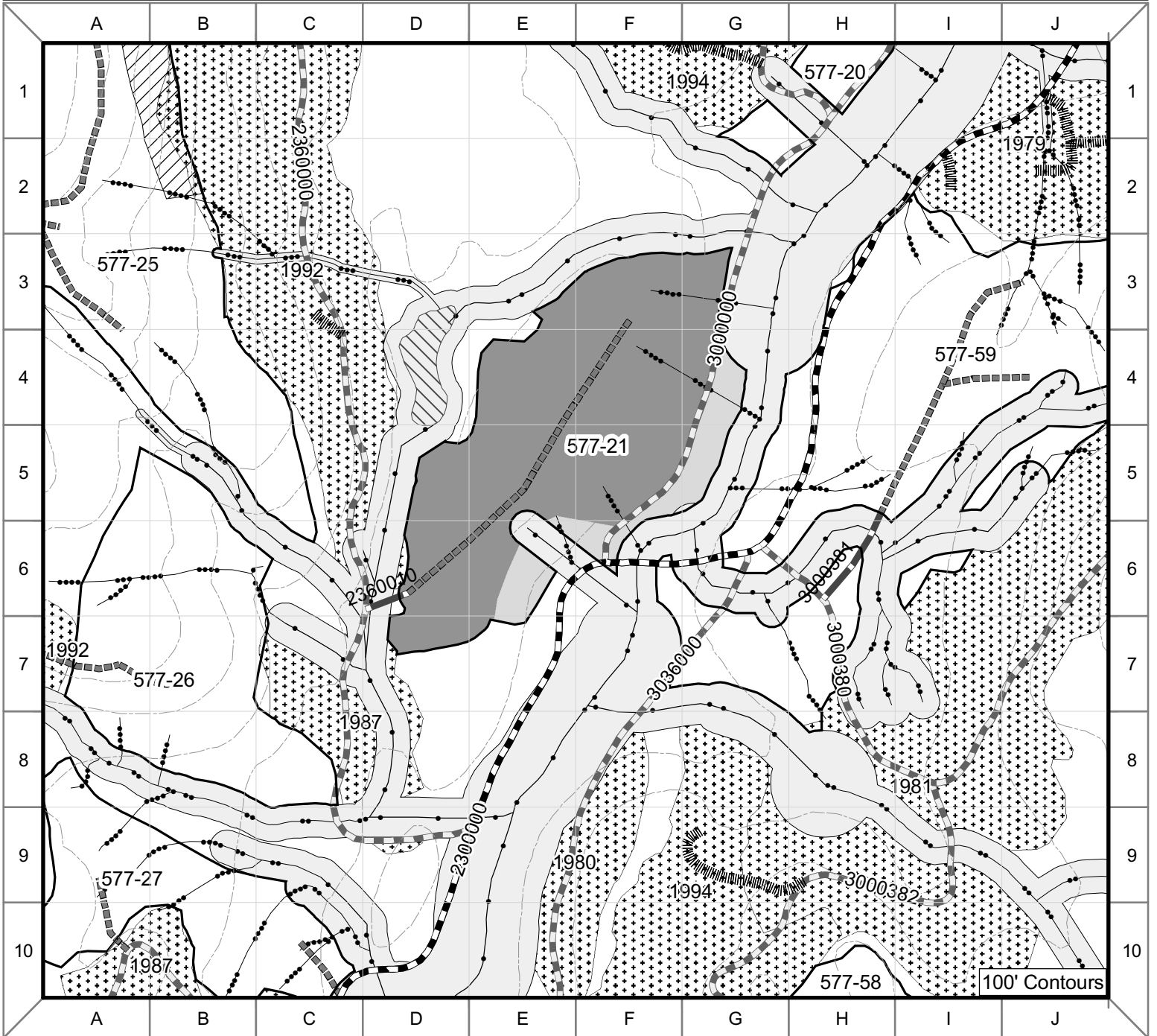
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2 and 5 are for marginal timber volume/ value.

Concerns in Alternative 3 are - Drop unit section located east of Forest Road 30 Drop southwest corner. Stream buffer concerns in southwest corner; Blowdown concerns in southwest corner.

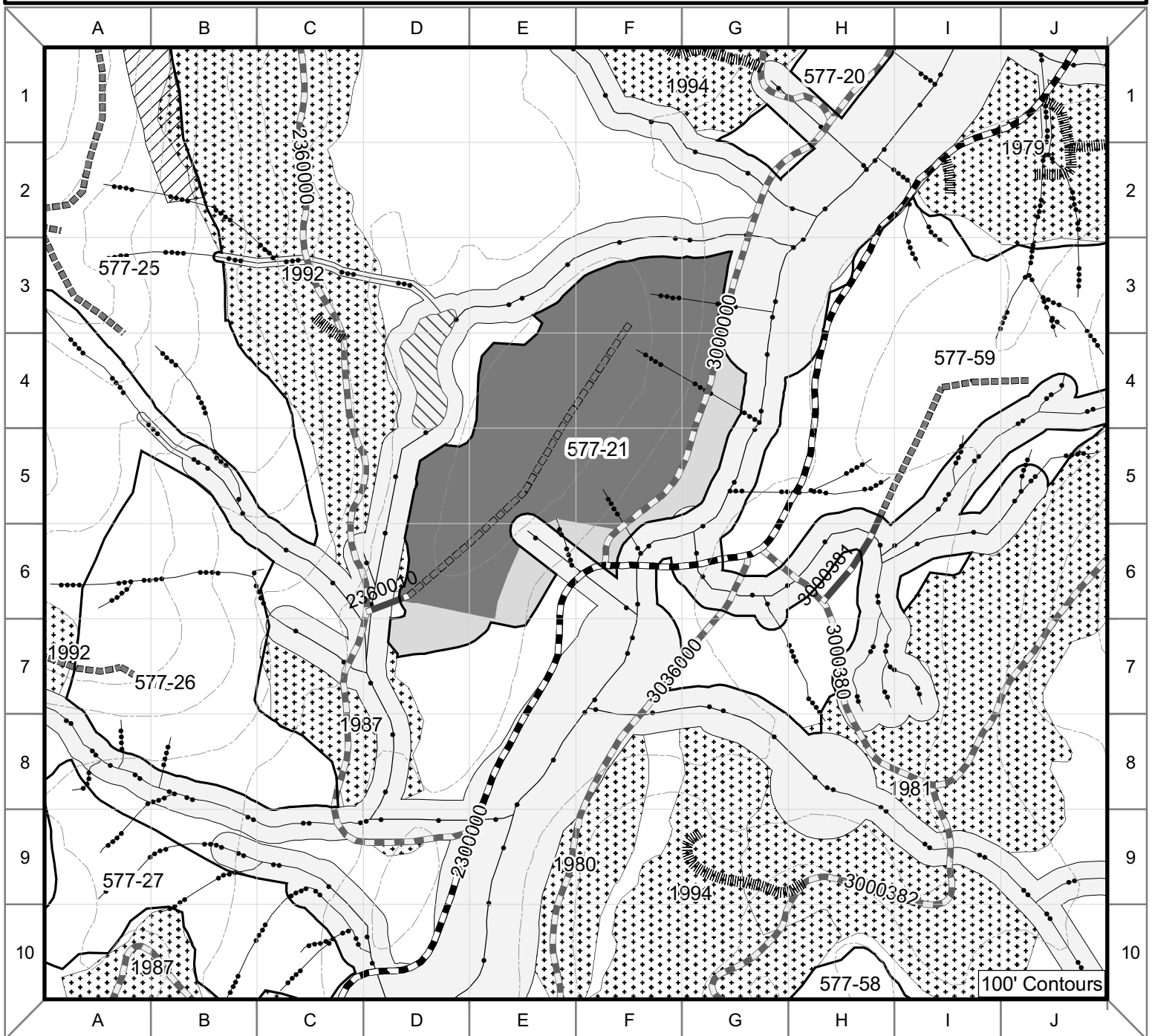
Concerns in Alternative 4 are - Drop section below main road. Area below road will decrease travel route along Logjam Creek.





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-21 Alternatives 2, 3, 4, 5

Unit Number: 577-21	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 73 Alt. 3 – 65 Alt. 4 – 62 Alt. 5 – 73	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 1,799 Alt. 3 – 1,603 Alt. 4 – 1,514 Alt. 5 – 1,799	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth multi-storied stand of mixed western hemlock and western redcedar. Patchy Alaska yellow-cedar and some scattered large Sitka spruce. Western hemlock is primarily medium sawtimber and decadent, western redcedar is large to medium sawtimber with some quality trees. Sitka spruce is mostly large sawtimber. Mid story is mostly western hemlock with some western redcedar. Understory is western hemlock. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. An uncut screen of timber is required to be left adjacent to the 30 road to block the harvest area from view. Design this as approximately shown on the unit card map. Evaluate the effectiveness of this buffer at time of layout and adjust as needed.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives, this unit is planned for a combination of shovel and cable yarding. Access is planned from the southwest by a temporary extension of proposed NFSR 2360010. Cable settings are planned for uphill yarding to the proposed temporary road. The remaining area is planned for shovel yarding.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 2360010 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 - accessed by temporary road 2,300 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-21-1 Location: H3, G3, G4, G5, G6, F6, F7

Class: I Flagging: B/W C-type: LC1

Concerns: This stream is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft.or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-21-Lake Location: D3, D4

Class: I Flagging: B/W C-type: L

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft.or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-21-1.1 Location: H3, G3, G2, G3, F2, F3, E3, D3

Class: I Flagging: B/W C-type: HC2, MM1, PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for HC2 and PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-21-1.2 Location: D8, D7, C7
Class: I Flagging: B/W C-type: HC2
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-21-1.2.1 Location: D7, D6, D5
Class: I Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-21-1.3 Location: F6, E6
Class: I Flagging: B/W C-type: HC2
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 577-21: All alternatives — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Low. The unit is within Timber Management LUD and is seen within Foreground distance zone from VPR Coffman Highway view point 11. Leave screen trees as indicated in the harvest prescription.

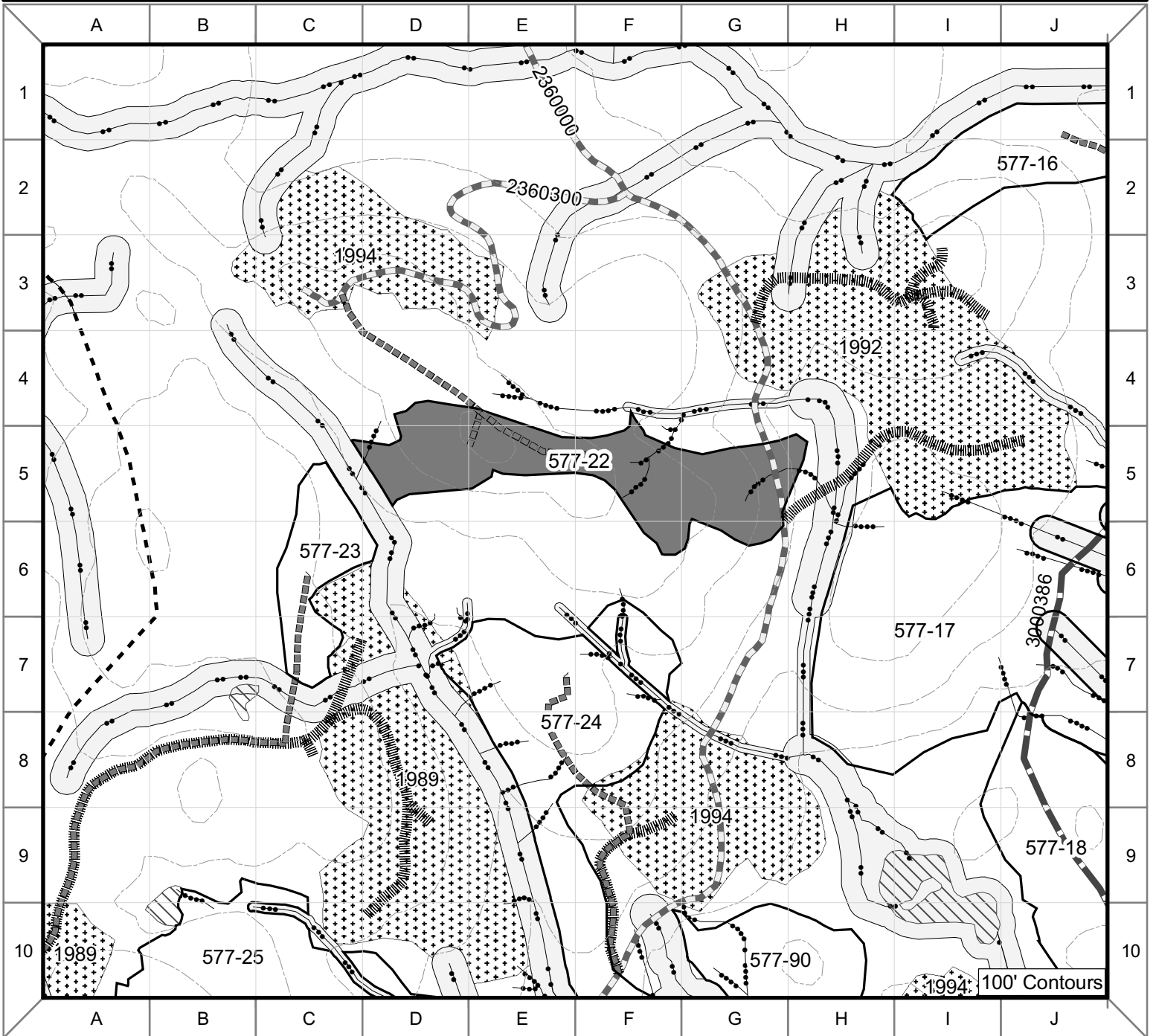
RECREATION: No concerns

SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The temporary road would cross 2 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

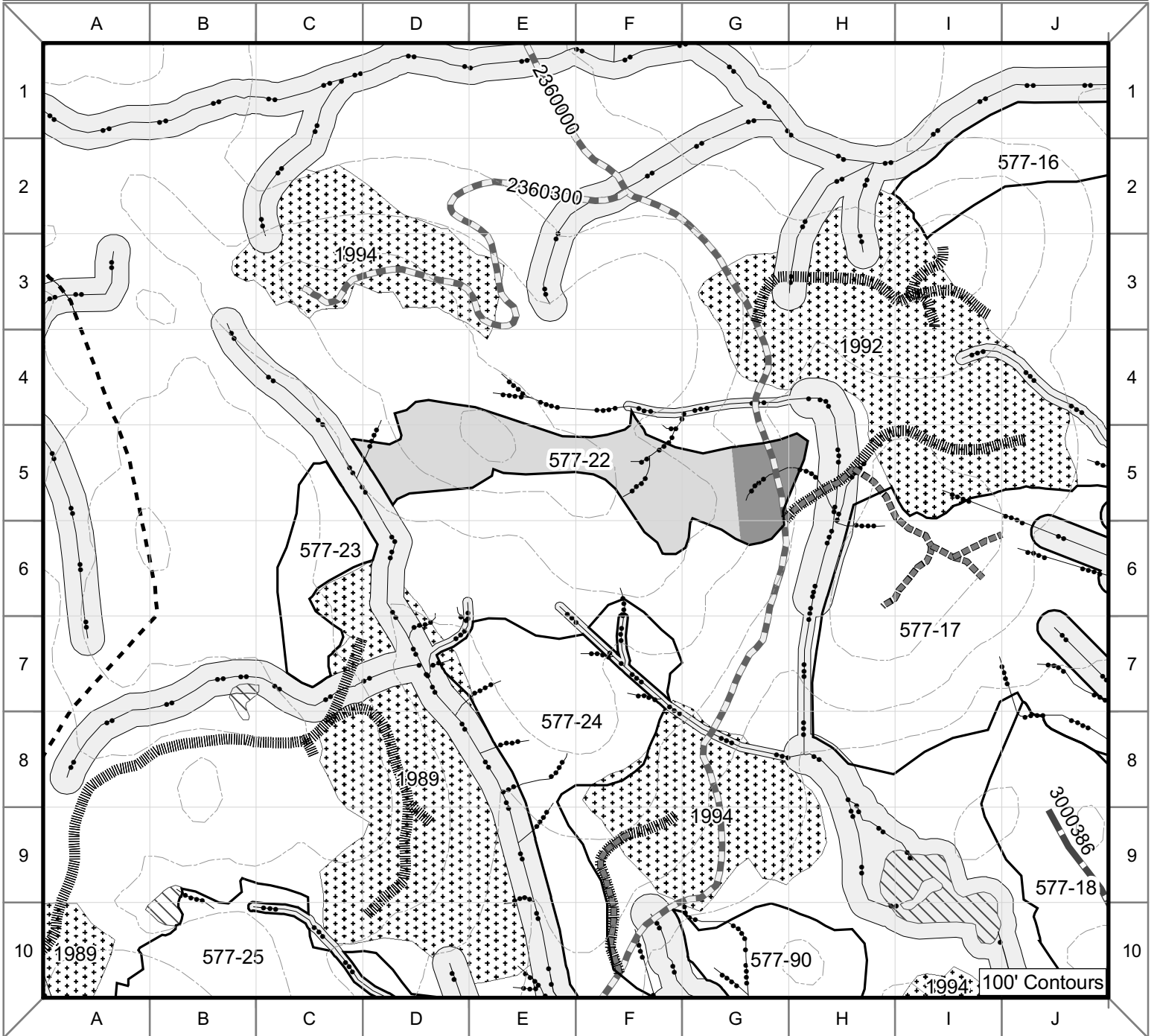
COMMENTS: Concerns in Alternatives 2 and 5 are - Visual/ concerns along FS Roads 23. Implement visual buffer along FR23. Concerns in Alternative 3 are - Provide a RAW buffer at time of unit lay-out along north edge of the Class I stream channel; No harvest east (downslope) of Forest Road 3000; Provide lake buffer as required by TLMP during unit lay-out; Implement visual buffer along FR23

Concerns in Alternative 4 are - Drop section below main road to maintain travel route along Logjam Creek; Drop extreme southern portion of unit to maintain travel route; Implement visual buffer along FR23.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
⊘ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	▨ Decom. Temp Road	▨ Logging System	~ Class III Stream
⊘ Unsuitable Soils	— Proposed System Road	■ Helicopter	~ Class IV Stream
▨ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	○ Lake
□ Other Ownership		□ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

Unit 577-22 Alternatives 2, 3, 4, 5

Unit Number: 577-22	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 30 Alt. 3 – 5 Alt. 4 – 5 Alt. 5 – 5	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 706 Alt. 3 – 128 Alt. 4 – 128 Alt. 5 – 128	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mixed western redcedar and western hemlock old growth multi-storied stand. Patchy Alaska yellow-cedar with cedar decline in wetter lower site areas. Western redcedar is in med to large sawtimber size classes; western hemlock is mostly medium to small saw and non-merchantable. Sitka spruce is scattered and found in medium to larger sawtimber size classes as well as an understory component. Alaska yellow-cedar is mostly small sawtimber but also present in the understory. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for a combination of shovel and cable yarding. In Alternative 2 access is planned from temporary extension of existing NFSR 2360300. Cable settings are planned for uphill yarding to the proposed temporary road and one short temporary spur. The area adjacent to proposed roads is planned for shovel yarding. The easternmost setting of the unit is planned for downhill and uphill cable yarding to a landing on existing NFSR 2360.

In Alternatives 3, 4 and 5 only the easternmost setting is planned for cable yarding to existing NFSR 2360. The remaining area is planned for deferral.

ENGINEERING/ROADS: In alternative 2 unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 2,300 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries. Alternatives 3, 4, and 5 have no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-22/23-1 Location: D6, D5, C5, C4

Class: II Flagging: B/W C-type: HC1, MM0

Concerns: Heavy blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. (for HC1) and 120ft. (for MM0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 577-22-3 Location: H8, H7, H6, H5, H4, G4, F4, E4

Class: III, IV Flagging: O/W, G/W C-type: HC1, HC5, MM1

Concerns: Moderate blow down along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to top of side slope break.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-22: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

Alternative 2: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary road would cross about a ½ acre of forested wetland/emergent short sedge complex and 1.5 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

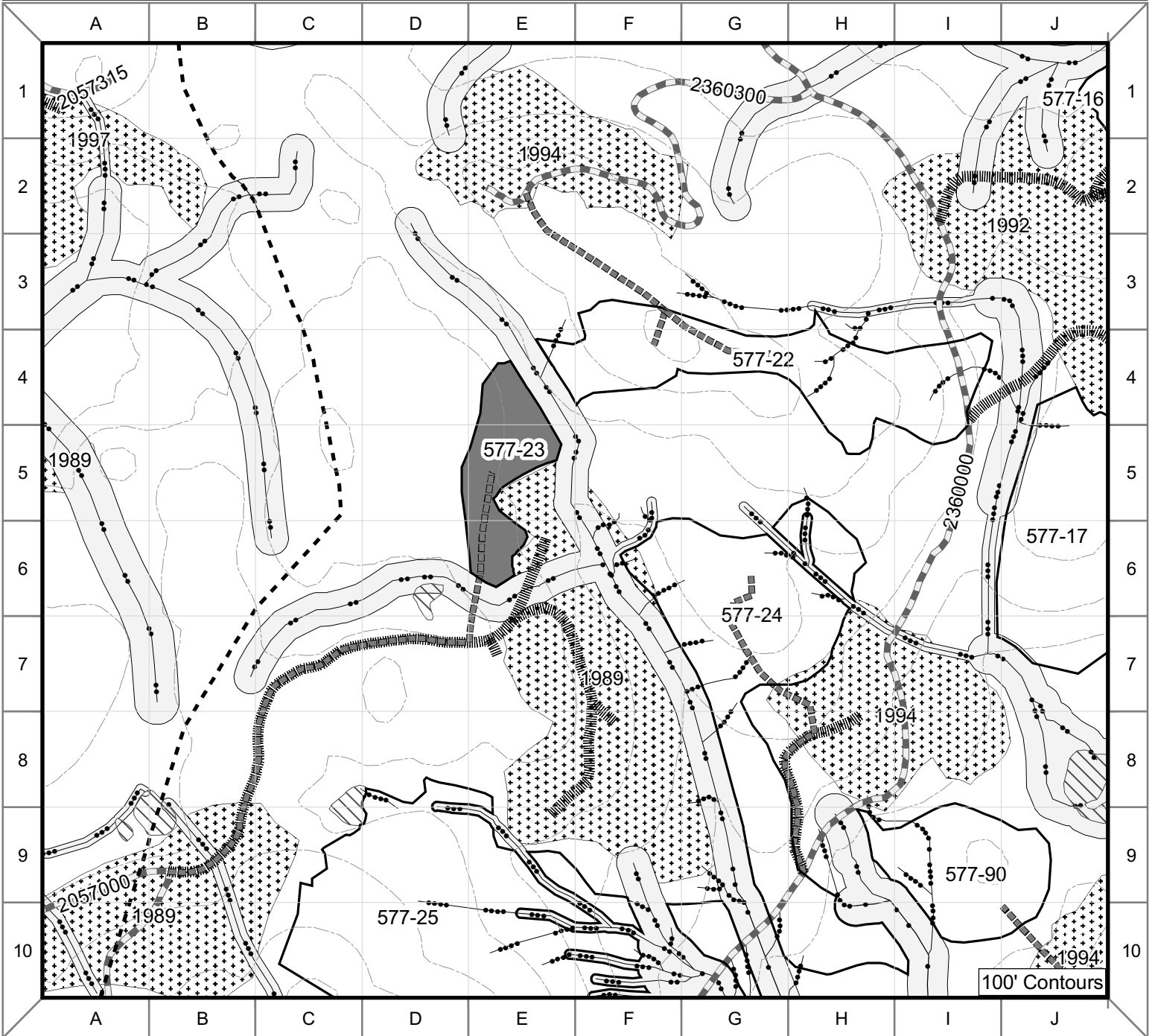
Alternatives 3, 4, 5: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Drop road and harvest only timber accessible from FR 2360. Cumulative effects in Logjam watershed; Poor economics, high road construction costs for marginal timber volume/value.

Concerns in Alternative 4 are - Drop road and harvest only timber accessible from FR 2360. Portion of proposed unit will block elevation travel route; High road construction costs for marginal timber volume/value.

Concerns in Alternative 5 are - Drop road and harvest only timber accessible from FR 2360. Poor economics, high road construction costs for marginal timber volume/value.



Unit 577-23 Alternative 2

Unit Number: 577-23	Alternatives: 2	Total Unit Acres: 11	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): 275	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mixed cedar and Hemlock stand. Low volume -open canopied old growth. Blowdown in south corner along existing harvest area. Understory is heavy and comprised mainly of Western hemlock. Mid-story is Alaska yellow-cedar. Sitka spruce is found as scattered dominants. A large volume of dead stems are present and mostly Alaska yellow-cedar due to cedar decline. Windthrow risk is high.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to a proposed temporary spur of 2057.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. A class 2 fish stream is crossed at station 31+69. Install log stringer bridge. Adhere to fish timing window June 25 – September 1. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 4,000 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-22/23-1 Location: E5, E4, E3
 Class: II Flagging: B/W C-type: HC1, MM0
 Concerns: Heavy blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. (for HC1) and 120ft.(for MM0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-23-2 Location: F6, E6, D6
 Class: II Flagging: B/W C-type: PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: minimum 100ft.or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Temporary road for unit 577-23: Alternative 2 — One Class III stream crossings and one Class II stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of

potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION:: No concerns

SOILS/WETLANDS: Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary road would cross $\frac{3}{4}$ of an acre of forested wetland and about $\frac{1}{4}$ of an acre of forested wetland/emergent short sedge complex (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

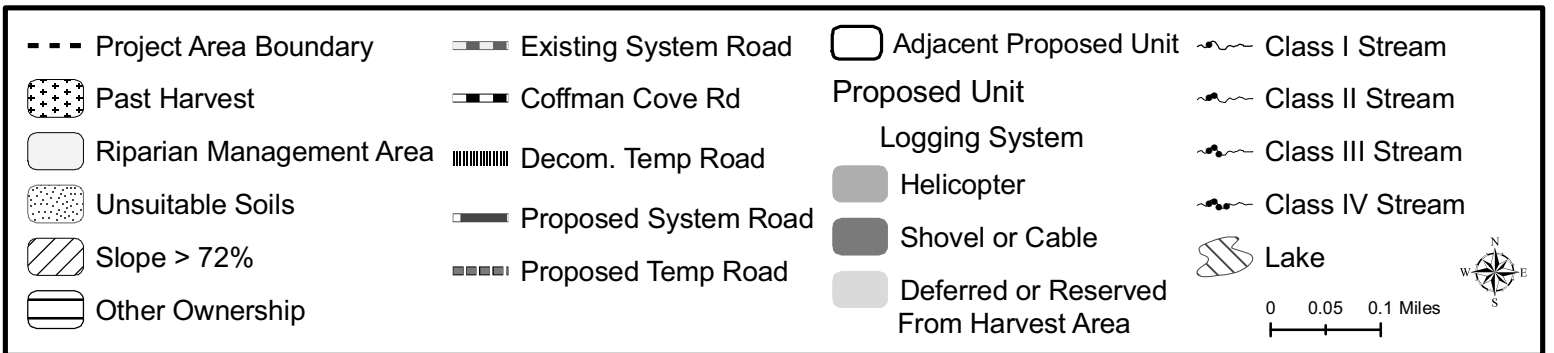
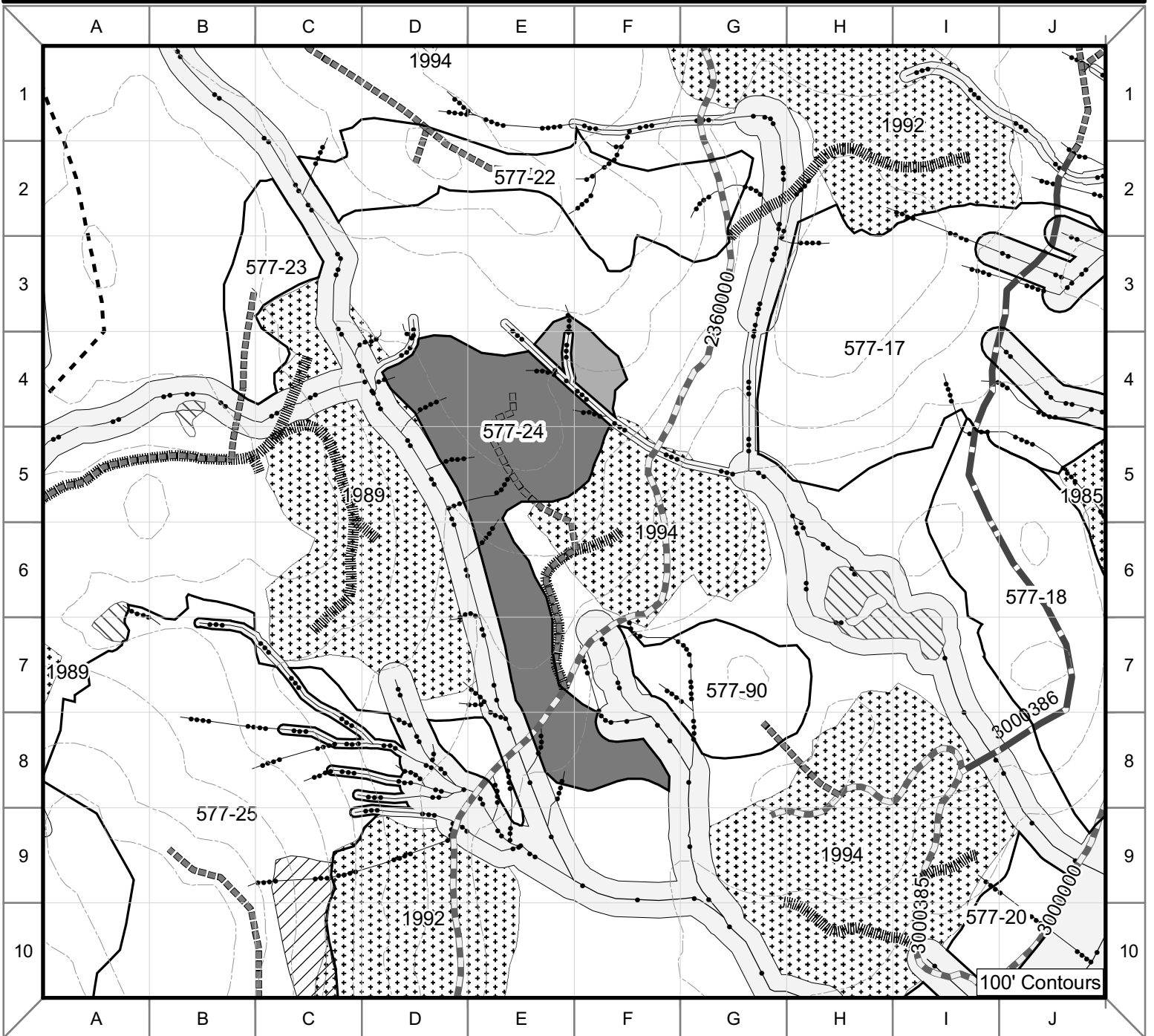
COMMENTS: Concerns in Alternative 2 are - marginal timber volume/ value.

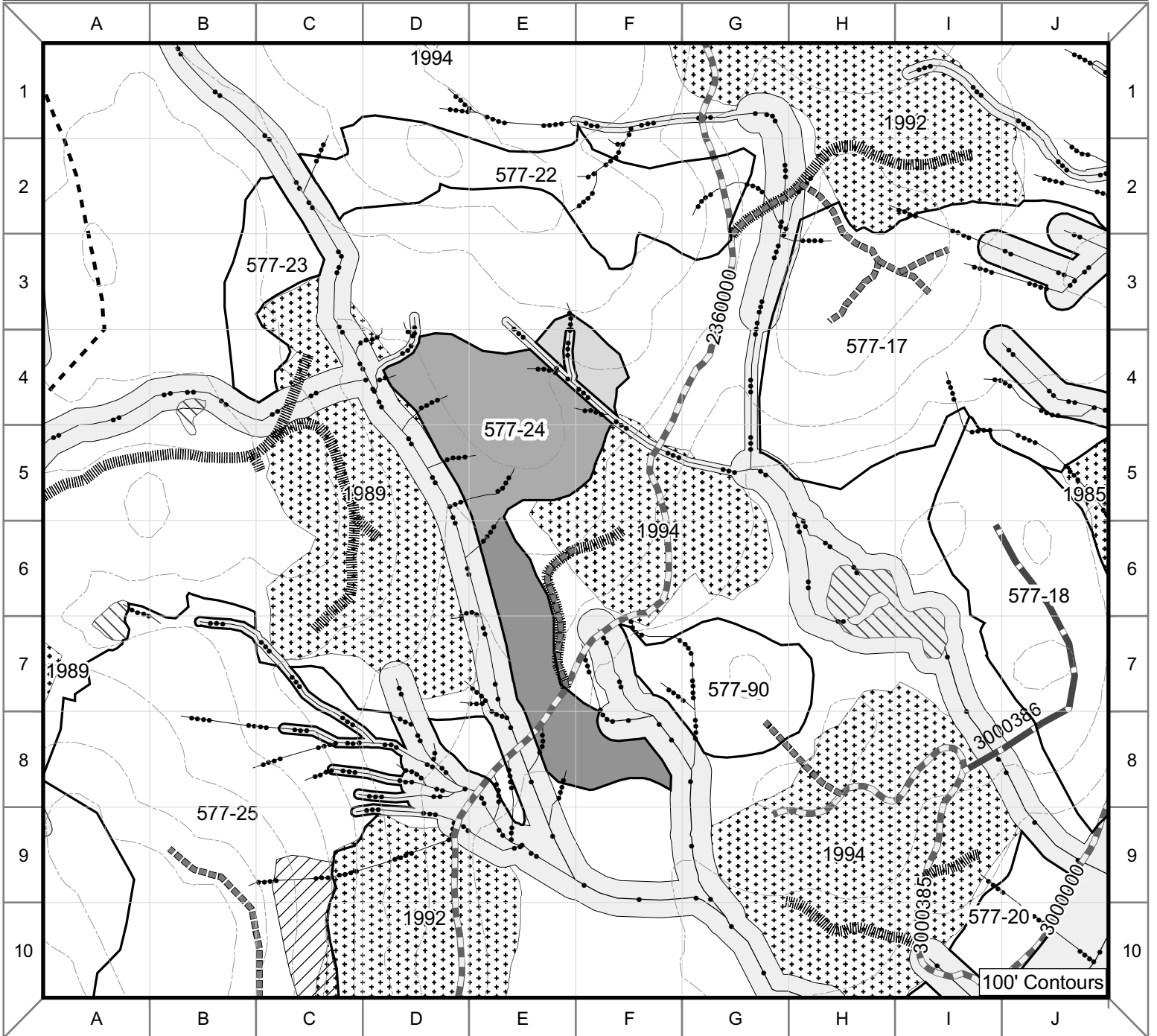
Concerns in Alternative 3 are – Drop unit. Cumulative effects in Logjam watershed; Blowdown concerns in the northern half of unit; Fish stream in north half of unit; Poor economics.

Concerns in Alternative 4 are – Drop unit. Poor economics, high road construction costs for marginal timber volume/value.

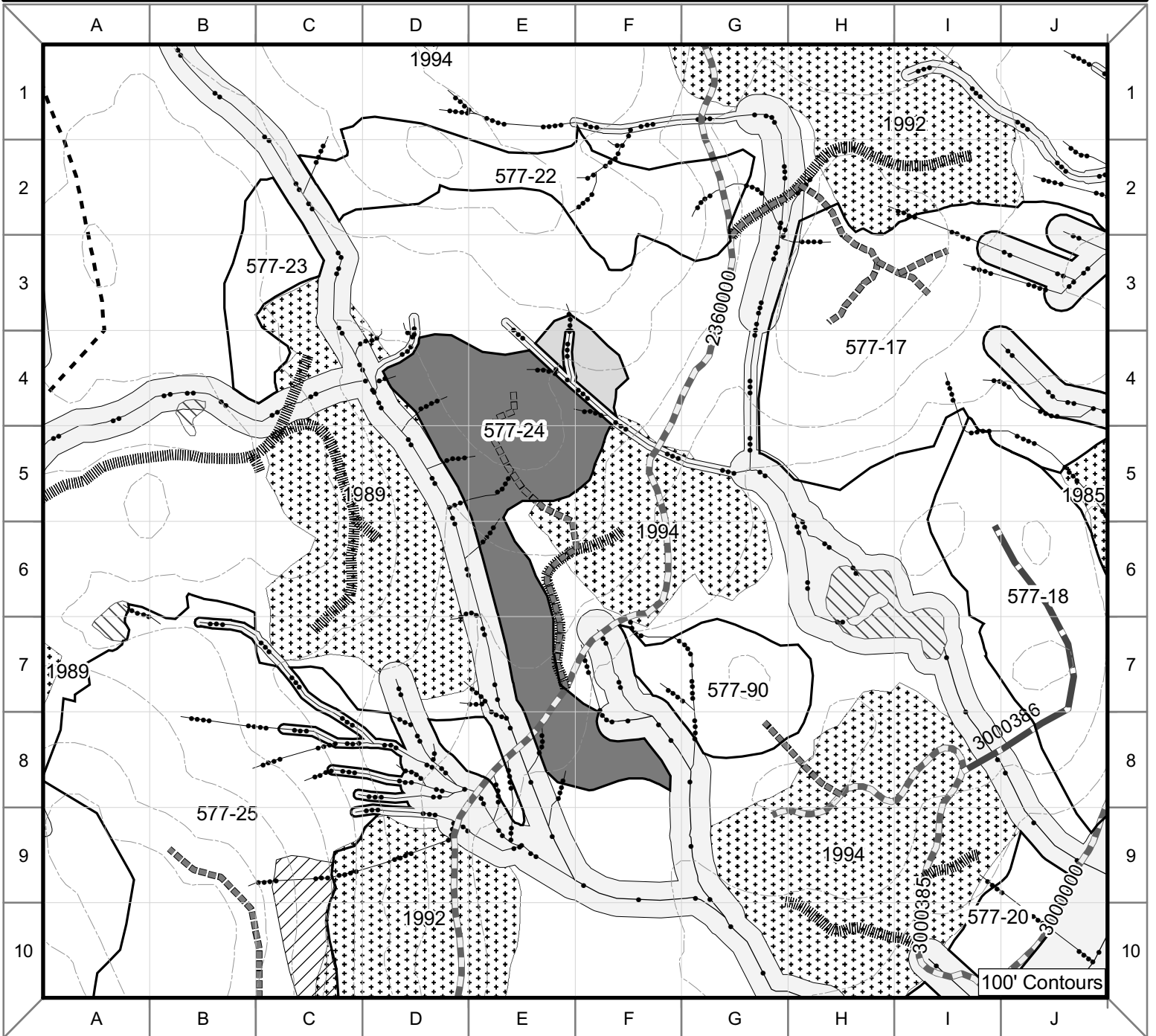
Concerns in Alternative 5 are – Drop unit. Poor economics, high road construction costs for marginal timber volume/value.

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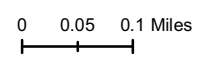




Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	



Unit 577-24 Alternatives 2, 3, 5

Unit Number: 577-24	Alternatives: 2,3, 5	Total Unit Acres: Alt. 2 – 43 Alt. 3 – 40 Alt. 5 – 40	Prescription: Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 997 Alt. 3 – 540 Alt. 5 – 975	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Narrow ridge of mature western hemlock and western redcedar, old growth structure, multi-storied stand. Sitka spruce scattered as large sawtimber. Sitka spruce is mostly along slope of west boundary. Western redcedar is medium to large sawtimber. Western hemlock is medium to small sawtimber and also makes up most of understory. Alaska yellow-cedar is patchy. Windthrow risk is high. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking (Alternative 3 north end of unit). High wind risk area, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut (Alternative 2, Alternative 3 south end of unit, Alternative 5). Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is planned for a combination of shovel, cable and helicopter yarding. Cable settings in the northern half are planned for uphill yarding to landings on the proposed temporary spur of NFSR 2360. Shovel settings are planned for yarding to the proposed temporary road and to existing NFSR 2360. The northeastern corner of the unit is isolated by a class III stream and can be helicopter yarded to a landing on the proposed temporary road.

In Alternative 3 this unit is planned for a combination of shovel and helicopter yarding. A southern setting adjacent to existing NFSR 2360 is planned for shovel yarding to that road. The northern setting is planned for helicopter yarding to landings on NFSR 2360. The northeastern corner of the unit is isolated by a class III stream and is planned for deferral.

In Alternative 5 this unit is planned for a combination of shovel and cable yarding. Cable settings in the northern half are planned for uphill yarding to landings on the proposed temporary road. Shovel settings are planned for yarding to the proposed temporary road and to existing NFSR 2360. The northeastern corner of the unit is isolated by a class III stream and is planned for deferral.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2 and 5 - accessed by temporary road 2,400 feet in length. Alternative 3 – accessed by temporary road 750 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: Population of Canada thistle located along 2360 just north of unit

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

Stream#: 577-24-1 Location: F9, E9, E8, E7, E6, D6, D5, D4, C4
Class: I, II Flagging: B/W C-type: MC2, HC3
Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-24/90-1.1R Location: G9, G8, F8, F7
Class: I, II Flagging: B/W C-type: MM1, PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-1.1R.2L Location: F8, F7
Class: I, IV Flagging: B/W, G/W C-type: MM1, MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-24-1.8R Location: D4, D3
Class: III Flagging: O/W C-type: HC1
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to top of side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 577-24-2 Location: F5, F4, E4, E3
Class: III Flagging: O/W C-type: HC4
Concerns: moderate blow down along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to top of side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 577-24-2.2R Location: E4, E3
Class: III, IV Flagging: O/W, G/W C-type: HC4, HC1
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to top of side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-24: Alternatives 2, 3, and 5 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

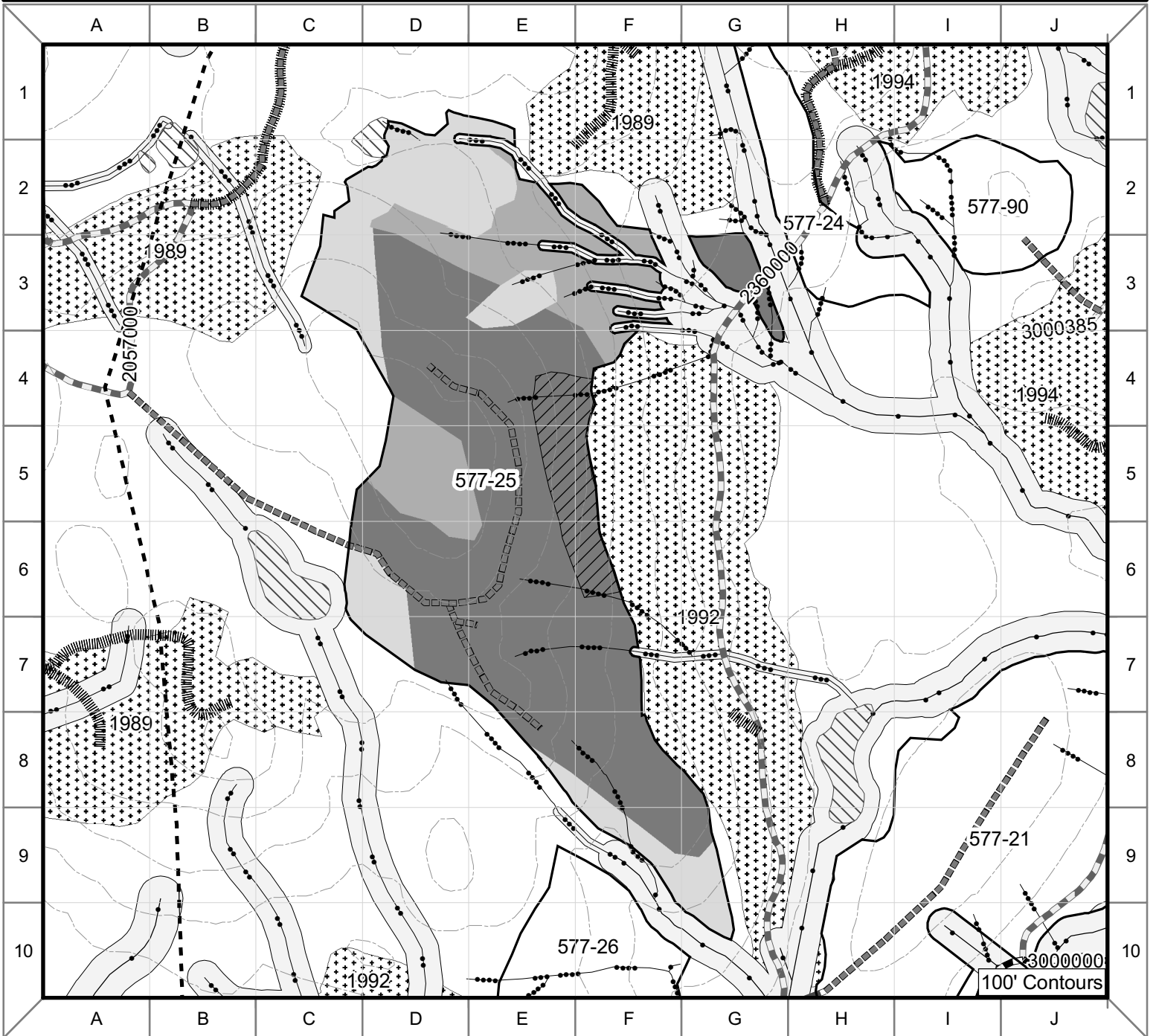
Slopes range from 20 to 60%. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands, shrub-scrub and emergent short sedge occupy 60% of the unit. The proposed temporary road would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Heli harvest north half with a partial cut, 50% retention; Shovel yard south portion; Provide RAW along Class I in southeast corner during pre-harvest unit lay-out. Severe windthrow in the west corner of unit (Class IV streams); Multiple Class III's along the northwest edge that drain into a Class II – potential water quality concerns; Blowdown concerns along a Class I stream in southeast corner.

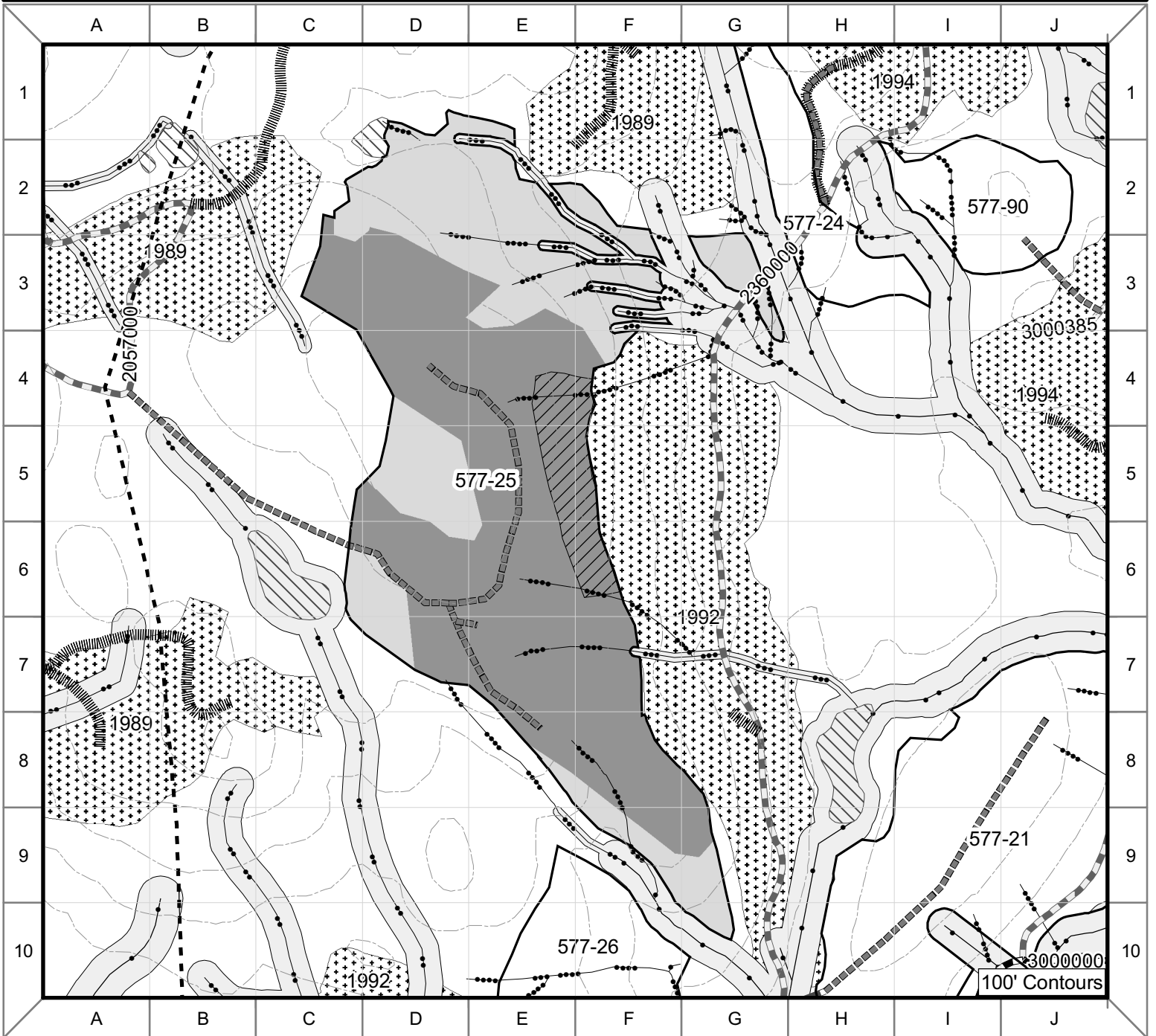
Concerns in Alternative 4 are – Drop unit. Proposed unit will block north –south travel corridor; Population of Canada thistle located along 2360 road just N of unit.

Concerns in Alternative 5 are the cost of road construction for marginal timber volume/ value.



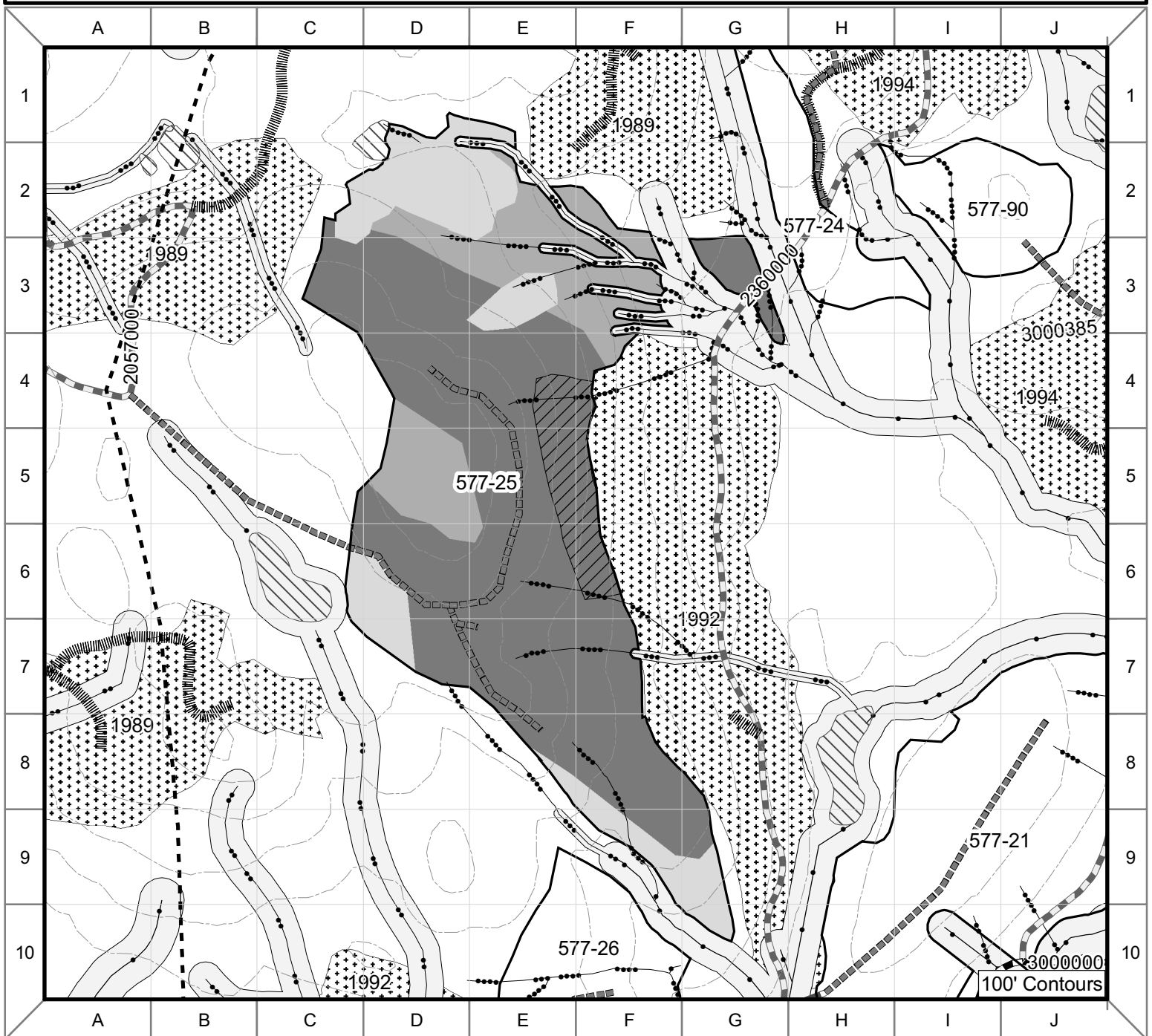
Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit Logging System	Class II Stream
Riparian Management Area	Decom. Temp Road	Helicopter	Class III Stream
Unsuitable Soils	Proposed System Road	Shovel or Cable	Class IV Stream
Slope > 72%	Proposed Temp Road	Deferred or Reserved From Harvest Area	Lake
Other Ownership			

0 0.05 0.1 Miles



--- Project Area Boundary	— Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
••• Past Harvest	— Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	Decom. Temp Road	Logging System	~ Class III Stream
••• Unsuitable Soils	— Proposed System Road	■ Helicopter	~ Class IV Stream
/// Slope > 72%	— Proposed Temp Road	■ Shovel or Cable	~ Lake
□ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-25 Alternatives 2,3,4,5

Unit Number: 577-25	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 122 Alt. 3 – 97 Alt. 4 – 97 Alt. 5 – 128	Prescription Clearcut/ Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 2,712 Alt. 3 – 2,579 Alt. 4 – 2,579 Alt. 5 – 2,876	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth structure. Multi-storied stand dominated by mature western hemlock. Sitka spruce, Alaska yellow-cedar and western redcedar are minor species. Large Sitka spruce found in northeast corner of stand. Unit has scattered older windthrow through out. Harvest area to the east is affecting structure in the unit, but mostly older wind history. Windthrow risk is high. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription:

The Legacy Standard and Guide will apply to the northern portion of the unit that falls within VCU 571. The proposed harvest by design is less than 20 acres in this VCU so no modifications are required.

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk area, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for a combination of shovel, cable and helicopter yarding. Access is planned from the west by a proposed temporary extension of NFSR 2057. Cable settings are planned for uphill and downhill yarding to the proposed temporary road. Areas within the unit that cannot be yarded using cable or shovel are planned for helicopter yarding to landings on the proposed temporary road.

In Alternatives 3 and 4 this unit is planned for a combination of shovel and cable yarding. Access is planned from the west by a proposed temporary extension of NFSR 2367. Cable settings are planned for uphill and downhill yarding to the proposed temporary road. Northern and western portions of the unit are planned for deferral.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3 and 4 - accessed by temporary roads 5,800 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-25-1 Location: I4, H4, H3, G3, G2, G1
Class: I Flagging: B/W C-type: MC1

Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 577-25-1.2L Location: H4, G4, G3, F3, F2, E2, D1
Class: II, III Flagging: B/W, O/W C-type: MM1, HC2, HC5, HC1
Concerns: The stream originates from a cave opening.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 120ft. (for MM1) and 100ft. (for HC2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.
Alternatives 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 and 4 RAW Buffer: none

Stream#: 577-25-1.2L.1L Location: G4, G3, F3
Class: II, III Flagging: B/W, O/W C-type: HC2, HC5
Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: reach a minimum of 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: reach to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25-1.2L.3L Location: G3, F3, E3
Class: II, III, IV Flagging: B/W, O/W, G/W C-type: HC2, HC5, HC0
Concerns: Stream originates from a limestone cavity.
Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25-1.2L.3L.1L Location: G3, F3
Class: II, III Flagging: B/W, O/W C-type: HC2, HC5
Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25-1.2L.4R Location: G3, F3, F2
Class: II Flagging: B/W C-type: HC2
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9) RMA Buffer: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 and 4 RAW Buffer: none

Stream#: 577-25-1.2L.5L Location: F3, E3, D3, D2
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25-4 Location: F7, E7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25/26-5 Location: G10, F10, F9, E9, E8, D7
Class: II, III, IV Flagging: B/W, O/W, G/W C-type: HC2, HC5, HC0
Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25-6 Location: D1
Class: IV Flagging: O/W C-type: MM1
Concerns: Stream is the outlet of Lake 1 and flows into a karst formation.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: to the top of side slope break.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-25: All alternatives — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: The northwestern ¼ of harvest unit 577-25 is underlain by limestone into which karst drainage has developed. The high vulnerability karst areas in the northerwestern portion of the unit were removed, buffered by 100-foot no-harvest buffer plus windfirmness. If additional significant features are identified during unit layout, a Resource Geologist will be contacted to determine the appropriate mitigation measures. Partial suspension is required in the moderate vulnerability karst areas, located between the two areas of high vulnerability, to protect shallow mineral and organic soils.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes range from 20 to >72%. There are 10 acres of slopes >72% suitable for harvest with full suspension requirements. Full suspension, partial suspension, and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetland complexes cover greater than 50% of the unit. The proposed temporary road would cross 7.5 acres of forested wetland/emergent short sedge complex and 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

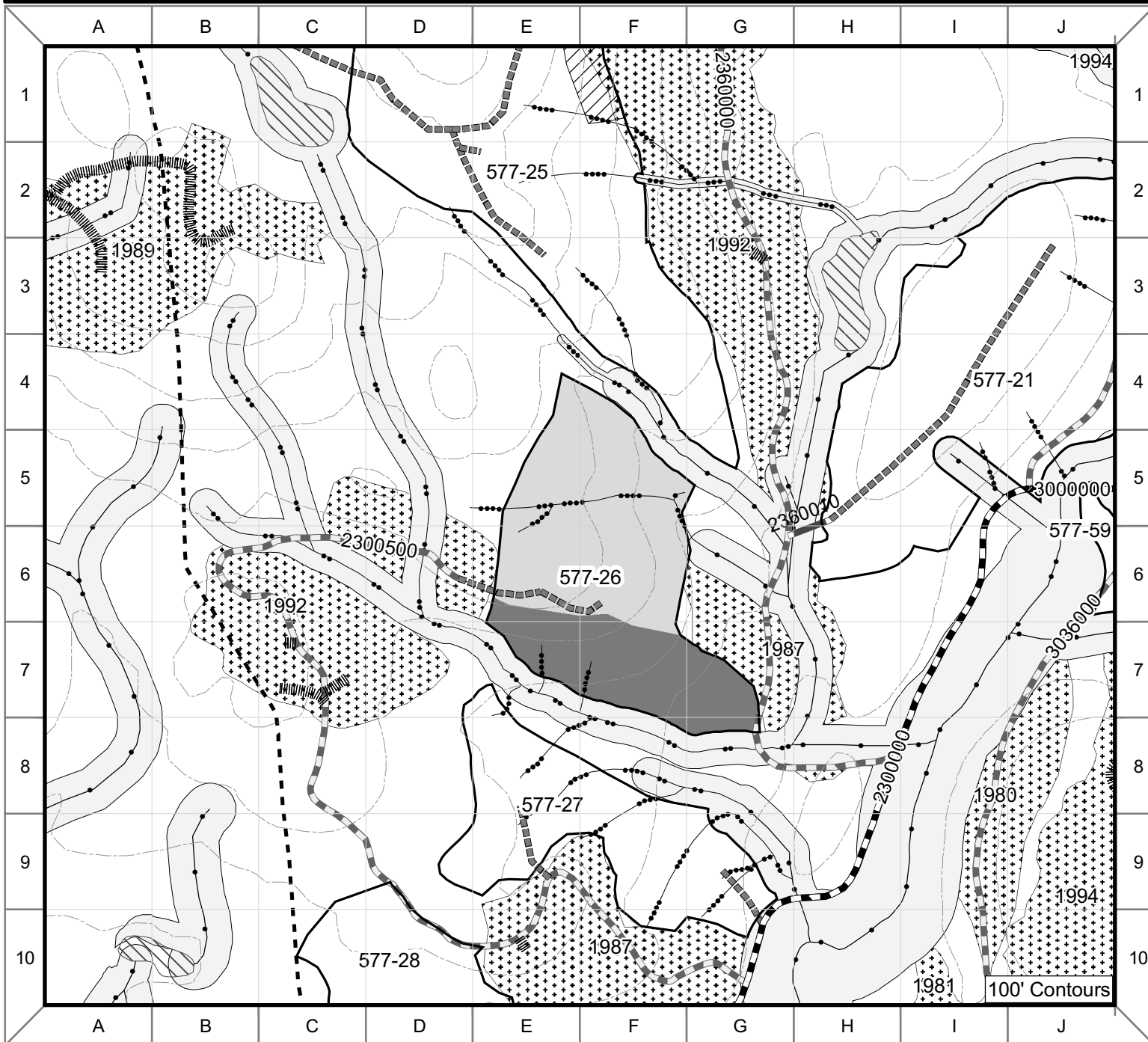
COMMENTS: Concerns in Alternative 2 are - Helicopter partial cut northern portion and area on central knob. Defer low volume and inoperable areas along south boundary to keep opening <100ac.

Concerns in Alternative 3 are - Defer low volume and inoperable areas along south boundary on central knob to keep opening <100ac Drop north portion of unit where the Class III stream channel resides and karst is present; Provide windfirm buffer along Class I stream in southwest corner.

Concerns in Alternative 4 are - Drop northern portion of unit to maintain west-east travel route along northern edge of unit; Drop small southern sliver of unit to maintain west-east travel route along southern edge of unit; These corridors maintain access to OGR.

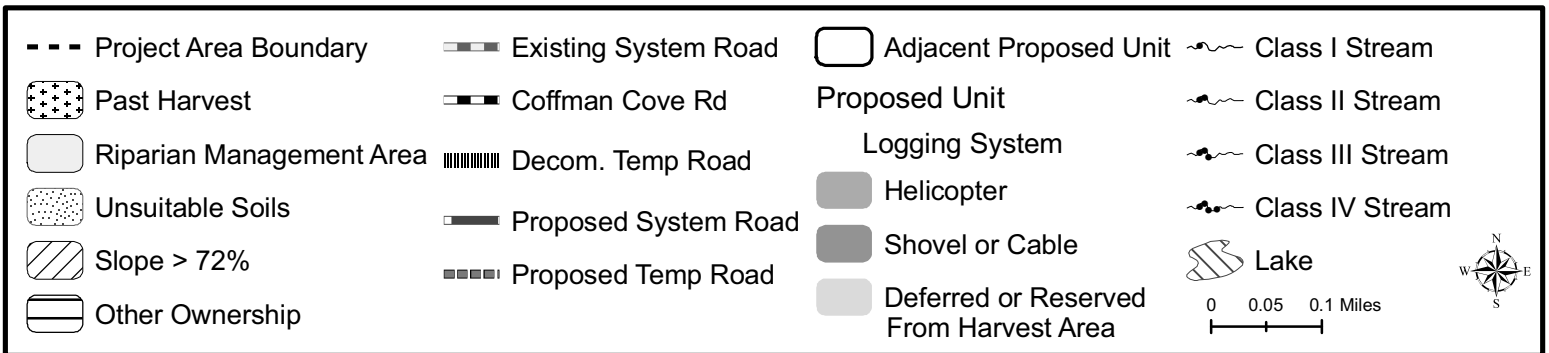
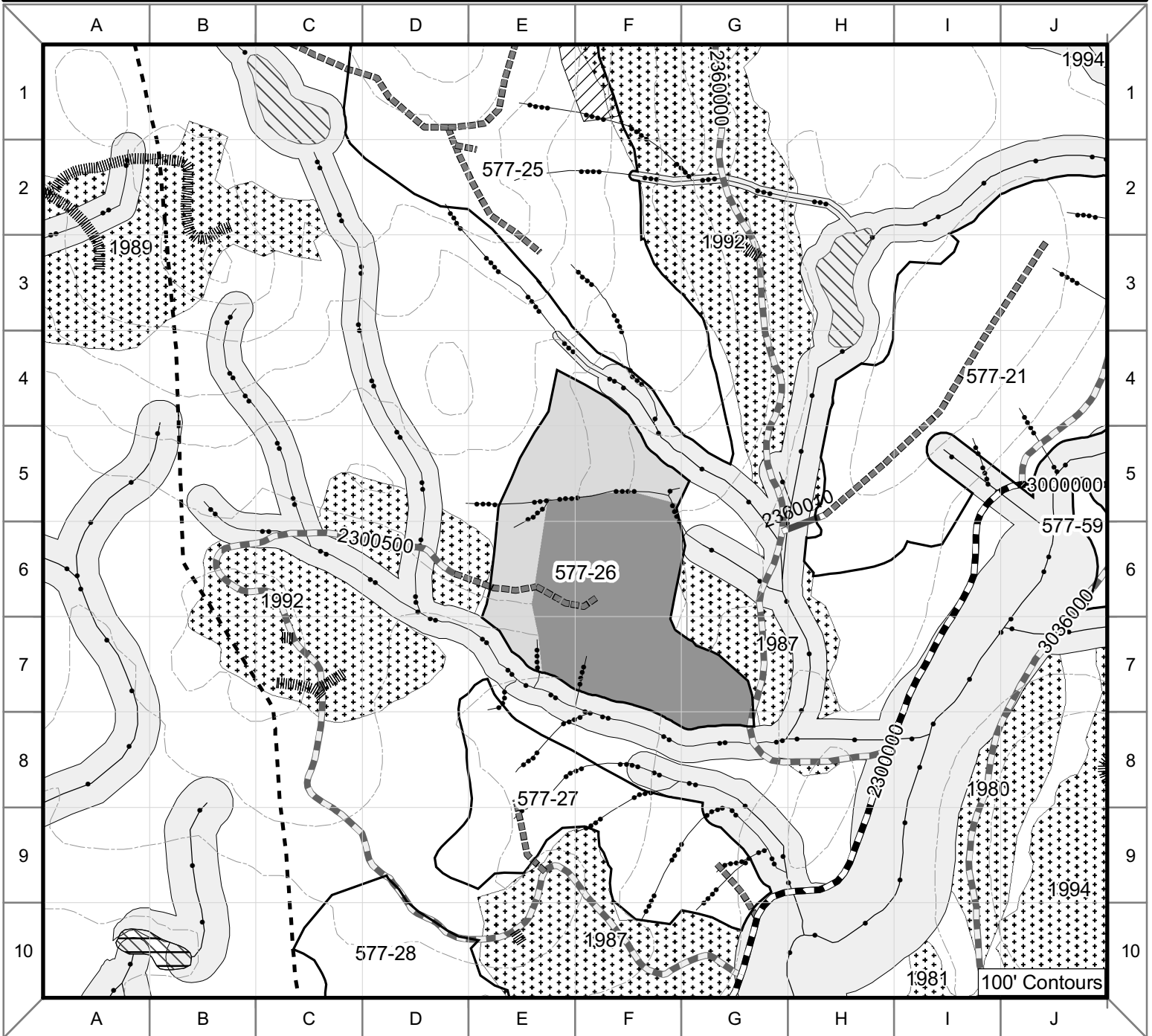
Concerns in Alternative 5 are - Helicopter partial cut northern portion and area on central knob. Defer low volume and inoperable areas along south boundary to keep opening <100ac.

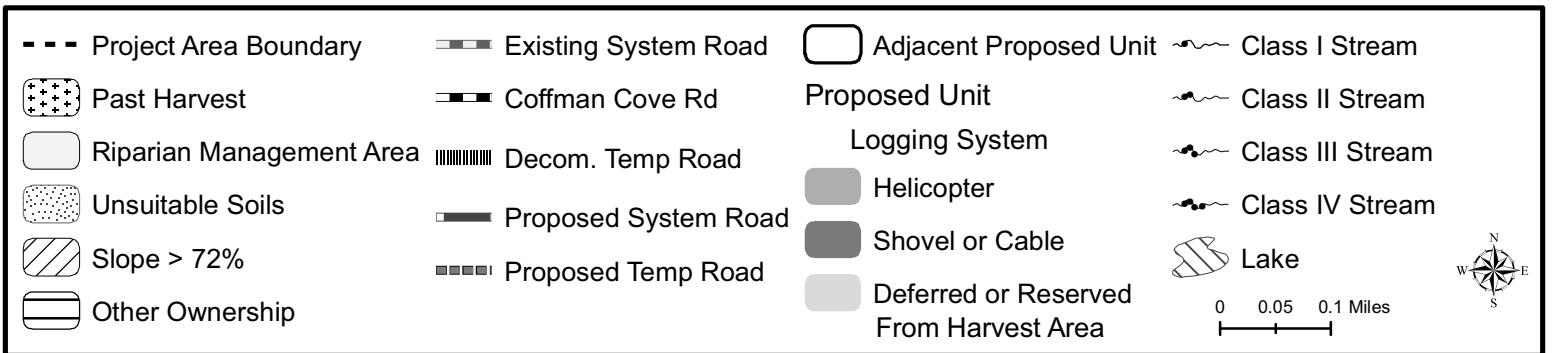
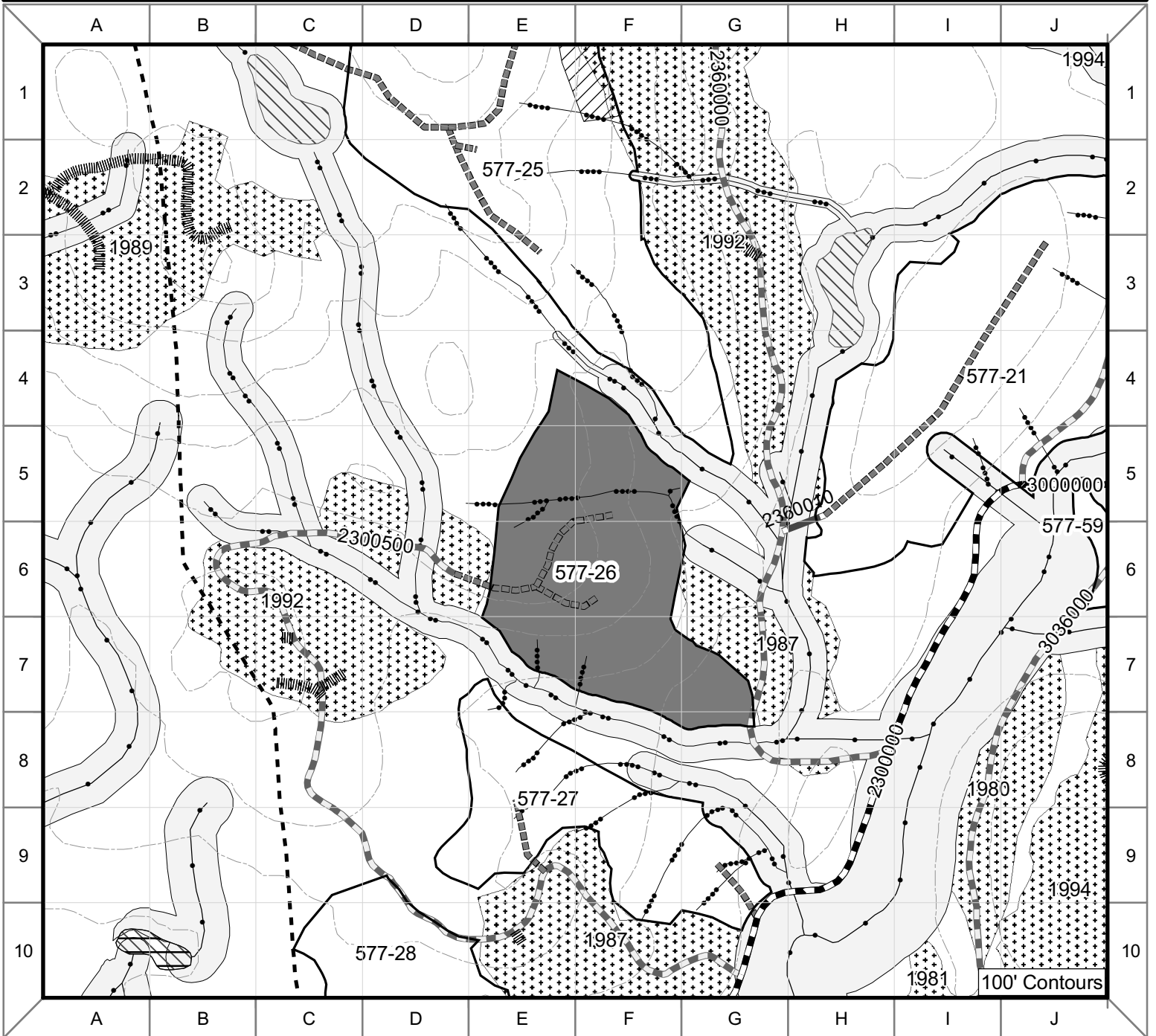
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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles





Unit 577-26 Alternatives 2, 3, 4, 5

Unit Number: 577-26	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 18 Alt. 3 – 31 Alt. 4 – 31 Alt. 5 – 51	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 445 Alt. 3 – 769 Alt. 4 – 769 Alt. 5 – 1,211	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature old growth stand with high defect. Moderately stocked overstory with well stocked understory. Mid-story is primarily pole to small sawtimber sized western hemlock. Overstory is dominated by mid to large sawtimber sized western redcedar with scattered Sitka spruce. Understory is well stocked with primarily sub-merchantable western hemlock and Sitka spruce. Windthrow risk is high. Mistletoe occurrence is heavy-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for a combination of shovel and uphill cable yarding. Access is planned from the west by a temporary extension of NFSR 2300500. One shovel setting in the southeast corner of the unit is planned for shovel yarding to existing NFSR 2360. Additional cable and shovel settings are planned to the north for Alternatives 3, 4 and 5. These settings are largest in Alternatives 5 and will be accessed with an additional temporary spur road. Alternative 5 also includes one downhill cable setting in the northern portion of the unit.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, and 4 – accessed by temporary road 1,000 feet in length. Alternative 5 – accessed by temporary roads 1,700 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-26/27-1 Location: G8, F8, F7, E7, D7

Class: II Flagging: B/W C-type: HC5, MC2

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-26-2 Location: G6, F5, E5, D5

Class: IV Flagging: O/W, G/W C-type: HC1, MMO

Concerns: stored sediment and evidence of high flows.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-25/26-5 Location: G6, G5, F5, F4, E4, E3, D2
Class: II, III, IV Flagging: B/W, O/W, G/W C-type: HC2, HC5, HC0
Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-26: All Alternatives — no known stream crossings. If any stream crossings are found, all crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

Alternatives 2,3 ,4: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Alternative 5: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. Slopes range from 40 to 70%. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands cover most of the unit with minimal pockets of emergent sedge. The proposed temporary road would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

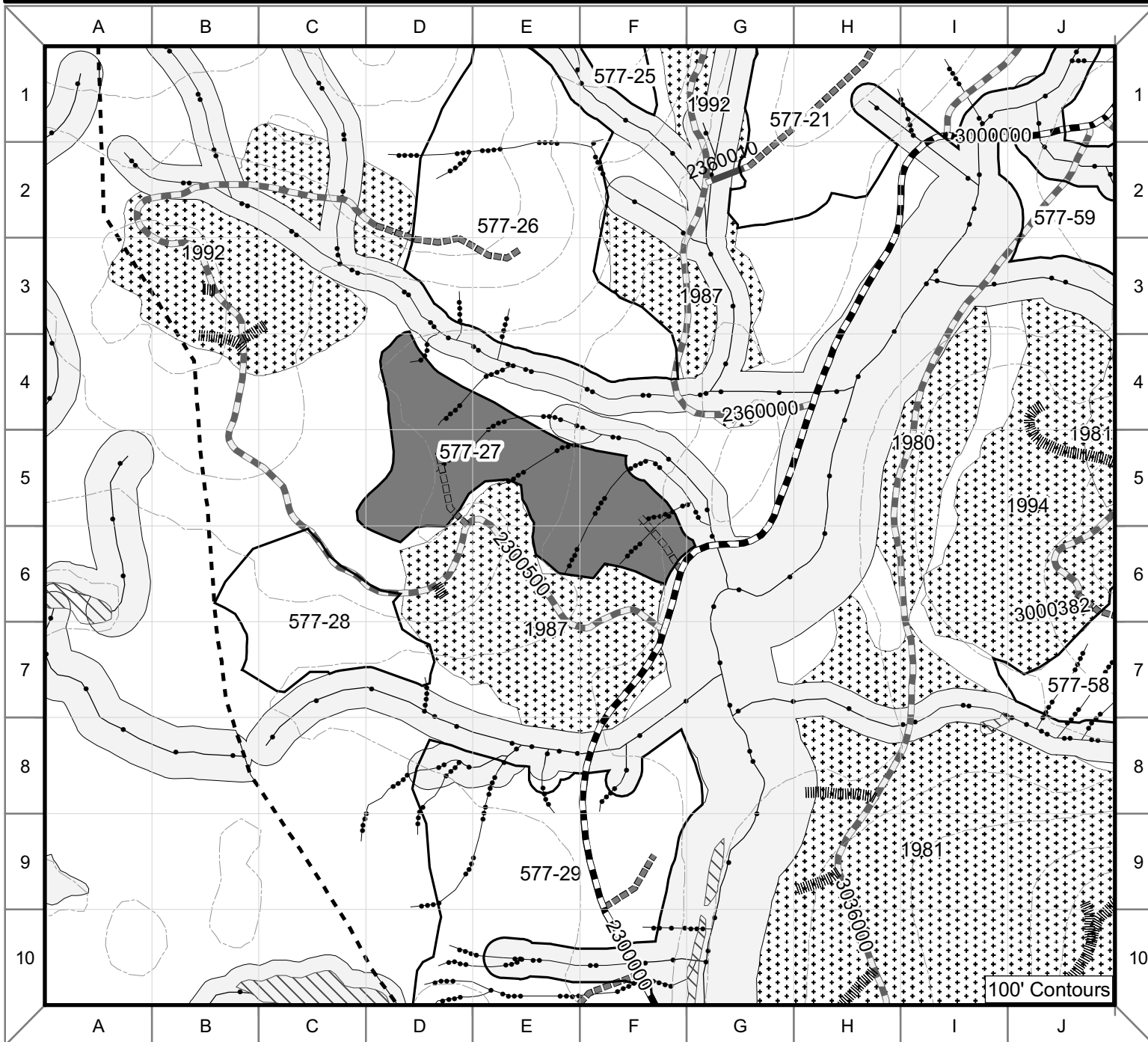
COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.

Concerns in Alternative 3 are - Harvest Unit 26 as planned; Add setting 26A, but drop the northern half and western edge. No concerns identified in Unit 26; Class III stream channel located in the northern portion of the unit 26a; Wet soils found in the western edge.

Concerns in Alternative 4 are - Harvest Unit 26 as planned; Add setting 26A, but drop the northern half to allow-east west travel and western edge for north/south travel.

Concerns in Alternative 5 - Harvest Unit 26 as planned; Add setting 26A. Additional volume adjacent to proposed unit-- logical setting is larger than proposed.

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	▨ Proposed Unit Logging System	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	■ Helicopter	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Shovel or Cable	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Deferred or Reserved From Harvest Area	○ Lake
▤ Other Ownership			

0 0.05 0.1 Miles

Unit 577-27 Alternatives 2, 3, 5

Unit Number: 577-27	Alternatives: 2,3,5	Total Unit Acres: 34	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): 763	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature Old Growth structured stand. Alaska yellow-cedar occurs scattered and in areas of lower productivity mainly in the SW portion of the stand. Western redcedar is well distributed and in medium to large sawtimber sizes. Western hemlock is medium to small sawtimber. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2, 3 and 5 this unit is planned for shovel yarding. Two settings are planned for access by two proposed temporary spur roads.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, and 5 - accessed by temporary roads 1,000 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-26/27-1 Location: G4, F4, E4, D4, D3

Class: II Flagging: B/W C-type: HC5, MC2

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-27-2 Location: G6, G5, F5, F4, E4, E5

Class: I, II, IV Flagging: B/W, G/W C-type: MM1, HC4, HC1

Concern: riparian area for stream is wide (50 to 70 meters) and will occasionally flood at bankfull stage.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and Class II: minimum 120ft. (for MM1) and 100ft. (for HC4) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-27-2.1L Location: G5, F5, F6, E6

Class: II, IV Flagging: B/W, G/W C-type: MM1, HC0

Concern: located in the same riparian area as stream 2.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

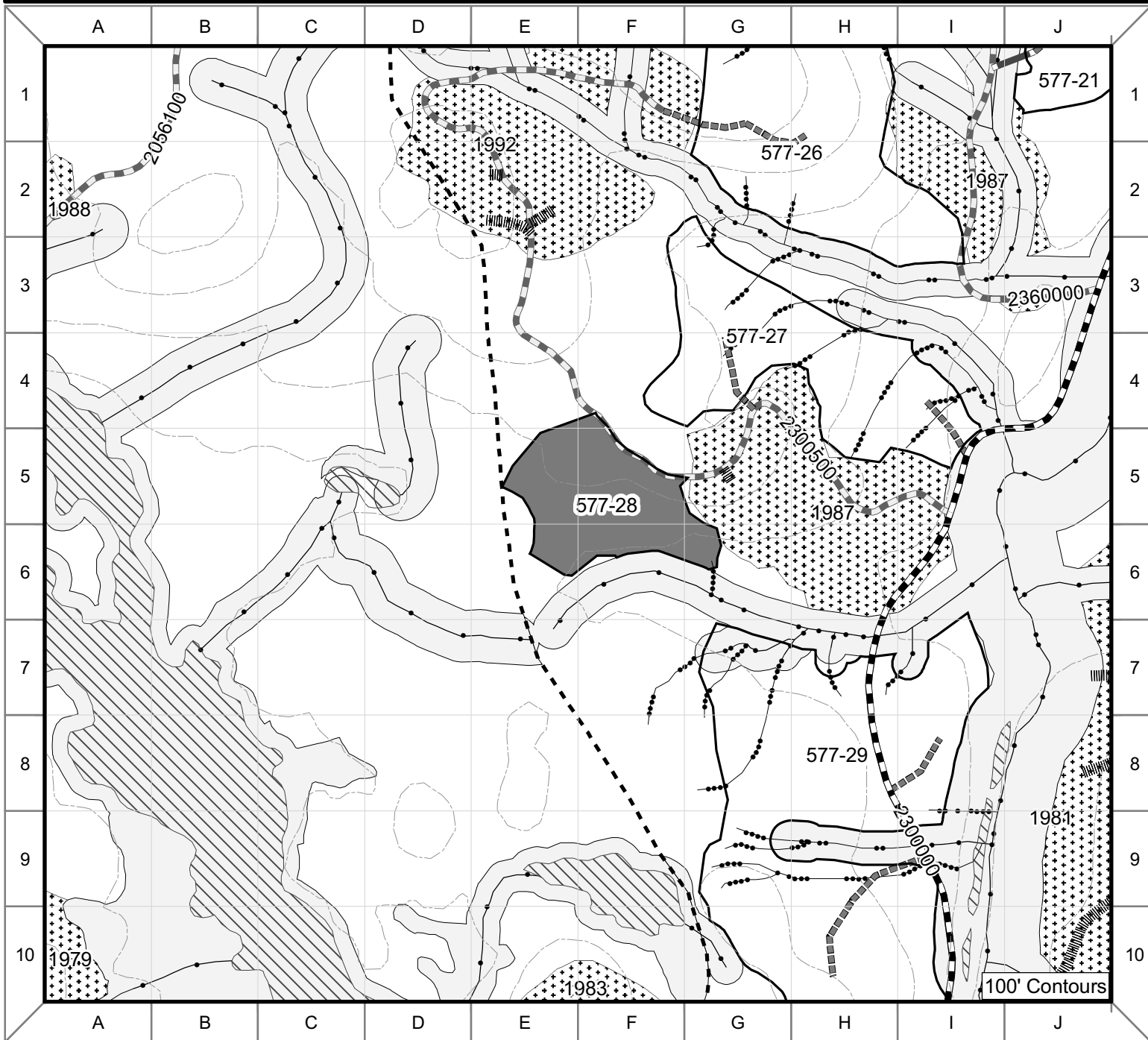
RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

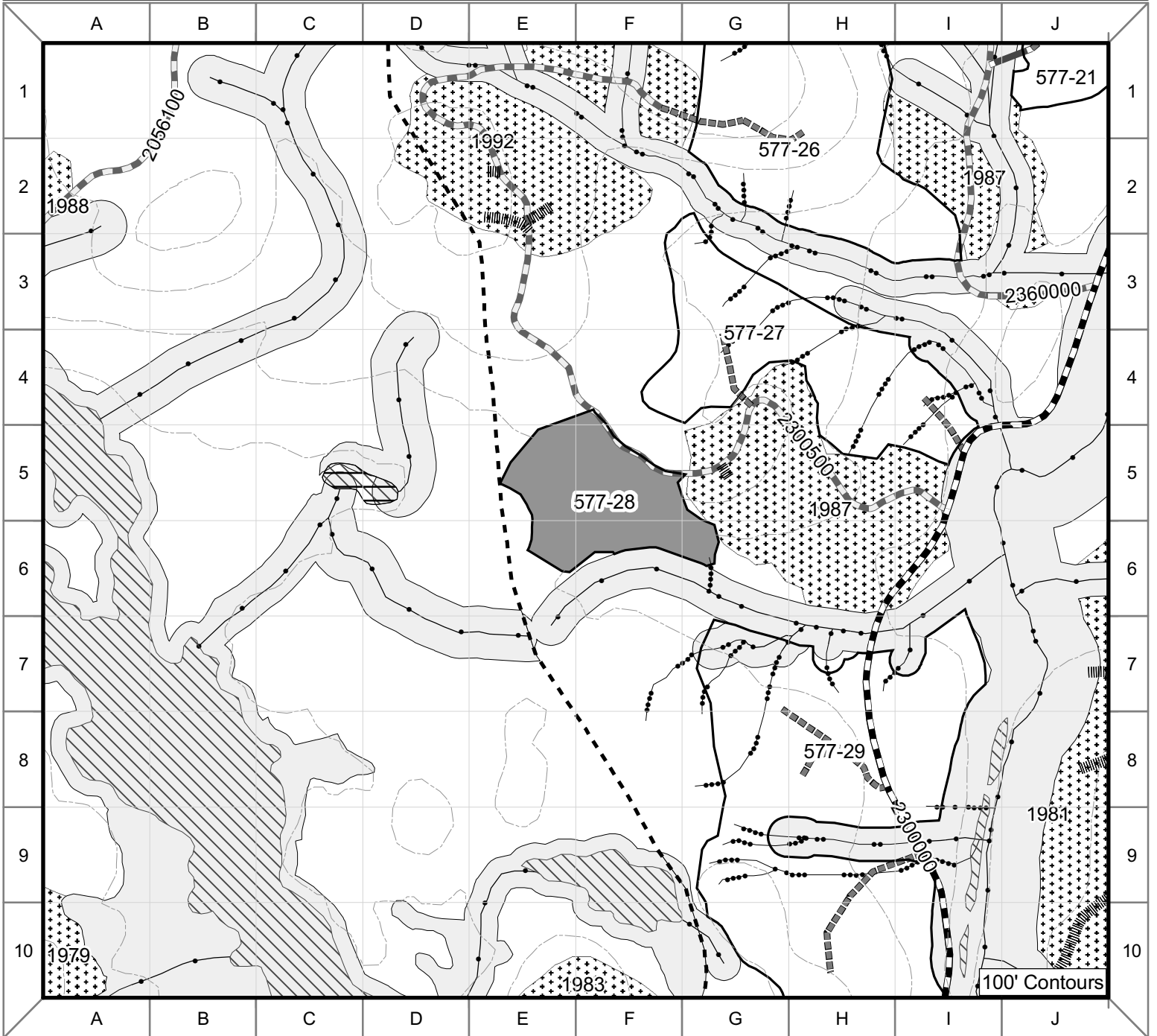
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

<p>All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM RMA Buffer: none RAW Buffer: none Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9). Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.</p> <p>Temporary roads for unit 577-27: Alternatives 2, 3, and 5 — Three Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).</p>
<p>GEOLOGY/KARST: No geology or karst resource concerns:</p>
<p>HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.</p>
<p>SCENERY: Scenic Integrity Objectives for this unit is Low. The unit is within Timber Management LUD and is seen within Foreground distance zone from VPR Coffman Highway view point 12. Leave screen trees as indicated in the harvest prescription.</p>
<p>RECREATION: No concerns</p>
<p>SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.</p> <p>Slopes are mostly 30 to 45% with the exception of a small area of 65% slopes above the floodplain in the eastern section of the unit. Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. About 75% of the unit contains forested wetlands and emergent short sedge complexes. The proposed temporary road would cross about 1 acre of forested wetland and forested wetland/emergent short sedge complex (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).</p>
<p>WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.</p>

<p>COMMENTS: Concerns in Alternative 3 are - Add a RAW stream channel buffer to south side of the Class I stream during unit lay-out phase.</p> <p>Concerns in Alternative 4 are - Drop unit. Proposed unit will block west-east travel route; Pick best economical of units 26 or 27 to harvest and drop the other one; Unit as proposed is near OGR.</p> <p>Concerns in Alternative 5 are - Question regarding visuals; Marginal Timber.</p>

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-28 Alternatives 2, 3, 4, 5

Unit Number: 577-28	Alternatives: 2,3,4,5	Total Unit Acres: 19	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): 425	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature old growth stand with average defect. Moderately stocked overstory of western hemlock with large scattered western redcedar and some Sitka spruce. Western redcedar & Sitka spruce are mostly med to large sawtimber, western hemlock is mostly small sawtimber and sub-merchantable and makes up the mid and understory of the stand. Alaska yellow-cedar occurs in areas of lower productivity in the south portion of the stand. None were sampled however. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2, 4 and 5 this unit is planned for a combination of uphill cable and shovel yarding to proposed landings on existing NFSR 2300500. In Alternative 3 this unit is planned entirely for uphill cable yarding.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-28-1 Location: G6, F6, E6, E7
 Class: I Flagging: B/W C-type: PA1, MM1
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
 Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

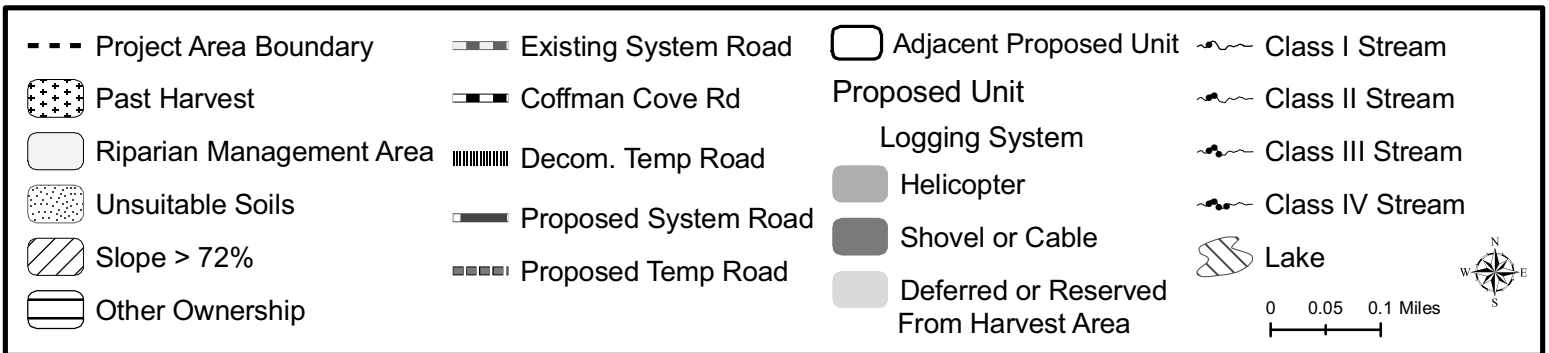
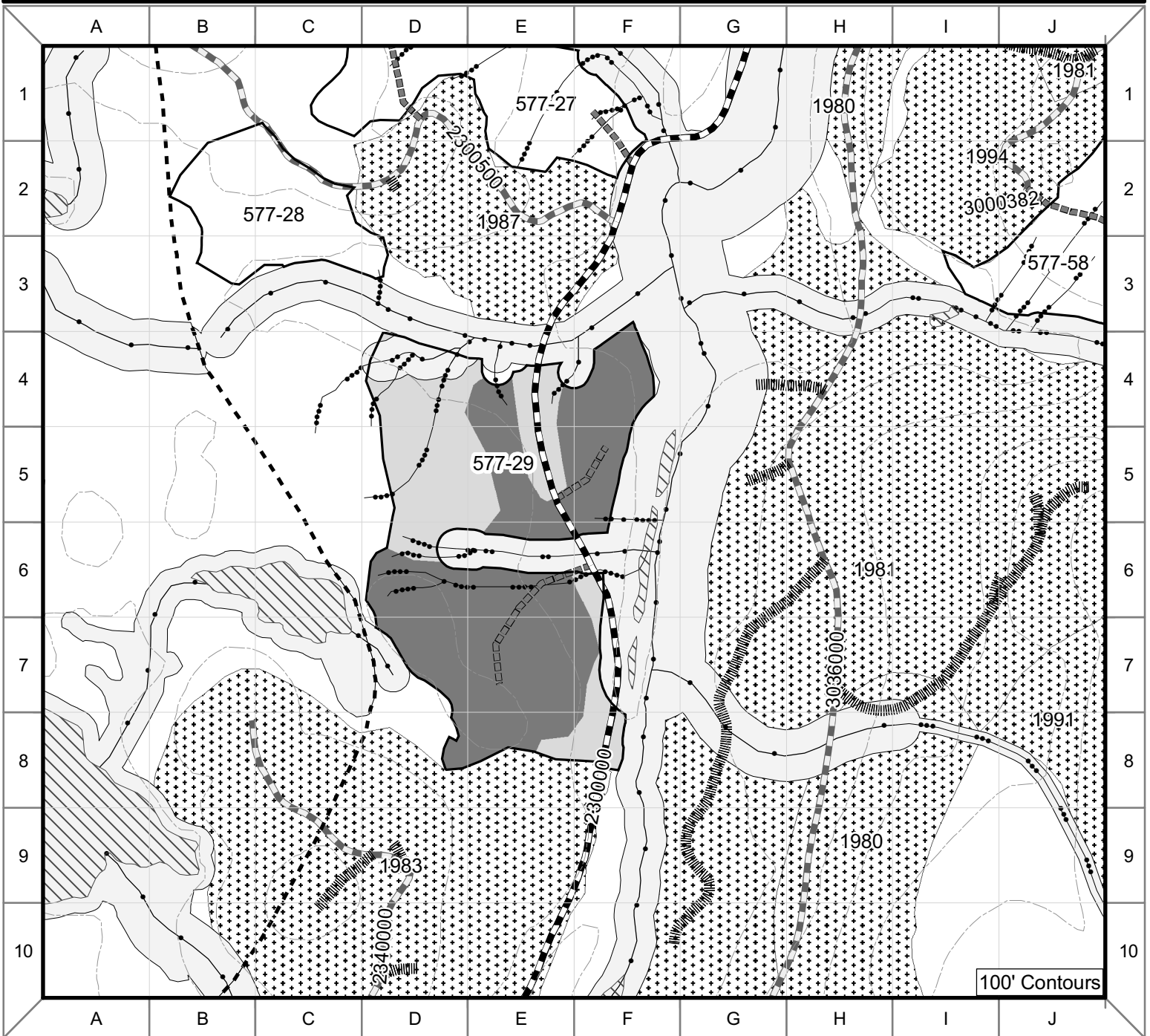
RECREATION: No concerns

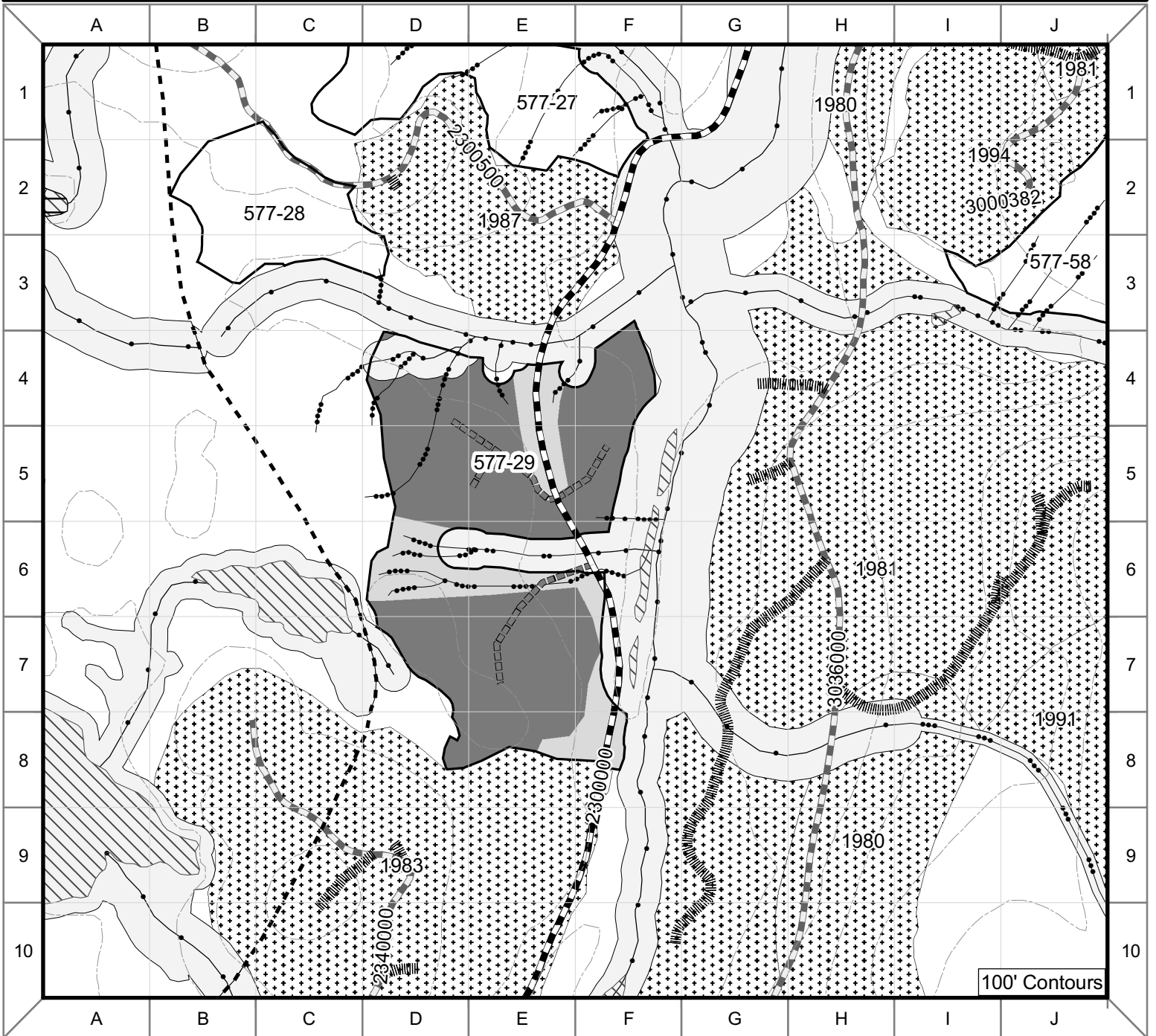
SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline

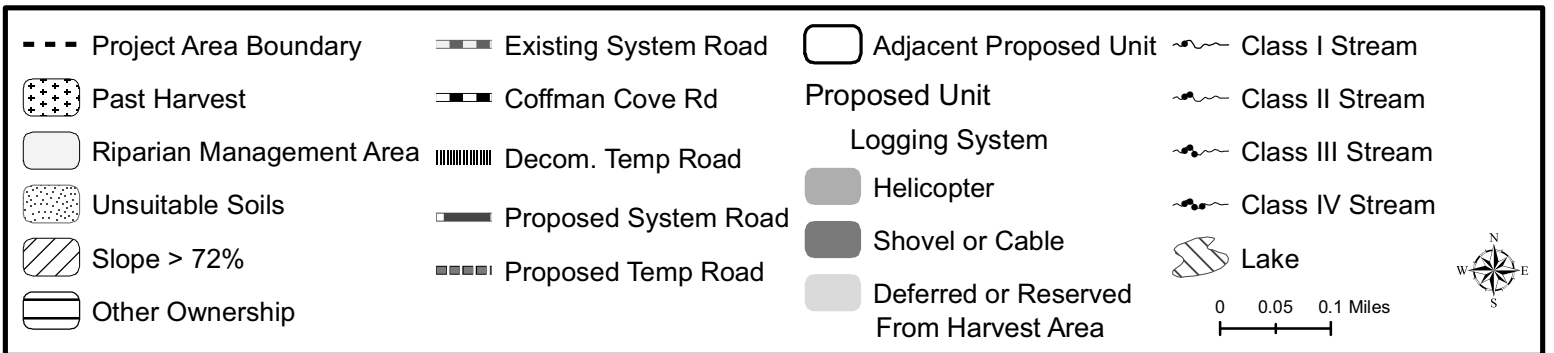
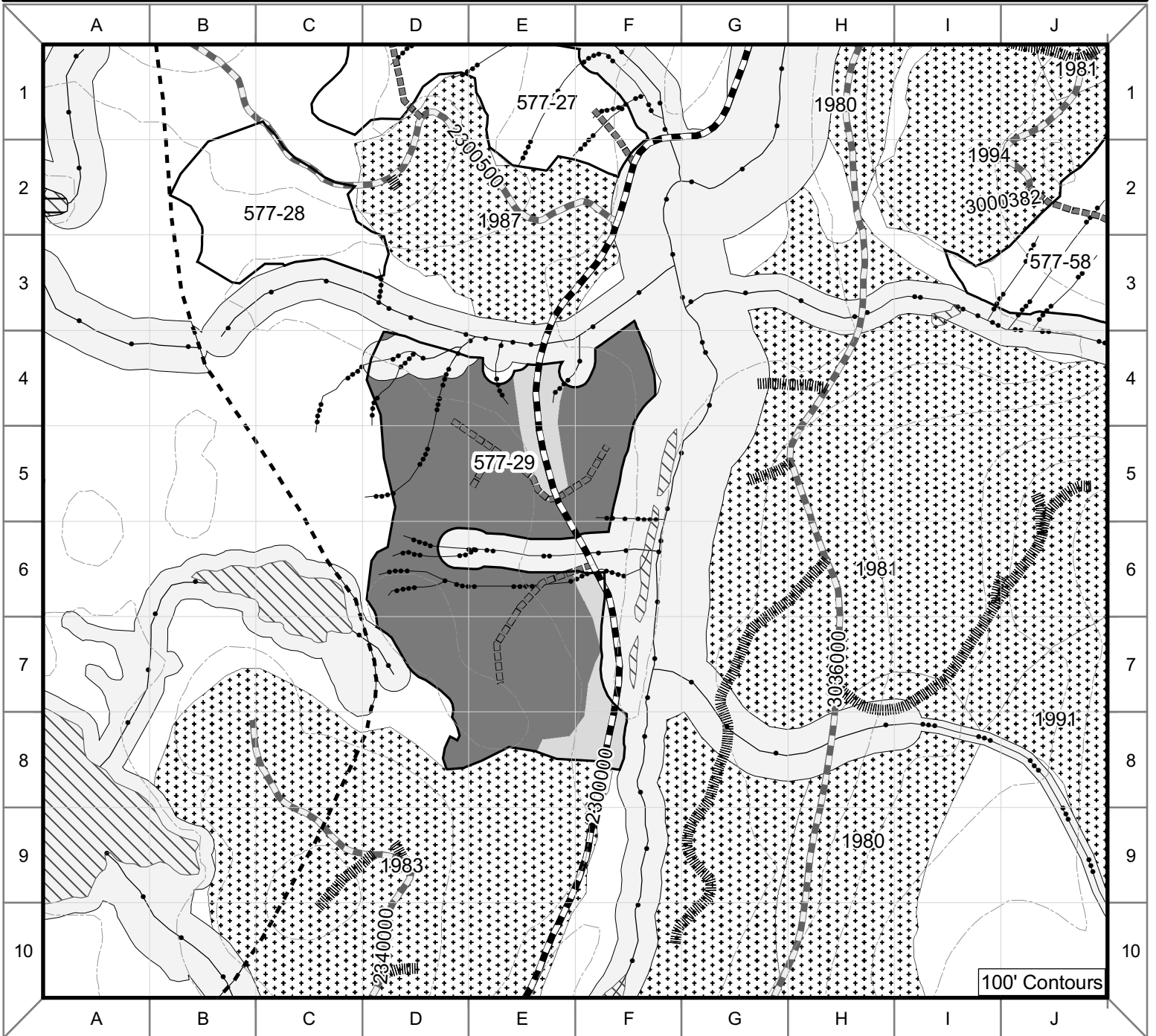
applications.

COMMENTS: Concerns in Alternative 4 are - Dropped areas from adjacent units to maintain access to OGR





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles



Unit 577-29 Alternatives 2, 3, 4, 5

Unit Number: 577-29	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 50 Alt. 3 – 50 Alt. 4 – 62 Alt. 5 – 70	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,507 Alt. 3 – 1,469 Alt. 4 – 1,820 Alt. 5 – 2,042	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Smaller diameter hemlock stand with scattered western redcedar. Some scattered Sitka spruce. Areas of open muskeg noted in upper elevations. Understory is mostly hemlock with some Sitka spruce. Older windthrow evident at top of unit. Windthrow risk is high. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall. Leave reserve trees for screening FR 23.

TIMBER/LOGGING: In all action alternatives this unit is planned for shovel yarding to proposed temporary spurs of NFSR 30.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 and 3 – accessed by temporary roads 1,600 feet in length. Alternatives 4 and 5 – accessed by temporary roads 2,800 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: Potential sensitive plant in unit

INVASIVE SPECIES: No concerns

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

Stream#: 577-29-1 Location: F2, F3, G3, G4, G5, F5, F6, F7, F8

Class: I Flagging: B/W C-type: FP5

Concerns: This stream is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-29-1.1R Location: F3, F4, E4, D4, D3

Class: I Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 RAW Buffer: none

Stream#: 577-29-1.1R.1L Location: E4

Class: I, IV Flagging: B/W, G/W C-type: MM0, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-29-1.1R.2L Location: E4, D4, D5
Class: I, IV Flagging: B/W, G/W C-type: MM0, HC0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-29-1.1R.2L.1R Location: E4, D4, C4, C5
Class: I, II, IV Flagging: B/W, G/W C-type: MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-29-1.1R.3L Location: F4, E4
Class: I, IV Flagging: B/W, G/W C-type: MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-29-1.3R Location: F6, E6, D6
Class: I, II, IV Flagging: B/W, G/W C-type: HC5, MM1, HC1
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 100ft. (for HC5 and HC1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-29-2 Location: D7, C7
Class: I Flagging: B/W C-type: PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-29-Lake1 Location: C7, C6, B6
Class: I Flagging: B/W C-type: L
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-29: All Alternatives — One Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objective for this unit is Low. The unit is within Timber Management LUD and is seen within

Foreground distance zone from VPR Coffman Highway view point 13. Leave screen trees as indicated in the harvest prescription.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. There are no resource concerns with the proposed temporary road (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

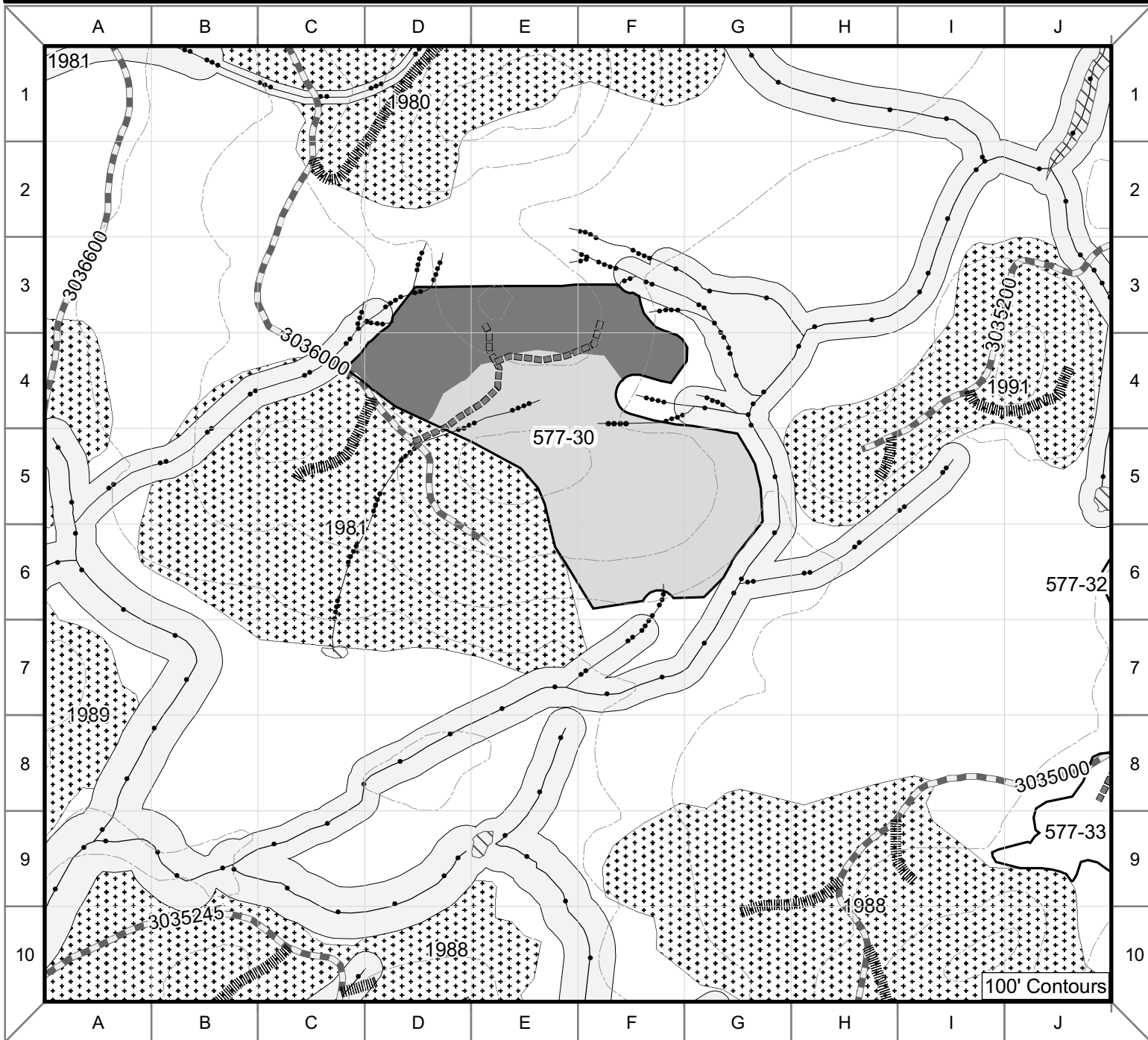
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Visuals along FS road 23.

Concerns in Alternative 3 are - Drop northeast section east of main road. Drop central section along stream F 2H; Leave visual buffer on FR 23; Provide the southern unit (east of Forest Road 2300) RMA buffer requirements for Logjam River during unit lay-out.

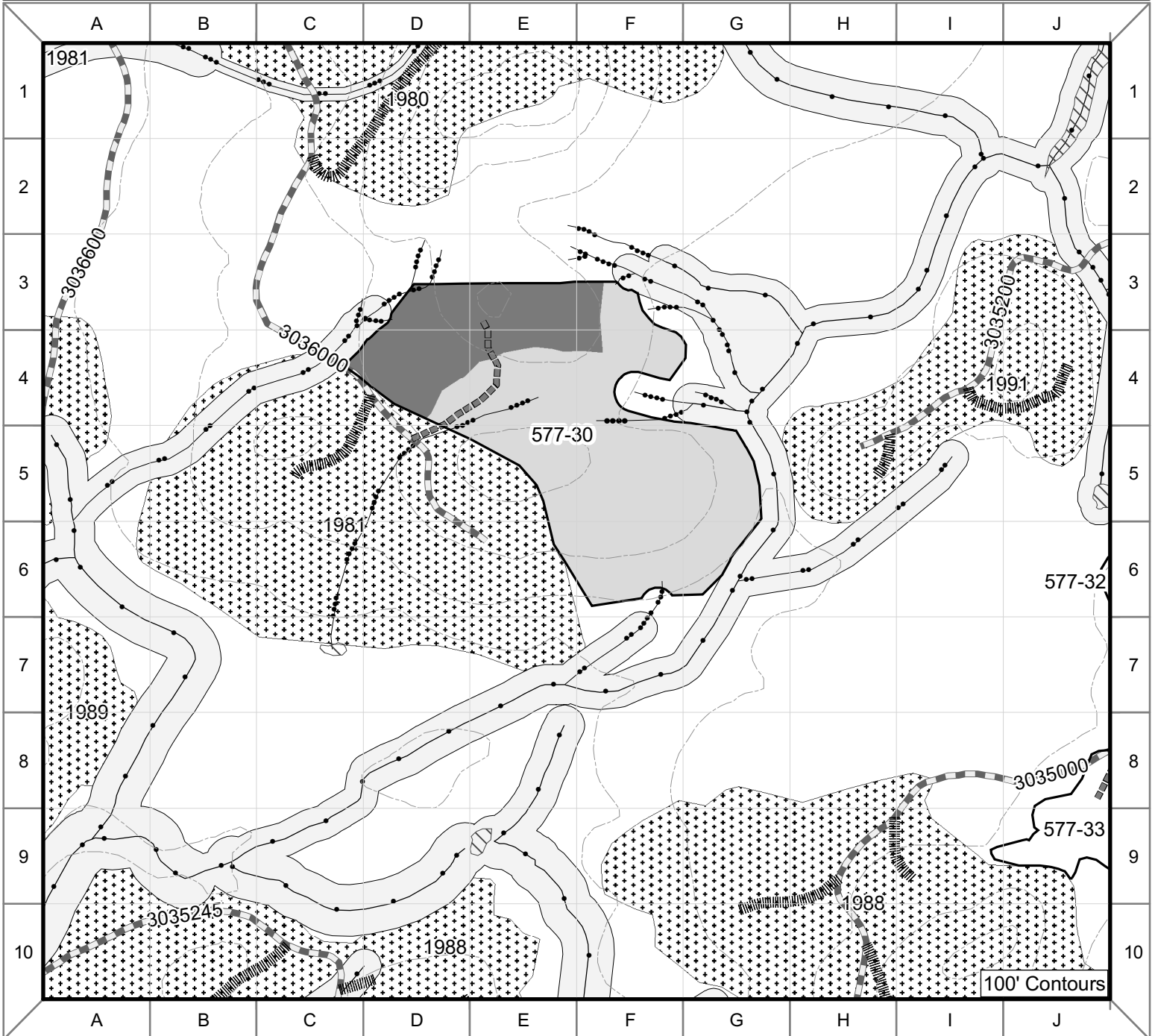
Concerns in Alternative 4 are - Expand buffer on the Class III stream located in central portion of unit to function as east-west travel route; This corridor maintains access to OGR; Leave buffer on FR 23.

Concerns in Alternative 5 are - Additional volume available to northwest of unit, Logical setting is larger than proposed. Visuals along FS road 23.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-30 Alternatives 2, 4, 5

Unit Number: 577-30	Alternatives: 2,4,5	Total Unit Acres: Alt. 2 – 24 Alt. 4 – 19 Alt. 5 – 19	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 477 Alt. 4 – 411 Alt. 5 – 411	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This is a multi-storied old growth stand of average productivity for the area. Good mix of species with all species represented in medium to large sawtimber size classes. Overstory is dominated by mid to large sawtimber sized western redcedar, Sitka spruce, western hemlock and Alaska yellow-cedar. Mid-story is primarily pole to small sawtimber sized Western hemlock and western redcedar. Understory is well stocked with primarily sub-merchantable western hemlock and Sitka spruce. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is planned for a combination of uphill cable and shovel yarding to landings on a proposed temporary extension of existing NFSR 3036. In Alternatives 4 and 5 the eastern cable setting is deferred and the unit is planned for shovel yarding to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 1,900 feet in length. Alternatives 4 and 5 – accessed by temporary road 1,100 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-30-1 Location: C4, C3
 Class: II, IV Flagging: B/W, G/W C-type: HC1, HC5, HC0
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 4, and 5 RAW Buffer: none

Stream#: 577-30-1.1R Location: C3, D3
 Class: II, IV Flagging: B/W, G/W C-type: HC5, HC0
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 4, and 5 RAW Buffer: none

Stream#: 577-30-2 Location: G4, G3, F3, E3
 Class: I, II, IV Flagging: B/W, G/W C-type: HC1, MM1, HC0
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I and II: minimum 100ft. (for HC1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 4 and 5 RAW Buffer: none

Stream#: 577-30-2.2L Location: F3

Class: II, IV Flagging: B/W, G/W C-type: HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: none

Stream#: 577-30-4 Location: G4, F4

Class: I, IV Flagging: B/W, G/W C-type: MM1, MM0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: none

Stream#: 577-30-1A Location: E7, F7, G7, G6, G5, G4, H4, H3

Class: I Flagging: B/W C-type: MM1

Concerns: stream is contained by bedrock banks in sections and has large floodplains with side channels along the majority of its channel.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: none

Stream#: 577-30-1A.1L Location: E7, F7, F6

Class: II, IV Flagging: B/W, G/W C-type: HC1, MM0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9) RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-30: Alternative 2, 4, and 5 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary road would cross about ½ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: No concerns. Any nests/animal dens discovered at any time will receive the necessary standard and

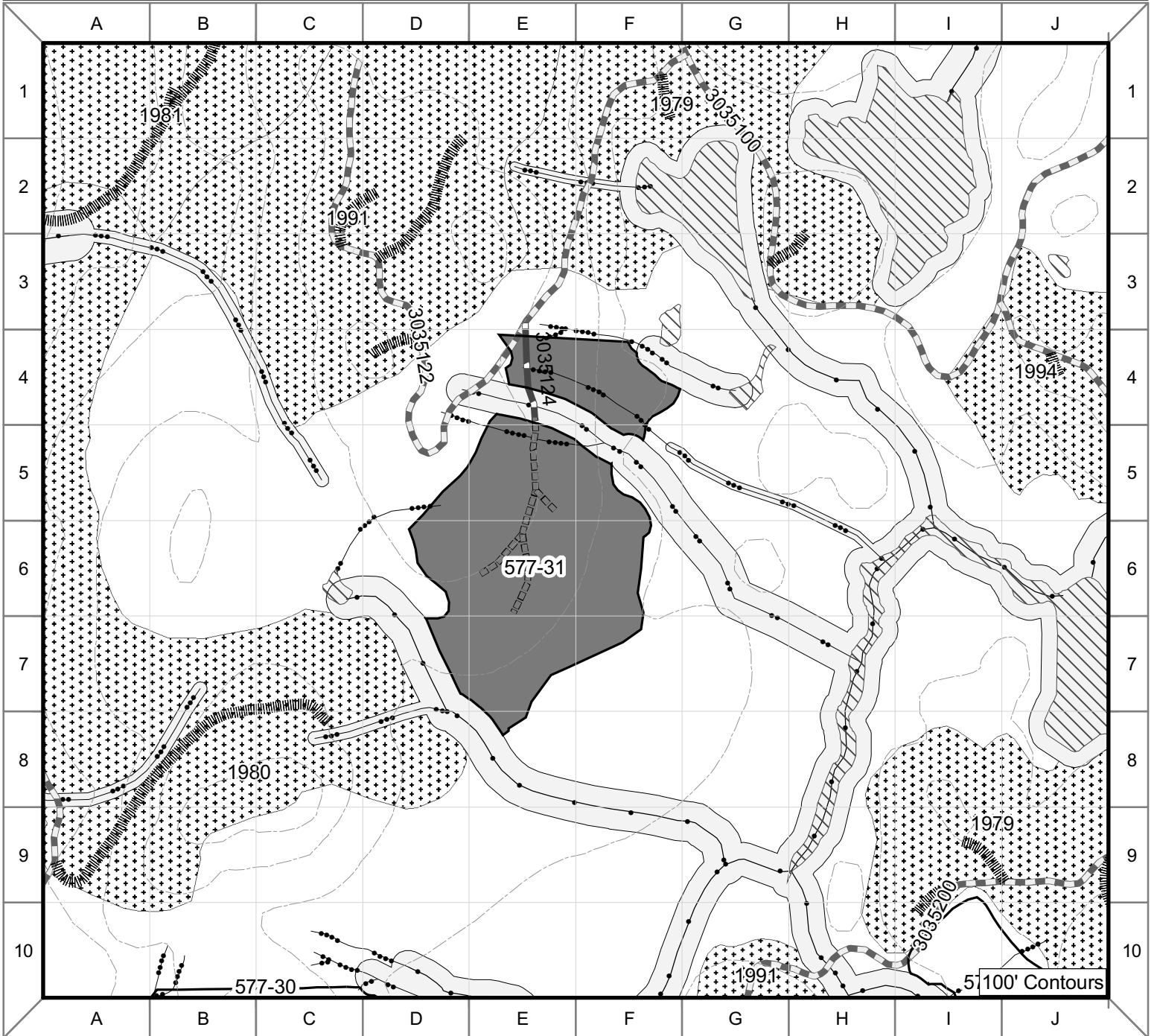
guideline applications.

COMMENTS: Concerns in Alternative 2 are for marginal timber volume/ value.

Concerns in Alternative 3 are - Drop unit. Marginal economics, cumulative effects to logjam watershed; Potential windthrow concerns following CC harvest along a Class I stream channel in 30a section; Karst concerns in 30a setting.

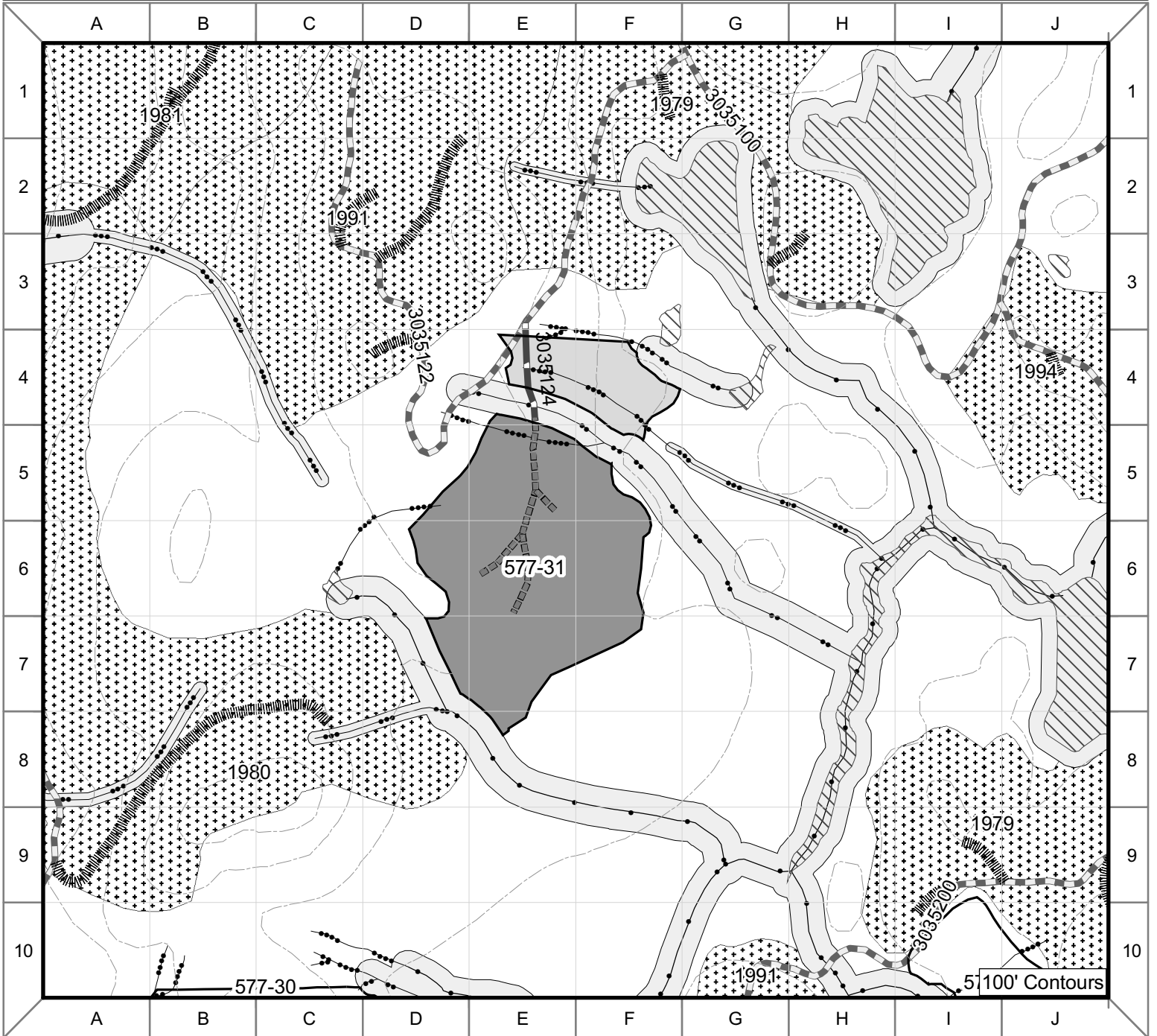
Concerns in Alternative 5 are - Poor economics, high road construction costs for marginal timber volume.

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--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
⊘ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	Decom. Temp Road	□ Logging System	~ Class III Stream
⊘ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▨ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	⊘ Lake
▨ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-31 Alternatives 2, 3, 5

Unit Number: 577-31	Alternatives: 2,3,5	Total Unit Acres: Alt. 2 – 56 Alt. 3 – 46 Alt. 5 – 56	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 1,505 Alt. 3 – 1,264 Alt. 5 – 1,505	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature Old Growth structured stand. Cedar has high defect, heavy bole damage and lots of dead tops. Lower overall stocking for the site. Unit has hydric soils and low volume class in south 1/4. Overstory is dominated by mid to large sawtimber sized western redcedar, Alaska yellow-cedar, western hemlock with scattered Sitka spruce. Mid-story is primarily pole to small sawtimber sized western hemlock and Alaska yellow-cedar. Understory is well stocked with primarily sub-merchantable western hemlock and Sitka spruce. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is divided into two separate settings by a class II stream. In Alternatives 2, 3 and 5, this unit is planned for a combination of shovel and cable yarding. Access is planned from the north using a proposed temporary spur of NFSR 3035124. Two additional short spurs are planned to access proposed cable landings and minimize shovel yarding distances. Cable settings in the northeastern portion of the unit are planned for uphill yarding to landings on the proposed temporary spur. The remainder of the unit is planned for shovel yarding. The area north of the class II stream is deferred in Alternative 3.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3035124 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 3, and 5 - accessed by temporary roads 1,900 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: Sensitive plants along southeast boundary outside unit. Uncommon plants in unit.

INVASIVE SPECIES: No concerns

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

Stream#: 577-31-1 Location: G4, F4, E3

Class: II, IV Flagging: B/W, O/W, G/W C-type: HC2, HC0

Concerns: Stored sediment in O/W stream reach that may impact downstream fish habitat.

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 RAW Buffer: none

Stream#: 577-31-2 Location: F5, F4, E4

Class: IV Flagging: O/W, G/W C-type: HC, HC0

Concerns: Stored sediment in O/W stream reach that may impact downstream fish habitat.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2, 3, and 5 RAW Buffer: none

Stream#: 577-31-3 Location: G6, F5, F4, E4, D4
Class: II Flagging: B/W C-type: MM1, HC0
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 120ft. (for MM1) and 100ft. (for HC0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-31-3.1 Location: F5, E5, E4, D4
Class: IV Flagging: O/W, G/W C-type: HC0
Concerns: Stored sediment in O/W stream reach that may impact downstream fish habitat.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2, 3, and 5 RAW Buffer: none

Stream#: 577-31-5 Location: E8, D8, D7, D6, C6
Class: I Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-31: Alternatives 2, 3, and 5 — two Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

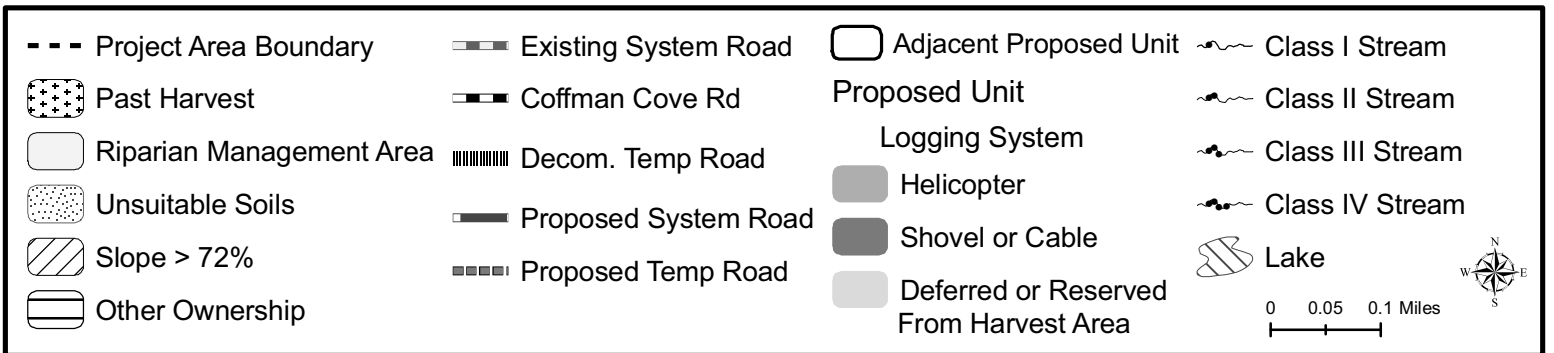
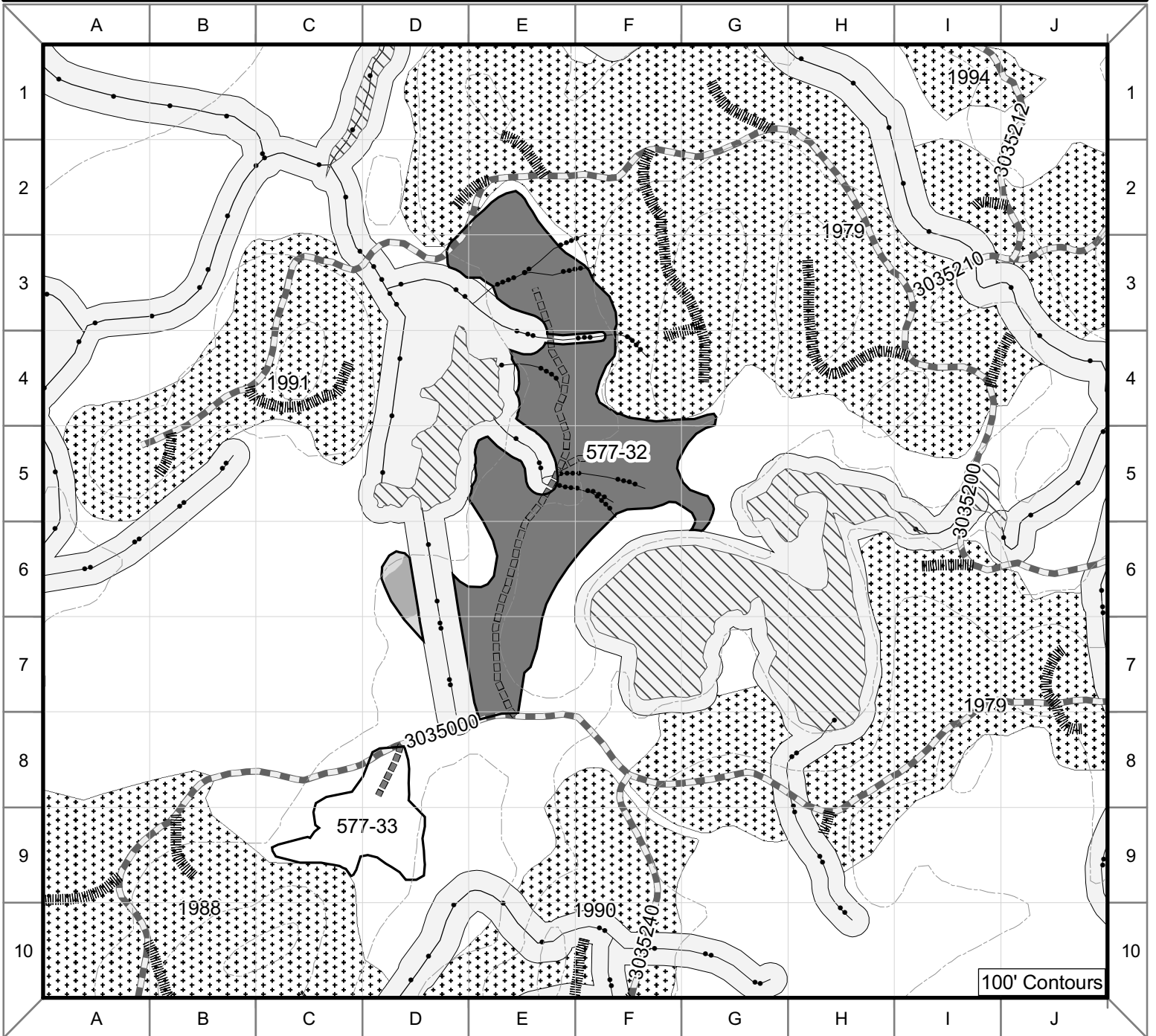
Slopes in this unit are mostly 30 to 50% with a few knobs with 65% slopes. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetland, short sedge, and tall sedge occur in the lower 1/3 of the unit. Avoid the sedge fens during unit layout (BMP 12.5). There are no resource concerns with the proposed temporary road (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

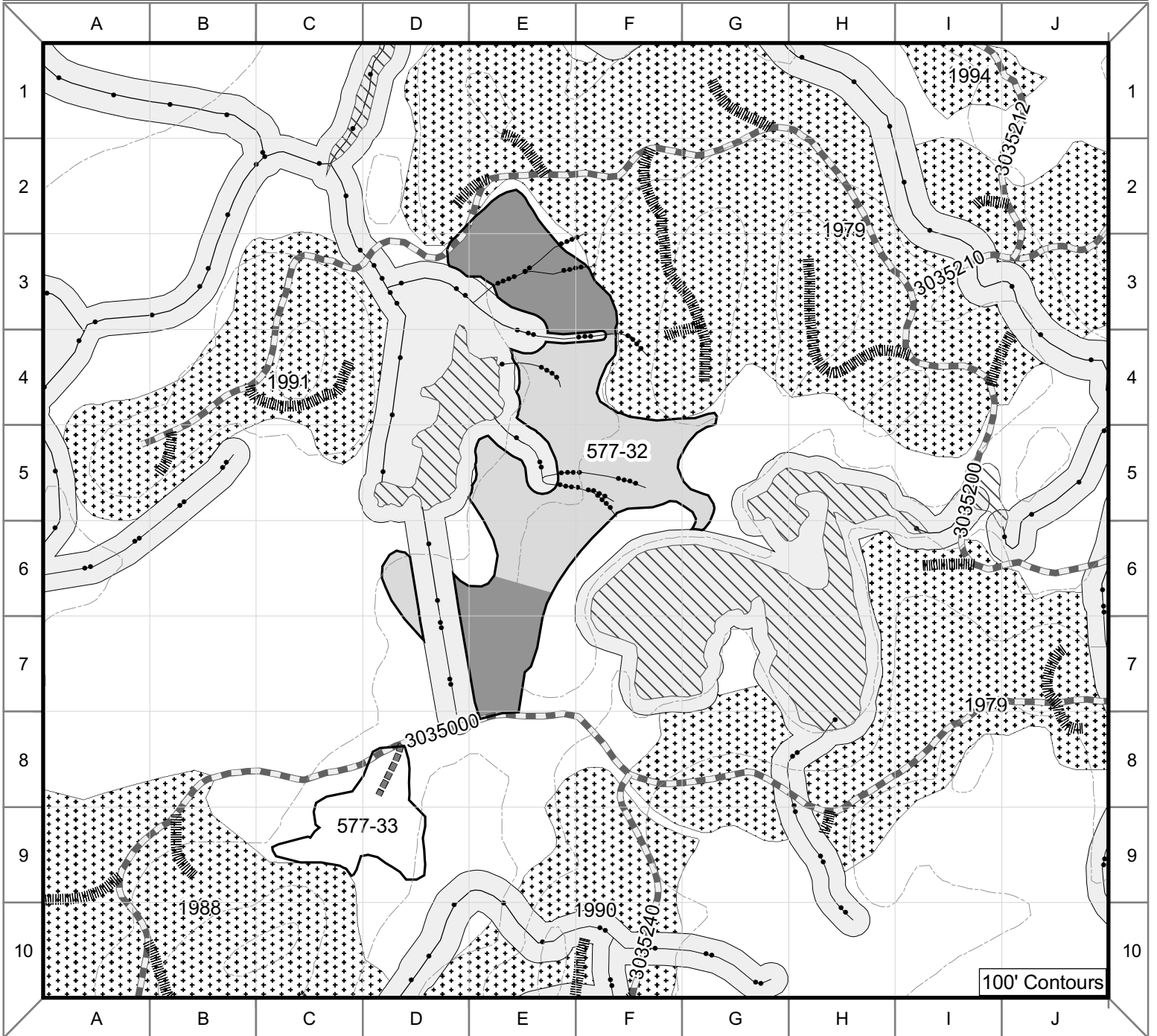
WILDLIFE: Bear den in unit. Any nests/animal dens discovered at any time will receive the necessary standard and

guideline applications.

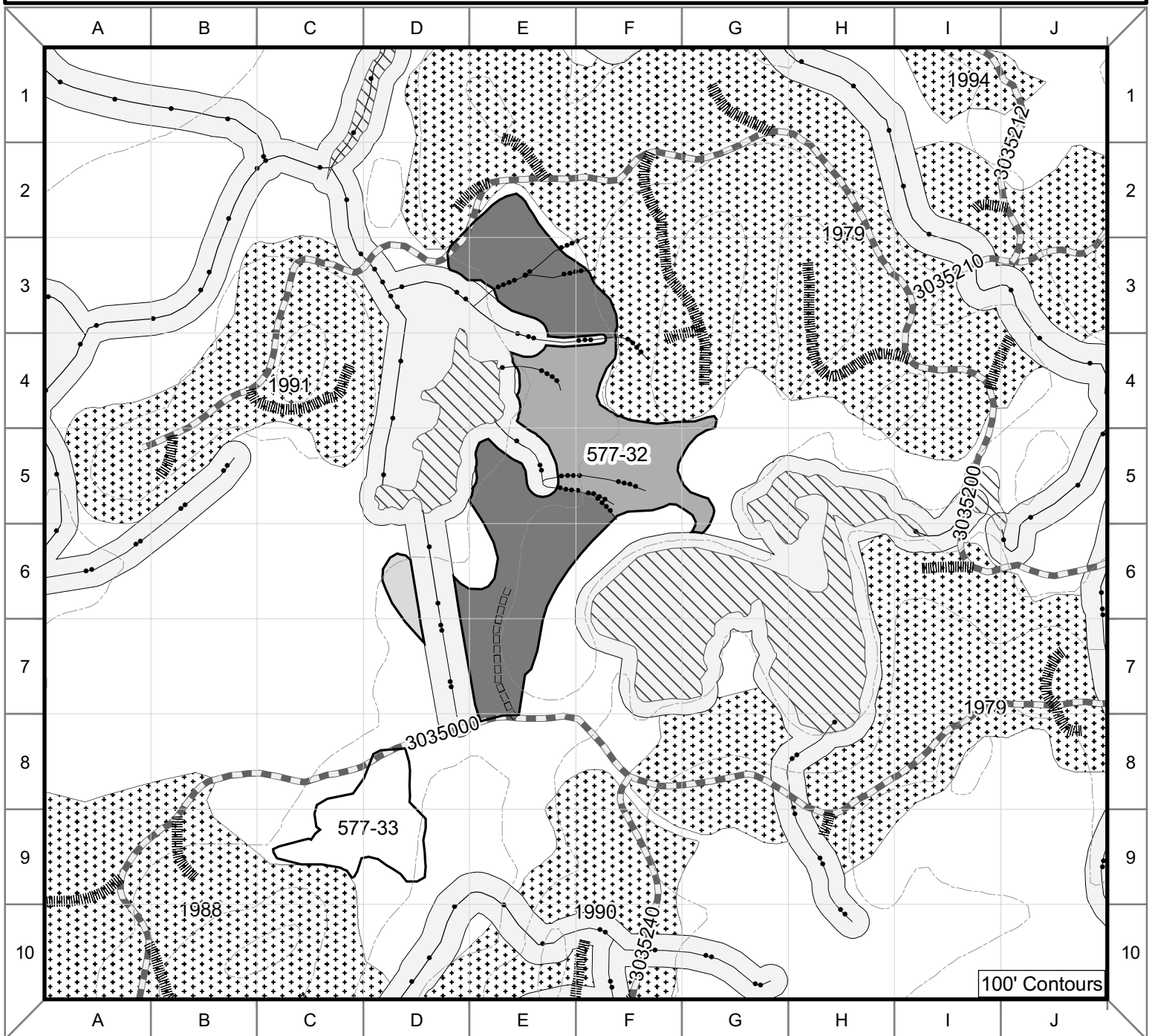
COMMENTS: Concerns in Alternative 3 are - Drop northern portion of unit to reduce potential for sedimentation. The entire stream in unit is class IV. There is stored sediment in stream with fish located a couple hundred feet below unit. Concerns in Alternative 4 are - Drop unit. Sensitive plants along southeast boundary-outside unit; Uncommon plants in unit; Bear den.

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	□ Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▤ Lake
▤ Other Ownership		□ Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-32 Alternatives 2, 3, 5

Unit Number: 577-32	Alternatives: 2,3,5	Total Unit Acres: Alt. 2 – 51 Alt. 3 – 21 Alt. 5 – 50	Prescription: Clearcut/ Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,929 Alt. 3 – 466 Alt. 5 – 1,034	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature old growth stand with average defect. Moderately to poorly stocked overstory with well stocked understory. Overstory is dominated by small to medium western hemlock and mid to large sawtimber sized western redcedar with scattered large Sitka spruce. Mid-story is primarily pole to small sawtimber sized western hemlock. Understory is well stocked with primarily sub-merchantable western hemlock.

There is an area of lower productivity in the central widest portion of the unit. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for shovel and helicopter yarding. Access is planned from the south using a proposed temporary spur of NFSR 3035 and from the north using existing NFSR 3035200. In Alternative 5, a central portion of the unit is planned for helicopter yarding to a landing on the proposed temporary spur. A shorter length of temporary road construction is planned for this alternative. Alternative 2 includes a small helicopter setting isolated by a class I stream in the southwest.

In Alternative 3 this unit is planned for shovel yarding to existing NFSR 3035200 and existing NFSR 3035. The central area of the unit is deferred.

ENGINEERING/ROADS: In Alt. 2 and 5 unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 3,200 feet in length. Alternative 5 – accessed by temporary road 900 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alt. 3 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-32-Lake1 Location: D4, D5, E4

Class: I Flagging: B/W C-type: L

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-32-1.1L Location: D3, E3, E4, F4
Class: I, III, IV Flagging: B/W, O/W, G/W C-type: PA1, MM1, HC5, MM0
Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9) RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: (HC5 reach) to the top of side slope break.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-32-1.3L Location: E4, E5, F5
Class: I, II, IV Flagging: B/W, G/W C-type: HC1, HC0
Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-32-1.4L Location: D5, D6
Class: I Flagging: B/W C-type: MM1
Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-32-2 Location: D6, D7, D8
Class: II Flagging: O/W C-type: MM1
Concerns: This stream flows into a karst feature and are unsure of its connectivity therefore flagged as a non-direct fish stream. Resident fish are present.
Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-32-Lake2 Location: G6, F6, F7, G7
Class: I Flagging: B/W C-type: L
Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-32: Alternative 2 — One Class III and two Class IV stream crossings and Alternative 5 – no known stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: The southwestern ¼ of this unit is underlain by limestone into which karst drainage has developed. The majority of this unit is low vulnerability karst, however in the western-most portion of the unit high vulnerability karst exists just outside the unit boundary. The 100-foot no-harvest buffer extends to within the harvest boundary and has been removed. Windfirmness must be considered in relation to these buffers. Between the buffer zones, a small portion of moderate vulnerability karst exists. Partial suspension is required in the moderate vulnerability karst areas to protect shallow mineral and organic soils.

Under alternative 3, the high and moderate vulnerability portions of this unit will be dropped, so there are no geology/karst resource concerns for this alternative.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS:

An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes range from 35 to 50%. There is a limestone cliff outcrop that extends 40 feet in height and 100 feet across in the southeastern portion of the unit. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetland occurs throughout the unit. Lakes, moss muskegs, and sedge fens surround the unit boundaries.

Alternative 2: The proposed temporary roads would cross about 1.5 acres of forested wetland and about a ¼ acre of forested wetland/emergent short sedge complex (BMP 12.5).

Alternative 5: The proposed temporary road would cross about a ¼ of an acre of forested wetland/emergent short sedge complex (BMP 12.5).

Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

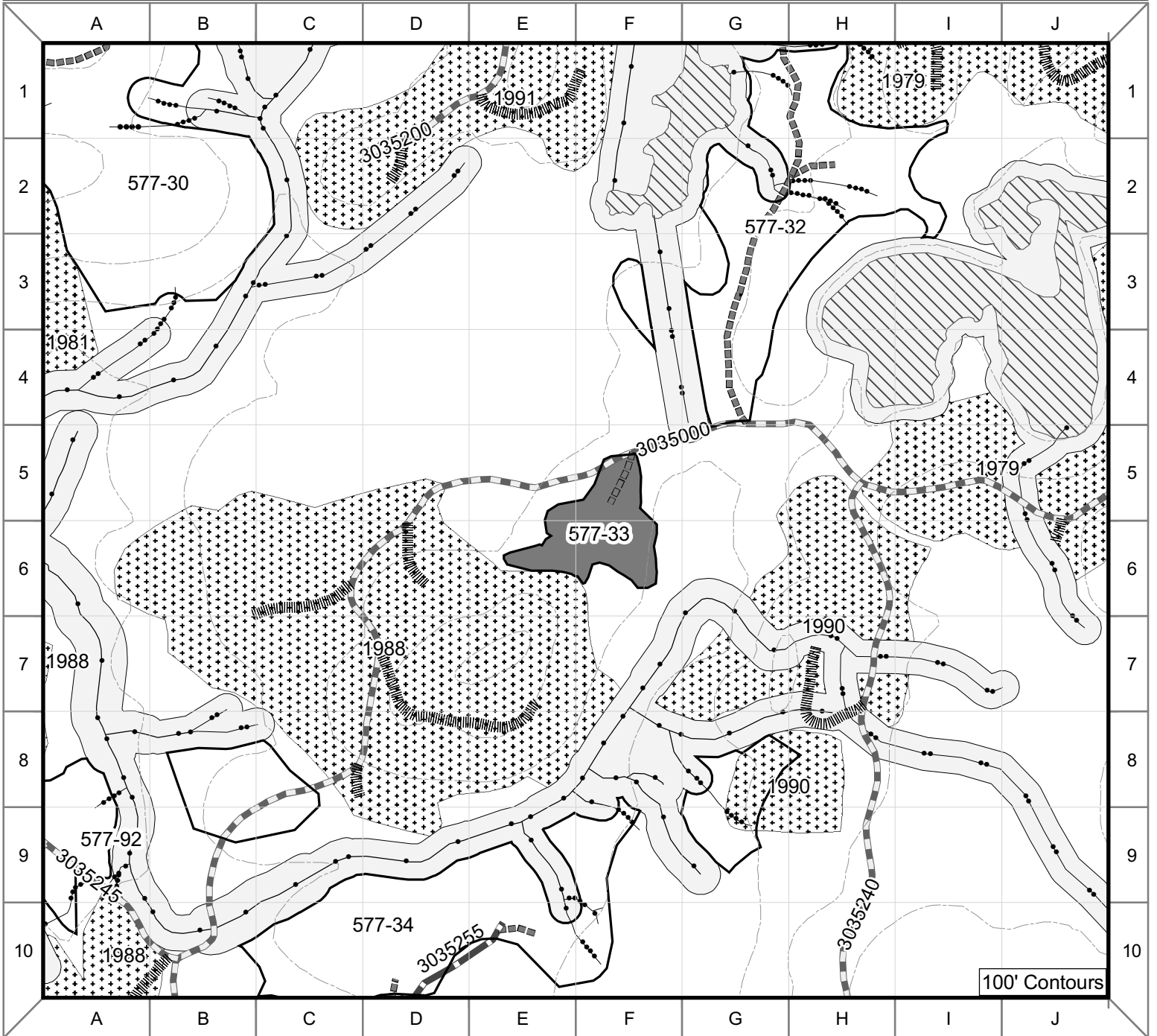
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Harvest areas isolated by stream and karst buffers using Helicopter partial cut.

Concerns in Alternative 3 are - Drop proposed road and middle section of unit to reduce overall road construction decrease sedimentation and risk of blowdown in stream buffers; Harvest northern polygon and southern polygon to an existing road system.

Concerns in Alternative 4 are – Drop unit. Lakeside habitat includes high plant diversity; Proposed unit blocks east-west travel route along lakes.

Concerns in Alternative 5 are - Shovel Clearcut northern portion to existing 3035200 and southern portion to short temp spur. Harvest middle of unit and areas isolated by buffers via Helicopter-partial cut. Poor economics, high road construction costs for marginal timber volume.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	□ Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

Unit 577-33 Alternatives 2, 3, 4, 5

Unit Number: 577-33	Alternatives: 2,3,4,5	Total Unit Acres: 10	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): 243	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth multi-storied stand dominated by large over mature western redcedar. Alaska yellow-cedar represents mostly mid-story except in patches where Alaska yellow-cedar makes up most of BA. Understory is heavy to western hemlock regeneration. About only other species represented in the understory is Sitka spruce. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for shovel yarding to a proposed temporary spur of NFSR 3035.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, 4 and 5 - accessed by temporary roads 400 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: No streams were found in this unit during reconnaissance. If any streams are located during implementation, a fish biologist will be notified and appropriate protections will be applied.

Temporary road for unit 577-33: Alternatives 2, 3, and 4 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

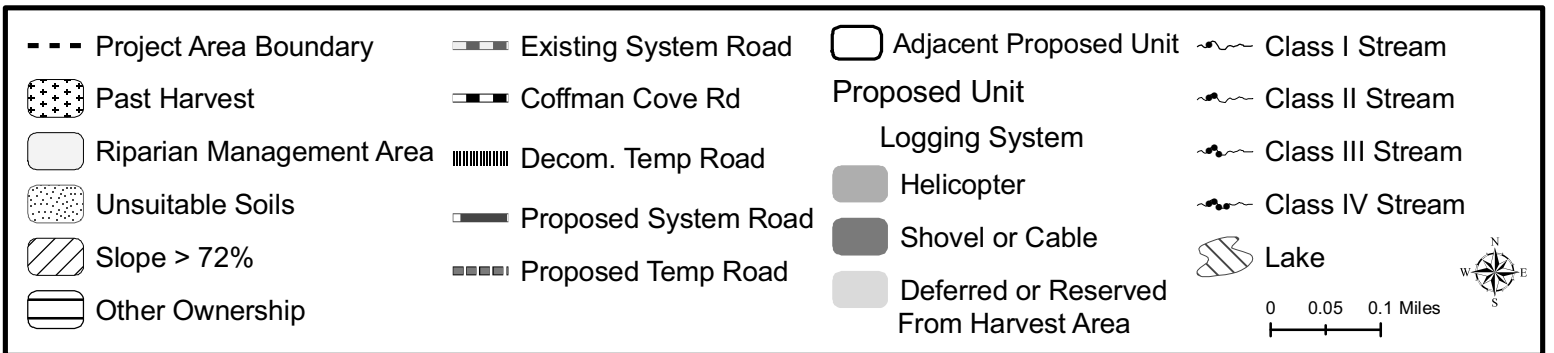
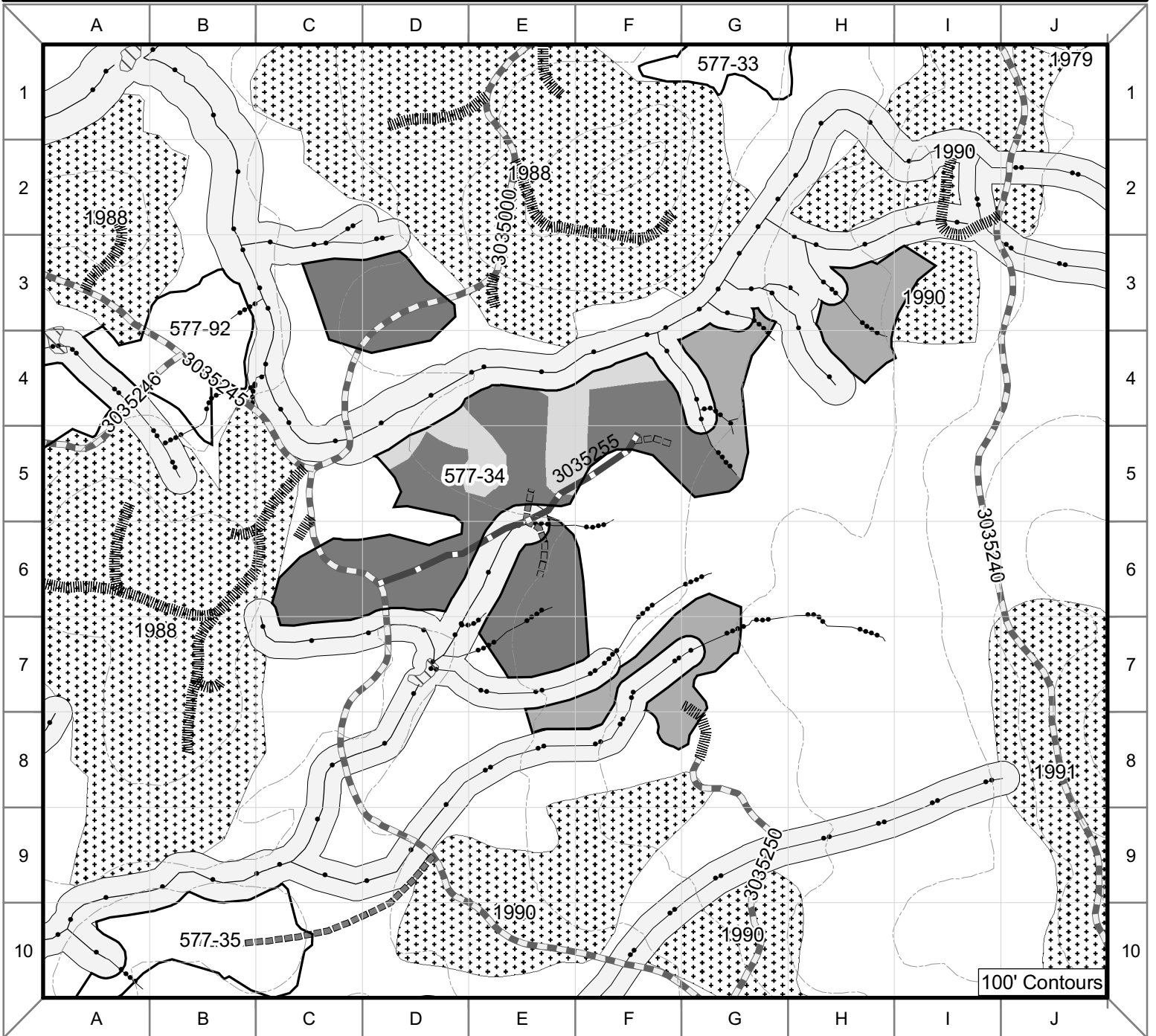
Slopes in the unit range from 10 to 20%. Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. There are

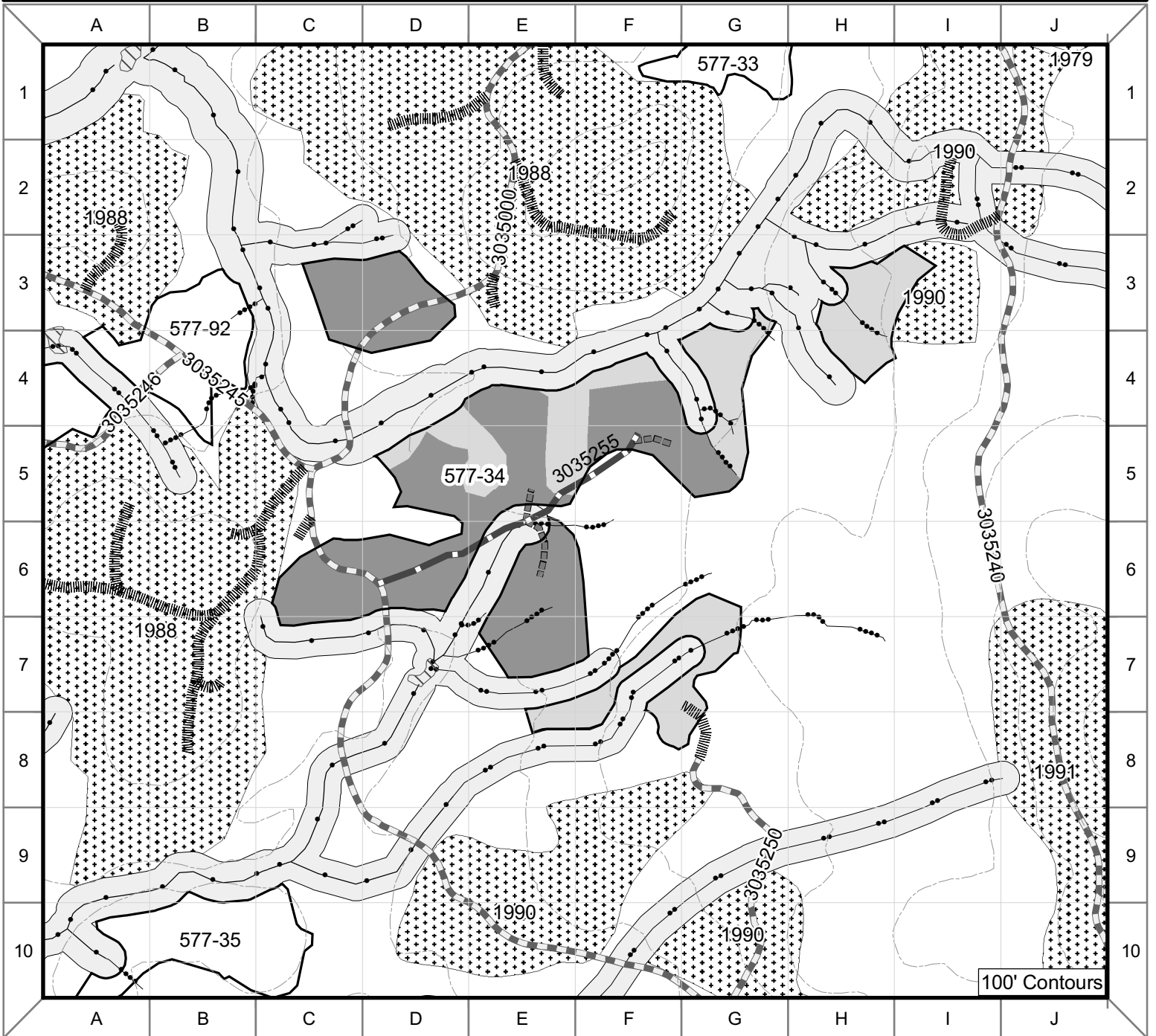
moss muskegs and short sedge wetlands in the north, northwest, and eastern boundaries of the unit. Approximately 80% of the unit contains forested wetland. Pockets of emergent short sedge are found in the southeastern section of the unit. Puncture trails should avoid these areas (BMPs 12.5 and 13.9). The proposed temporary road would cross less than ½ of an acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: No concerns. Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS:

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
⊘ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	Decom. Temp Road	□ Logging System	~ Class III Stream
⊘ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
⊘ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
□ Other Ownership		■ Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-34 Alternatives 2, 3, 4, 5

Unit Number: 577-34	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 78 Alt. 3 – 55 Alt. 4 – 36 Alt. 5 – 78	Prescription Clearcut/ Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,640 Alt. 3 – 1,373 Alt. 4 – 891 Alt. 5 – 1,640	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition

Northwest settings: Old growth stage multi level canopied stand of western hemlock and Sitka spruce with small patch of western redcedar in NW corner. North aspect gap phase stand development. Overstory is western hemlock and Sitka spruce. Both mid and understories are mostly western hemlock. Sitka spruce and western hemlock are large to medium sawtimber size class. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

Southeastern settings: Old growth multi storied stand, dominated by western hemlock. Edges are boggy forested wetlands. Some scattered Sitka spruce, Alaska Yellow-cedar and western redcedar. Alaska yellow-cedar is found in mid-story and as scattered overstory trees, pole to medium sawtimber size classes. Sitka spruce is in mid-story and overstory. Western redcedar is mainly overstory trees in med to large sawtimber size classes. Most of dead stems are western redcedar. Western hemlock dominates understory, and comprises the majority of stocking in the mid and overstory as well. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for a combination of shovel and helicopter yarding. The unit is fragmented by class I and II streams. Access is planned from existing NFSR 3035 and proposed NFSR 3035255. Areas adjacent to these roads are planned for shovel yarding. Areas isolated by stream buffers are plan for helicopter yarding to landings on proposed NFSR 3035255.

In Alternatives 3 and 4 this unit is planned for shovel yarding to existing NFSR 3035 and proposed NFSR 3035255. The unit is fragmented by class I and II streams. Areas isolated from roads by stream buffers are planned for deferral. Additional shovel settings on the north and west edges of the unit are planned for deferral in Alternative 4 to maintain wildlife travel corridors.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3035255 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 - accessed by temporary roads 900 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-34-1 Location: B2, B3, C3, C4, C5, D5, D4, E4, F4, F3, G3, G2, H3, H2, I2
Class: I Flagging: B/W C-type: MC2, FP3, MM1, PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. (for MC2 and PA1), 130ft. (for FP3) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-34-1.1L Location: B3, C3, D3
Class: I, II Flagging: B/W C-type: MM1, HC1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 577-34-1.1L.1L Location: C3, C2
Class: II Flagging: B/W C-type: HC0
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-34-1.2R Location: F4, G4, G5
Class: I, IV Flagging: B/W, G/W C-type: MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-34-1.4R Location: G3, H3, H4
Class: I Flagging: B/W C-type: MM1, HC1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-34-1.4R.1L Location: G3, H3
Class: I Flagging: B/W C-type: MM1
Concerns: stream originates from a karst feature.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-34-1.6R Location: H3, H4
Class: I, IV Flagging: B/W, G/W C-type: HC0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-34-1.7L Location: G3, G4
Class: I, IV Flagging: B/W, G/W C-type: HC0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-34-2 Location: D9, D8, E8, F8, F7, G7, H6, H7
Class: II, IV Flagging: B/W, G/W C-type: HC0, MM0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. (for HC0) and 120ft. (for MM0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-34-3 Location: D7, E7, F7, F6, G6
Class: II, IV Flagging: B/W, G/W C-type: HC0, MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. (for HC0) and 120ft. (for MM0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 577-34-4 Location: D7, C7, C6
Class: I Flagging: B/W C-type: PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 577-34-5 Location: D7, D6, E6, F6, F5
Class: I, IV Flagging: B/W, G/W C-type: MM1, HC0
Concerns: heavy blow down along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for HC0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-34: All Alternatives – One Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: The central portion of this unit is underlain by limestone into which karst drainage has developed. Karst features were located in the northern most portion of the limestone area, and in two lobes descending to the south. These features are considered high vulnerability, and are removed from the unit with 100-foot minimum buffers. The areas between these features are considered to be of moderate vulnerability and require at a minimum partial suspension to protect shallow mineral and organic soils. Shovel harvest is acceptable, as long as enough slash is present to protect the fragile epikarst surface. Non-harvest buffers are intended to be 100-foot minimum buffers. Wind firmness beyond that must be considered. Near the southeastern most lobe of the high vulnerability karst, the proposed road crosses within the minimum 100 ft buffer. This road will need rerouted around the high vulnerability karst. For temporary roads ensure that road drainage is designed such a manner that sediment and road associated drainage does not reach karst feature; any culverts needed will be designed under the guidelines of BMP 14.17 ; ensure that all culverts, rolling dips, or relief culverts are adequately designed and maintained to prevent blockage of the culvert or diversion of road associated surface waters; Sediment traps and erosion control measures may be required. If constructed, sediment traps should be maintained; same season revegetation of the cut and fill slopes should be required to minimize sediment production potential; Pull culverts when road is closed.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per

Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes are gentle across most of the unit. In the southeastern polygon, the slopes range up to 50% in some areas. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Short and tall sedge fens are located on the boundaries of the unit and in small inclusions inside the unit boundary. Forested wetland intermixed with upland are found throughout the unit. In the northern most polygon, pockets of emergent short sedge wetlands less than 1 acre total exist in the southwestern portion of this polygon. Puncheon trails should avoid all tall and short sedge wetlands (BMPs 12.5 and 13.9). The proposed temporary roads would cross $\frac{3}{4}$ of an acre of forested wetland and less than 1/10 of an acre of tall sedge fen (BMP 12.5). Reroute road to avoid the tall sedge fen where practicable. Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

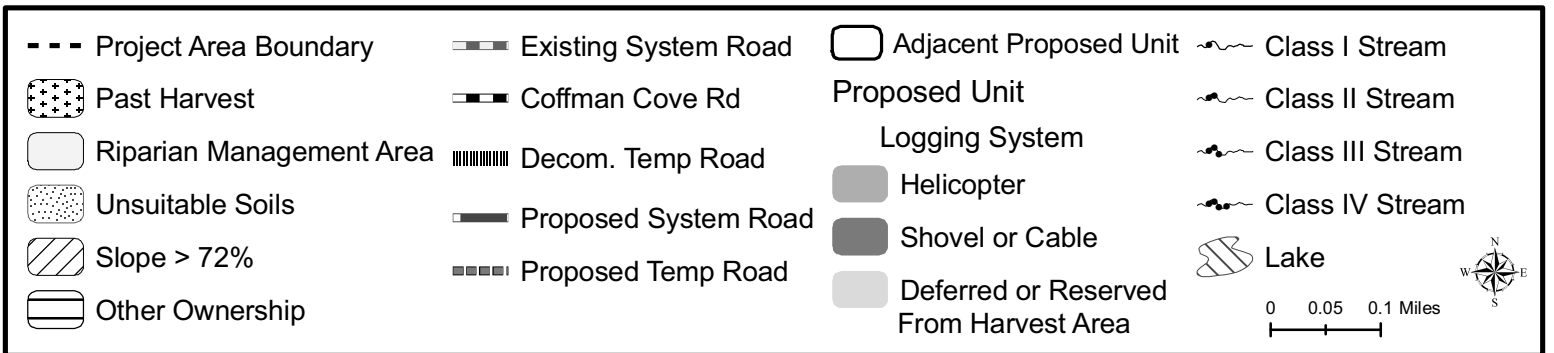
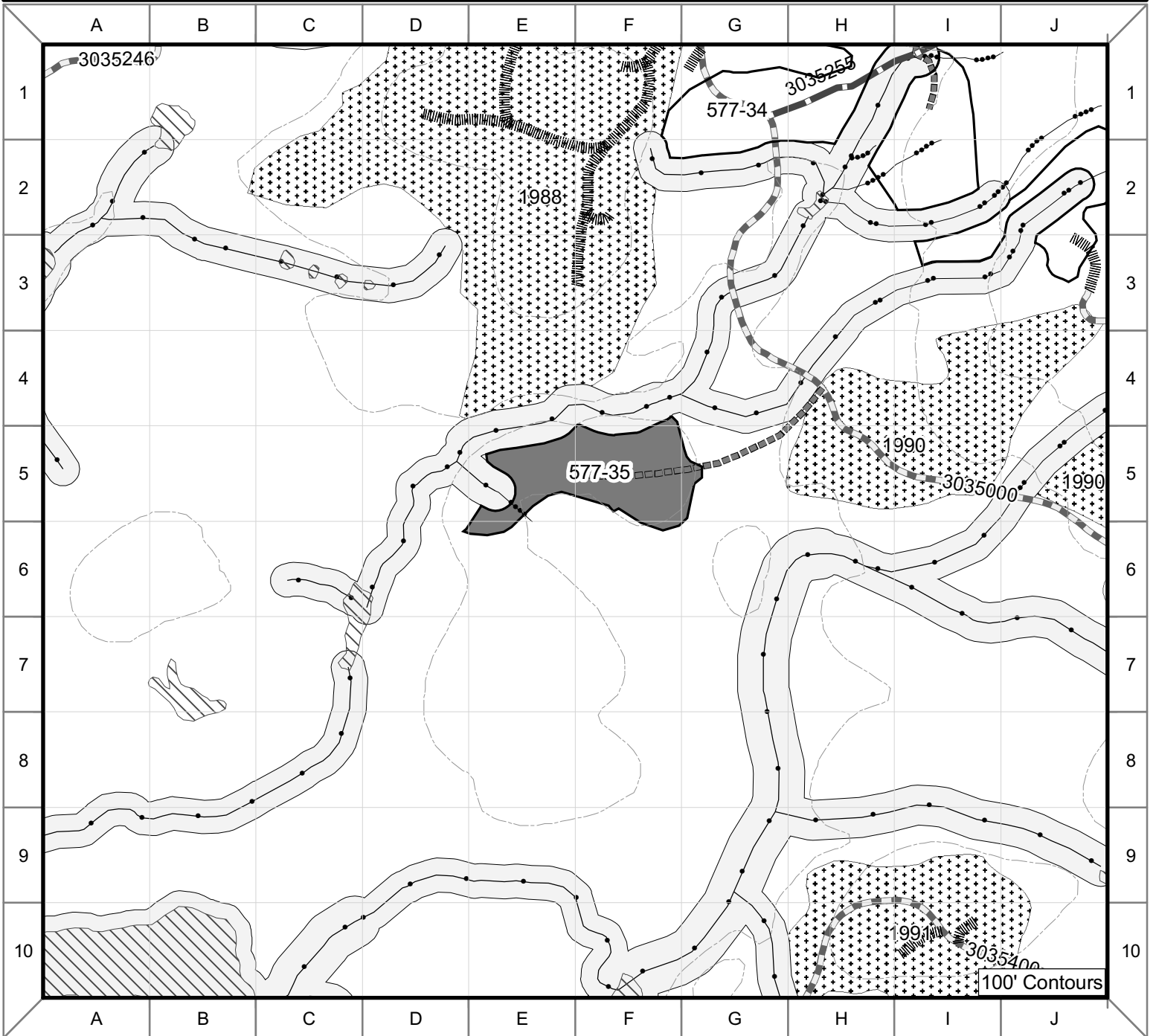
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

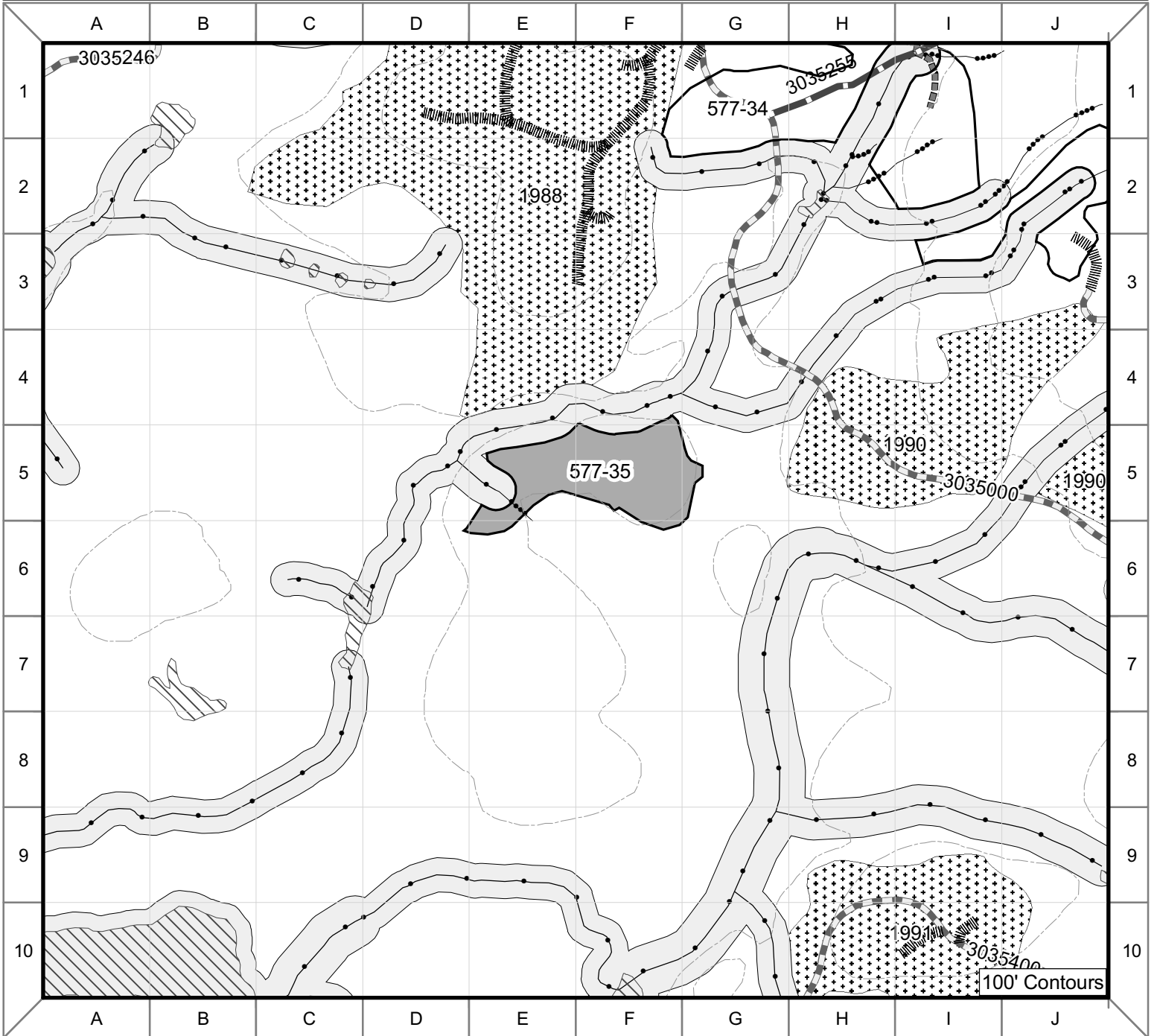
COMMENTS: Concerns in Alternatives 2 and 5 are - Harvest areas isolated by stream and karst buffers using helicopter.

Concerns in Alternative 3 are - (Setting 34a) Shovel Clearcut; Provide a RAW on south side of the Class I and II streams located in the north polygon; (Setting 34b) - Drop northeast corner due to Class I stream concerns in the south polygon; Drop south section due to Class II stream concerns in the south polygon; Look at road location to avoid Class I stream channel concerns in the south polygon. Setting 34a - North polygon contains Class I and II stream channels; North polygon contains concerns regarding windthrow of remaining Class I and II streams following harvest on southern side of the stream channels. Setting 34b - South polygon contains karst concerns along the northwest corner; South polygon contains potential Class I stream and associated road concerns located in northeast corner; South polygon contains Class II streams located in southern section of unit.

Concerns in Alternative 4 are – Setting 34a - Drop this polygon. Setting 34b - Drop far eastern lobe of unit to maintain north-south travel route; Drop far western $\frac{1}{2}$ of unit to maintain north-south travel route; Drop extreme southern branch of unit to maintain east-west travel route. Setting 34a - Blocks north-south travel route. Setting 34b - Proposed unit blocks north-south travel route along extreme western and eastern edges of unit; Proposed unit blocks east-west travel route along southern edge of unit.

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-35 Alternatives 2, 3, 4, 5

Unit Number: 577-35	Alternatives: 2,3,4,5	Total Unit Acres: 14	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 381 Alt. 3 – 190 Alt. 4 – 190 Alt. 5 – 190	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stage multi level canopied stand of western hemlock and Sitka spruce with some scattered patches of western redcedar. North aspect gap phase stand development. Overstory is western hemlock under scattered dominant Sitka spruce. Both mid and understories are mostly western hemlock. Sitka spruce and western redcedar are large sawtimber size class. Western hemlock is mainly med to small sawtimber size. A small area of forested wetlands is in the western 1/3 of the unit where the class I/ III stream enters the stand. Windthrow risk is low. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is planned for shovel yarding to a proposed temporary spur of NFSR 3035. In Alternatives 3, 4 and 5 this unit is planned for helicopter yarding to a proposed landing on existing NFSR 3035.

ENGINEERING/ROADS: In Alternative 2 this unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 – accessed by temporary road 1,700 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alternatives 3, 4 and 5 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-35-2 Location: D5, E5, E4, F4, G4

Class: I Flagging: B/W C-type: PA1, MM1

Concern: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 577-35-2.1R Location: D5, E5

Class: I, IV Flagging: B/W, G/W C-type: MM1, MM0
Concern: heavy blow down along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Temporary road for unit 577-35: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

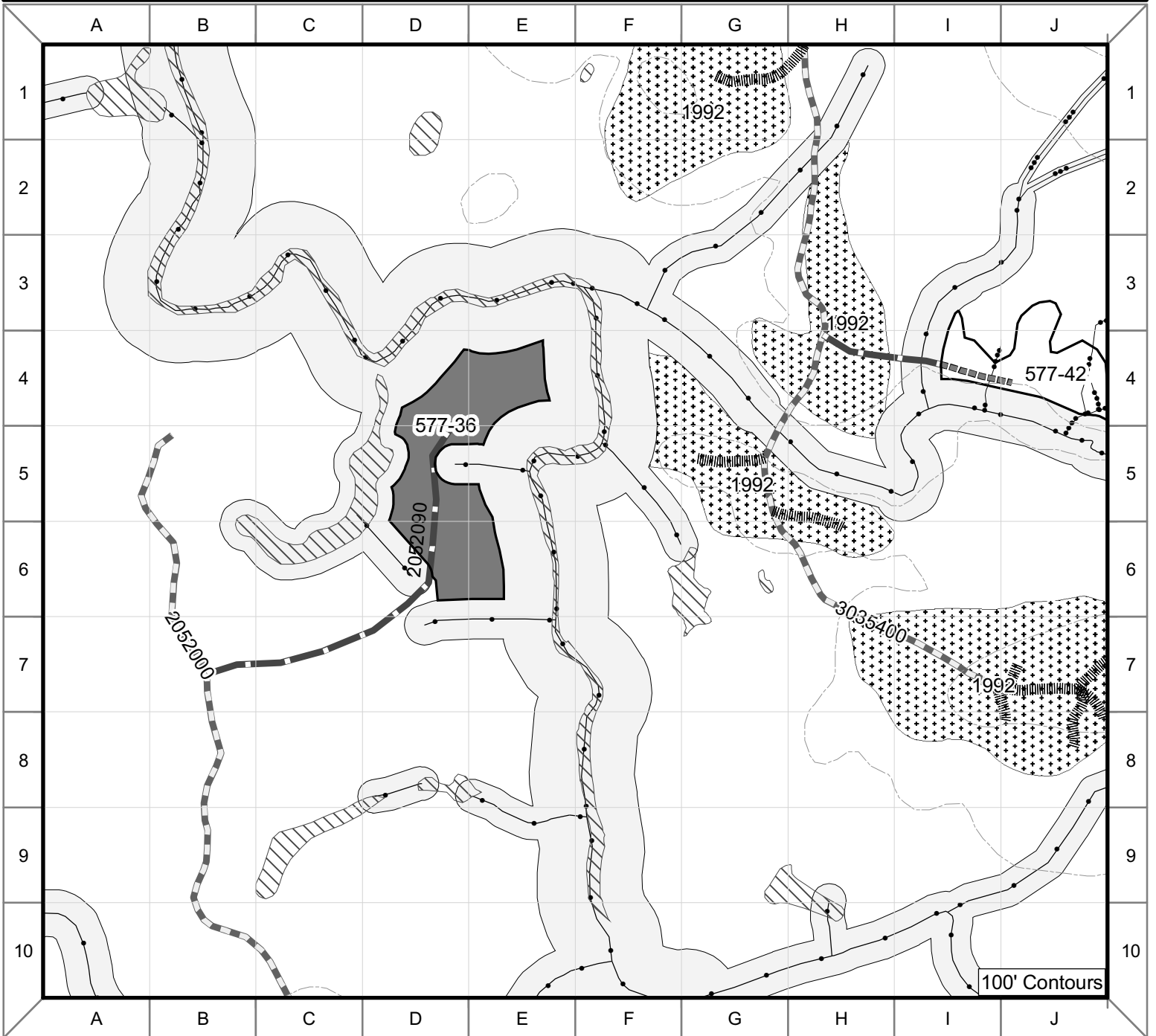
RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

This unit is located on a drumlin with gentle slopes. Partial suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Tall sedge fens and short sedge wetlands surround the north, west, and southern boundaries of the unit. Moss muskegs surround the unit in the east. The unit contains 80% forested wetland. The proposed temporary road would cross 1.5 acres of moss muskeg (BMP 12.5). Due to the abundance of wetland surrounding the unit, wetland avoidance is not feasible. Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

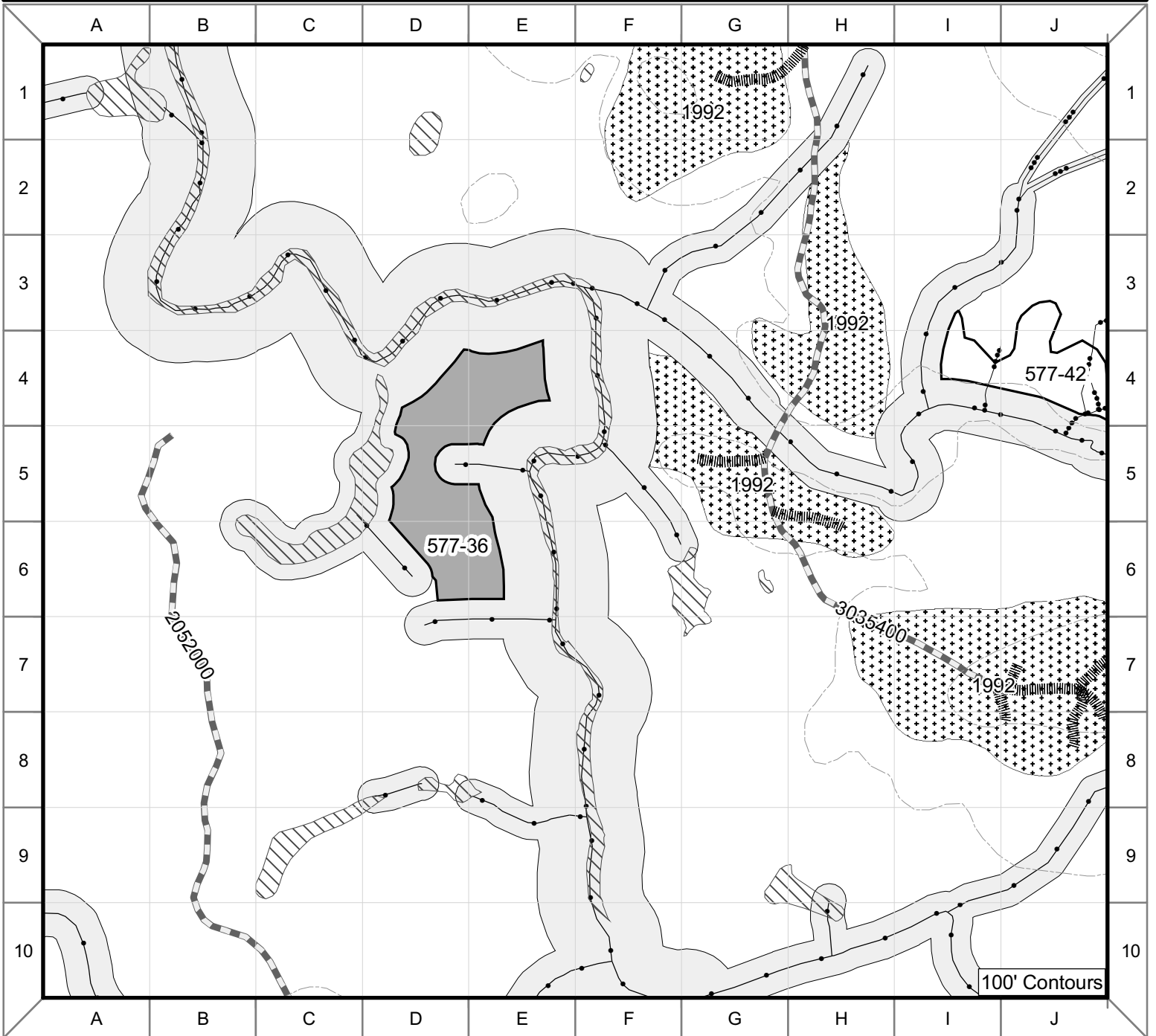
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 3,4 and 5 are - Drop Road; Helicopter-partial cut up to 50% of basal area. Poor economics, high road construction costs for marginal timber volume.



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

Unit 577-36 Alternatives 2, 3, 4, 5

Unit Number: 577-36	Alternatives: 2,3,4,5	Total Unit Acres: 20	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 383 Alt. 3 – 191 Alt. 4 – 383 Alt. 5 – 383	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit is Old growth structure with multiple canopies. Predominant species are western hemlock and Sitka spruce. Sitka spruce is mainly in the dominant crown class. Western hemlock makes up the remaining crown classes and canopy levels. Sitka spruce is large to med sawtimber size class. Western hemlock is med saw to pole size and dominates the understory. Western redcedar is present but not well represented. Windthrow risk is low. Mistletoe occurrence is heavy –in most hemlock.

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.

Silviculture Prescription:

Even-aged management –Clearcut (Alternatives 2 and 5). Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking (Alternatives 3 and 4). Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternatives 2, 4 and 5 this unit is planned for shovel yarding to proposed NFSR 2052090. In Alternative 3 this unit is planned for helicopter yarding to a proposed landing on existing NFSR 2052.

ENGINEERING/ROADS: In Alts. 2, 4, and 5 the unit is accessed by proposed NFS road 2052090 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alt. 3 no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-36-1 Location: C4, D4, D3, E3, F3, F4, F5, E5, E6, E7
Class: I Flagging: B/W C-type: FP5

Concerns: This is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 RAW Buffer: none

Stream#: 577-36-1.1L Location: D4, D5, C5, D6, C6, B6, B5
Class: I Flagging: B/W C-type: PA5

Concerns: stream is mostly beaver pond complexes and ponds.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-36-1.1L.1L Location: D6
Class: I Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-36-1.1R Location: E5, D5
Class: I Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-36-1.3R Location: E7, D7
Class: I Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

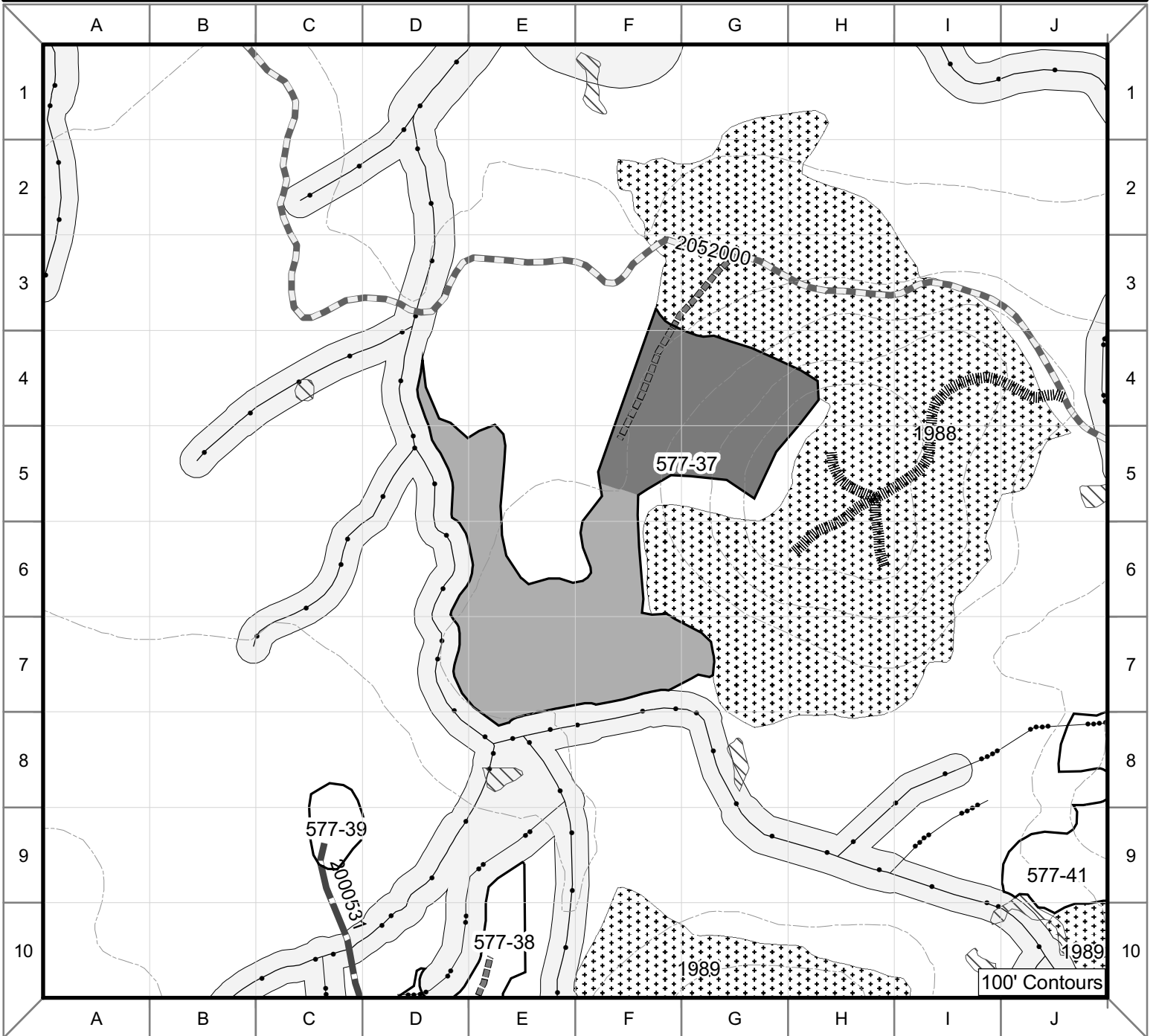
SOILS/WETLANDS: Alts. 2, 4, and 5: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead.

Alt. 3: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9).

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 3 and 4 are - Drop Road; Helicopter-partial cut up to 50% of basal area. Concern related to road construction based on water quality issues (cumulative effects), wetlands and economics.



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-37 Alternative 2

Unit Number: 577-37	Alternatives: 2	Total Unit Acres: 62	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Cable	Net Harvest Volume (MBF): 759	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition

Old growth structure with multiple canopy layers. Two distinct forest types are represented. Northeast lobe is western hemlock and Sitka spruce with some scattered western redcedar. Remaining south and western 2/3 of unit is low volume / low productivity forested wetlands. Windthrow risk is high. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for a combination of downhill cable and helicopter yarding to landings on a proposed temporary spur of NFSR 2052.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 1,400 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-37-1 Location: D4, D5, D6, D7, D8, E8, F8, F7, G7, G8

Class: I Flagging: B/W C-type: MC2, PA1, MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for MC2 and PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: none

Temporary road for unit 577-37: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: The northeastern most portion of the unit is underlain by limestone into which karst drainage has developed. The majority of the limestone portion of this unit is moderate vulnerability karst. Partial suspension is

required in the moderate vulnerability areas to protect shallow mineral and organic soils. One small area of high vulnerability karst features was located on the western edge of the northeastern portion of the unit. Specific karst features have been removed from the unit with 100-foot minimum no-harvest buffers. In addition to these buffers, wind firmness must be considered. For temporary roads ensure that road drainage is designed such a manner that sediment and road associated drainage does not reach karst feature; any culverts needed will be designed under the guidelines of BMP 14.17 ; ensure that all culverts, rolling dips, or relief culverts are adequately designed and maintained to prevent blockage of the culvert or diversion of road associated surface waters; Sediment traps and erosion control measures may be required. If constructed, sediment traps should be maintained; same season revegetation of the cut and fill slopes should be required to minimize sediment production potential; Pull culverts when road is closed.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Along the karst topography of the unit, the slopes range from 30 to 60%. The remainder of the unit contains gentle slopes ranging from nearly level to 40%. Partial suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Approximately 75% of the unit contains forested wetland with some emergent short sedge and tall sedge fen. The western and southern lobes of the unit are almost entirely comprised of wetland. Tall sedge fens are located in the western lobe. The proposed temporary road would cross less than a ¼ of an acre of forested wetland/emergent short sedge complex (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Cable Clearcut; harvest northeast portion. Helicopter partial cut for the remainder for karst concern.

Concerns in Alternative 3 are - Drop unit. Karst concerns; Blowdown present in unit; Economical concerns.

Concerns in Alternative 4 are – Drop unit. Unit as proposed blocks east-west travel, poor economics.

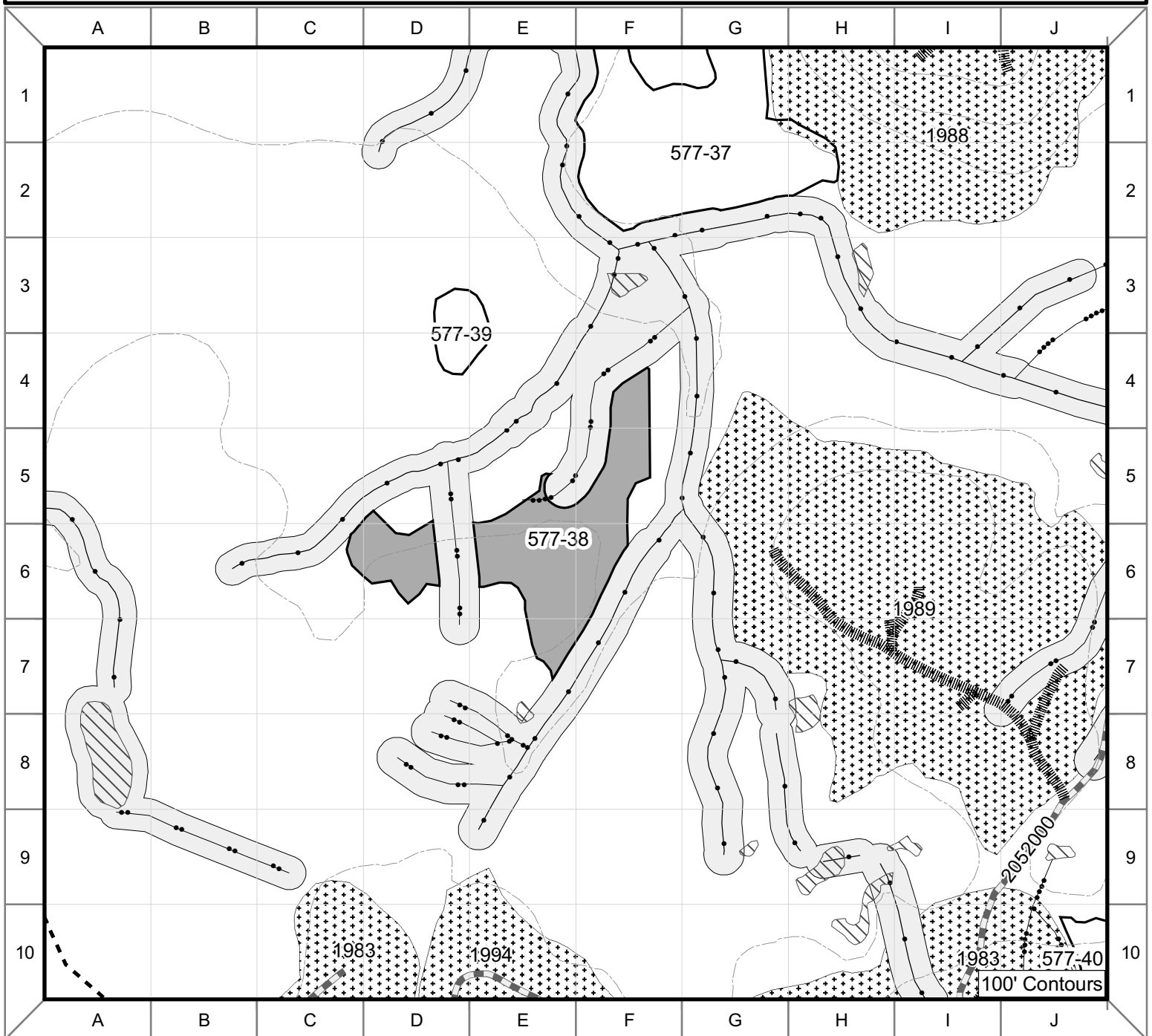
Concerns in Alternative 5 are - Karst; Poor economics, high road construction costs for marginal timber volume.

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Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-38 Alternatives 2, 3, 4, 5

Unit Number: 577-38	Alternatives: 2,3,4,5	Total Unit Acres: 25	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 665 Alt. 3 – 370 Alt. 4 – 370 Alt. 5 – 370	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This is a multi-storied old growth stand of average productivity for the area. This stand is primarily hemlock with scattered larger spruce. Significant mistletoe. Relatively flat unit. Windthrow risk is low. Mistletoe occurrence is heavy - scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternative 2, this unit is planned for shovel yarding to proposed NFSR 2000531.

In Alternatives 3, 4 and 5 this unit is planned for helicopter yarding to landings on an existing temporary spur of NFSR 2052.

ENGINEERING/ROADS: In Alternative 2, this unit is accessed by proposed NFS road 2000531 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 – accessed by temporary road 1,000 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

In Alternatives 3, 4 and 5 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-38-1 Location: F3, G3, G4, G5, F5, F6, F7, E7, E8, E9

Class: I Flagging: B/W C-type: PA1, MM1

Concerns: heavy blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 577-38-1.1R Location: F3, F4, E4, E5, D5, C5, C6, B6

Class: I Flagging: B/W C-type: PA1, MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 577-38-1.1R.1L Location: D5, D6, D7
Class: II Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 577-38-1.1R.2L Location: G3, F3, F4, F5, E5
Class: II, IV Flagging: B/W, G/W C-type: MM1, MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3, 4, and 5 RAW Buffer: none

Temporary road for unit 577-38: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

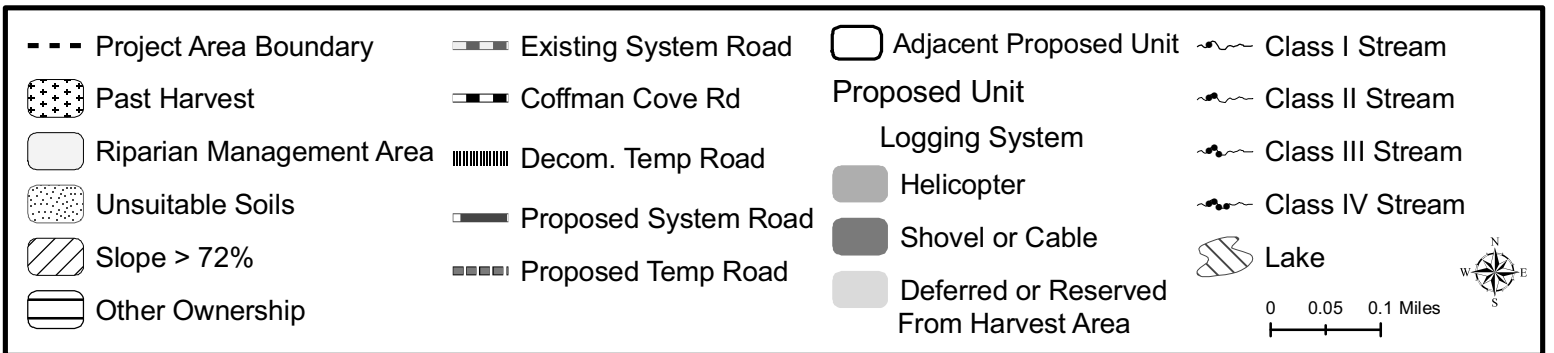
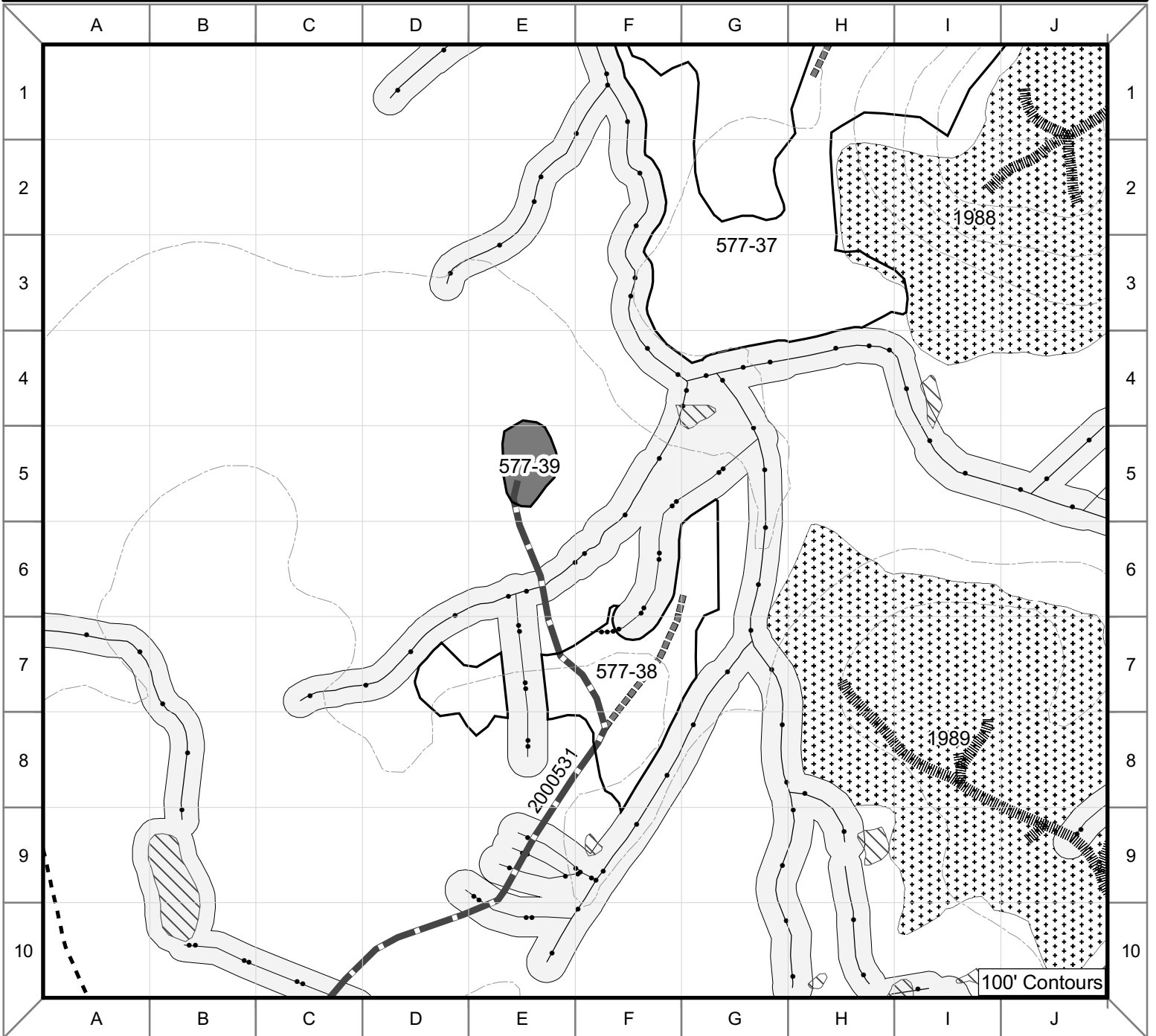
Alts. 3,4 and 5: Slopes in this unit are all gentle and do not exceed 15%. Partial suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Moss muskeg, tall sedge, emergent short sedge, and scrub shrub wetlands surround the unit boundaries. The unit contains 75% forested wetland.

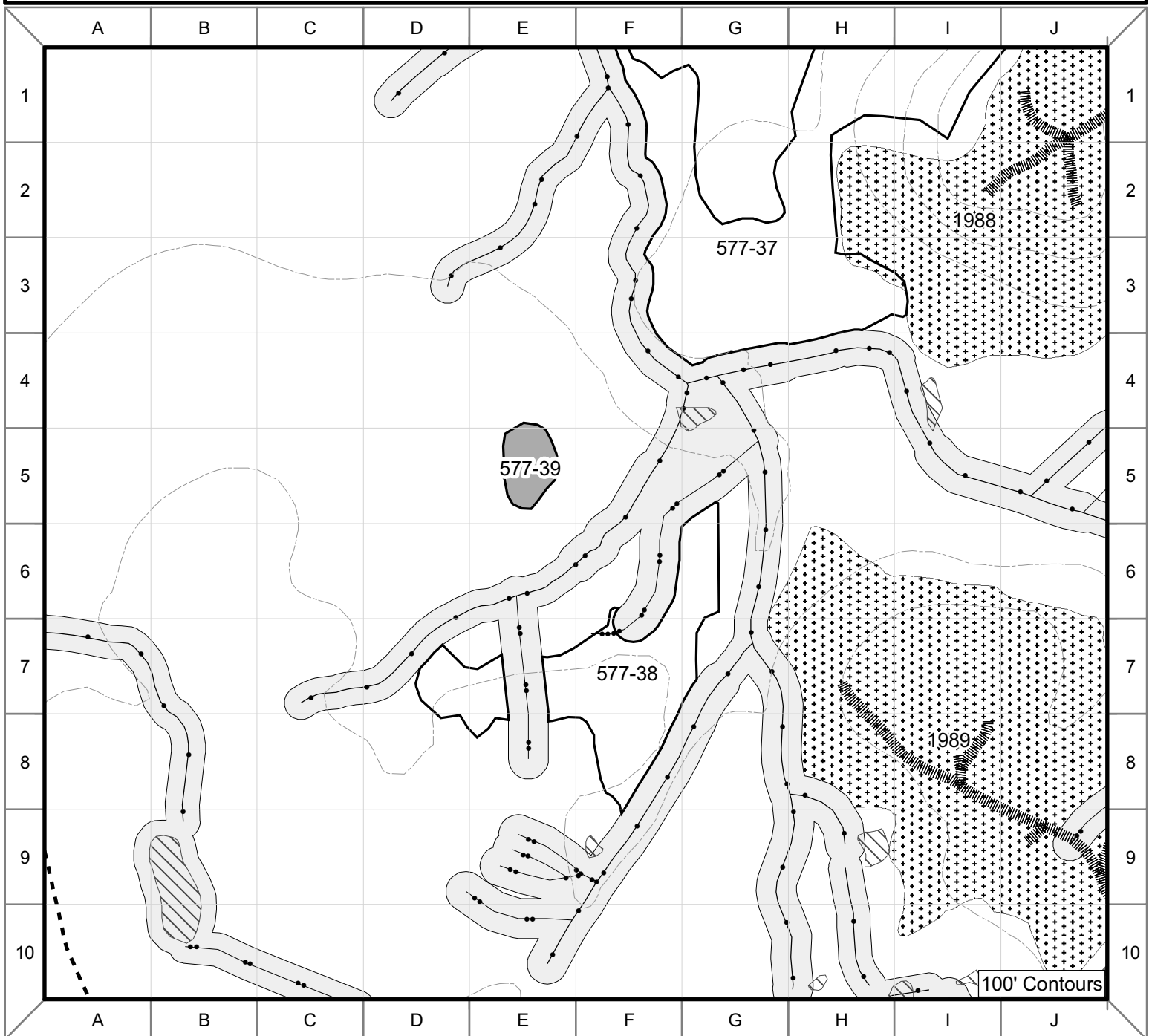
Alt. 2: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Moss muskeg, tall sedge, emergent short sedge, and scrub shrub wetlands surround the unit boundaries. The unit contains 75% forested wetland. There are no resource concerns with the proposed temporary road (BMP 12.5).

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 3, 4 and 5 - Drop Road Helicopter partial cut with up to 50% basal area removal. Poor economics, high road construction costs for marginal timber volume.





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-39 Alternatives 2, 3, 4, 5

Unit Number: 577-39	Alternatives: 2,3,4,5	Total Unit Acres: 3	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 88 Alt. 3 – 44 Alt. 4 – 44 Alt. 5 – 44	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Stand is small and isolated by muskeg. Mature old growth stand with average defect. Moderately stocked overstory with well stocked understory. Hemlock with scattered spruce. Windthrow risk is low. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternative 2 this unit is planned for shovel yarding to proposed NFSR 2000531.

In Alternatives 3, 4, and 5 this unit is planned for helicopter yarding to an existing temporary spur of NFSR 2052.

ENGINEERING/ROADS: In Alternative 2 this unit is accessed by proposed NFS road 2000531 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alternatives 3, 4, and 5 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: No streams were found in this unit during reconnaissance. If any streams are located during implementation, a fish biologist will be notified and appropriate protections will be applied.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: In Alternatives 3, 4, and 5: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9).

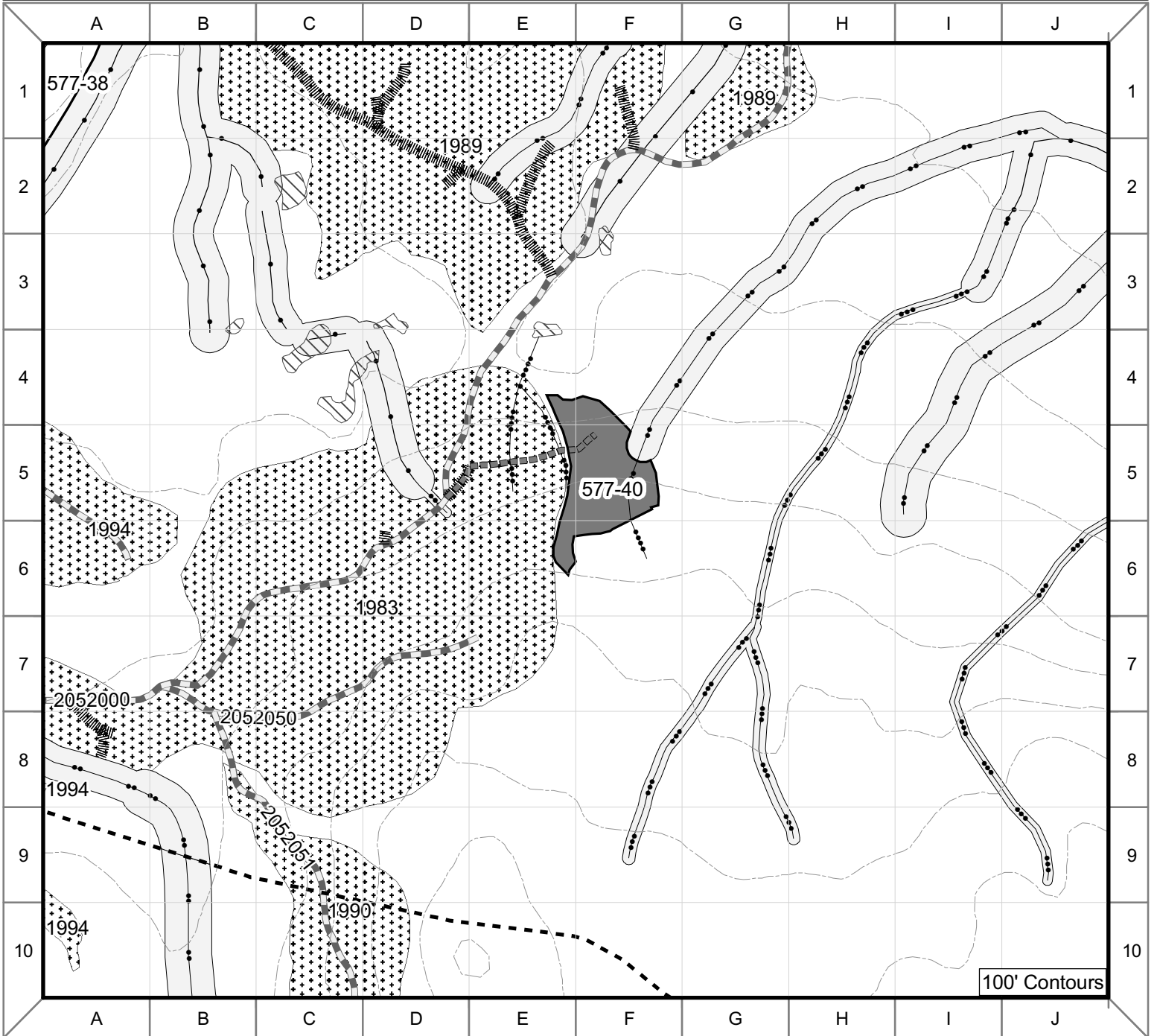
Alternative 2: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel

tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead.

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

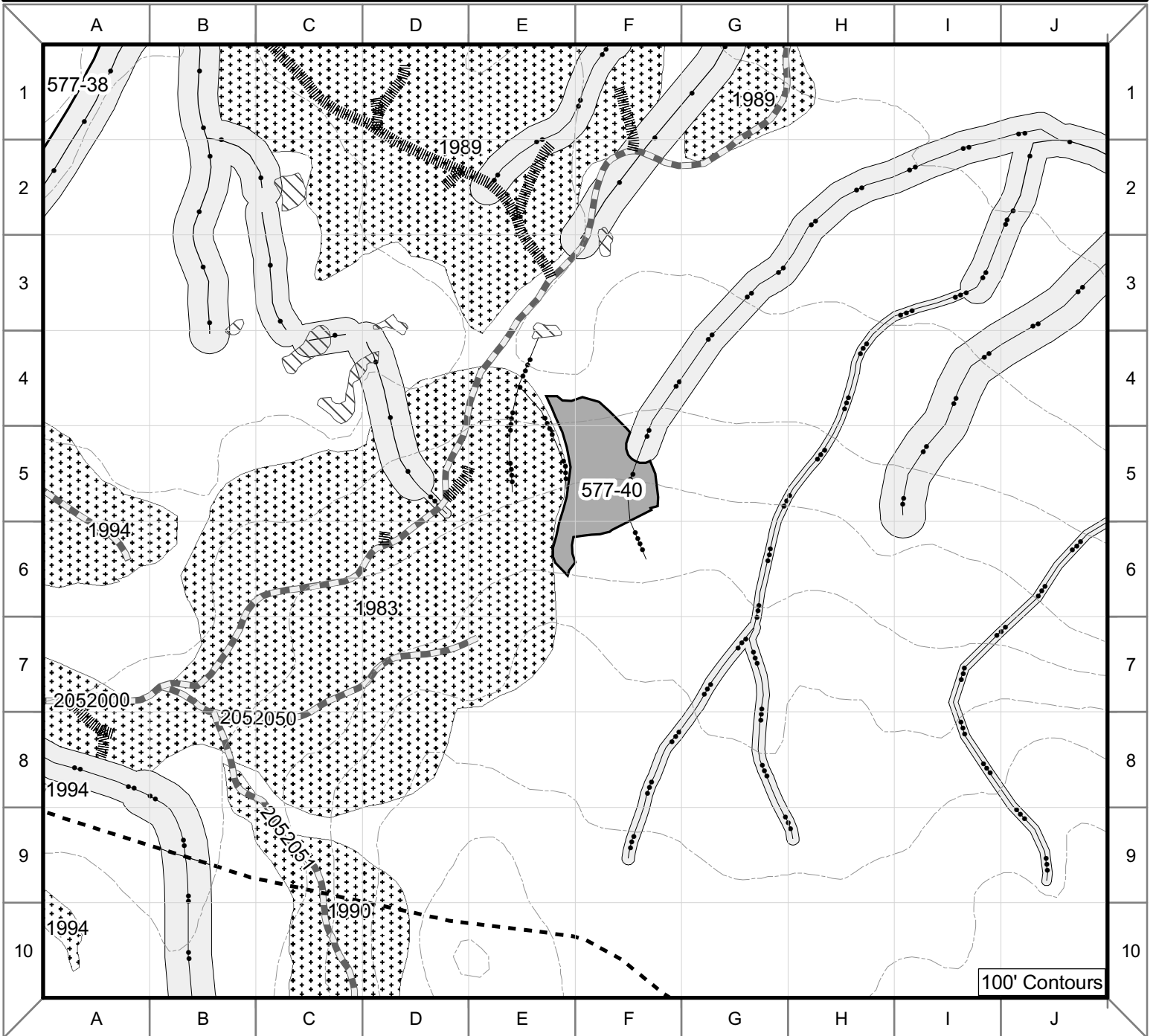
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 3, 4 and 5 are - Drop Road Helicopter partial cut with up to 50% basal area removal. Poor economics, high road construction costs for marginal timber volume.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	▤ Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

Unit 577-40 Alternatives 2, 3, 5

Unit Number: 577-40	Alternatives: 2,3,5	Total Unit Acres: 10	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 236 Alt. 3 – 118 Alt. 5 – 118	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This is a multi-storied old growth stand of average productivity for the area. Stand is mostly hemlock with some scattered spruce and cedar. Mistletoe is heavy along west edge of stand. Some small mountain hemlock are along west edge. Windthrow risk is moderate. Mistletoe occurrence is heavy-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternative 2 this unit is planned for a combination of shovel and uphill cable yarding to a proposed temporary spur of NFSR 2052.

In Alternatives 3 and 5 this unit is planned for helicopter yarding to a landing on existing NFSR 2052.

ENGINEERING/ROADS: In Alternative 2 this unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 1,100 feet in length. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alternatives 3 and 5 there is no proposed road construction.

BOTANY: Uncommon and sensitive plants outside unit boundary.

INVASIVE SPECIES: No concerns

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

Stream#: 577-40-1 Location: F4, F5, F6

Class: II, IV Flagging: B/W, O/W, G/W C-type: HC1, HC5, HC0

Concern: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-40: Alternative 2 – Two Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes in this unit range from 35 to 55%.

Alternative 2: Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Short sedge muskegs border the unit in the north, south, and east. The unit contains forested wetland in the southern and eastern portions of the unit. There are no resource concerns with the proposed temporary road (BMP 12.5).

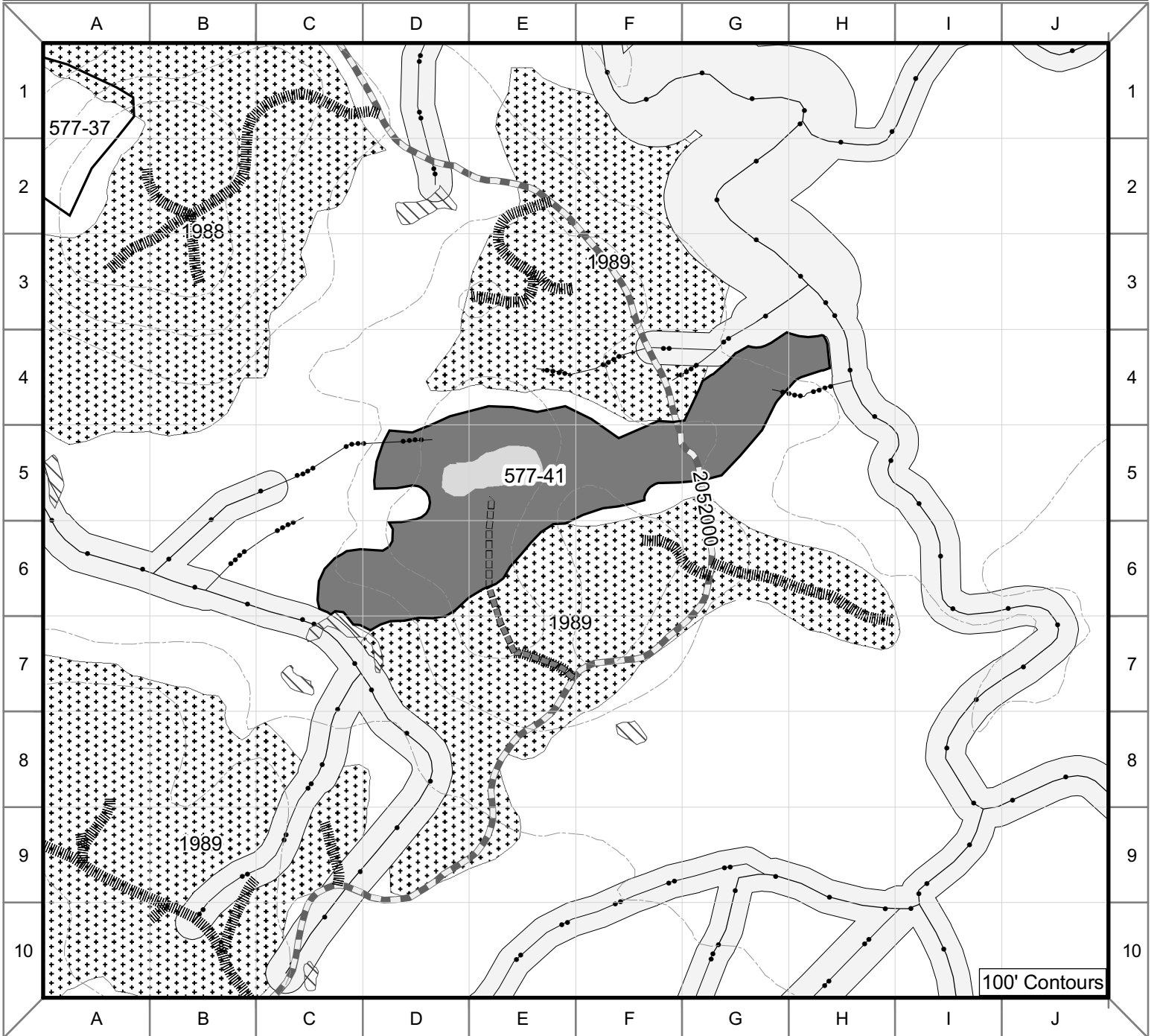
Alternatives 3 and 5: Partial suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Short sedge muskegs border the unit in the north, south, and east. The unit contains forested wetland in the southern and eastern portions of the unit.

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

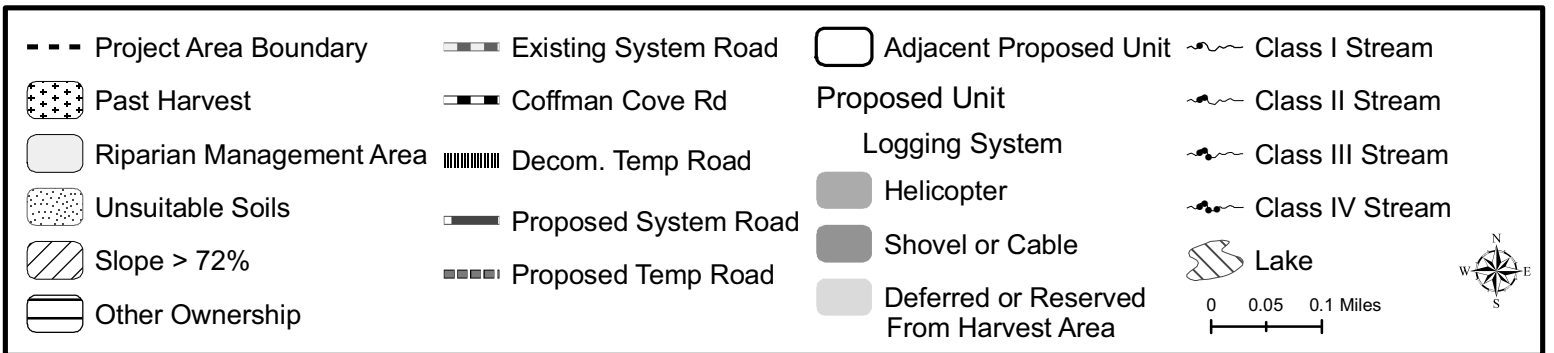
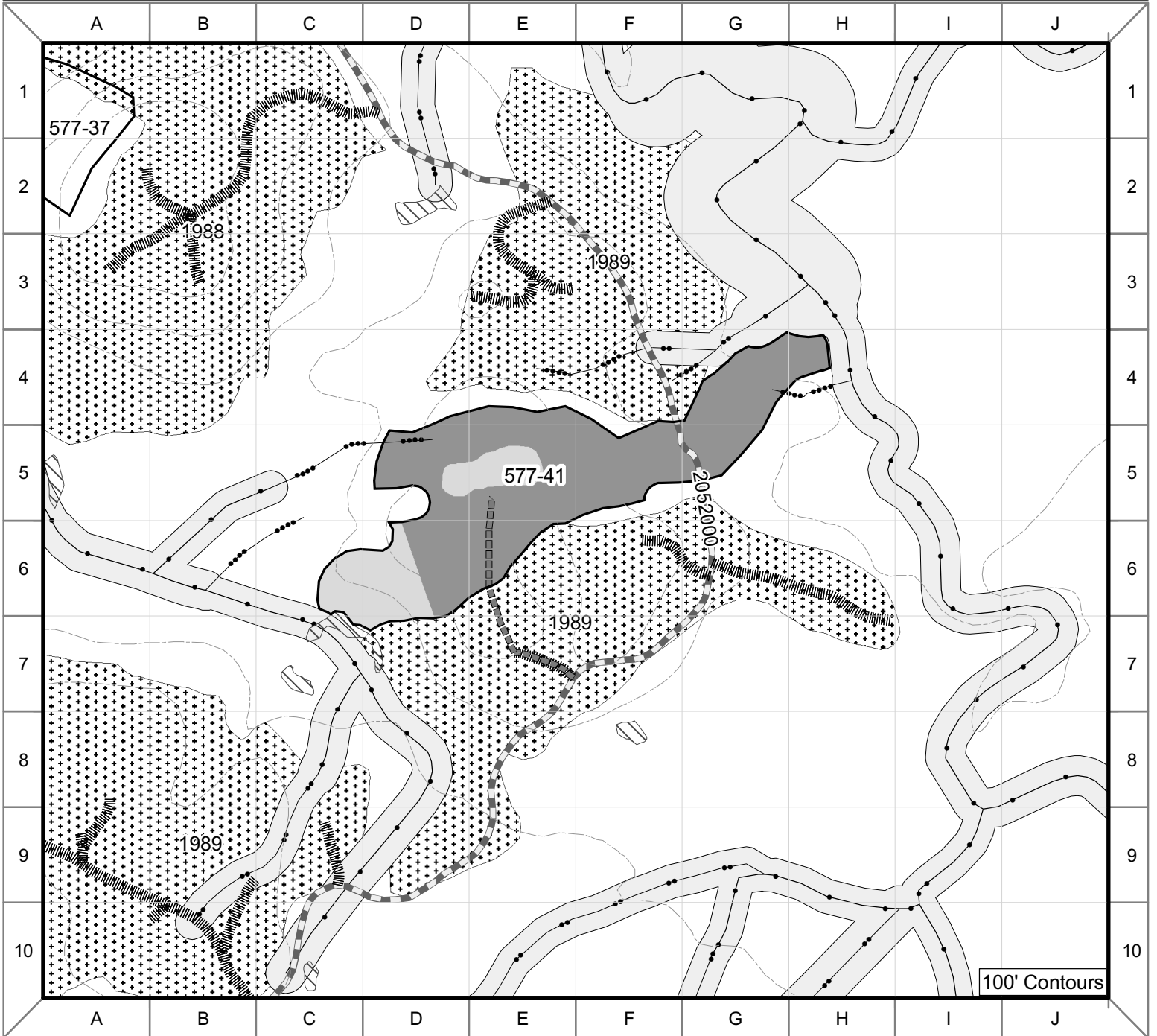
COMMENTS: Concerns in Alternatives 3 and 5 are - Drop Road Helicopter partial cut with up to 50% basal area removal. Poor economics, high road construction costs for marginal timber volume.

Concerns in Alternative 4 are – Drop unit. Unit within IRA.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	▤ Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



Unit 577-41 Alternatives 2, 3, 5

Unit Number: 577-41	Alternatives: 2,3,5	Total Unit Acres: Alt. 2 – 48 Alt. 3 – 41 Alt. 5 – 48	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,417 Alt. 3 – 1,210 Alt. 5 – 1,417	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth hemlock stand with scattered large spruce, described as mainly single story. Redcedar occurs in a band across the center of the unit just below a knob. Two blowdown patches were noted along the southern boundary. Stand is a leave strip between two 1989 harvests. Windthrow risk is high. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to existing NFSR 2052 and to a proposed temporary spur of NFSR 2052. The southwestern corner of the unit is deferred in Alternative 3.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, and 5 - accessed by temporary roads 1,500 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: Sensitive and unusual plants along extreme eastern boundary.

INVASIVE SPECIES: No concerns

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

Stream#: 577-41-1 Location: G2, G3, H3, H4, H5
Class: I Flagging: B/W C-type: FP3, MC2

Concerns: This stream is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. (for FP3) and 100ft. (for MC2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-41-1.1R Location: H3, G3, G4, F4, E4
Class: I, II Flagging: B/W C-type: FP3, HC5, HC1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 130ft. (for FP3) and 100ft. (for HC5 and HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-41-2 Location: A6, B6, C6, C7, D7, D8
Class: I Flagging: B/W C-type: PA1, MM1

Concern: moderate blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation

or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 577-41-2.1L Location: B6, B5, C5, D5
Class: I, IV Flagging: B/W, G/W C-type: PA1
Concern: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 577-41-Lake1 Location: C6, C7, D7
Class: I Flagging: B/W C-type: L

Concern: moderate blow down along lake adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 577-41: Alternative 2, 3, and 5 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: The portion of the unit west of the 2052 road is underlain by limestone into which karst drainages have developed. The majority of this unit is considered to be of moderate vulnerability and requires at a minimum partial suspension. The central portion of the unit contains high vulnerability karst, which has been removed from harvest with non-harvest buffers intended to be 100-foot minimum buffers. Wind firmness beyond that must be considered. For temporary roads ensure that road drainage is designed such a manner that sediment and road associated drainage does not reach karst feature; any culverts needed will be designed under the guidelines of BMP 14.17; ensure that all culverts, rolling dips, or relief culverts are adequately designed and maintained to prevent blockage of the culvert or diversion of road associated surface waters; Sediment traps and erosion control measures may be required. If constructed, sediment traps should be maintained; same season revegetation of the cut and fill slopes should be required to minimize sediment production potential; Pull culverts when road is closed.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Slopes in this unit are less than 20%. Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). Emergent short sedge, tall sedge and forested wetlands surround the unit outside of the boundaries. There are no resource concerns with the proposed temporary road (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

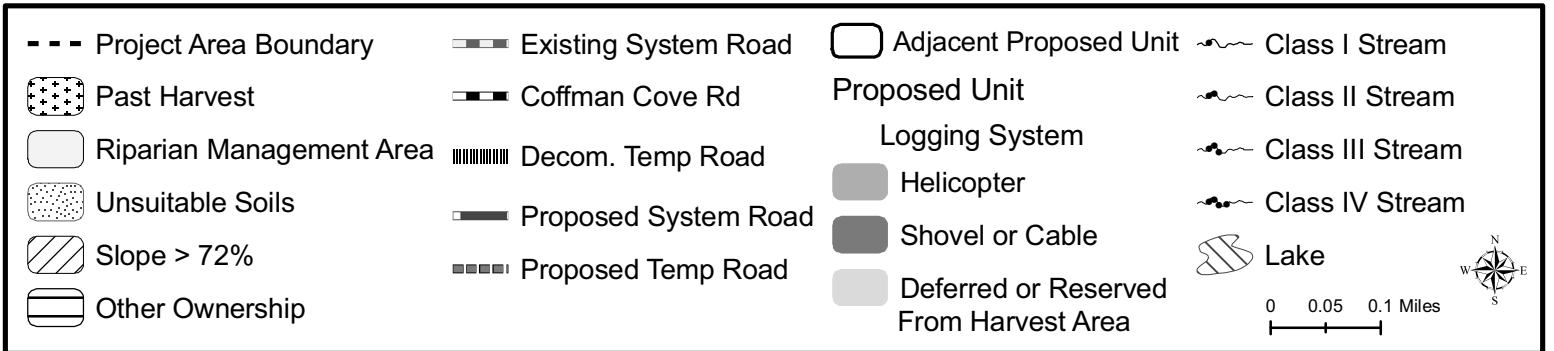
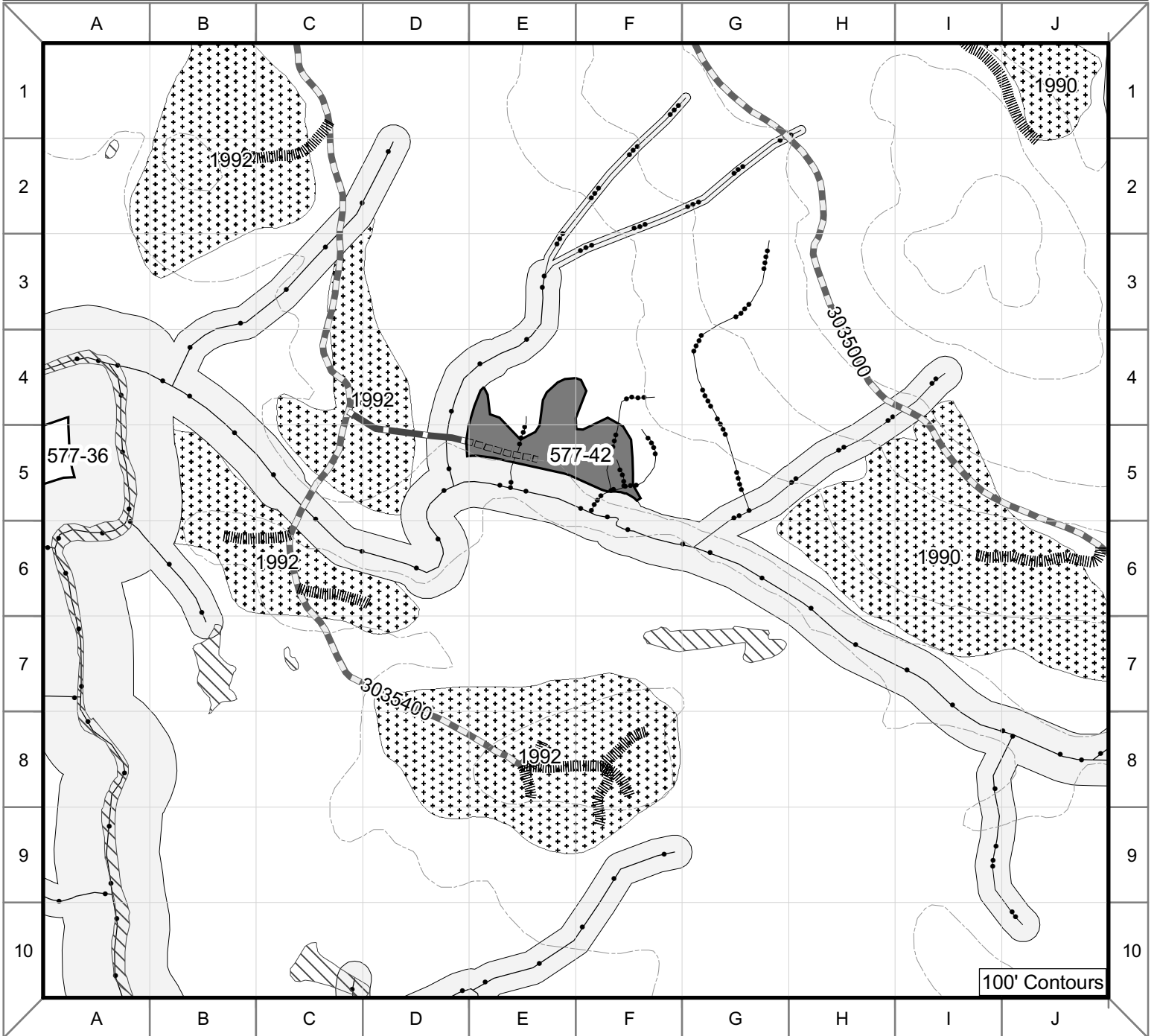
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2 and 5 are - Shovel Clearcut; Protect karst

Concerns in Alternative 3 are - Drop the southwest corner to reduce yarding distance to 600'; ; Provide RMA buffer to lake during unit lay-out phase. Moderate blow down in the southwest and south-central edge of unit; Lake along southwest edge.

Concerns in Alternative 4 are – Drop unit. Sensitive plants; East /west travel route.

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Unit 577-42 Alternative 2

Unit Number: 577-42	Alternatives: 2	Total Unit Acres: 9	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): 229	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Lower site, high defect hemlock-redcedar stand, old growth stage with multiple canopies. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to a proposed temporary extension of proposed NFSR 3035500.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3035500 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 500 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-42-1 Location: D6, D5, E5, F5, F6

Class: I Flagging: B/W C-type: FP3

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-42-1.1L Location: D5, D4, E4

Class: I Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

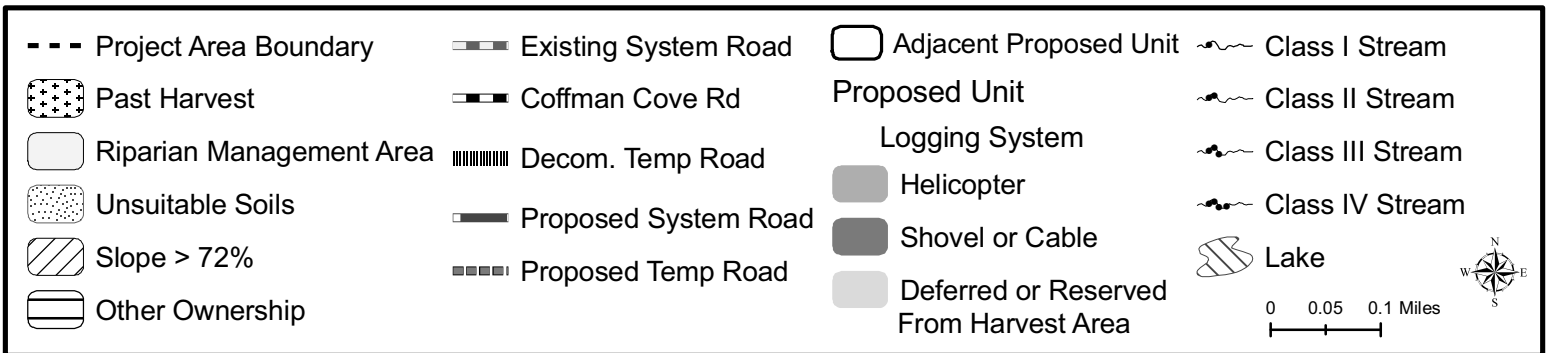
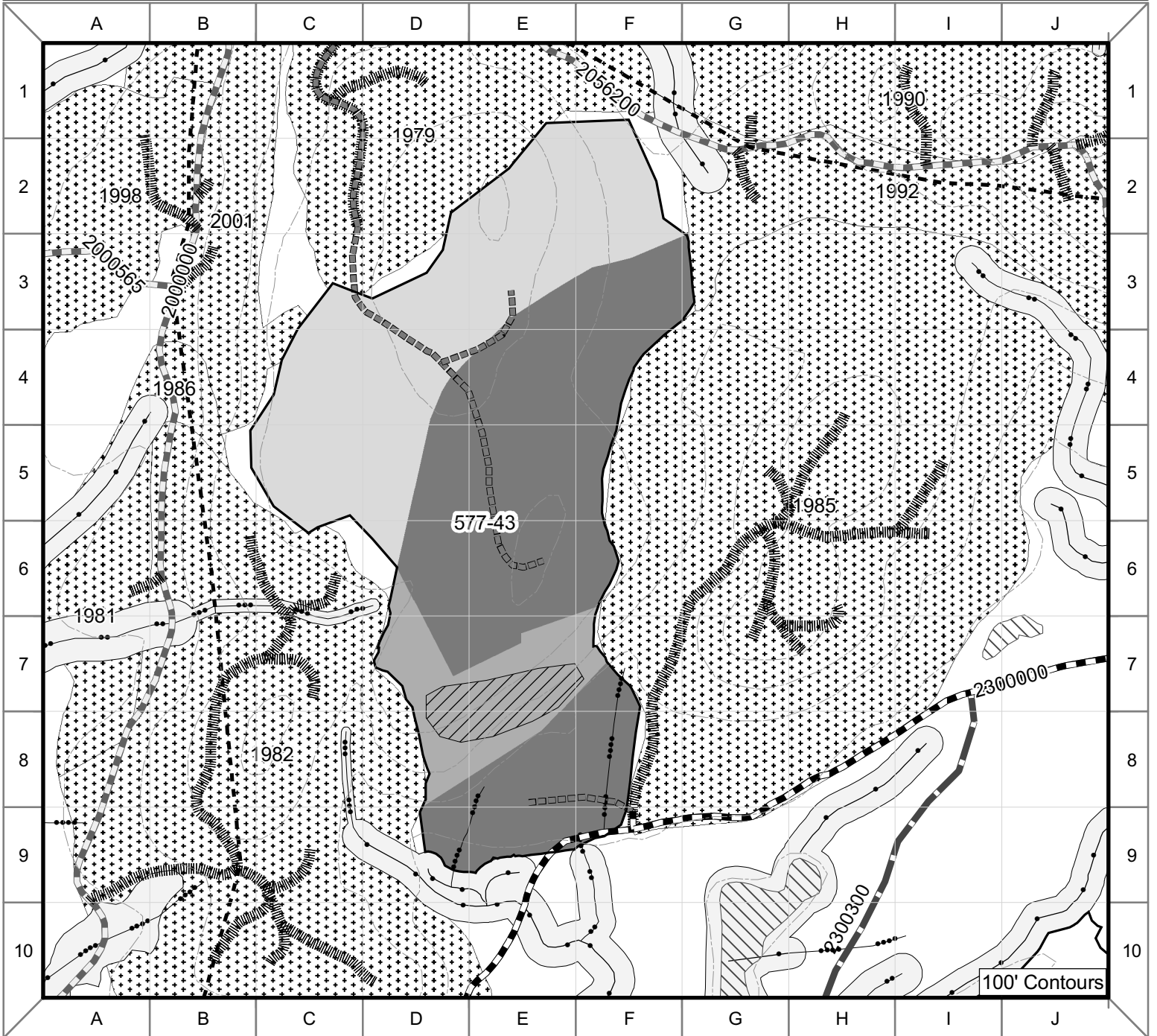
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

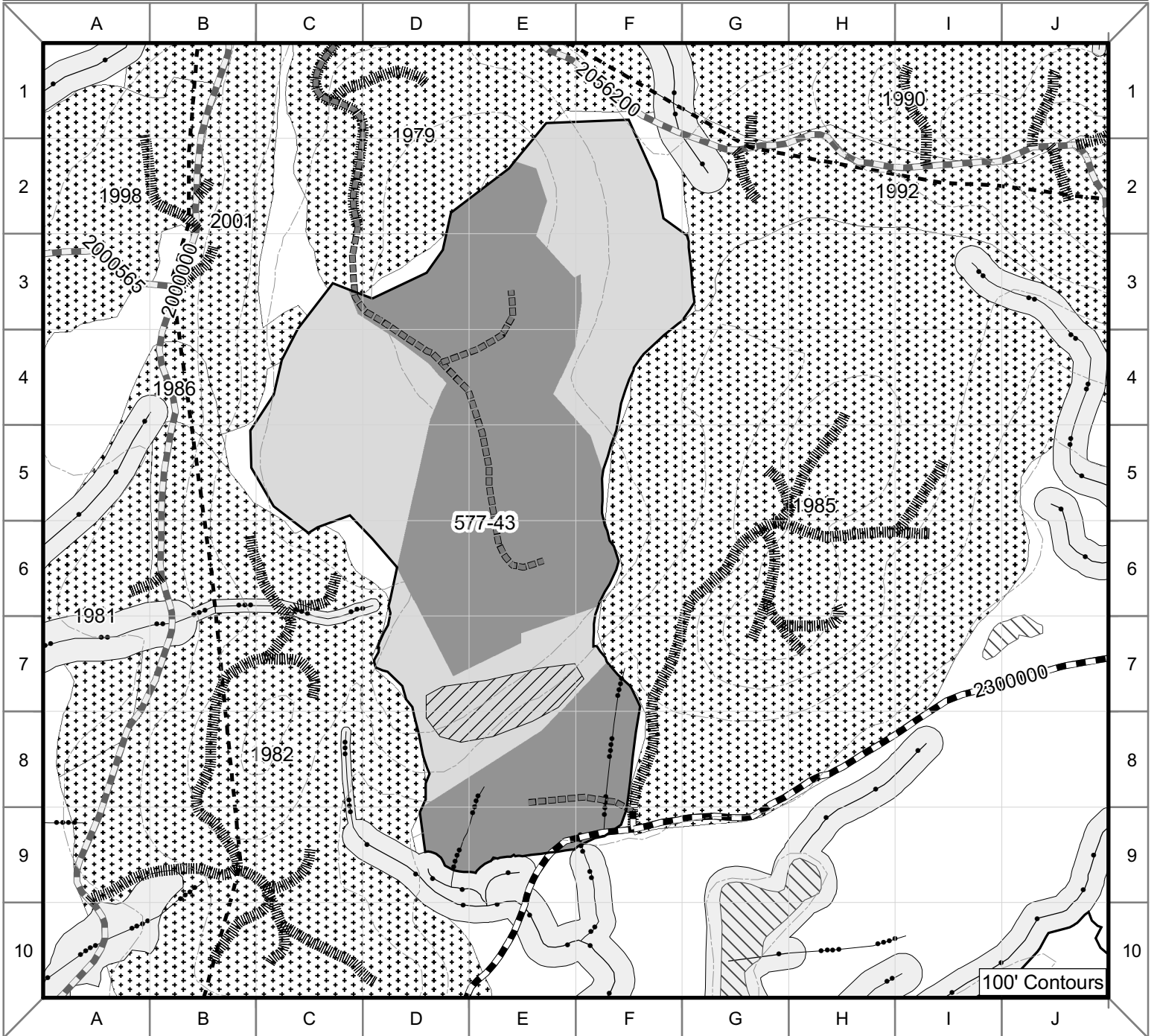
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-42: Alternative 2 – One Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

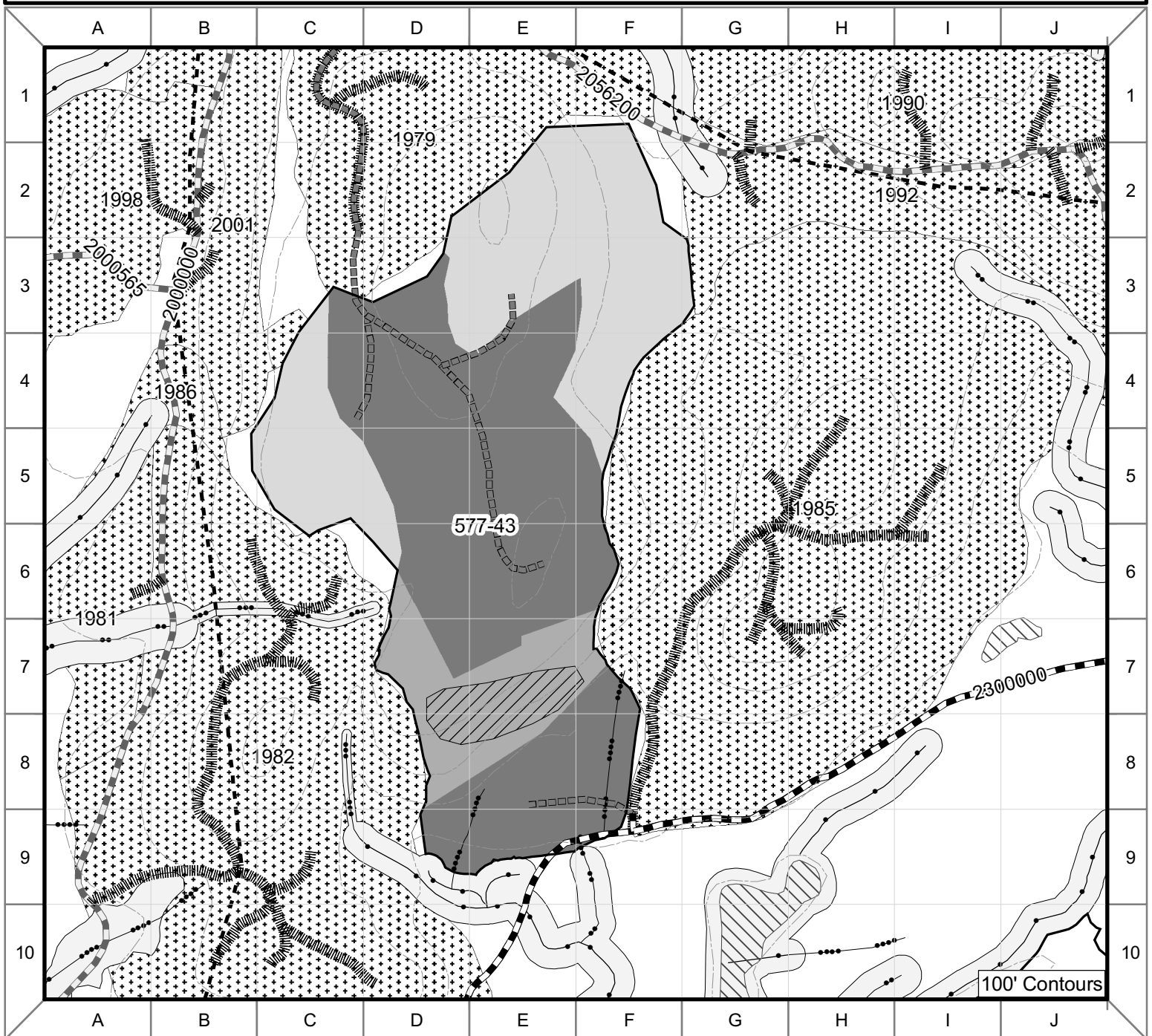
<p>GEOLOGY/KARST: No geology or karst resource concerns:</p>
<p>HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.</p>
<p>SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.</p>
<p>RECREATION: No concerns</p>
<p>SOILS/WETLANDS: Shovel yarding would meet soil and wetland resource needs (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. No soil or slope concerns were identified; therefore no field reconnaissance was completed by the soil scientist. The proposed temporary road would cross less than a ½ acre of forested wetland and emergent short sedge complexes (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).</p>
<p>WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.</p>
<p>COMMENTS: Concerns in Alternative 3 are – Drop unit. Poor timber quality; Class I, II, and III streams present within the unit; Proposed road crossing of Class I stream channel. Concerns in Alternatives 4 and 5 are – Drop unit. Poor economics, high road construction costs for marginal timber volume/ value.</p>

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
••• Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	Decom. Temp Road	□ Logging System	~ Class III Stream
••• Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▨ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▨ Lake
▨ Other Ownership		■ Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
⊘ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▨ Decom. Temp Road	Logging System	~ Class III Stream
⊘ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▨ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▨ Lake
□ Other Ownership		■ Deferred or Reserved From Harvest Area	

Unit 577-43 Alternatives 2, 3, 4, 5

Unit Number: 577-43	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 110 Alt. 3 – 94 Alt. 4 – 94 Alt. 5 – 115	Prescription: Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 2,924 Alt. 3 – 2,802 Alt. 4 – 2,444 Alt. 5 – 3,139	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stand with multiple canopies, well stocked. North half of stand is mostly hemlock/ spruce stand typical of north facing gap phase stand development. South 1/2 of stand has area of steeper slopes with good overall redcedar composition. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: **The Legacy Standard and Guide will apply to the northern portion of the unit that falls within VCU 571.** The proposed harvest by design is less than 20 acres in this VCU so no modifications are required.

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for a combination of shovel, uphill cable and helicopter yarding. Landings for shovel and uphill cable settings in the northern portion of the unit will be accessed by a proposed temporary spur of NFSR 2056200. A proposed temporary spur from NFSR 23 will provide access to the shovel setting on the southern end of the unit. Steep slopes requiring full suspension are planned for helicopter yarding to a landing on this southern proposed temporary spur. Northern settings are deferred in Alternative 2. Areas of high vulnerability karst have been defined in the central portion of the unit. Logging and transportation systems for this unit will be revised before the Final EIS to incorporate appropriate mitigation.

In Alternatives 3 and 4 this unit is planned for a combination of shovel, uphill cable and helicopter yarding. Landings for shovel and uphill cable settings in the northern portion of the unit will be accessed by a proposed temporary spur of NFSR 2056200. A proposed temporary spur from NFSR 23 will provide access to the shovel setting on the southern end of the unit. Steep slopes in the southern half of the unit are planned for deferral. Northwestern shovel setting is also planned for deferral. Areas of high vulnerability karst have been defined in the central portion of the unit. Logging and transportation systems for this unit will be revised before the Final EIS to incorporate appropriate mitigation.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3 and 4 - accessed by temporary roads 6,800 feet in length. Alternative 5 – accessed by temporary roads 7,500 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-43-1 Location: F9, F8, F7
Class: II, IV Flagging: B/W, G/W C-type: HC2, HC1, MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-43-2 Location: E10, E9, D9
Class: I Flagging: B/W C-type: PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-43-3 Location: F10, E10, D10, D9, C9
Class: I Flagging: B/W C-type: PA1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-43-4 Location: C6, C7, C6, D6
Class: III Flagging: O/W C-type: HC6
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-43: All Alternatives – One Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: Surveys have been completed. Karst has been found in this unit. Final unit layout will follow Karst Standards and Guidelines.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Low. The unit is within Timber Management LUD and is seen within Foreground distance zone from VPR Coffman Highway view point 14. Leave screen trees as indicated in the harvest prescription.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

The majority of the unit contains gently sloping topography with the exception of a band of steep slopes (65 to 100%) located between 400 and 600 feet in elevation. This band of slopes, approximately 7 acres, is suitable for harvest with full suspension requirements. Full suspension, partial suspension, and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. A small amount of forested wetland is located on the southern unit boundary. There are no resource concerns with the proposed

temporary roads (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

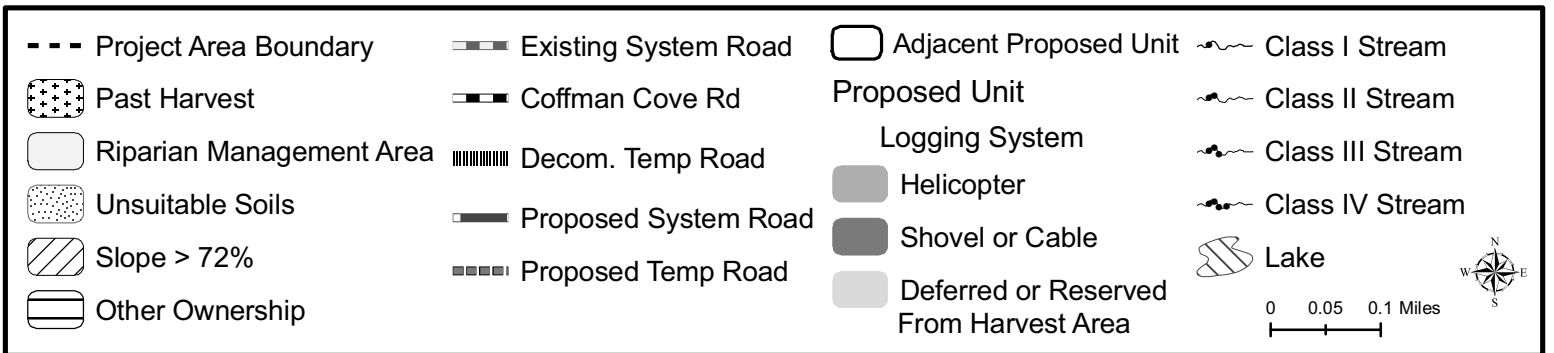
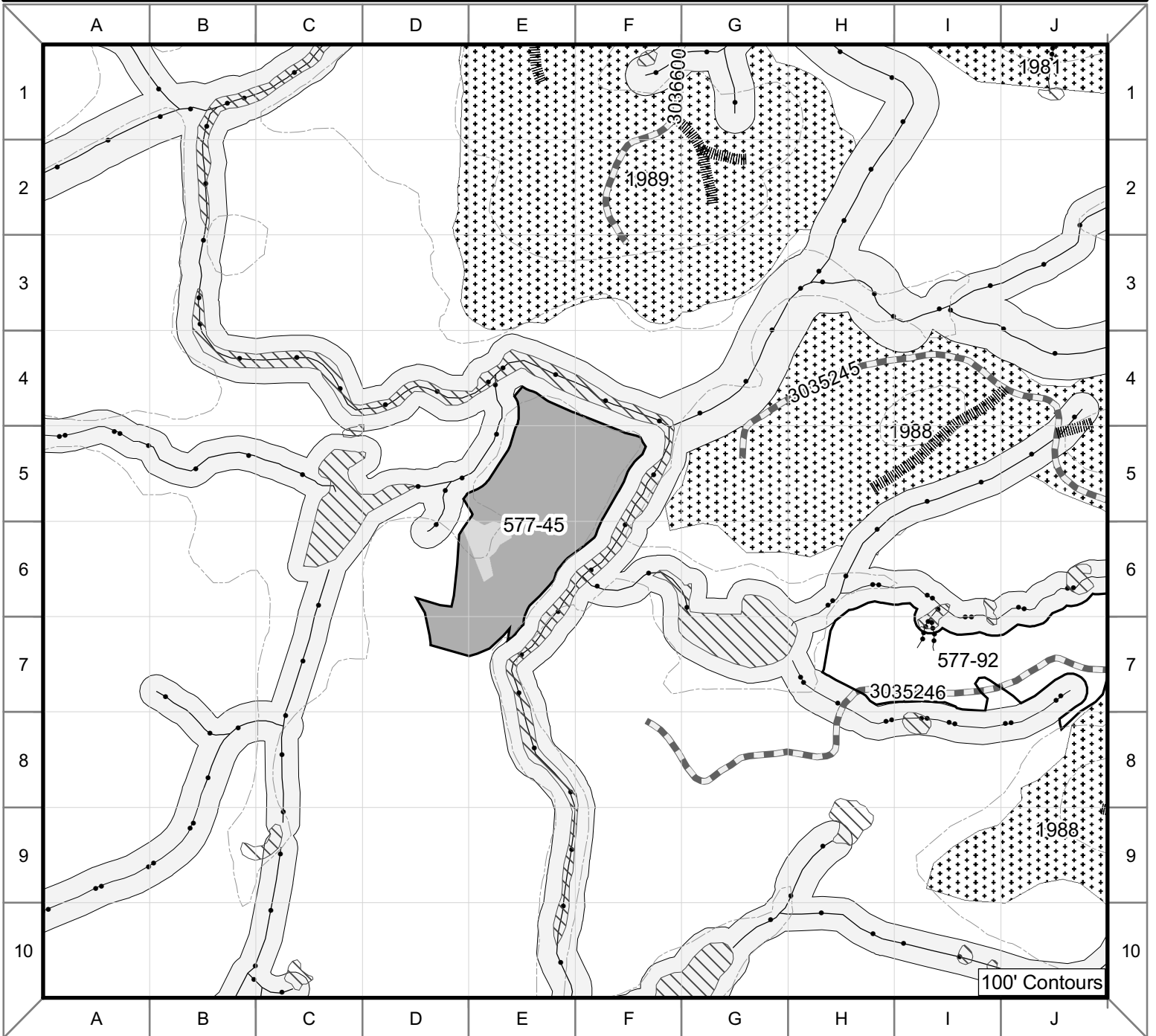
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications. Alternatives 3 and 4: A portion of this unit is in VCU 5710 which requires Legacy standards and guides.

COMMENTS: Concerns in Alternative 2 are – Helicopter harvest steep slope in southern portion of unit to mitigate visual, soils and opening size. Helicopter partial cut in NE corner to limit opening size.

Concerns in Alternative 3 are - Drop steep slope in southern portion of unit and east and western edges of unit to mitigate cumulative effects, visuals, soils and opening size.

Concerns in Alternative 4 are - Drop east and western edges of unit to maintain travel routes and drop steep slopes in southern portion to mitigate visuals, soils and opening size.

Concerns in Alternative 5 are - Helicopter partial cut harvest steep slope in southern portion of unit to mitigate visual, soils and opening size. Defer NE corner to limit opening size.



Unit 577-45 Alternatives 2, 3, 4, 5

Unit Number: 577-45	Alternatives: 2,3,4,5	Total Unit Acres: 25	Prescription Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter	Net Harvest Volume (MBF): 308	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Large diameter old growth stand of mixed hemlock and spruce with minor areas of redcedar. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In all action alternatives this unit is planned for helicopter yarding to a proposed landing on existing NFSR 3035246.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-45-1 Location: D4, E4, F4, F5, F6, E6, E7
 Class: I Flagging: B/W C-type: LC1

Concerns: This is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-45-1.1R Location: E4, E5, D5
 Class: I Flagging: B/W C-type: PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-45-1.1R.1L Location: D5, D6
 Class: I Flagging: B/W C-type: MM1, PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: none

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

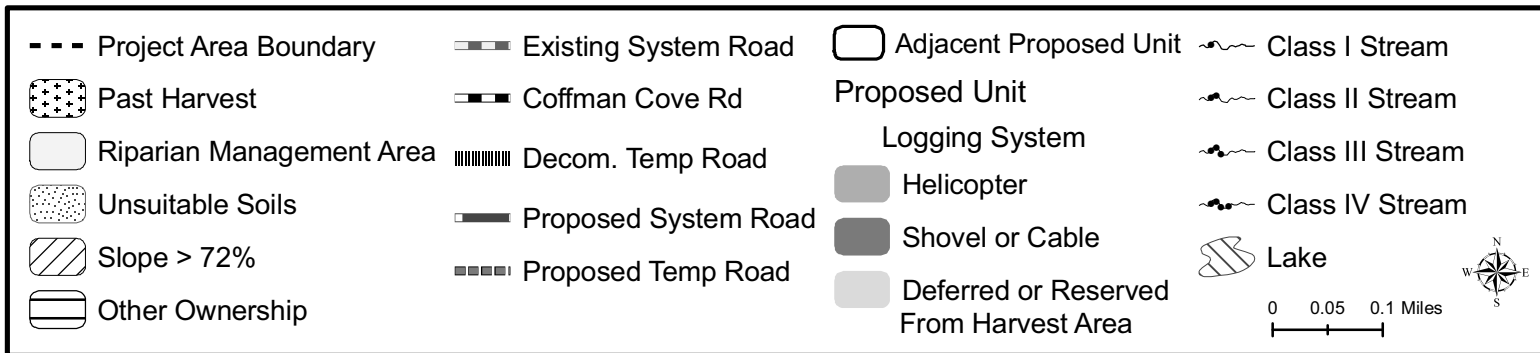
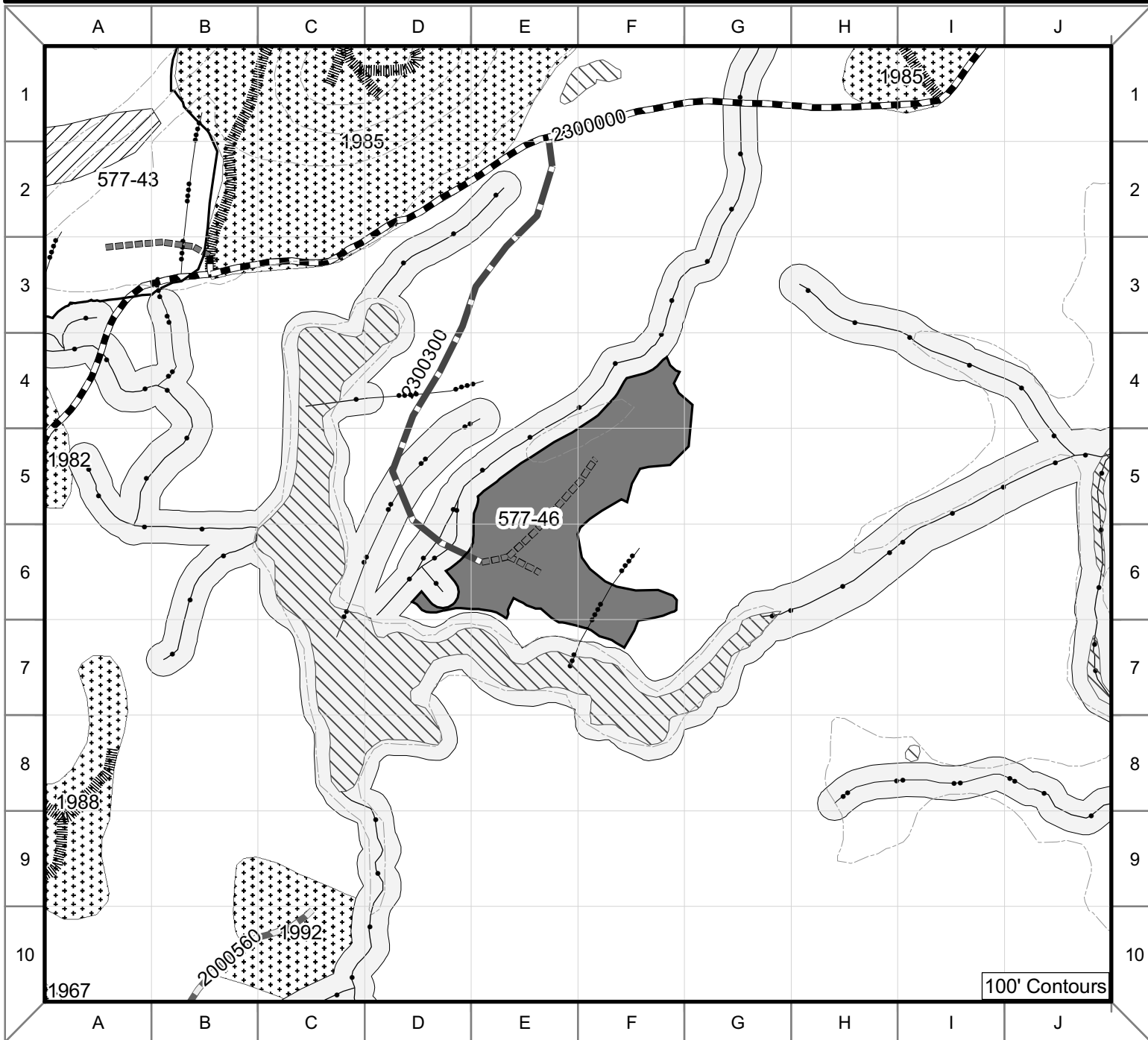
RECREATION: No concerns

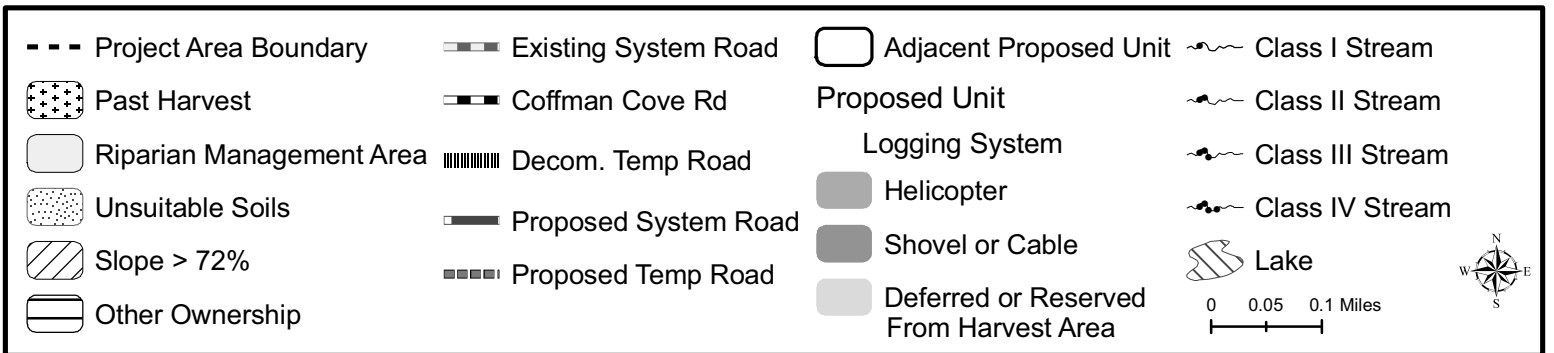
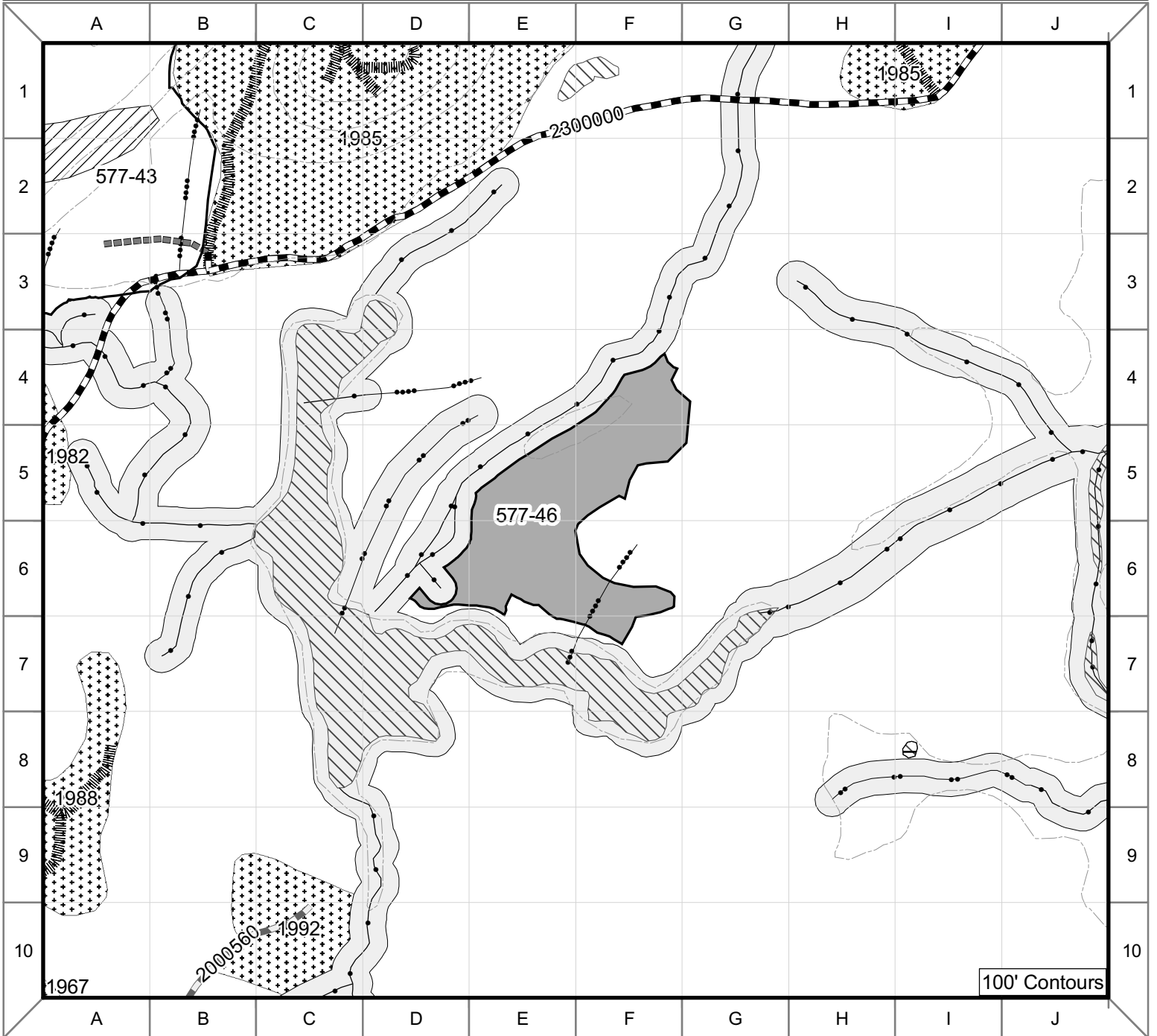
SOILS/WETLANDS: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2, 3 and 5 are - Helicopter Partial-cut with up to 50% removal.
Concerns in Alternative 4 are - Helicopter Partial-cut with up to 50% removal. Travel route along stream –not a high concern.

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Unit 577-46 Alternatives 2, 3, 5

Unit Number: 577-46	Alternatives: 2,3,5	Total Unit Acres: 30	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Shovel Helicopter	Net Harvest Volume (MBF): Alt. 2 – 717 Alt. 3 – 359 Alt. 5 – 359	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mature stand of single story hemlock and redcedar. Central portion of stand is wetter with resulting site restrictions. Older patch of blowdown found in center of stand. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription:

Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible.

Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternative 2 this unit is planned for shovel yarding to proposed NFSR 2300300 and two proposed temporary extensions designed to reduce yarding distances.

In Alternatives 3 and 5 this unit is planned for helicopter yarding to a proposed landing on existing NFSR 23.

ENGINEERING/ROADS: In Alternative 2 this unit is accessed by proposed NFS road 2300300 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 1,300 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

In Alternatives 3 and 5 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-46-Lake1 Location: G6, G7, F8, F7, E7, D7, C7, C6, C5, C4

Class: I Flagging: B/W C-type: L

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 577-46-1 Location: D6, D5, E5, E4, F4, F3

Class: I Flagging: B/W C-type: PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 577-46-1.1R Location: D6

Class: I Flagging: B/W C-type: MM0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-46: Alternative 2 – no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: See unit report in Project File for details.

This unit is nearly level and located on the Logjam Creek floodplain. The entire unit is forested wetland with moss muskeg and tall sedge fens on the unit boundaries.

Alts. 3 and 5: Partial suspension is required to meet soils and wetland resource concerns (BMPs 12.5, 13.5, 13.9).

Alt. 2: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). The entire unit is forested wetland with moss muskeg and tall sedge fens on the unit boundaries. The proposed temporary roads would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

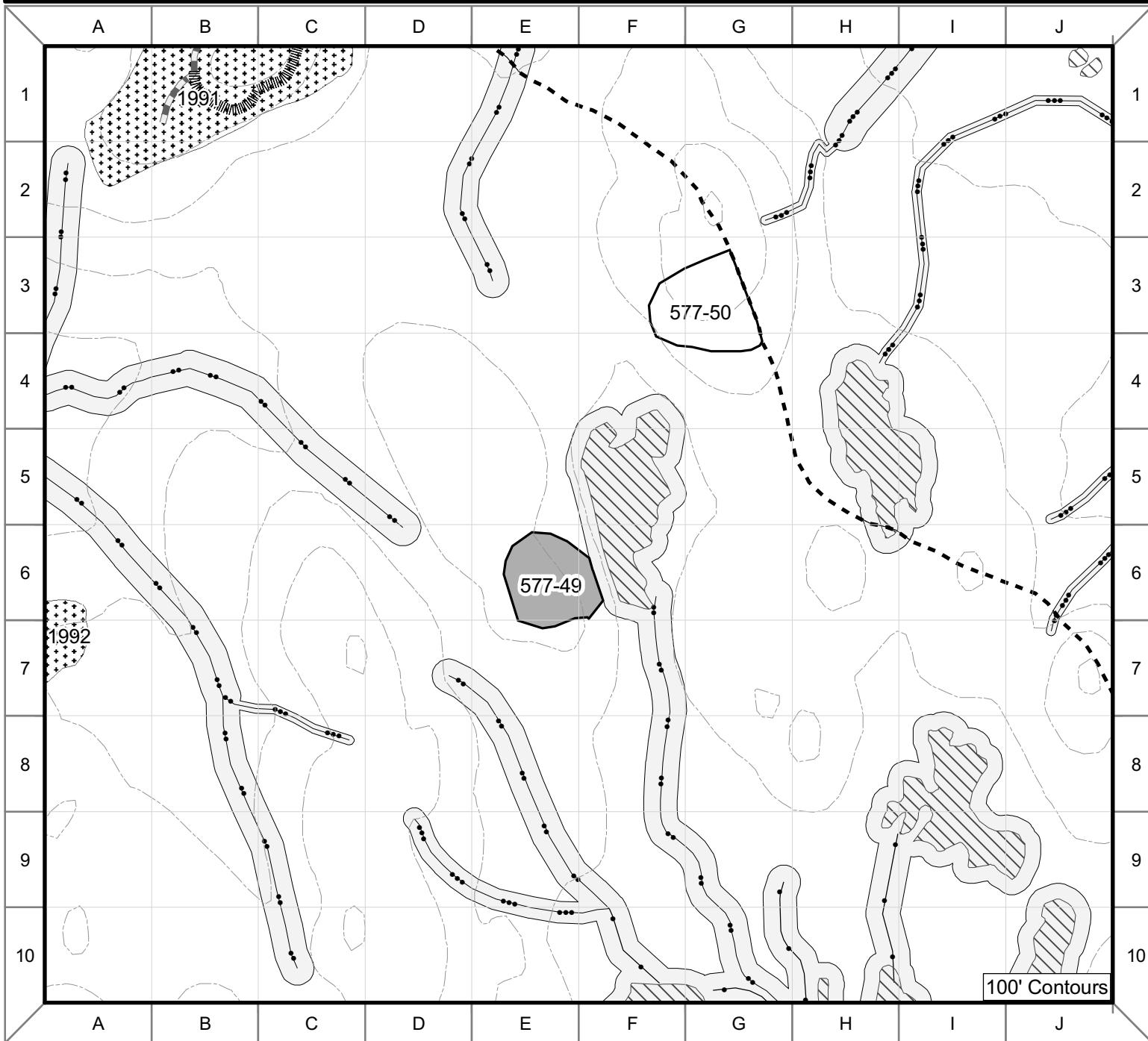
See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Drop Road; Helicopter- partial cut of up to 50% basal area. Proposed road construction makes it un-economic; Additional road construction may be a water quality issue.

Concerns in Alternative 4 are – Drop unit. Heavy wildlife use in area.

Concerns in Alternative 5 are - Drop road; Helicopter- partial cut of up to 50% basal area. Poor economics, high road construction costs for marginal timber volume.



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-49 Alternative 2

Unit Number: 577-49	Alternatives: 2	Total Unit Acres: 7	Prescription Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter	Net Harvest Volume (MBF): 38	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: A small isolated helicopter unit with 60% non-commercial timber. Old growth stage stand with multiple canopies, mainly mixed conifer muskeg timber types in the west with some better timber mainly hemlock, spruce and yellow-cedar in the eastern 1/3. Highly defective trees are throughout the stand. Windthrow risk is moderate.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to a proposed landing on existing NFSR 3035191.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Lake is a tributary to Logjam Creek. (Location is depicted from confluence to headwaters.)

Stream#: 577-49-Lake1 Location: F6, F5, F4

Class: II Flagging: B/W C-type: L

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: none

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

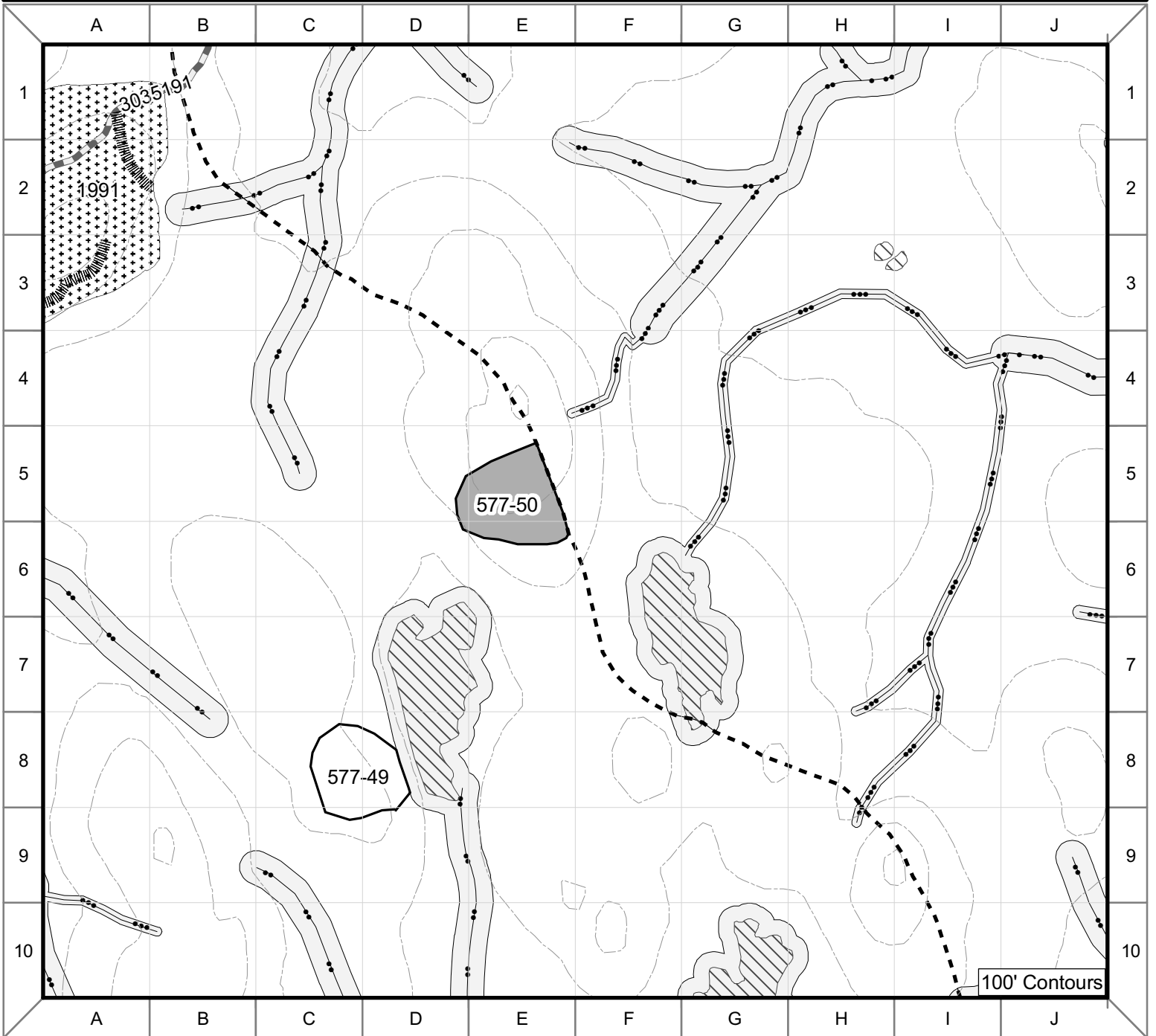
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Helicopter- partial cut of up to 50% basal area.

Concerns in Alternative 3 are – Drop unit. Unit in Inventoried Roadless Area (IRA); Logjam Watershed already contains a high percent of second growth (cumulative effects).

Concerns in Alternative 4 are – Drop unit. Inventoried Roadless Area; Poor Economics.

Concerns in Alternative 5 are – Drop unit. Inventoried Roadless Area; Poor Economics.



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-50 Alternative 2

Unit Number: 577-50	Alternatives: 2	Total Unit Acres: 8	Prescription Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter	Net Harvest Volume (MBF): 43	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Small isolated unit. Stand is old growth stage hemlock and yellow-cedar with lower productivity mixed conifer / mountain hemlock areas in the north, south and east. Windthrow risk is moderate.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to a proposed landing on existing NFSR 3035191.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISH AND WATERSHED:

No streams were found in this unit during reconnaissance. If any streams are located during implementation, a fish biologist will be notified and appropriate protections will be applied.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

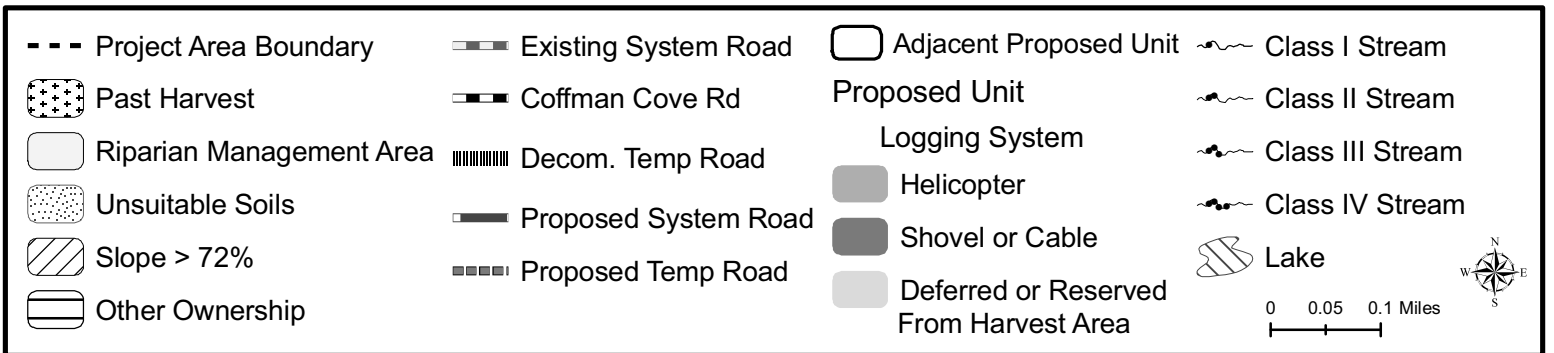
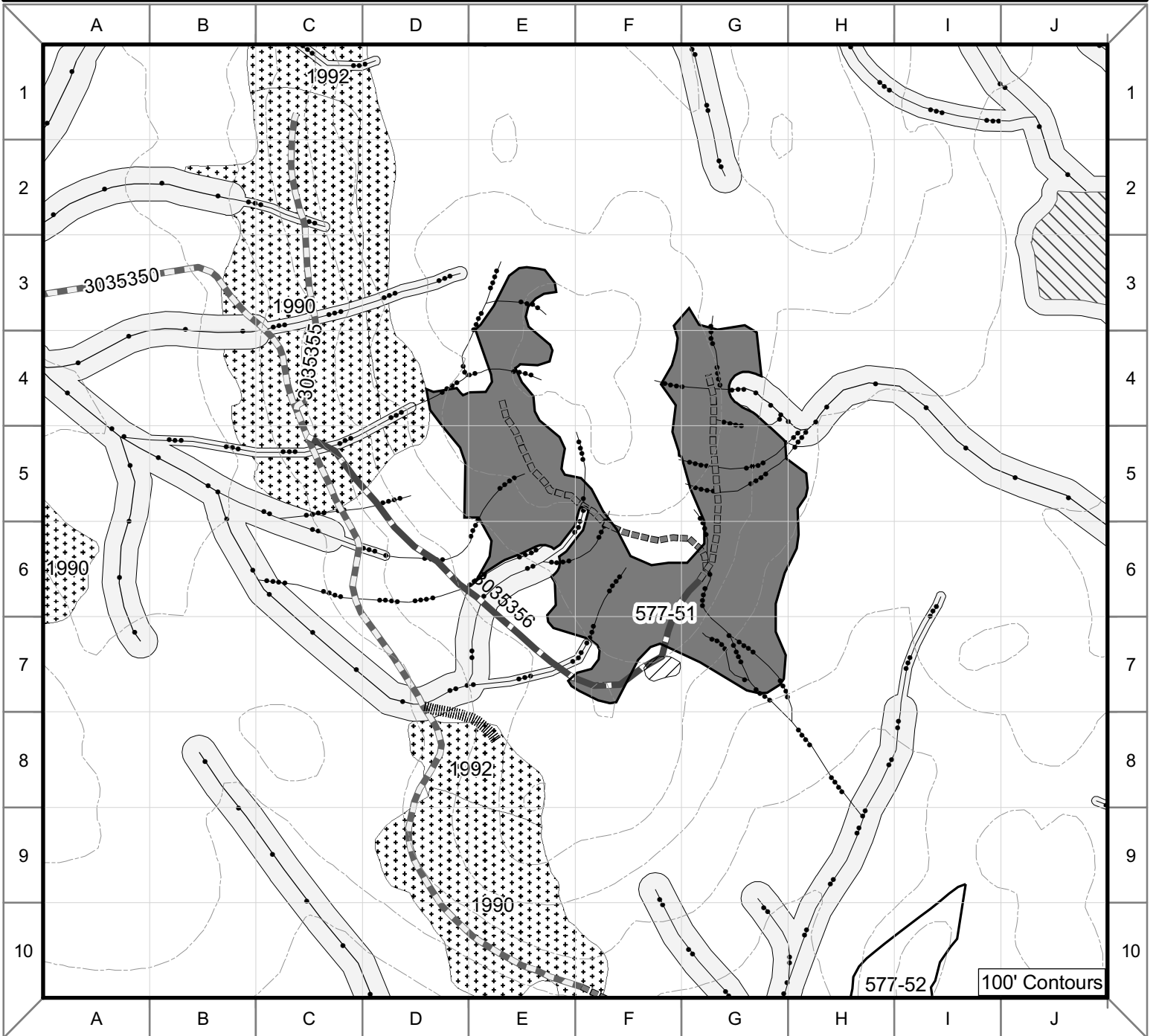
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Helicopter- partial cut of up to 50% basal area.

Concerns in Alternative 3 are – Drop unit. Inventoried Roadless Area; Poor Economics.

Concerns in Alternative 4 are – Drop unit. Inventoried Roadless Area; Poor Economics.

Concerns in Alternative 5 are – Drop unit. Inventoried Roadless Area; Poor Economics.



Unit 577-51 Alternative 2

Unit Number: 577-51	Alternatives: 2	Total Unit Acres: 67	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): 809	LUD: Timber Production Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth predominantly mixed cedar stand. Low site area in both "ears" of unit to the north. Windthrow risk is moderate. Mistletoe occurrence is light-scattered. 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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for a combination of shovel and cable yarding. Access is planned from the north by proposed NFSR 3035356. Two proposed temporary extensions are planned to provide access to cable landings and to minimize shovel yarding distances.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3035356 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 3,200 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-51-1 Location: D7, E7, E6, F6, F5
Class: I, II, III, IV Flagging: B/W, O/W, G/W C-type: HC2, HC5, HC1

Concern: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-51-1.1R Location: E7, F7, F6
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-51-2 Location: H8, G8, G7, G6, G5
Class: IV Flagging: O/W, G/W C-type: HC1, MM0

Concerns: Bank and side slope stability poor. Active erosion and soil slumps present.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

Stream#: 577-51-2D Location: H8, H7, G7
Class: IV Flagging: O/W C-type: HC1
Concerns: Bank and side slope stability poor. Active erosion and soil slumps present.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 RAW Buffer: none

Stream#: 577-51-3 Location: I4, H4, H5, H4, G4
Class: I Flagging: B/W C-type: HC4
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-51-6 Location: D6, E6, E5
Class: IV Flagging: O/W, G/W C-type: HC5, HC1
Concerns: Bank and side slope stability poor. Active erosion, soil slumps, and heavy blow down present.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-51: Alternative 2 – Seven Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

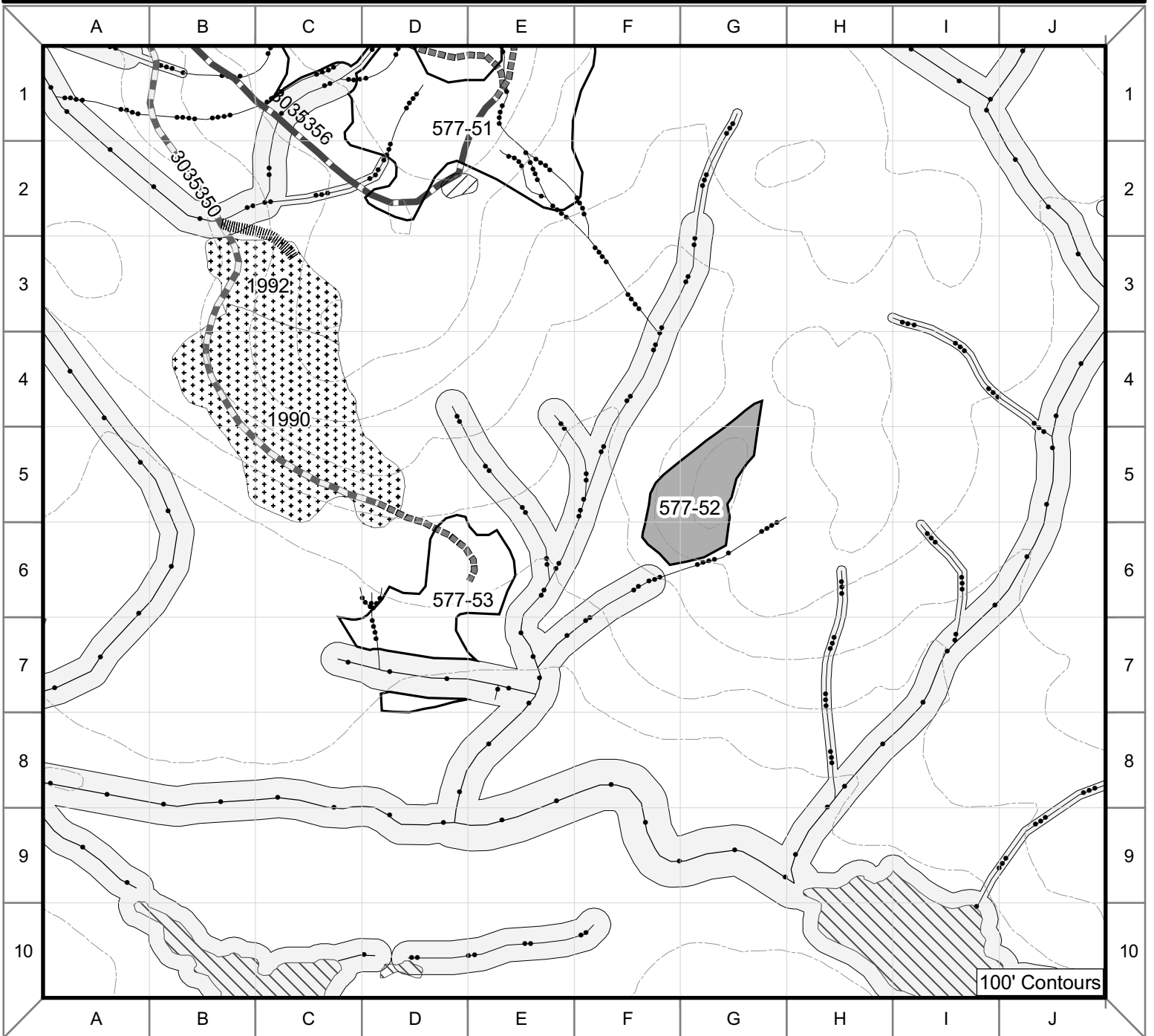
RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes average 30 to 50% across the majority of the unit with slopes up to 70% in some small cliff locations. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding opportunities are limited due to the abundance of very poorly drained soils. Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Greater than 75% of the unit of comprised of forested wetland, shrub-scrub, and muskeg. The temporary roads would cross about 3 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Unit partially in Inventoried Roadless Area (IRA); Poor economics; Lots of streams (4 orange and white streams), cumulative effects.
Concerns in Alternative 4 are – Drop unit. Unit partially in Inventoried Roadless; Unit as proposed will block north-south corridor, poor economics.
Concerns in Alternative 5 are – Drop unit. Poor economics, high road construction costs for marginal timber volume/
value



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▨ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▨ Decom. Temp Road	Logging System	~ Class III Stream
▨ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▨ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▨ Lake
▨ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-52 Alternative 2

Unit Number: 577-52	Alternatives: 2	Total Unit Acres: 9	Prescription Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter	Net Harvest Volume (MBF): 114	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stand of mixed hemlock and yellow-cedar with scattered spruce. Hemlock appears old and defective. Stand is heavy to yellow-cedar. Windthrow risk is moderate.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to a proposed landing in unit 577-53 on a proposed temporary extension of NFSR 3035.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-52-1 Location: F6, G6, G5

Class: IV Flaggng: O/W, G/W C-type: HC5

Concern: Erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

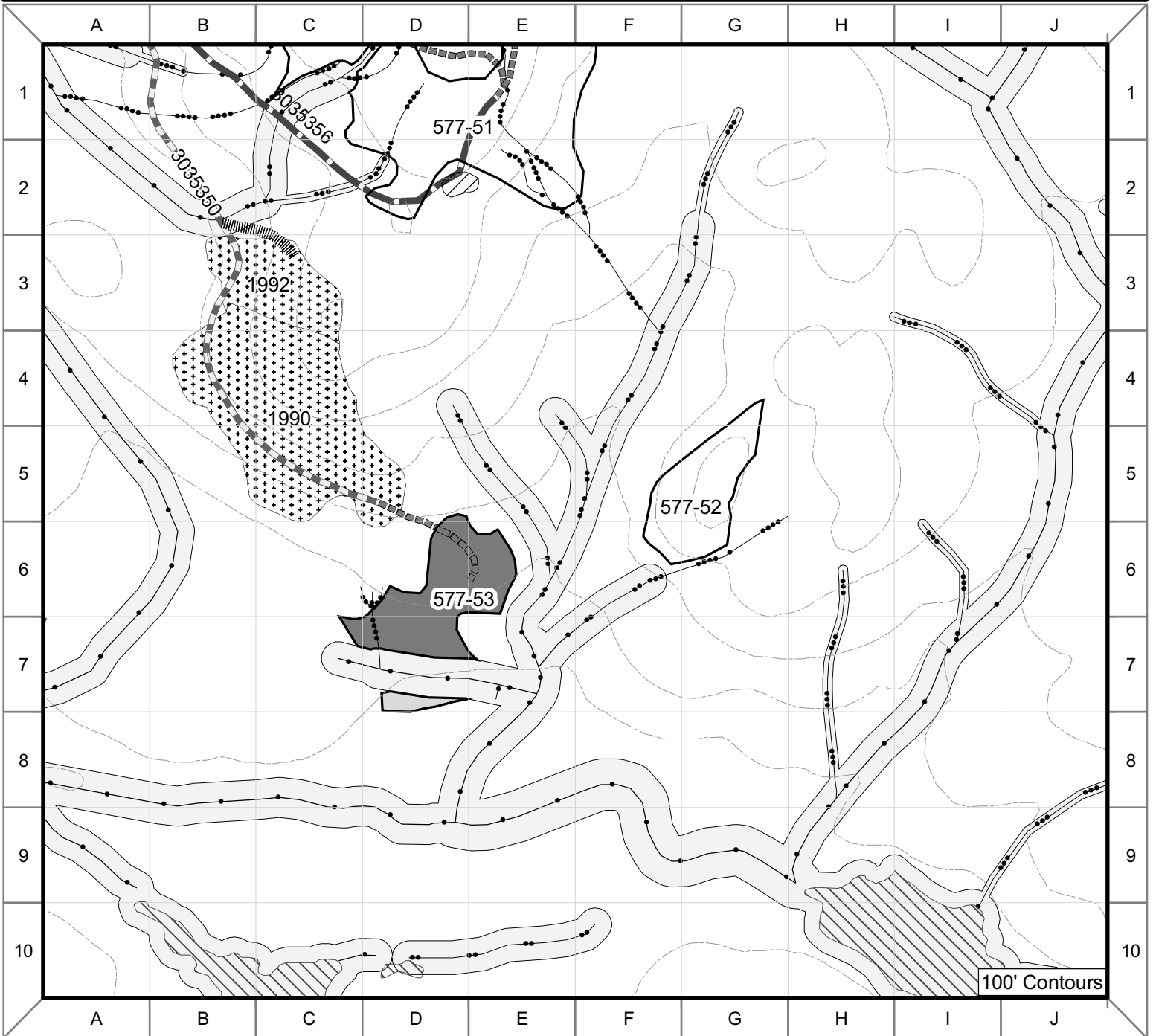
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Helicopter- partial cut of up to 50% basal area. Unit located in high value IRA.

Concerns in Alternative 3 are – Drop unit. Located within a Roadless Area; Poor economics, cumulative effects for Logjam watershed.

Concerns in Alternative 4 are – Drop unit. Inventoried Roadless Area; Poor Economics.

Concerns in Alternative 5 are – Drop unit. Inventoried Roadless Area; Poor Economics.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
★ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	Decom. Temp Road	□ Logging System	~ Class III Stream
★ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
/// Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	○ Lake
□ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-53 Alternative 2

Unit Number: 577-53	Alternatives: 2	Total Unit Acres: 13	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): 174	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stage stand of mixed hemlock, yellow-cedar and decadent spruce. Wet lower site areas are throughout the unit. Unit is relatively flat and poorly drained overall. Unit has marginal timber with shore pine in places. Cedar advanced regeneration is present but for the most part scrubby and old. Canopy is open in many places. Windthrow risk is moderate.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to a proposed temporary extension of NFSR 3035.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 900 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-53-1 Location: E8, E7, E6, F6, F5

Class: I, II Flagging: B/W C-type: MM1, HC1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-53-1.1L Location: E7, D7, C7

Class: I Flagging: B/W C-type: MM1, PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-53-1.1L.3R Location: D7, D6

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concern: Stored sediment in O/W reach of stream that may impact downstream fish habitat.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

Stream#: 577-53-1.2L Location: E6, E5, D5, D4
Class: II Flagging: B/W C-type: HC1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 577-53: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary road would cross about 1 acre of forested wetlands (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

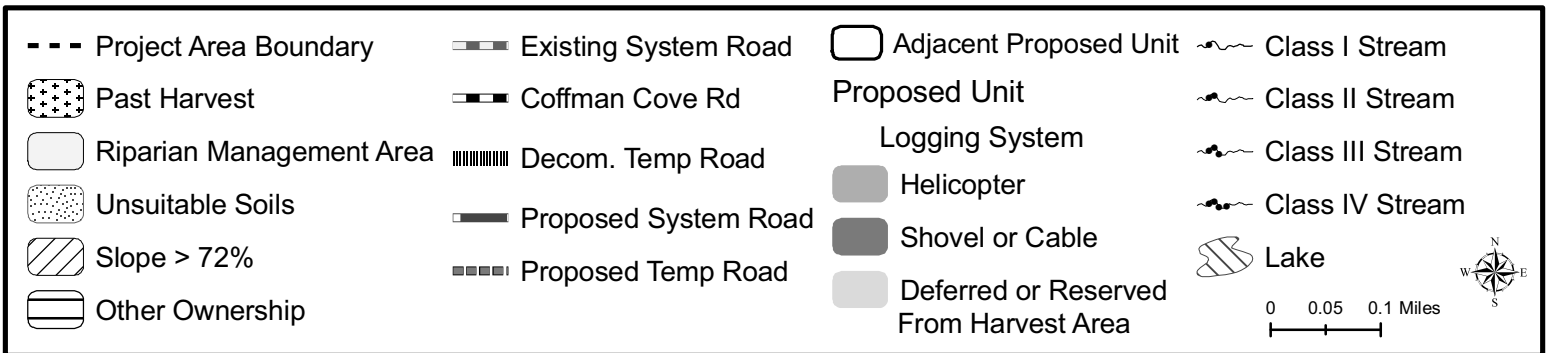
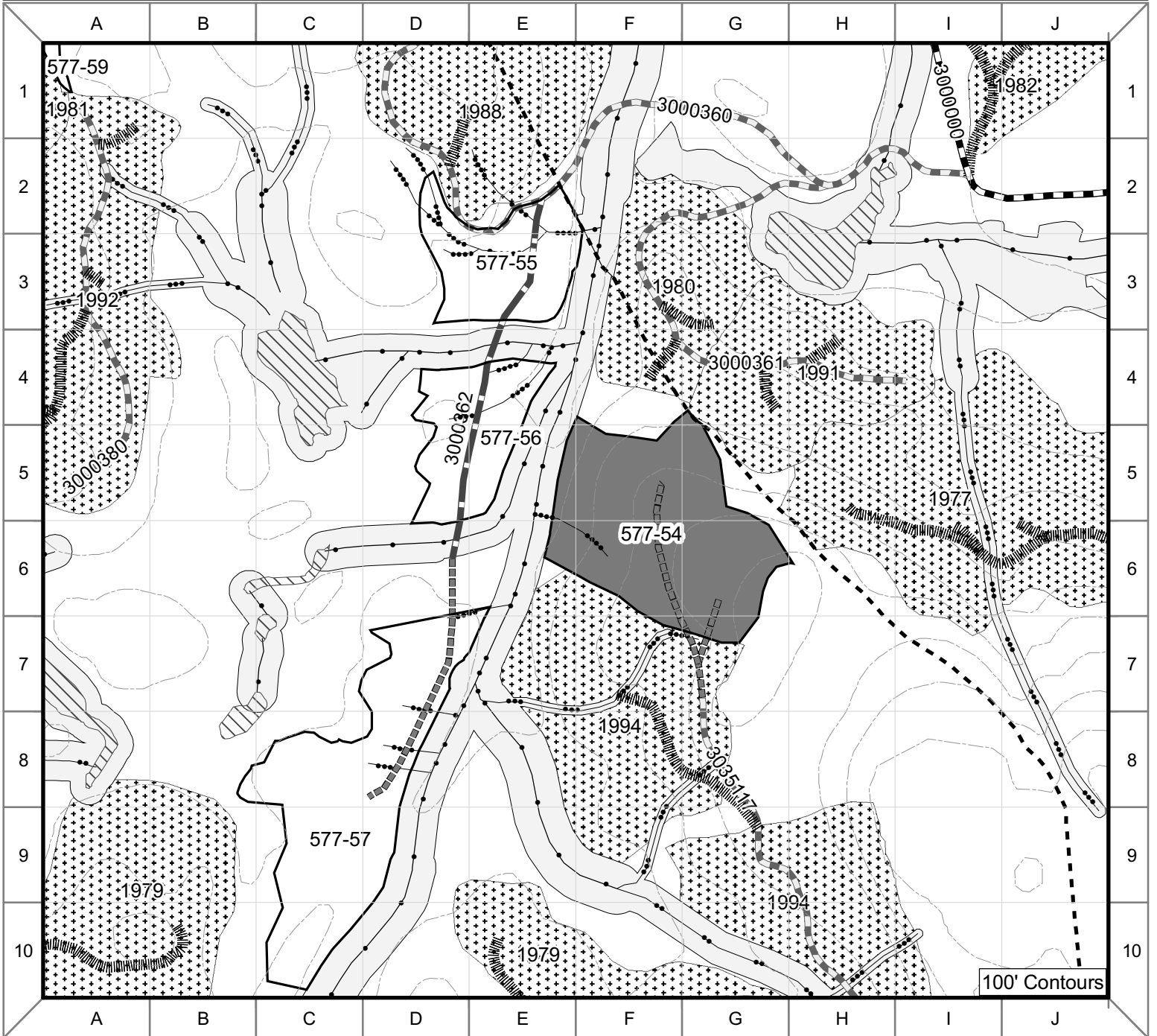
COMMENTS: Concerns in Alternative 2 are - Helicopter- partial cut of up to 50% basal area. Unit located in high value IRA.

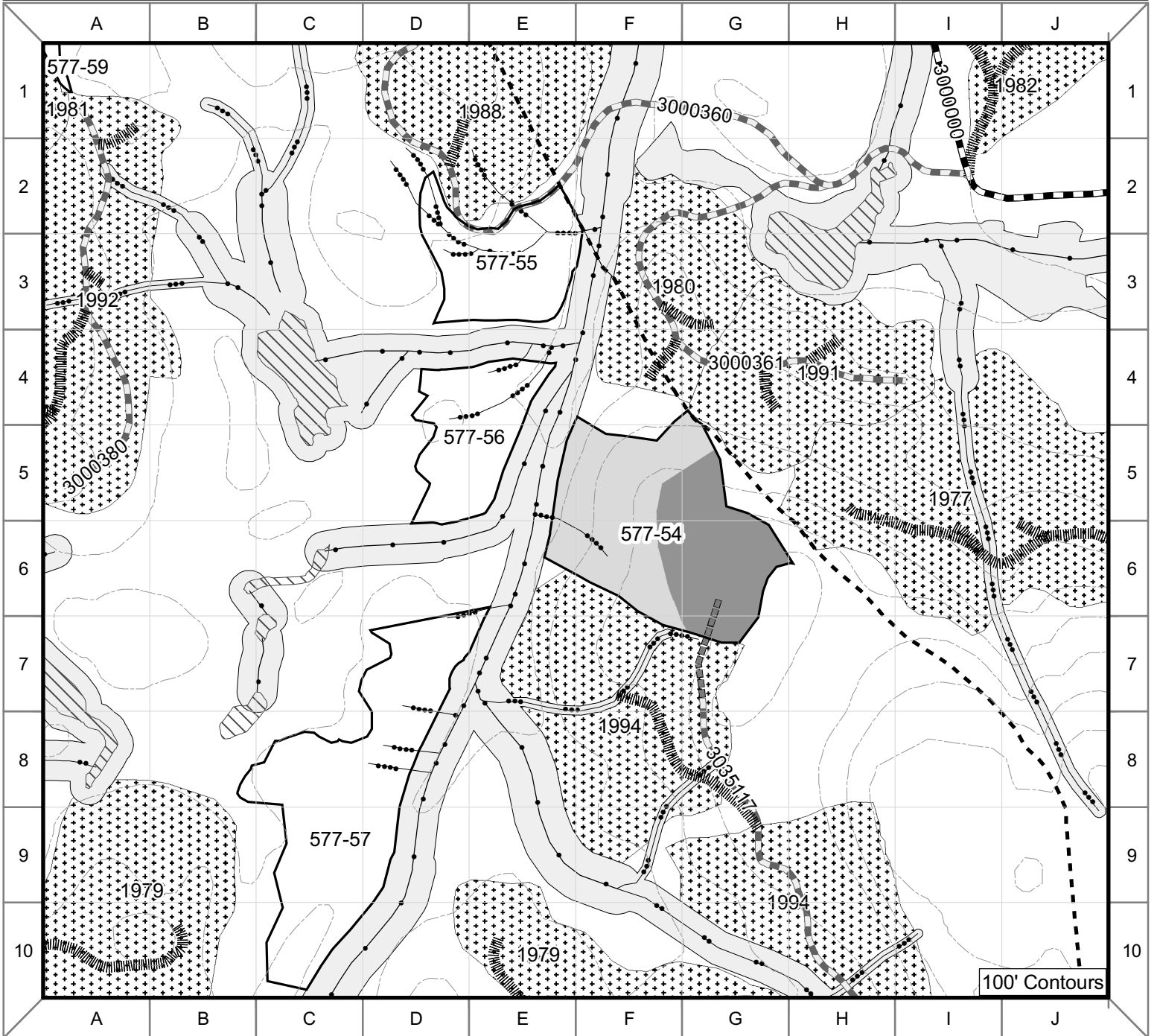
Concerns in Alternative 3 are – Drop unit. Poor quality timber; Road length; Inventoried Roadless Area.

Concerns in Alternative 4 are – Drop unit. Poor quality timber; Road length; Inventoried Roadless Area.

Concerns in Alternative 5 are – Drop unit. Poor quality timber; Road length; Inventoried Roadless Area.

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Unit 577-54 Alternatives 2, 3, 5

Unit Number: 577-54	Alternatives: 2, 3,5	Total Unit Acres: Alt. 2 – 33 Alt. 3 – 15 Alt. 5 –33	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 860 Alt. 3 – 387 Alt. 5 – 860	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This is a multi-storied old growth stand of average productivity for the area. Stand is hemlock and spruce with areas were redcedar and yellow-cedar mixed in. Windthrow risk is moderate. Mistletoe occurrence is heavy – in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for a combination of uphill cable and shovel yarding to landings on a proposed temporary extension of NFSR 3035117. An additional temporary spur will be needed to reduce shovel yarding distances and access cable landings. In Alternative 3 the western portion of the unit is planned for deferral including planned cable settings. In this alternative the unit will be shovel yarded to the proposed temporary road.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2 and 5 – accessed by temporary roads 1,900 feet in length. Alternative 3 – accessed by temporary road 700 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-54/55/56/57-1 Location: F2, F3, F4, E4, E5, E6, E7
 Class: I Flagging: B/W C-type: MC2, MM1
 Concerns: Active erosion along stream and moderate blow down along adjacent to past harvested units.
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. (for MC2) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
 Alternatives 3 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
 Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for Unit 577-54 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon

completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

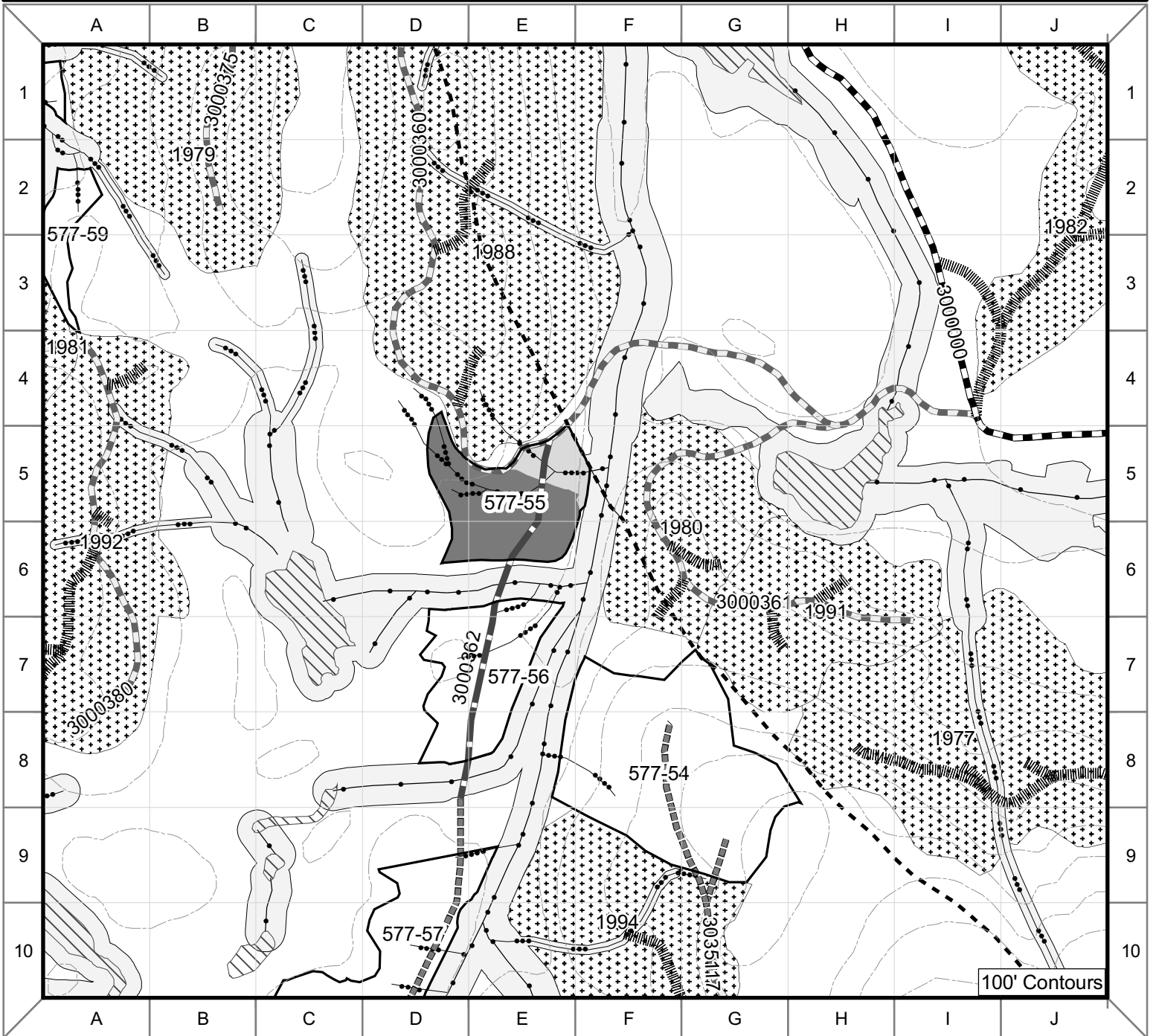
RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes greater than 72 percent was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes in the unit are generally <40% on Karta and Hofstad soils. In the western side of the unit near the stream buffer, slopes range from 50 to 65%. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Minimal pockets of forested- wetland are located on the nose of the ridge at the top of the unit. The temporary roads would cross less than a ½ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

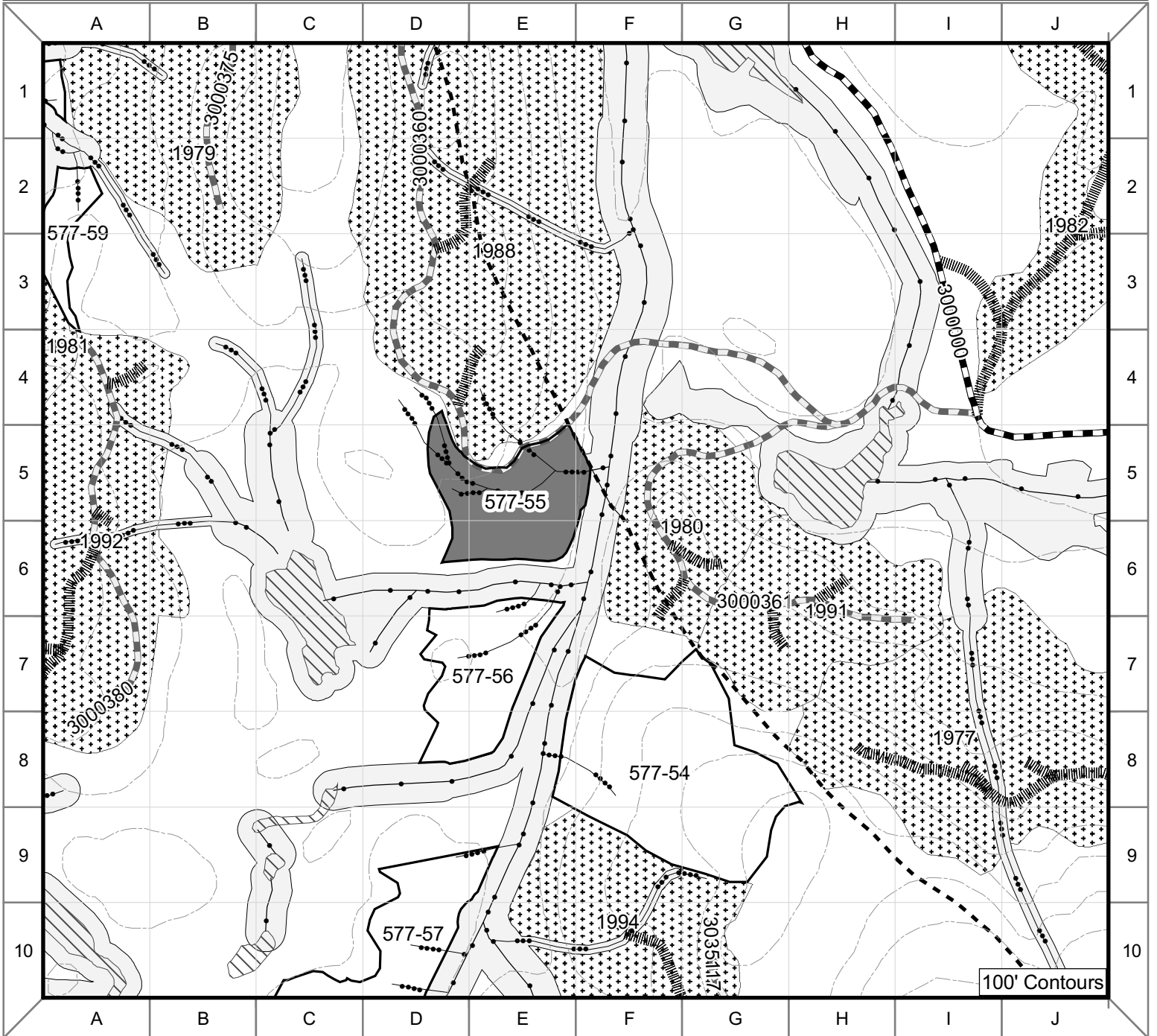
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop west edge of unit based on slope concerns; Drop south edge of unit. Steep slopes on west edge of unit; Blowdown on south edge of unit; South end abuts against previously harvested unit. Concerns in Alternative 4 are – Drop unit. Proposed unit blocks east-west travel route; Unit as proposed is near OGR.



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-55 Alternative 2, 4, 5

Unit Number: 577-55	Alternatives: 2,4,5	Total Unit Acres: Alt. 2 – 12 Alt. 4 – 15 Alt. 5 – 15	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 327 Alt. 4 – 412 Alt. 5 – 412	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old Growth, multi storied hemlock and redcedar stand with scattered patches of yellow-cedar. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for shovel yarding to proposed NFSR 3000362. In Alternative 4 this unit is planned for shovel yarding to NFSR 3000360. In Alternative 2 the northeast corner of unit is deferred from harvest.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3000362 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-54/55/56/57-1 Location: F3, F4, F5, F6 F7, E7
Class: I Flagging: B/W C-type: MC2, MM1

Concerns: Active erosion along stream and moderate blow down along adjacent to past harvested units.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for MC2) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-55-1.1R Location: F5, E5, D5, D4
Class: IV Flagging: O/W, G/W C-type: HC1, MM0, HC0

Concerns: Active erosion along stream and deposited sediment at confluence with stream 1.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 4, and 5 RAW Buffer: none

Stream#: 577-55/56-1.2R Location: F6, E6, D6, C6
Class: I Flagging: B/W C-type: HC1, MC1

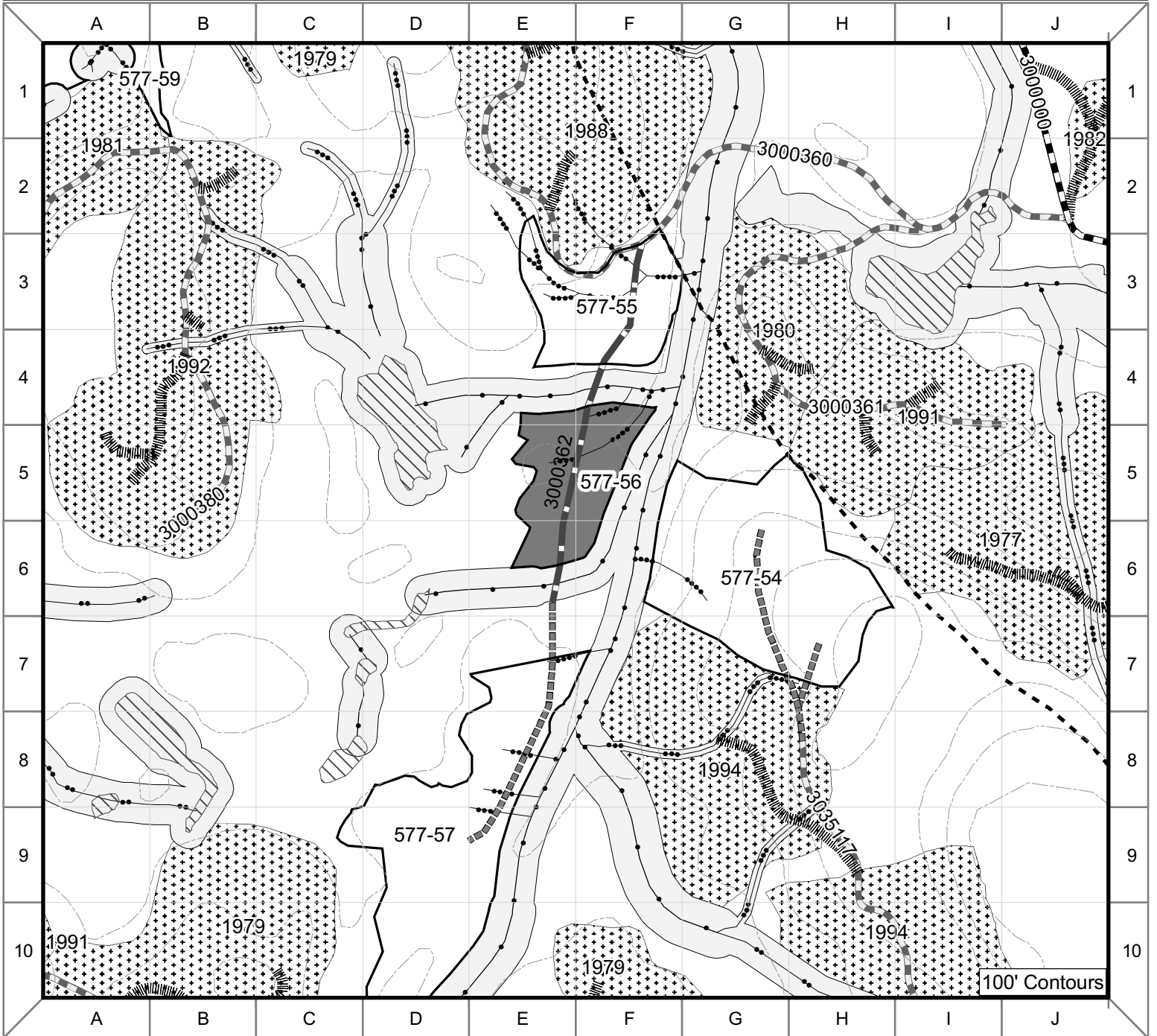
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

<p>GEOLOGY/KARST: No geology or karst resource concerns:</p>
<p>HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.</p>
<p>SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.</p>
<p>RECREATION:: No concerns</p>
<p>SOILS/WETLANDS: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).</p>
<p>WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.</p>

COMMENTS: Concerns in Alternative 3 are – Drop unit. Orange and white stream channel located within the proposed unit; Sediment stored pulsing into fish stream; Water quality (sediment) concern affecting fish and hydrology. Concerns in Alternative 4 are – Drop unit. Inventoried Roadless Area; Poor Economics. Unit in travel corridor however if drop units 56 and 57 could leave this one in unit pool; Unit as proposed is near OGR.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-56 Alternatives 2, 5

Unit Number: 577-56	Alternatives: 2,5	Total Unit Acres: 14	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): 385	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Multi storied old growth stand of hemlock and redcedar with scattered patches of yellow-cedar and scattered larger spruce. Logjam unit #55 and 54 are planned to the north and east across class I stream buffers. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to proposed NFSR 3000362.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3000362 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-54/55/56/57-1 Location: G2, G3, G4, F4, F5, F6, F7
 Class: I Flagging: B/W C-type: MC2, MM1

Concerns: Active erosion along stream and moderate blow down along adjacent to past harvested units.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for MC2) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-55/56-1.2R Location: F4, E4, D4
 Class: I Flagging: B/W C-type: HC1, MC1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-56-1.2R.1L Location: E4, E5, D5
 Class: I Flagging: B/W C-type: MM0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: none

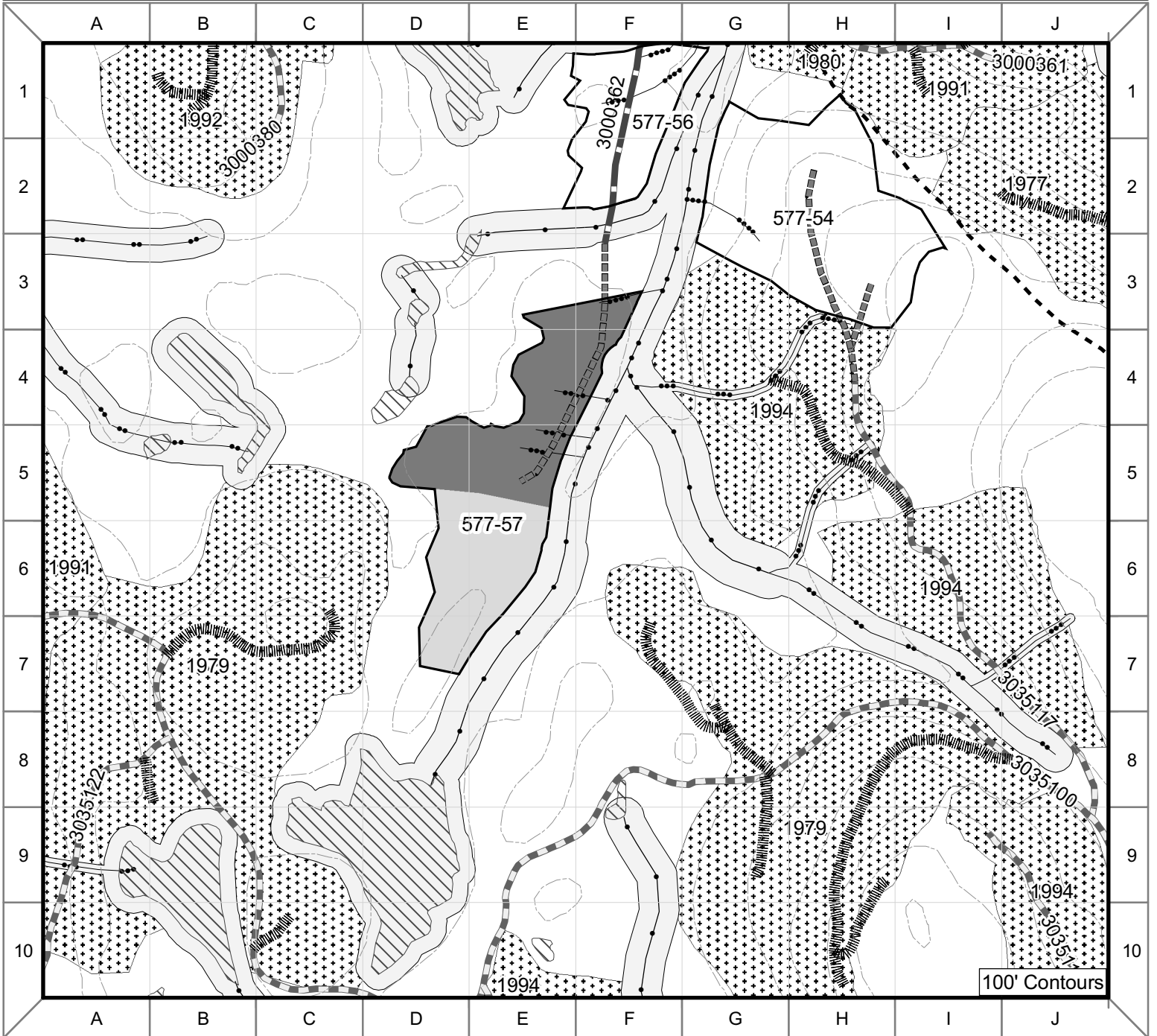
Stream#: 577-56-1.3R Location: F4, F5, F6, E6, D6
 Class: I Flagging: B/W C-type: HC1, MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

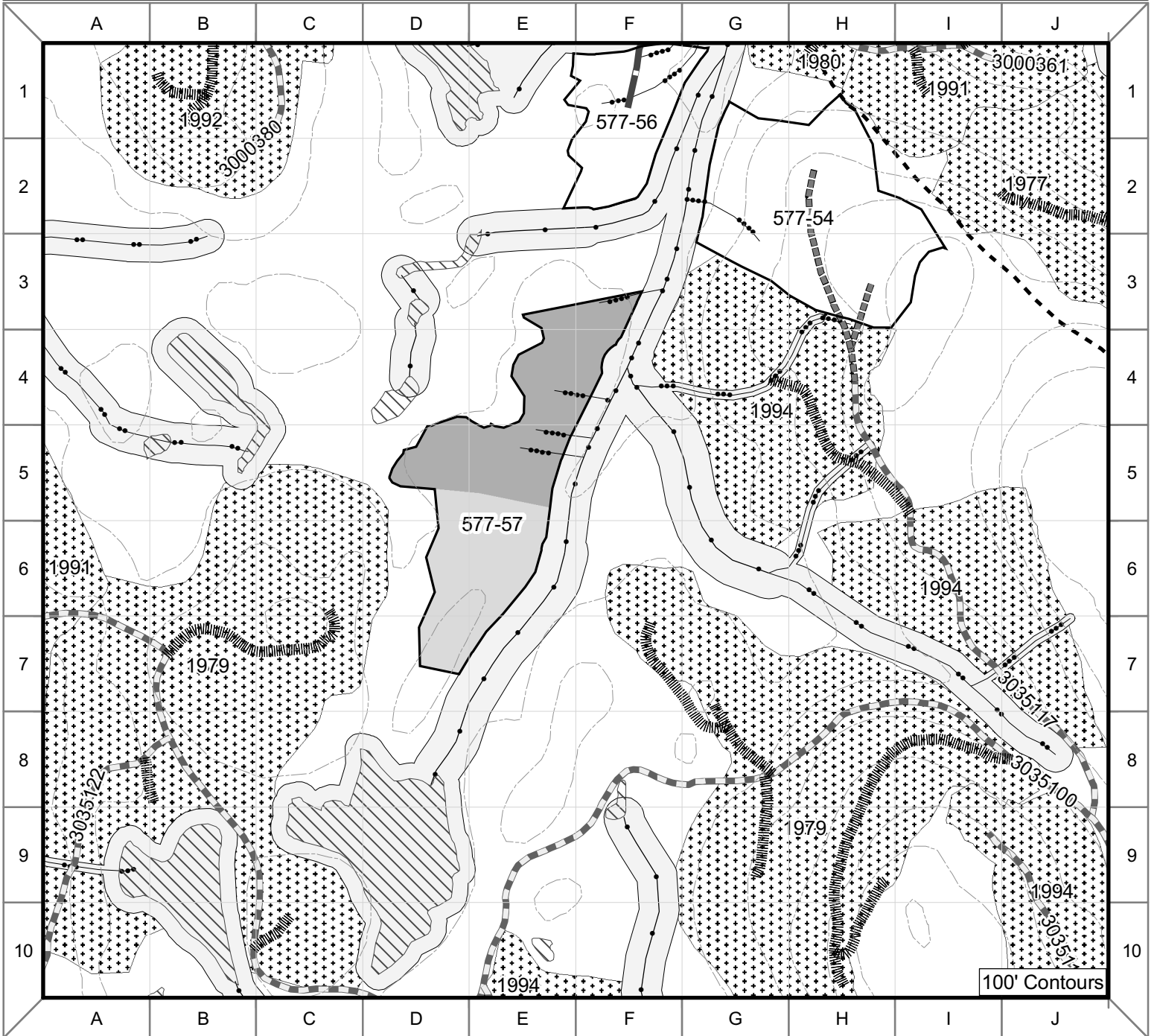
RMA Buffer: Class I: minimum 100ft. (for HC1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5	RAW Buffer: will be identified by an IDT during layout.
<p>All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM RMA Buffer: none RAW Buffer: none Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9). Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.</p>	
GEOLOGY/KARST: No geology or karst resource concerns:	
HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.	
SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.	
RECREATION: No concerns	
SOILS/WETLANDS: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).	
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.	
<p>COMMENTS: Concerns in Alternative 3 are – Drop unit. Class I stream channel located on eastern border; Lots of fine sediments in stream channel; Would recommend enhanced RAW along the Class I stream in the eastern border during field unit lay-out procedures. Concerns in Alternative 4 are – Drop unit. Unit in travel corridor; Unit as proposed is near OGR.</p>	

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	~ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	



--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

Unit 577-57 Alternative 2, 5

Unit Number: 577-57	Alternatives: 2,5	Total Unit Acres: 20	Prescription: Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 598 Alt. 5 – 299	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth hemlock/redcedar stand with multiple canopies. A heavy yellow-cedar component is in the stand. Wet areas are somewhat restricting the site. A blowdown patch was found in the center of the unit. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription:

Even-aged management –Clearcut (Alternative 2). Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking (Alternative 5). Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternative 2 this unit is planned for shovel yarding to a temporary extension of proposed NFSR 3000362. In Alternative 5 this unit is planned for helicopter yarding to NFSR 3000362.

ENGINEERING/ROADS: In Alternative 2 this unit is accessed by proposed NFS road 3000362 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 1,700 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alternative 5 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-54/55/56/57-1 Location: G1, G2, F2, F3, F4, F5, E5, E6, E7

Class: I Flagging: B/W C-type: MC2, MM1

Concerns: Active erosion along stream and moderate blow down along adjacent to past harvested units.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. (for MC2) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 5 RAW Buffer: none

Stream#: 577-57-1.5R Location: F4, E4

Class: IV Flagging: O/W, G/W C-type: HC0

Concerns: Active erosion along high gradient stream reach and deposited sediment at confluence with stream 1.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 577-57: Alternative 2 — Four Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

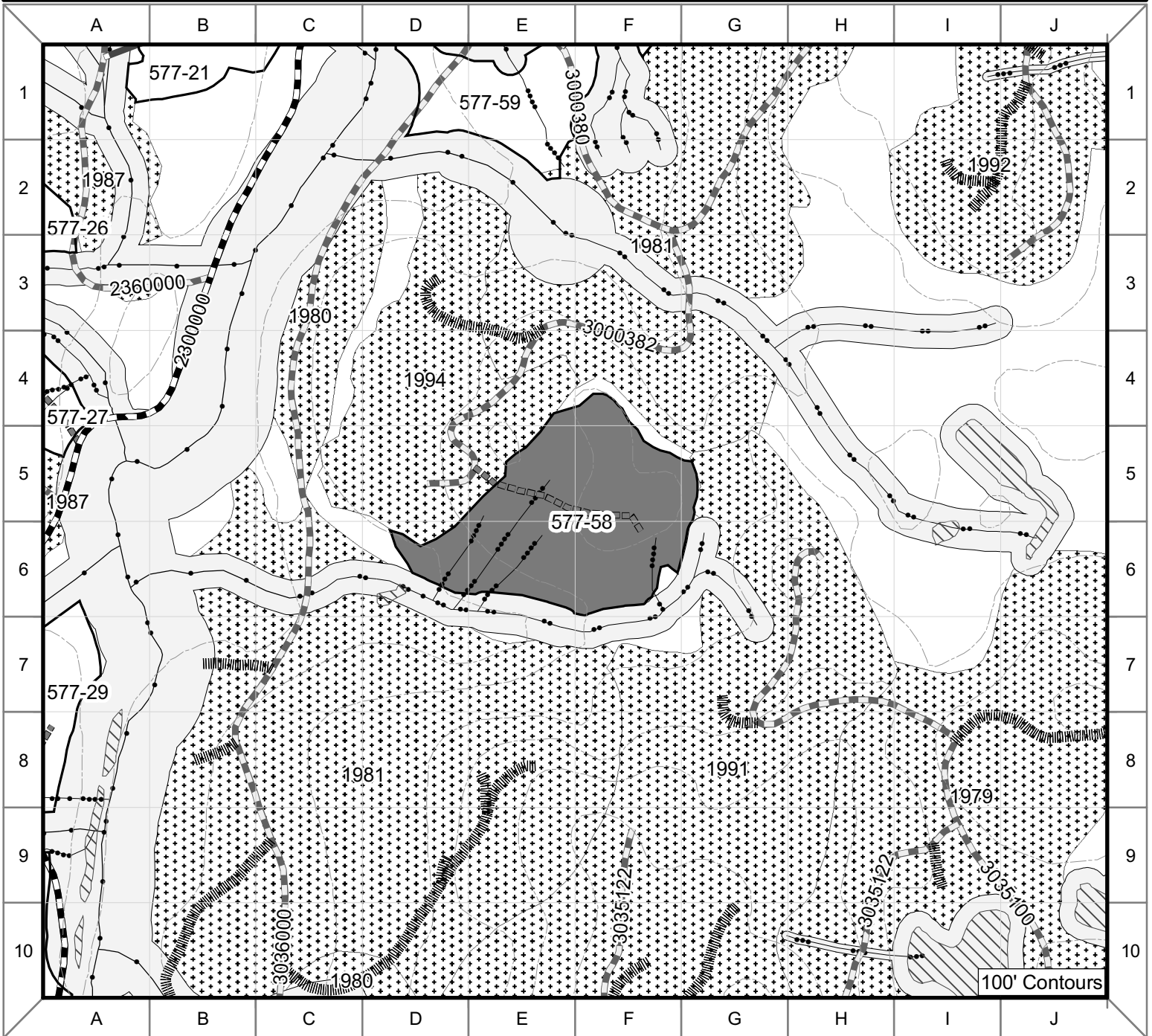
SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Alternative 2: Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead.
Alternative 5: Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). There are no resource concerns with the proposed temporary road (BMP 12.5).
See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Water quality-fish concerns based on an orange and white stream channel which is actively pumping sediment into channel downstream (fish stream); Marginal economics regarding proposed road construction.
Concerns in Alternative 4 are – Drop unit. Unit in travel corridor; Unit as proposed is near OGR.
Concerns in Alternative 5 are – Helicopter- partial cut of up to 50% basal area. Poor economics, high road construction costs for marginal timber volume.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▤ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 577-58 Alternatives 2, 5

Unit Number: 577-58	Alternatives: 2,5	Total Unit Acres: 36	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel Cable	Net Harvest Volume (MBF): 878	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Ridge top old growth stand surrounded by past harvest. Significant blowdown both recent and past is throughout the stand. Clumpy stocking of mostly hemlock remains. Understory has heavy hemlock regeneration as a result of canopy openings. Some redcedar is in the lower eastern portion of the stand. Windthrow risk is high. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for a combination of shovel and uphill cable yarding to landings on a proposed temporary spur of NFSR 3000382.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2 and 5 – accessed by temporary road 1,200 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-58-1 Location: B6, C6, D6, E6, E7, F7, F6, G6
Class: I, II Flagging: B/W C-type: MC1, HC5, PA1, MM1, HC1, MM0

Concern: heavy blow down along stream adjacent to past harvested units.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 100ft. (for MC1, HC5, PA1, and HC1) and 120ft. (for MM1 and MM0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 577-58: Alternative 2 and 5 — One Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of

potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil quality standards and protect wetland resources (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary road would cross about 1 acre of forested wetlands (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

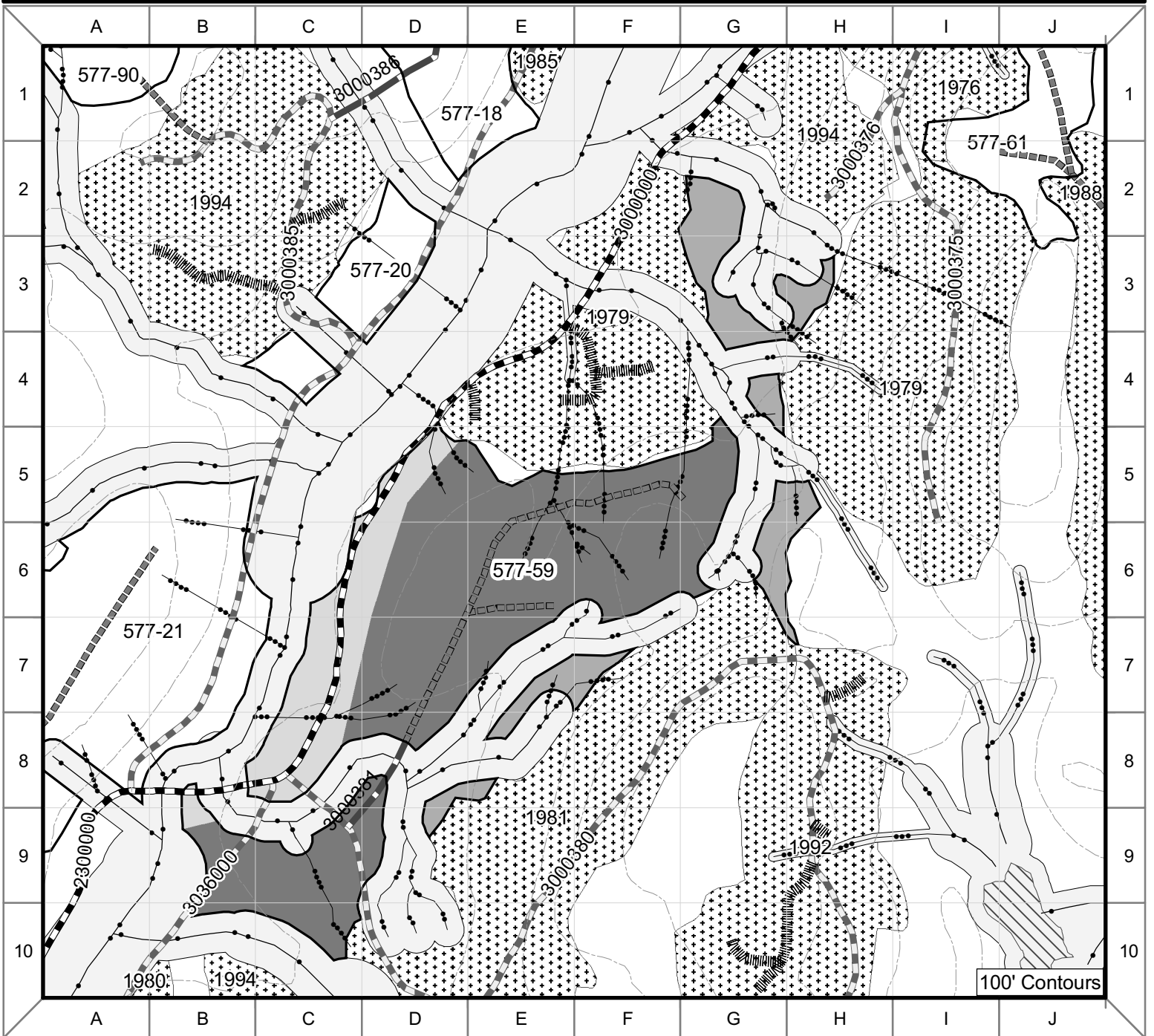
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Blowdown throughout unit; Class II stream located on south edge; Bear den located in unit; Cumulative effects to Logjam watershed; Recommend RAW windfirm across all alternatives; This would require a 120' buffer since the stream is an MM channel.

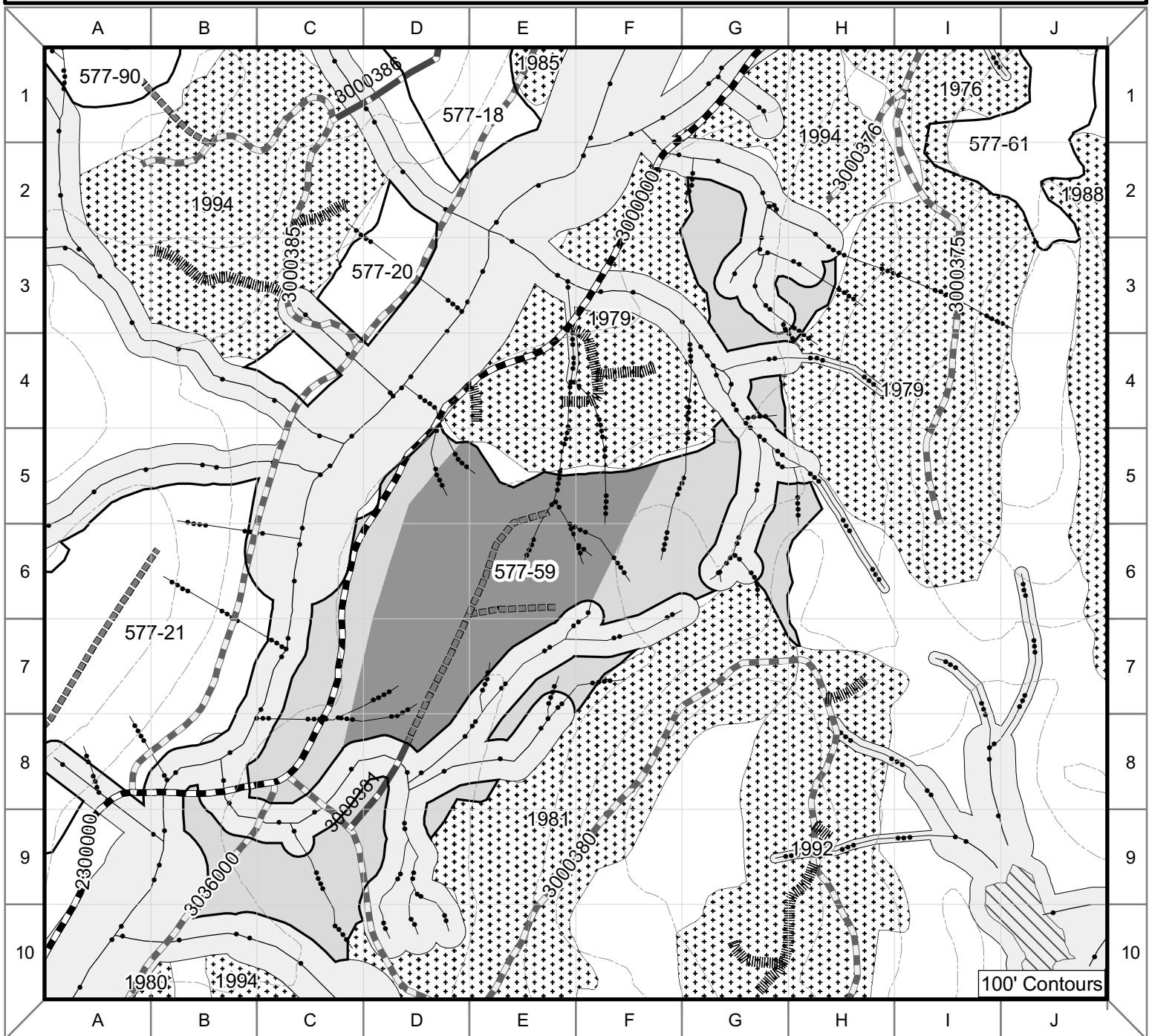
Concerns in Alternative 4 are – Drop unit to maintain old growth patch in area. Unit surrounded by second growth.

Concerns in Alternative 5 are – Moderate economics.

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▤ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▤ Lake
▤ Other Ownership		■ Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 577-59 Alternatives 2, 3, 4, 5

Unit Number: 577-59	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 96 Alt. 3 – 46 Alt. 4 – 46 Alt. 5 – 96	Prescription: Clearcut/Clearcut With Teserves
VCU Number: 5770	Harvest System: Helicopter Shovel	Net Harvest Volume (MBF): Alt. 2 – 2,243 Alt. 3 – 1,324 Alt. 4 – 1,324 Alt. 5 – 2,243	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stage, multiple canopy stand, flat and wet area with high hemlock composition. Some older blowdown near west edge. Some even age appearing stand structure near center of unit. Small muskeg was found in southeast corner of planned unit.

Stand is mainly hemlock and Red cedar Windthrow risk is high. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. An uncut screen of timber is required to be left adjacent to the 30 road to block the harvest area from view. Design this as approximately shown on the unit card map. Evaluate the effectiveness of this buffer at time of layout and adjust as needed.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for shovel yarding to a proposed temporary spur of NFSR 3000381. An additional short spur is planned to reduce shovel yarding distances. Areas isolated by class I and II streams are planned for helicopter yarding to landings on the proposed road.

In Alternatives 3 and 4 this unit is planned for shovel yarding to a proposed temporary spur of NFSR 3000380. Areas isolated by class I and II streams and a portion of the possible shovel setting are planned for deferral.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3000381 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2 and 5 – accessed by temporary roads 3,400 feet in length. Alternative 3 and 4 – accessed by temporary roads 2,400 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-59-1 Location: F1, E2, E3, D3, D4, C5, C6, C7, B8, B9, A9, A10

Class: I Flagging: B/W C-type: FP5, LC1

Concerns: This stream is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. (for FP5) and 100ft. (for LC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-59-1.1L Location: A10, B10, C10

Class: I Flagging: B/W C-type: MM1, FP3

Concerns: moderate blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. (for MM1) and 130ft. (for FP3) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

Stream#: 577-59-1.2L Location: B8, B9, C9, C8, D8, D9, D10

Class: I Flagging: B/W C-type: FP3, MM1, PA1

Concerns: moderate blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. (for FP3), 120ft. (for MM1), and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-59-1.2L.1R Location: C9, C10

Class: I, IV Flagging: B/W, G/W C-type: MM0, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.2L.2L Location: D8, E8, E7, F7, F6

Class: I, II Flagging: B/W C-type: MM1, HC1

Concerns: moderate blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-59-1.2L.2L.1L Location: E7, F7, F6

Class: II, IV Flagging: B/W, G/W C-type: MM0, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-59-1.2L.3L Location: D8, E8, E7, F7

Class: I, IV Flagging: B/W, G/W C-type: MM1, MM0

Concerns: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.2L.4R Location: D9, D10

Class: II Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

Stream#: 577-59-1.2L.5R Location: D9, D10

Class: II Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.3L Location: E2, E3, F3, G3, G4, G5, H5, H6
Class: I, II, III Flagging: B/W, O/W C-type: MM1, HC1, HC5

Concerns: moderate blow down along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

Stream#: 577-59-1.3L.1L Location: G4, H4
Class: II Flagging: B/W C-type: HC5

Concerns: moderate blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.3L.3R Location: G5, G6
Class: II, IV Flagging: B/W, G/W C-type: MM1, MMO

Concerns: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

Stream#: 577-59-1.3L.3R.1L Location: G6
Class: II, IV Flagging: B/W, G/W C-type: HC1, HC5

Concerns: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.4L Location: F1, F2, G2, H2, H3, I3
Class: I, IV Flagging: B/W, O/W C-type: MM1, HC5

Concerns: active erosion and moderate blow down along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.4L.1R Location: G2, G3, H3
Class: I, II, IV Flagging: B/W, O/W C-type: MM1, HC1, HC5

Concerns: active erosion and moderate blow down along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.4L.1R.1R Location: G3
Class: I Flagging: B/W C-type: MM0

Concerns: moderate blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 577-59-1.4L.1R.2R Location: G3, H3, H4
Class: I, II, IV Flagging: B/W, G/W C-type: MM1, HC1, HC5

Concerns: active erosion and moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 577-59: Alternative 2 and 5 — four Class IV stream crossings; Alternative 3 — one Class IV stream crossing; and Alternative 4 – no known stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Low. The unit is within Timber Management LUD and is seen within Foreground distance zone from VPR Coffman Highway view point 10. Leave screen trees as indicated in the harvest prescription.

RECREATION: No concerns

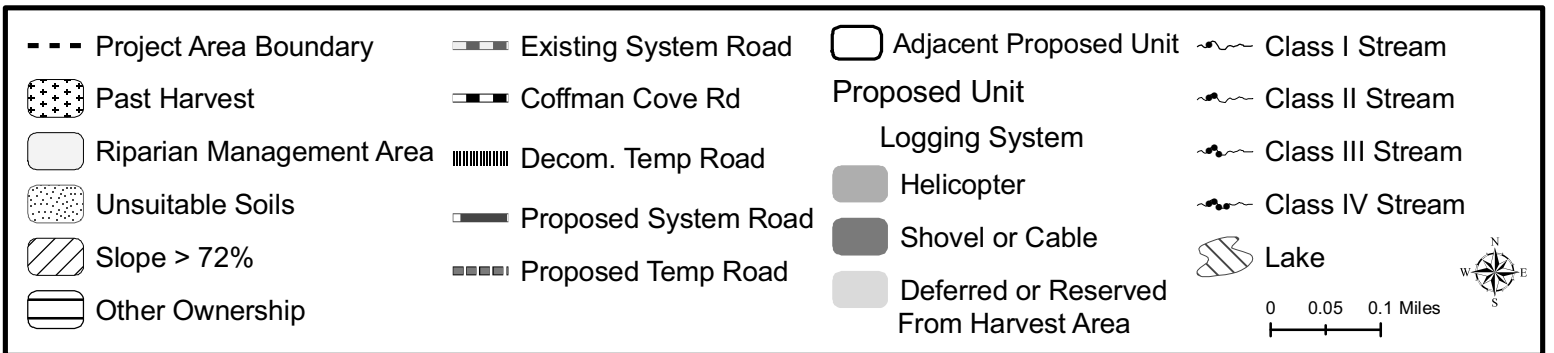
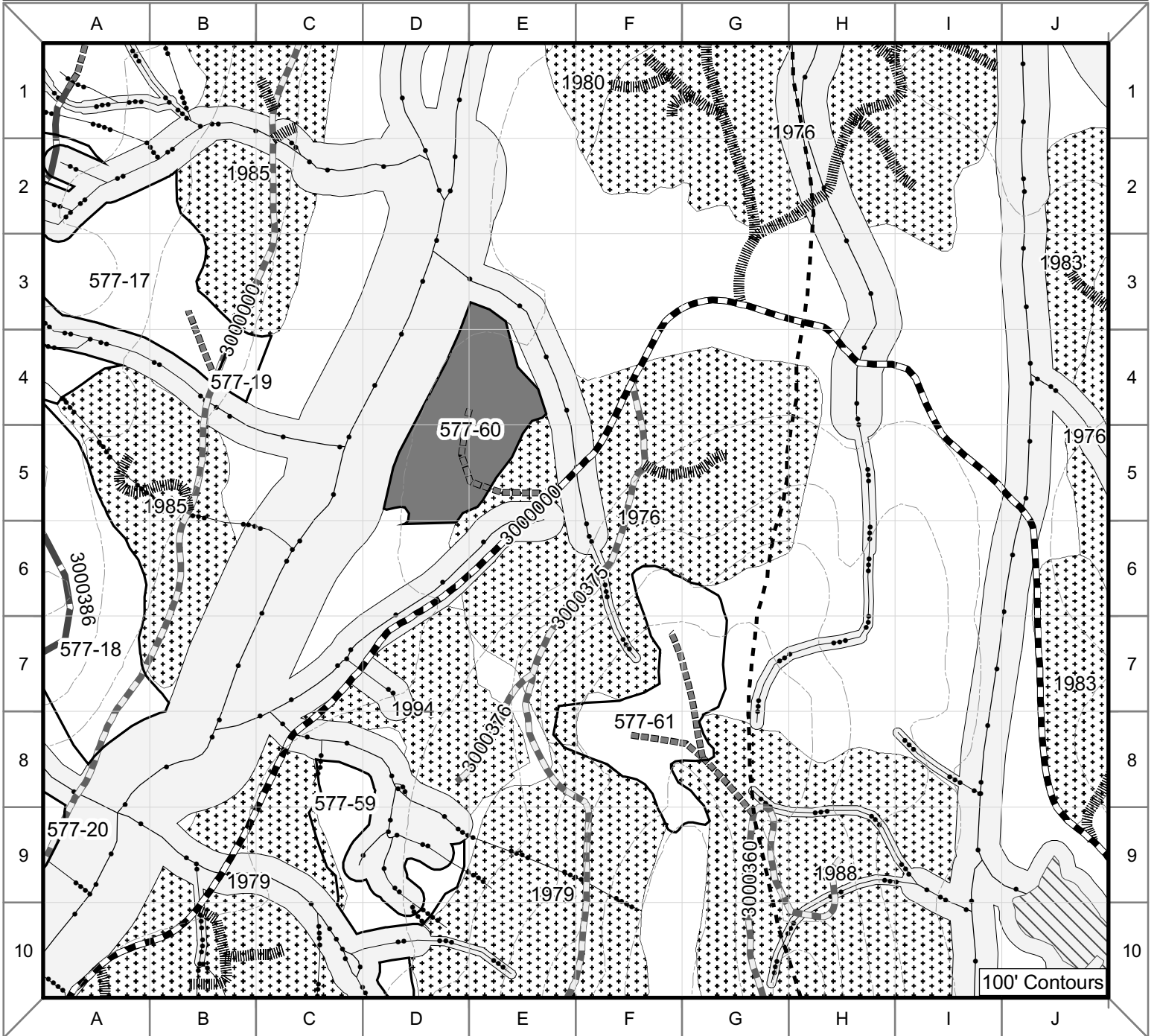
SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil quality standards and protect wetland resources (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary roads would cross less than a ½ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2 and 5 are - Harvest areas isolated by stream buffers using Helicopter partial-cut; Leave buffer on FR30.

Concerns in Alternative 3 are - Drop northeast portion of unit due to blowdown, high concentration of fish streams, and potential water quality (sediment) concerns; Drop southeast corner where multiple streams are present (water quality-fish concerns); Leave visual buffer on FR30. Water quality concerns present in northeast corner where blowdown concerns are present and a Class III stream is pumping sediment; Fish streams require RAW buffer at the time of field unit lay-out; Concern related to multiple streams located in the southeast corner; Concern related to multiple proposed road crossings of Class I stream channels.

Concerns in Alternative 4 are - Drop all but central portion of unit to reduce the overall size and maintain access to Logjam Creek. Very large unit; As proposed unit blocks travel access to Logjam creek.



Unit 577-60 Alternatives 2, 3, 4, 5

Unit Number: 577-60	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 18 Alt. 3 – 18 Alt. 4 – 14 Alt. 5 – 18	Prescription: Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 542 Alt. 3 – 542 Alt. 4 – 429 Alt. 5 – 542	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Stand is west aspect knob, multiple canopies, old growth stage of stand development. Primarily hemlock stand with scattered spruce. Windthrow risk is moderate. Mistletoe occurrence is heavy-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. The harvest area should not be directly visible from the 30 road. Maintain existing advance regeneration adjacent to the 30 road to block the harvest area from view. Design this as approximately shown on the unit card map. Evaluate the effectiveness of this buffer at time of layout and adjust as needed.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for shovel yarding to a proposed temporary spur NFSR 3000. The northwestern edge of the unit along Logjam Creek is deferred in Alternative 4.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 - accessed by temporary road 1,000 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-59-1 Location: D1, D2, D3, D4, C4, C5, C6, C7, B7, B8

Class: I Flagging: B/W C-type: FP5

Concerns: This stream is Logjam Creek.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 4 RAW Buffer: none

Stream#: 577-60-1.1L Location: D3, E3, E4, E5, F5, F6

Class: I Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-60-1.2L Location: B8, C8, C7, D7, D6, E6

Class: I Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Temporary road for unit 577-60: All Alternatives — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area due to advanced regeneration stand between unit and road. There are no Scenery Resource concerns.

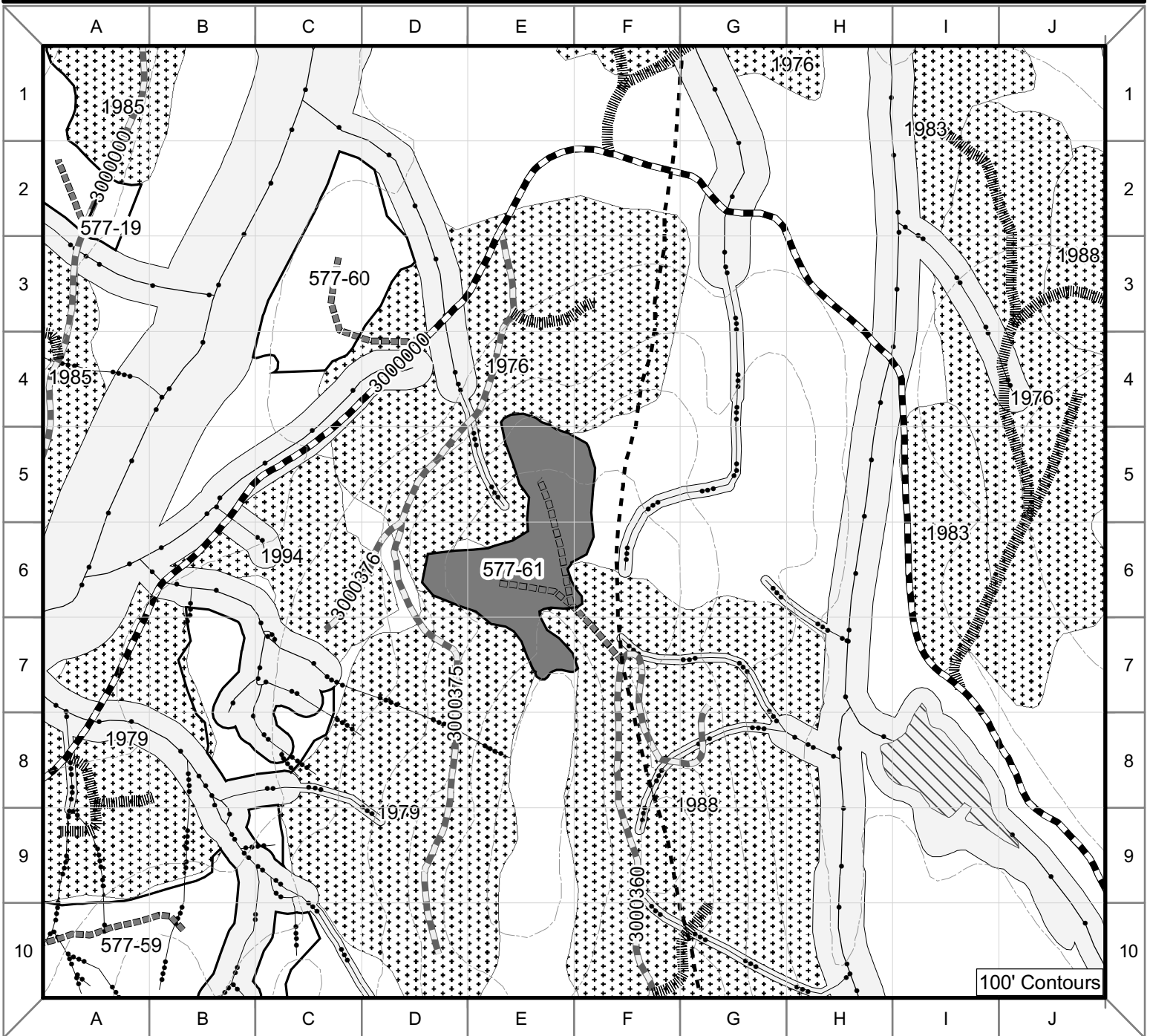
RECREATION: No concerns

SOILS/WETLANDS: Shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. There are no resource concerns with the proposed temporary roads (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

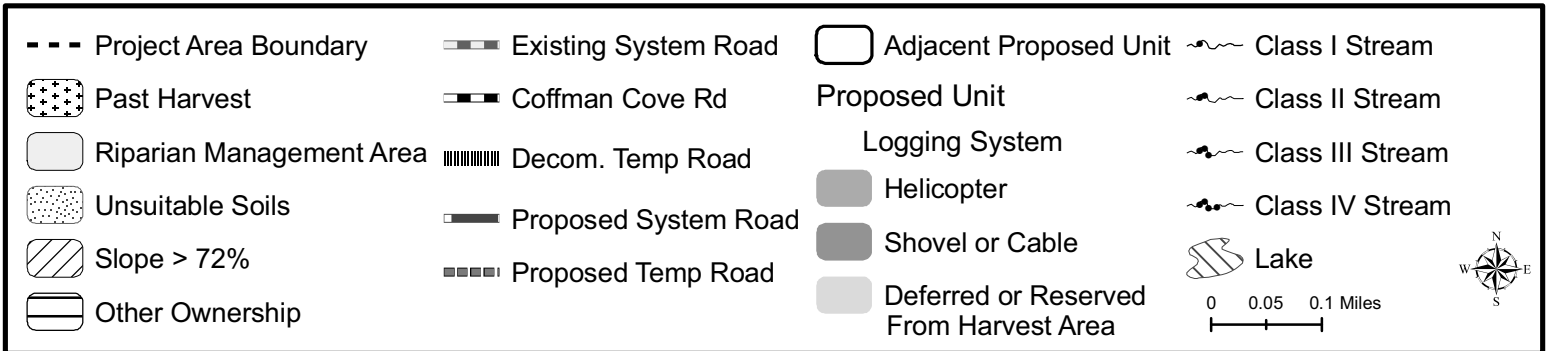
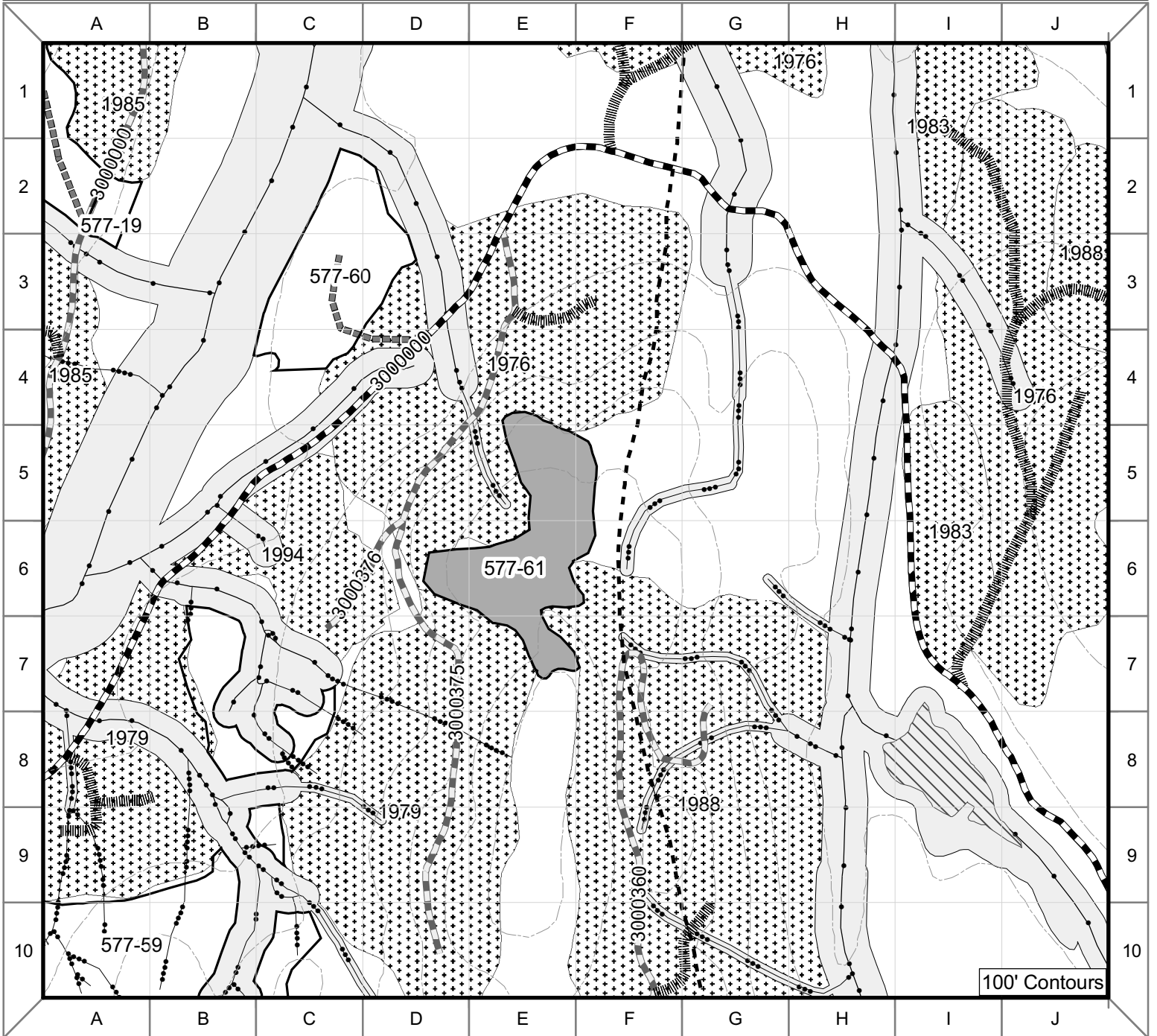
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Provide RAW along Class I streams at the date of field unit lay-out. Blowdown concerns related to a Class I stream channel following harvest activities.

Concerns in Alternative 4 are - Drop western ½ along Logjam Creek to maintain size of travel route along Logjam Creek. Proposed unit reduces travel route along Logjam Creek.



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	□ Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	▤ Lake
▤ Other Ownership		□ Deferred or Reserved From Harvest Area	



Unit 577-61 Alternatives 2, 3, 5

Unit Number: 577-61	Alternatives: 2,3,5	Total Unit Acres: 20	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5770	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 440 Alt. 3 – 110 Alt. 5 – 110	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit is along the top of a flat ridgeline between two past harvest areas. There is a 1988 harvest to the east and harvest from 1976-1979 to the west. Old growth structure, mainly hemlock/both cedars mix with multiple canopies. Windthrow risk is high. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Even-aged management –Clearcut (Alternative 2). Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections and logging damage. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

Two-aged Management, Clearcut with Reserves, Individual Tree Marking (Alternatives 3 and 5). High wind risk area, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternative 2 this unit is planned for a combination of shovel and uphill cable yarding to landings on a proposed temporary extension of NFSR 3000360. One additional temporary spur will be needed to reach cable landings and to minimize shovel yarding distances.

In Alternatives 3 and 5 this unit is planned for helicopter yarding to a proposed landing on existing NFSR 3000375.

ENGINEERING/ROADS: In Alternative 2 this unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 1,800 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alternatives 3 and 5 this unit has no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: No streams were found in this unit during reconnaissance. If any streams are located during implementation, a fish biologist will be notified and appropriate protections will be applied.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

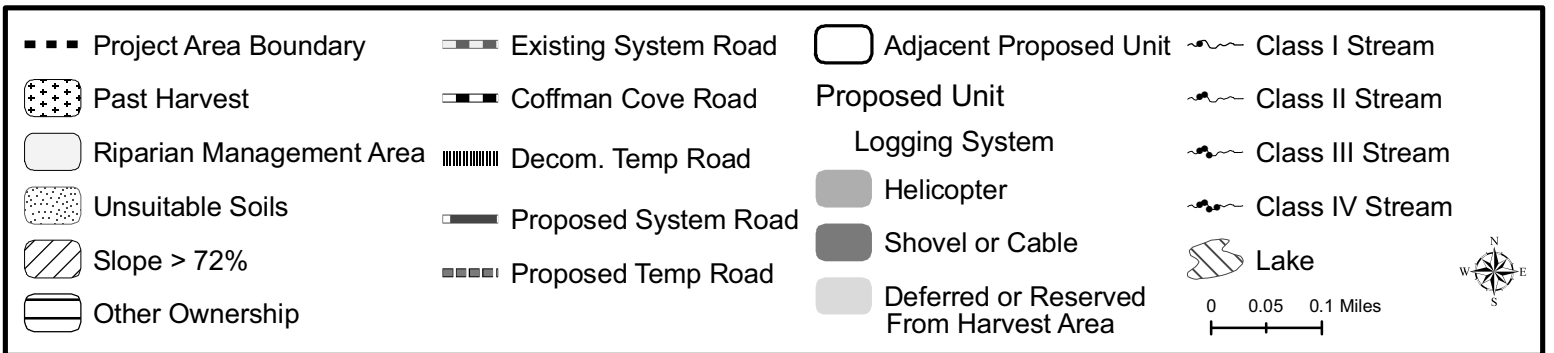
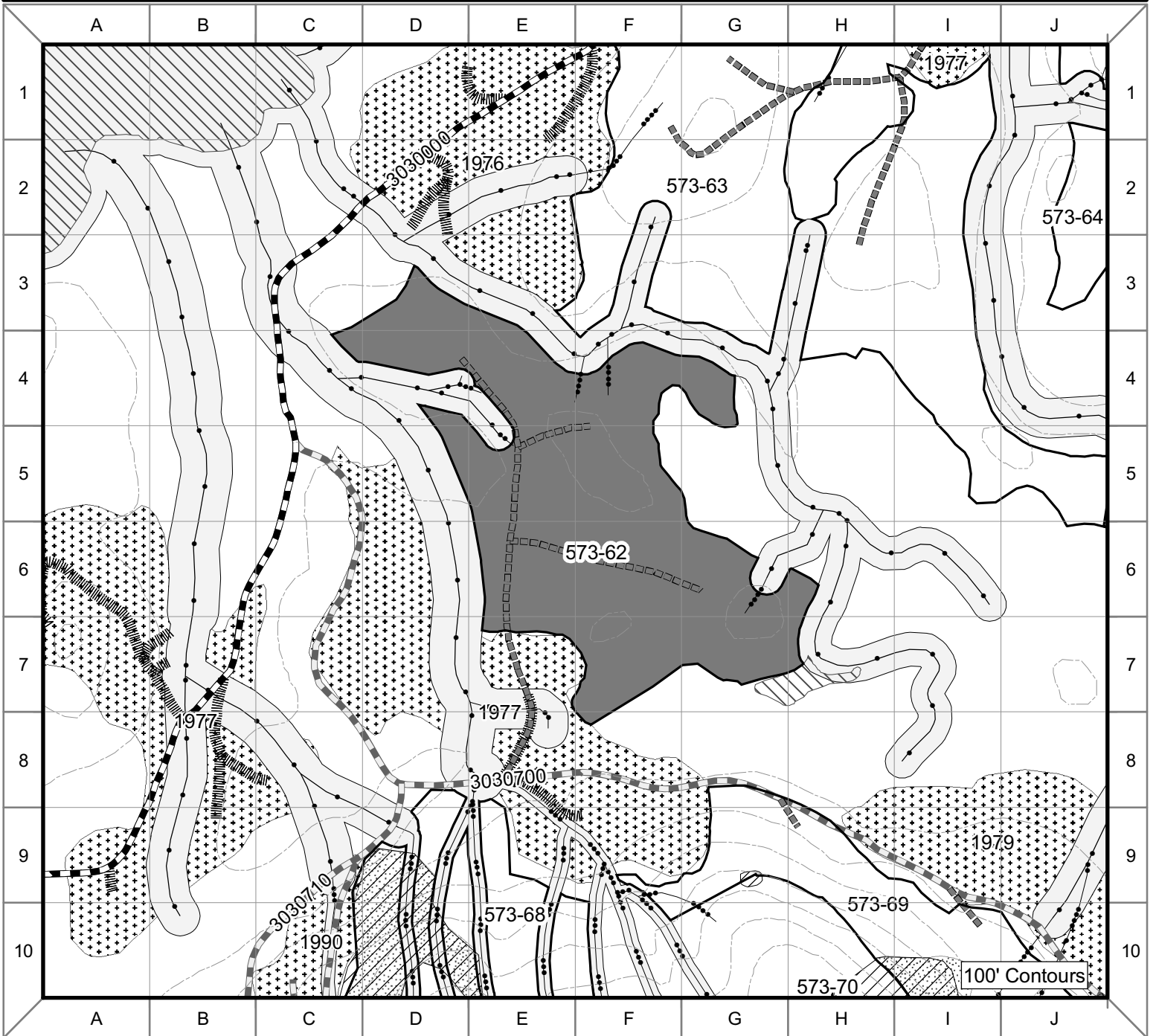
RECREATION: No concerns

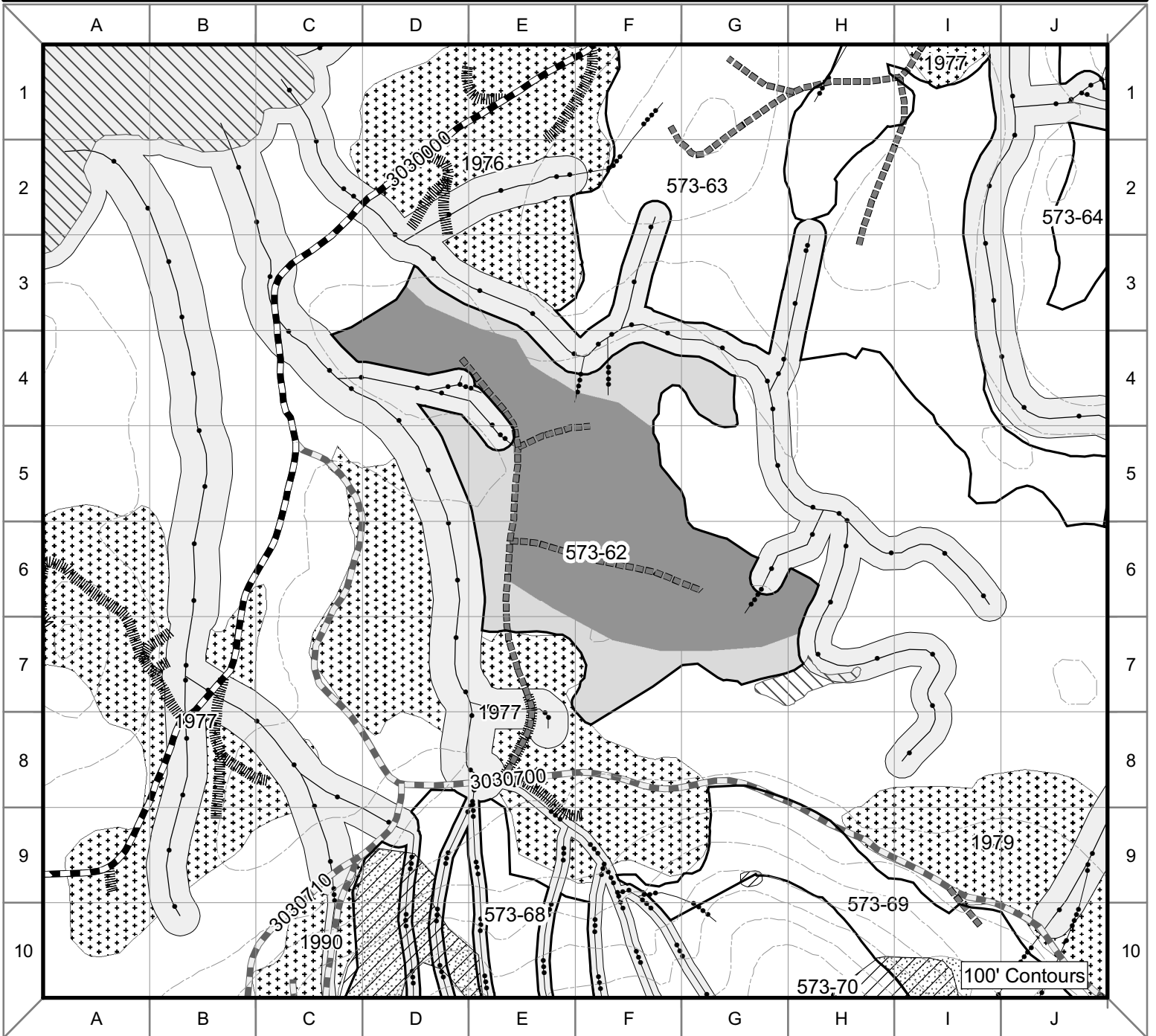
SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on

slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The proposed temporary roads would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 3 and 5 are – Helicopter – Partial cut with up to 50% basal area removal. Poor economics, high road construction costs for marginal timber volume.
Concerns in Alternative 4 are – Drop unit. Ridgetop unit-marginal economics; Unit as proposed blocks north-south travel route.





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 573-62 Alternatives 2, 3, 4, 5

Unit Number: 573-62	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 86 Alt. 3 – 86 Alt. 4 – 56 Alt. 5 – 86	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 2,078 Alt. 3 – 2,078 Alt. 4 – 1,417 Alt. 5 – 2,078	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mixed hemlock and cedar stand. Stand is low topography with rolling knobs, Cedar dominates on the knobs. Smaller diameter hemlock occupies the lower site areas between knobs. Spruce is found scattered on the better sites. Old growth stage, multi-canopy stand. Scattered blowdown was noted in the central part of the unit. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for shovel yarding to a proposed temporary spur of NFSR 3030700. Two additional spurs are planned to minimize shovel yarding distances. Areas along the northern and southern edges of the unit are deferred from Alternative 4 to maintain wildlife travel corridors.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 - accessed by temporary roads 4,500 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-62-Lake1 Location: H7, G7
 Class: I Flagging: B/W C-type: L
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
 Alternatives 4 RAW Buffer: none

Stream#: 573-62-1 Location: C3, C4, D4, D5, D6, D7
 Class: I Flagging: B/W C-type: FP3
 Concerns: moderate blow down along stream.
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-62-1.1L Location: C4, D4, E4, E5
 Class: I, IV Flagging: B/W, G/W C-type: FP0, MM0

Concerns: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-62-1.1L.1L Location: D4

Class: I, IV Flagging: B/W, G/W C-type: FP0, MM0

Concerns: moderate blow down along stream.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 130ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-62/63-2 Location: D2, D3, E3, E4, F4, F3, F4, G4, G5, H5, H6, H7, I7

Class: I Flagging: B/W C-type: MC2, PA1

Concern: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-62-2.1R Location: H5, H6, G6

Class: I, IV Flagging: B/W, G/W C-type: PA1, MM0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-62-2.5R Location: F4

Class: IV Flagging: O/W C-type: MM0

Concerns: active erosion and moderate blow down along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-62: All Alternatives — One Class II stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Shovel yarding would meet soils and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to

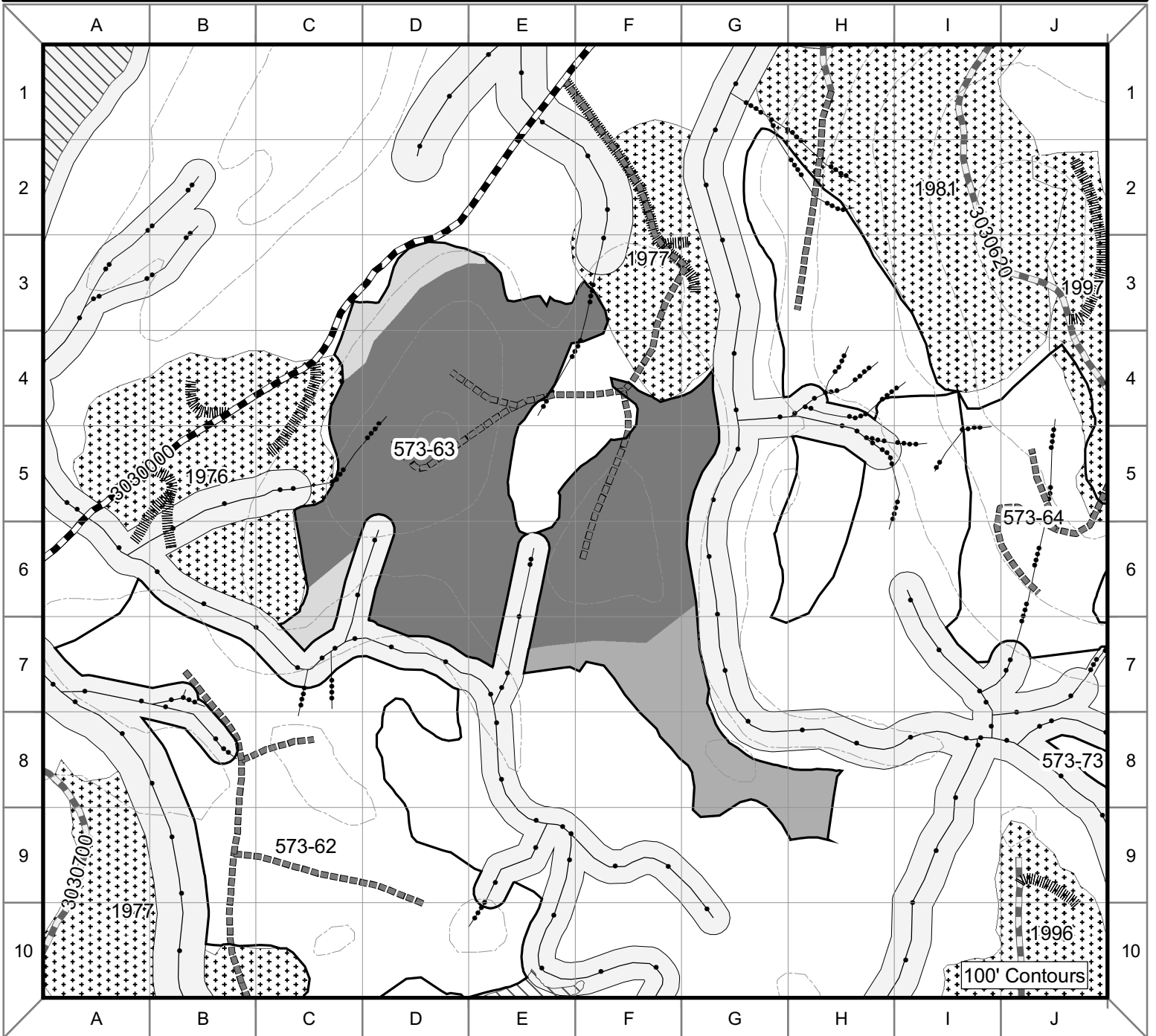
remove logs from steeper slopes or directionally fall the trees instead. The temporary roads would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Fish streams would require RAW buffer be placed during field unit layout. Contains a fish stream of special concern due to blowdown.

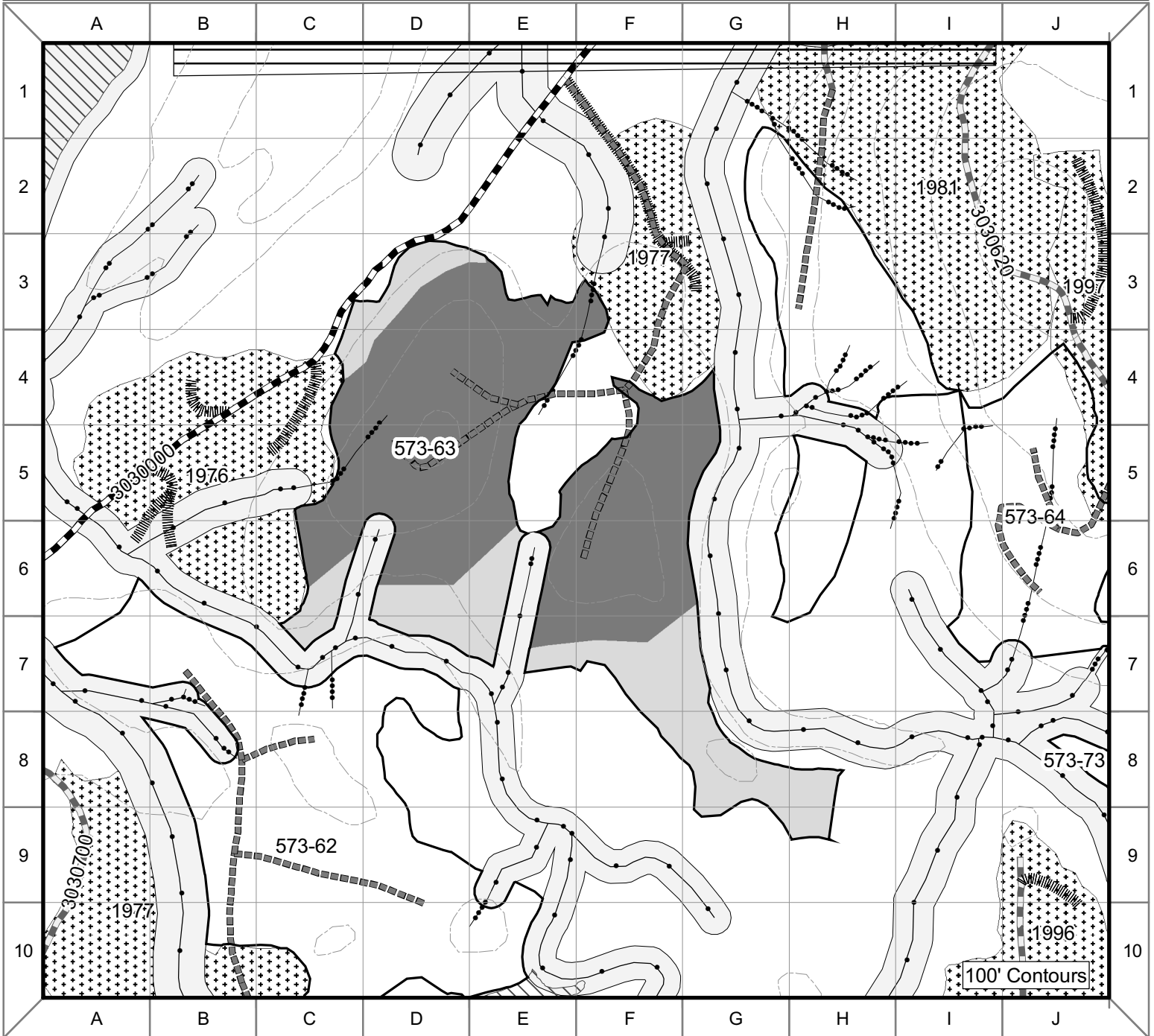
Concerns in Alternative 4 are - Drop extreme northern and southern edge of unit to maintain corridor to Sweetwater Lake; This drop is combined with drops in Unit 63 as well. Unit as proposed blocks access to Sweetwater Lake.

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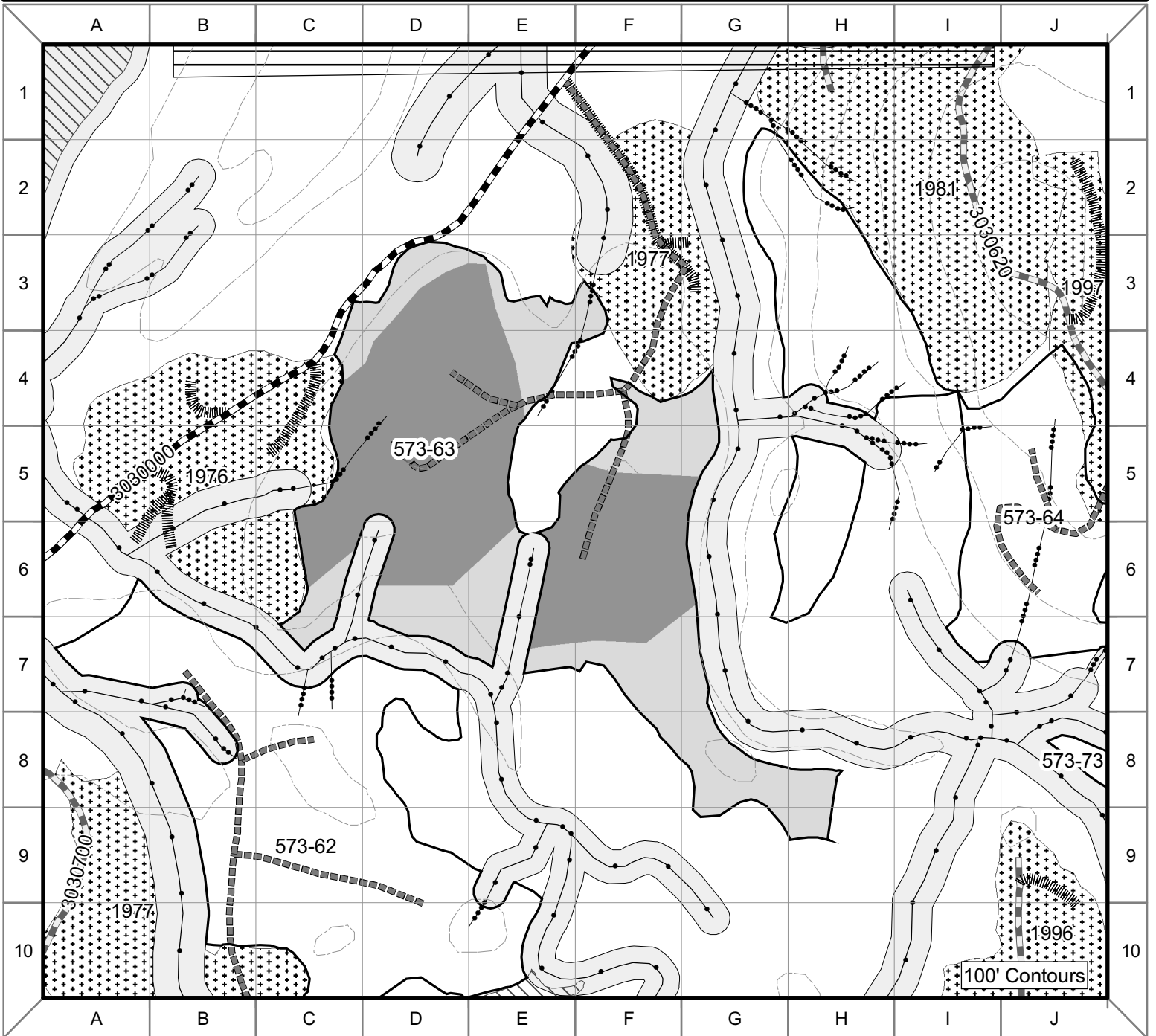


<ul style="list-style-type: none"> ■ ■ ■ Project Area Boundary ▤ Past Harvest □ Riparian Management Area ▨ Unsuitable Soils ▧ Slope > 72% ▩ Other Ownership 	<ul style="list-style-type: none"> — Existing System Road — Coffman Cove Road ▨ Decom. Temp Road — Proposed System Road — Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit □ Proposed Unit ■ Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▨ Lake
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0 0.05 0.1 Miles



--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▨ Past Harvest	▨ Coffman Cove Road	Proposed Unit	~ Class II Stream
□ Riparian Management Area	▨ Decom. Temp Road	Logging System	~ Class III Stream
▨ Unsuitable Soils	▨ Proposed System Road	□ Helicopter	~ Class IV Stream
▨ Slope > 72%	▨ Proposed Temp Road	▨ Shovel or Cable	▨ Lake
▨ Other Ownership		▨ Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles



Unit 573-63 Alternatives 2, 3, 4, 5

Unit Number: 573-63	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 111 Alt. 3 – 82 Alt. 4 – 68 Alt. 5 – 111	Prescription: Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 2,741 Alt. 3 – 2,282 Alt. 4 – 1,904 Alt. 5 – 2,741	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mixed hemlock /cedar old growth stand with typically two or more canopy layers. Unit has rolling knobs that are typically the better sites. Draws between knobs are wet and lower site index. Redcedar and yellow-cedar dominate on the knobs with smaller hemlock in the wetter draws. Spruce occurs as scattered individual trees. A 1977 and a 1976 even-age harvest areas occur adjacent to the northwest and southeast boundary. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. An uncut screen of timber is required to be left adjacent to the 30 road to block the harvest area from view. Design this as approximately shown on the unit card map. Evaluate the effectiveness of this buffer at time of layout and adjust as needed.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for shovel and uphill cable yarding to a proposed temporary extension of an existing spur of NFSR 3030. The unit is divided into two separate harvest areas by a stream and each area is accessed by a separate spur of the proposed temporary road. An additional spur is planned in the western harvest area to minimize shovel yarding distances. There are portions of the southeast finger of the unit that cannot be reached from proposed roads using cable yarding systems. This area is planned for helicopter yarding to landings on the proposed road.

In Alternatives 3 and 4 this unit is planned for shovel and uphill cable yarding to a proposed temporary extension of an existing spur of NFSR 3030. The unit is divided into two separate harvest areas by a class II stream and each area is accessed by a separate spur of the proposed temporary road. An additional spur is planned in the western harvest area to minimize shovel yarding distances. The northeastern edge of both harvest areas is planned for deferral in Alternative 4 to maintain wildlife travel corridors. Areas along streams on the southwestern edge of the unit are deferred in Alternative 3. The southeastern finger of the unit is deferred in both alternatives.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, 4, and 5 - accessed by temporary roads 5,700 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Trumpeter Creek. (Location is depicted from confluence to headwaters.)

Stream#: 573-62/63-2 Location: A5, A6, B6, B7, C7, D7, E7, E8

Class: I Flaggging: B/W C-type: MC2, PA1

Concern: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 4 RAW Buffer: none

Stream#: 573-63-2.2L Location: E7, E6

Class: I, II Flaggging: B/W C-type: MM0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-63-2.3L Location: C7, C6, D6

Class: I Flaggging: B/W C-type: MM0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-63-2.6L Location: B5, C5, D5, D4

Class: I, IV Flaggging: B/W, G/W C-type: MM1, MM0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-63/64-4 Location: G3, G4, G5, G6, G7, G8, H8

Class: I Flaggging: B/W C-type: LC1

Concerns: This stream is Trumpeter Creek and heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-63: All Alternatives — One Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Moderate. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Coffman Highway view point 8.

RECREATION: No concerns

SOILS/WETLANDS:

Alternative 2, 3, 4, 5: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5,

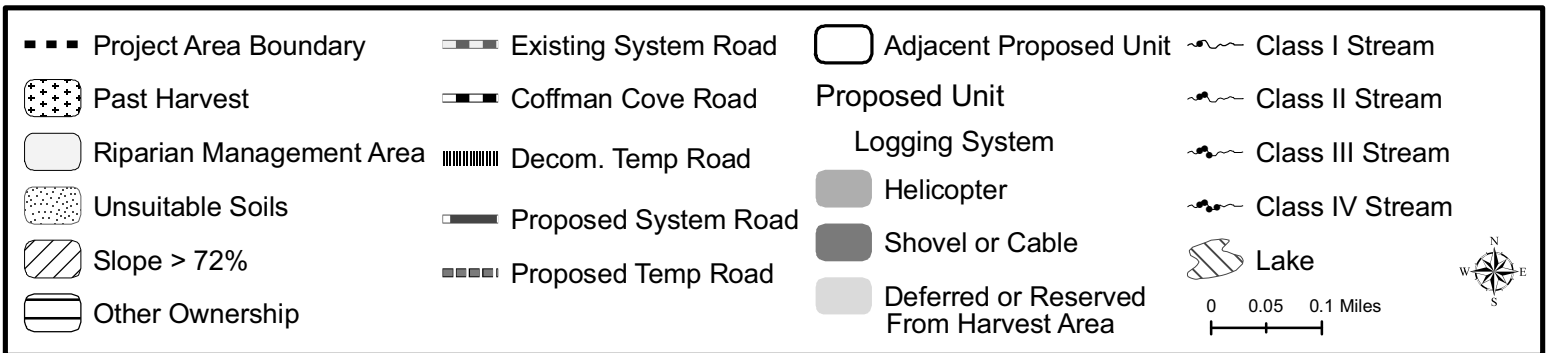
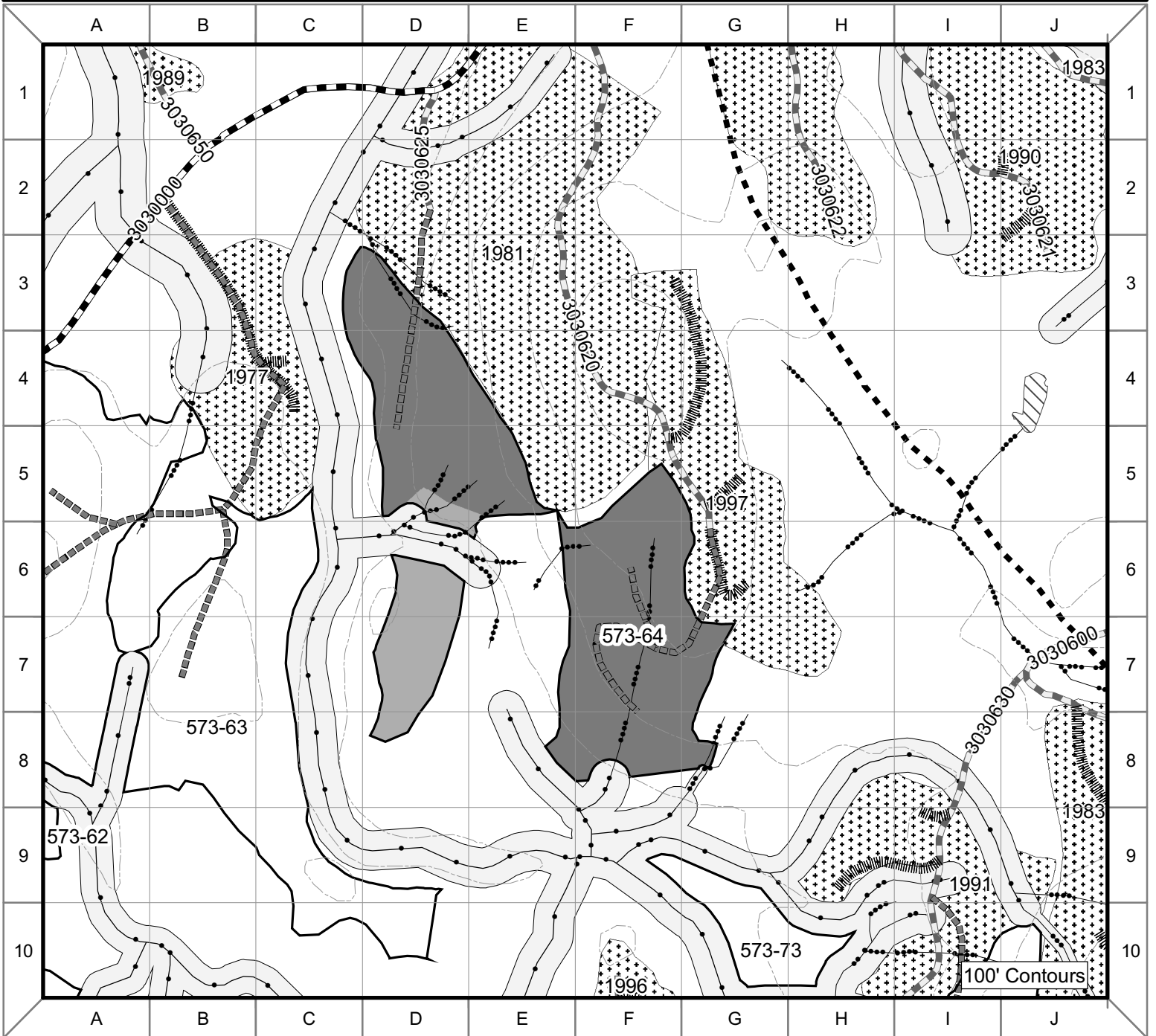
13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The temporary roads would cross about 2 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

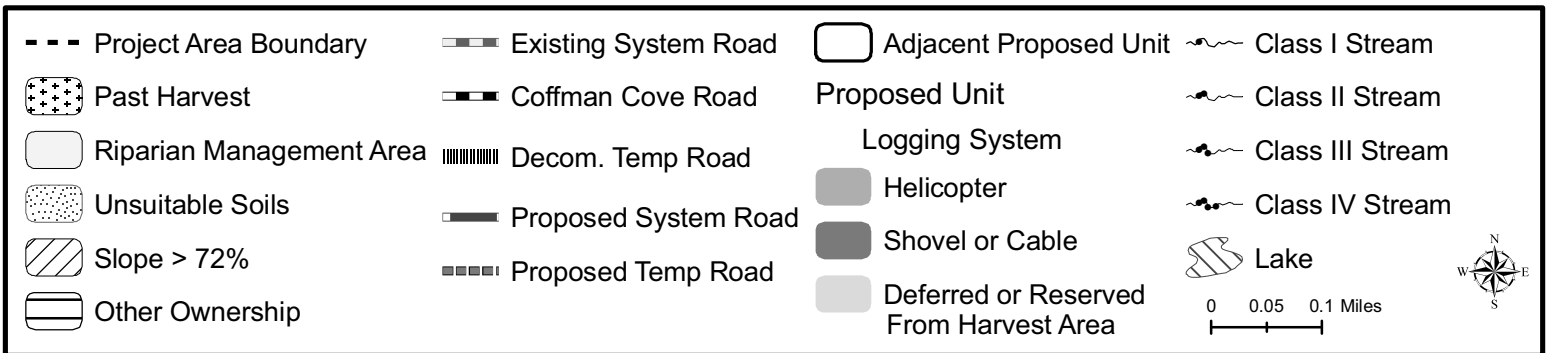
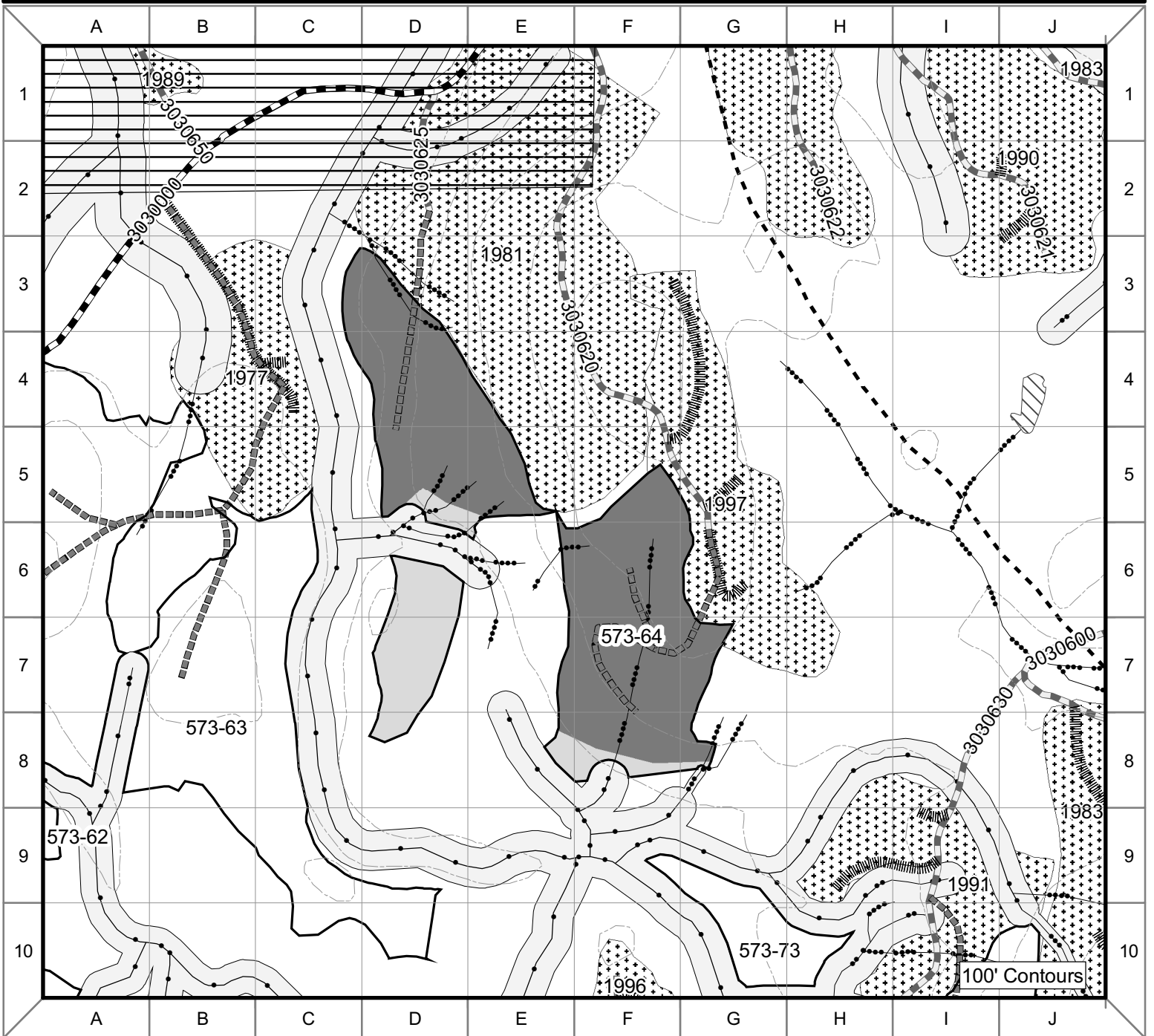
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

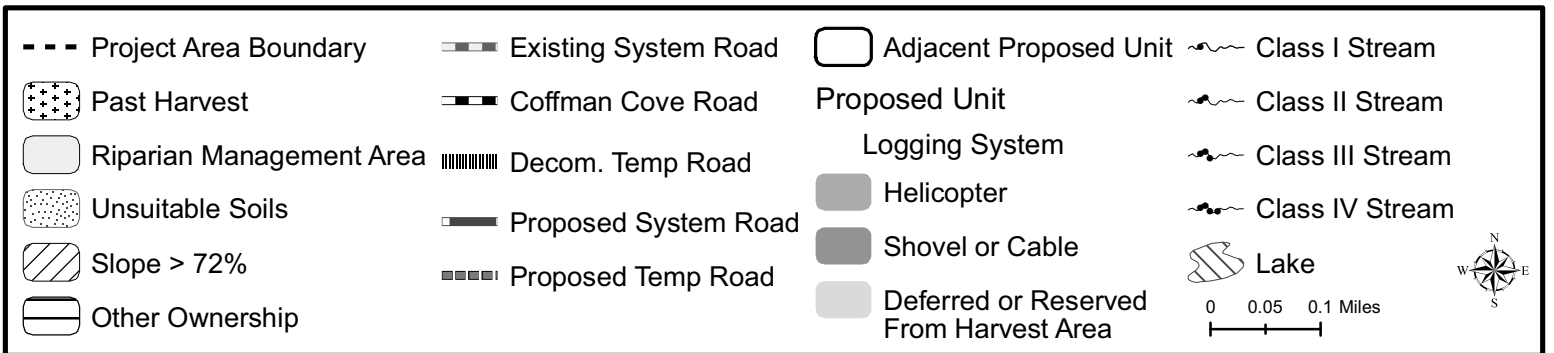
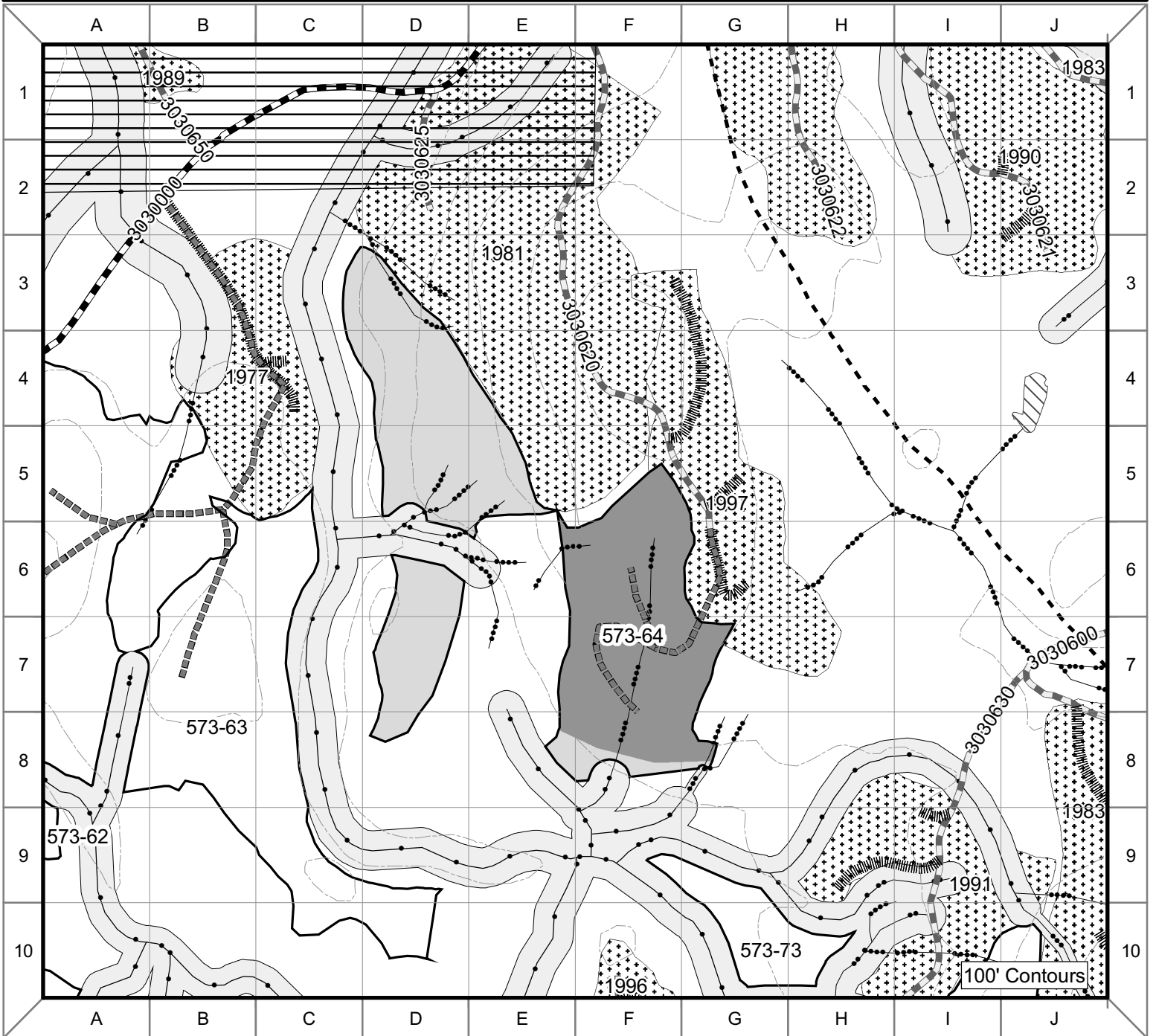
COMMENTS: Concerns in Alternatives 2 and 5 are - Area in SE unit isolated by stream buffers can be harvested with Helicopter Partial-cut; Leave visual buffer along FR3030. Need to review proposed road.

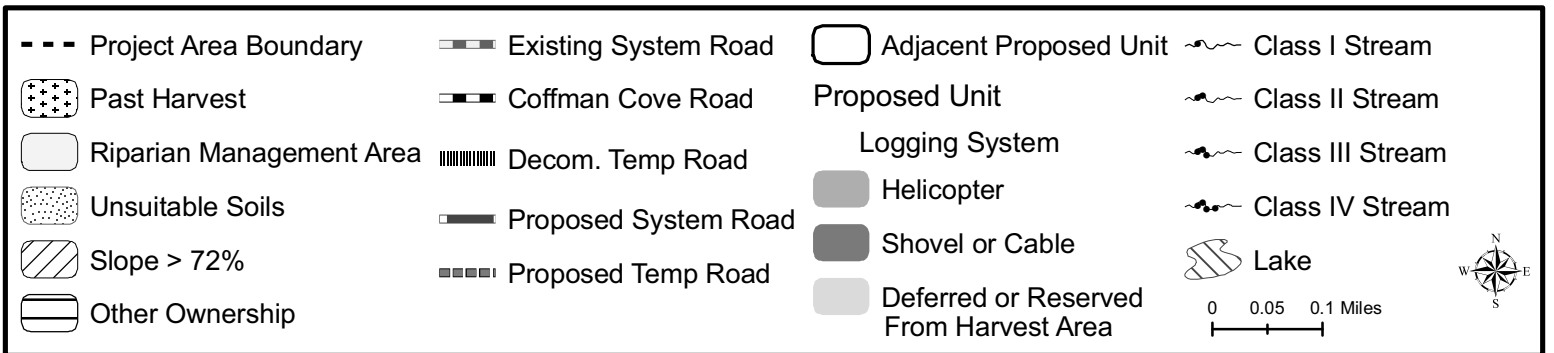
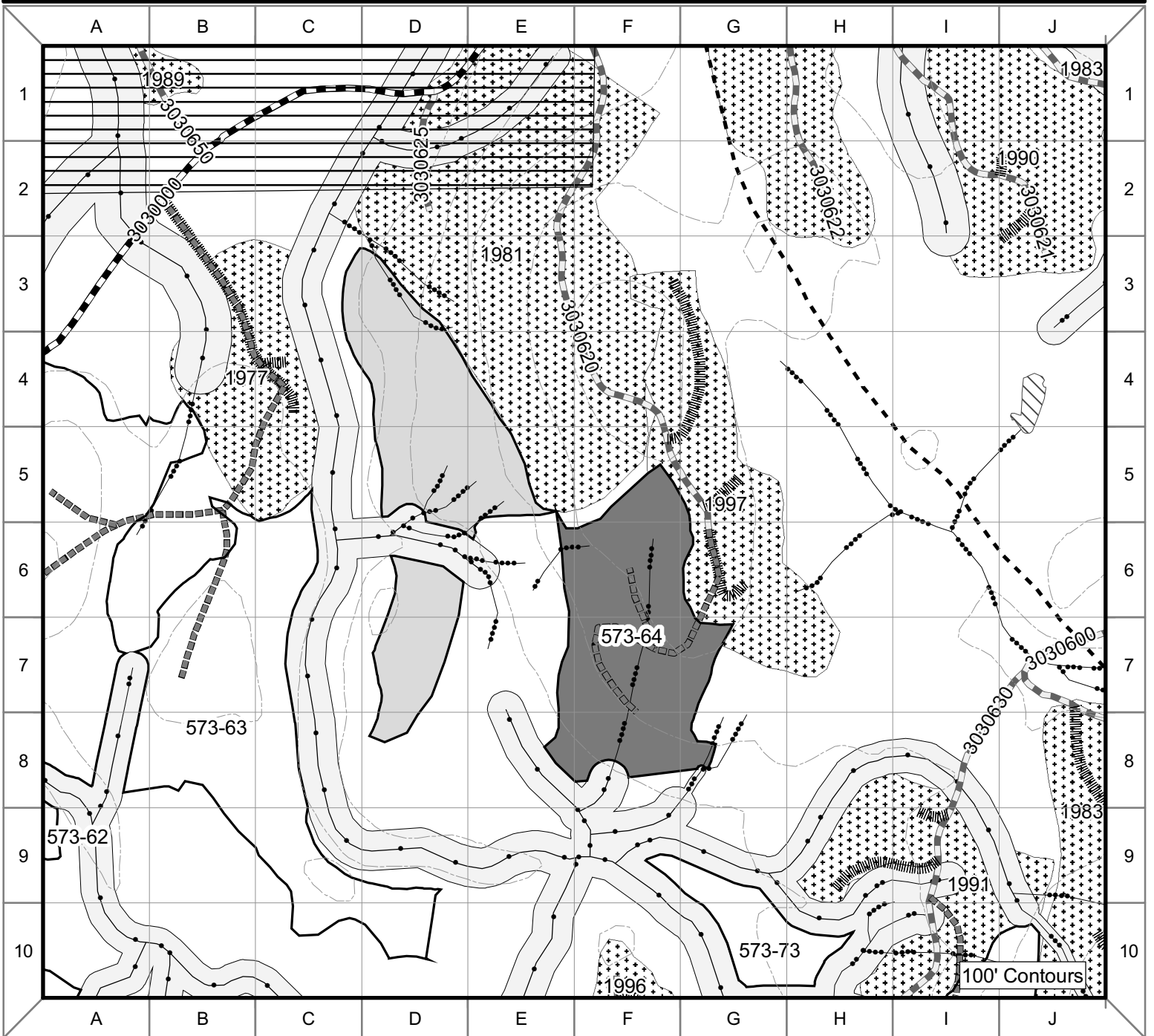
Concerns in Alternative 3 are – Drop south unit section due to stream concerns and related fish-water quality concerns; Leave visual buffer along FR 3030. Recommend defer or heli harvest the south section due to stream concerns and related fish-water quality concerns.

Concerns in Alternative 4 are – Drop extreme northern and southern portion to maintain access to Sweetwater Lake; Drop middle portion of unit to maintain access to Sweetwater Lake; Drop eastern finger to maintain access to Sweetwater Lake; Leave visual buffer along FR3030. Unit as proposed blocks access to Sweetwater Lake.









Unit 573-64 Alternatives 2, 3, 4, 5

Unit Number: 573-64	Alternatives: 2, 3,4,5	Total Unit Acres: Alt. 2 – 73 Alt. 3 – 59 Alt. 4 – 33 Alt. 5 – 36	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 1,467 Alt. 3 – 1,307 Alt. 4 – 695 Alt. 5 – 759	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The original LSTA unit is divided into multiple polygons by low volume timber and class I streams. Old growth timber, with multiple canopy layers, high redcedar and yellow-cedar component but low volume due to restricted site and heavy defect.

A 1981 and an adjoining 1997 even-age harvests about the unit to the north. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternative 2 this unit is divided into three separate harvest areas. The unit is planned for a combination of shovel, cable and helicopter yarding. The northern harvest area is planned for shovel and uphill cable yarding to landings on a proposed temporary extension of NFSR 3030625. The southeastern harvest area is planned for shovel and uphill cable yarding to landings on a proposed temporary extension of NFSR 3030620. An additional spur is planned in this area to minimize shovel yarding distances. The southwestern harvest area is planned for helicopter yarding to a landing on the proposed temporary extension of NFSR 3030625.

In Alternative 3 this unit includes separate northwestern and southeastern harvest areas.

Alternatives 4 and 5 only include the southeastern harvest area. The northwestern harvest area is planned for shovel and uphill cable yarding to landings on a proposed temporary extension of NFSR 3030625. The southeastern harvest area is planned for shovel and uphill cable yarding to landings on a proposed temporary extension of NFSR 3030620. An additional spur is planned in this area to minimize shovel yarding distances. An area along the southern edge of the southeastern harvest area is deferred in Alternatives 3 and 4.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2 and 3 – accessed by temporary roads 4,000 feet in length. Alternatives 4 and 5 – accessed by temporary roads 2,600 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-63/64-4 Location: C2, C3, C4, C5, C6, C7, C8, C9, D9, E9, F9, F10

Class: I Flagging: B/W C-type: LC1

Concerns: This stream is Trumpeter Creek and heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-64-4.1L Location: C6, D6, E6, E7

Class: I, IV Flagging: B/W, G/W C-type: MM1, MM0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-64-4.1L.2L Location: D6, D5, E5

Class: I, IV Flagging: B/W, OW, G/W C-type: HC1, MM0

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-64-4.1L.2L.1R Location: D6, E6, E5

Class: IV Flagging: O/W, G/W C-type: HC0, MM0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-64-4.2L Location: F9, E8, E7

Class: I Flagging: B/W C-type: PA5

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

Stream#: 573-64-4.2L.1R Location: F9, F8, G8

Class: I, III, IV Flagging: B/W, O/W, G/W C-type: MM1, HC5

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-64-4.2L.2R Location: F9, F8, F7, F6

Class: I, IV Flagging: B/W, O/W, G/W C-type: MM1, HC0, MM0

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 and 4 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-64: Alternatives 2 and 3 — five Class IV stream crossings and Alternatives 4 and 5 – three Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead.

Alternatives 2 and 3: The temporary roads would cross about 2.5 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

Alternatives 4, 5: The temporary roads would cross about 2 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

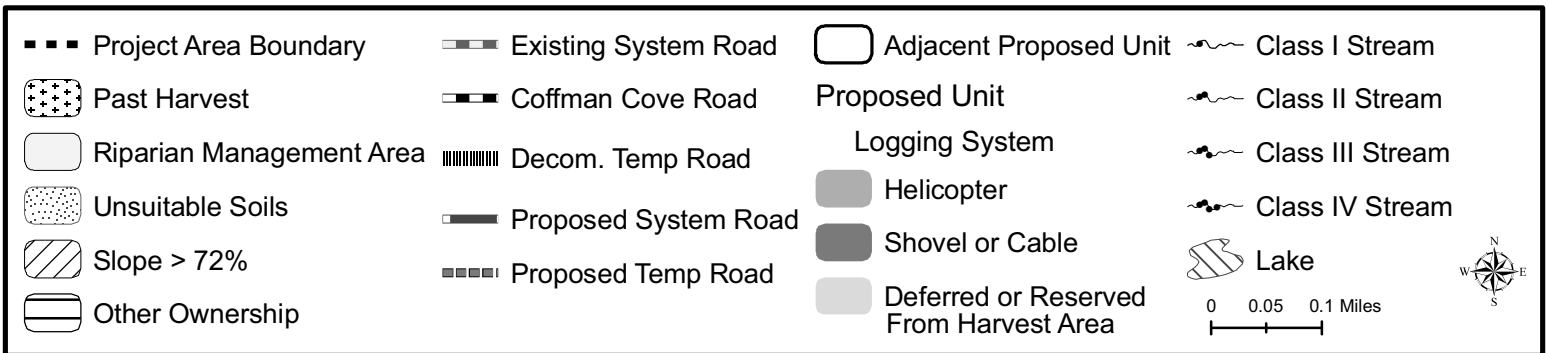
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Area in SE unit isolated by stream buffers can be harvested with Helicopter. Concerns in Alternative 3 are – Drop south portion of each polygon due to stream concerns and related fish-water quality concerns. Orange and white Class IV's in southwest section and southeast corner; Potential water quality concerns in these locations above.

Concerns in Alternative 4 are – Drop western polygon; Drop southern edge of eastern polygon. Unit as proposed blocks access to Sweetwater Lake.

Concerns in Alternative 5 are – Drop western polygon. Poor economics in western poly, high road construction costs for marginal timber volume/ value.

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Unit 573-65 Alternatives 2, 3, 4, 5

Unit Number: 573-65	Alternatives: 2,3,4,5	Total Unit Acres: 20	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel	Net Harvest Volume (MBF): 511	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth hemlock /cedar stand with multiple canopy layers. Lower site area in south has higher hemlock/yellow-cedar component of smaller diameter. Redcedar dominates on better site "knobs" in unit. A 1977 even age harvest area is to the west. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In all action alternatives this unit is planned for shovel yarding to proposed NFSR 3030820.

ENGINEERING/ROADS: Unit is accessed by proposed NFS road 3030820 (see road card) as displayed on the unit card. NFS road will be stored after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9- Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-65-1 Location: D3, E4, F5, F6, G6

Class: I Flagging: B/W C-type: PA5

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-65-1.1R Location: F5, F6, F7

Class: I Flagging: B/W C-type: PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Moderate. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Coffman Highway view point 8.

RECREATION: No concerns

SOILS/WETLANDS: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would

require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

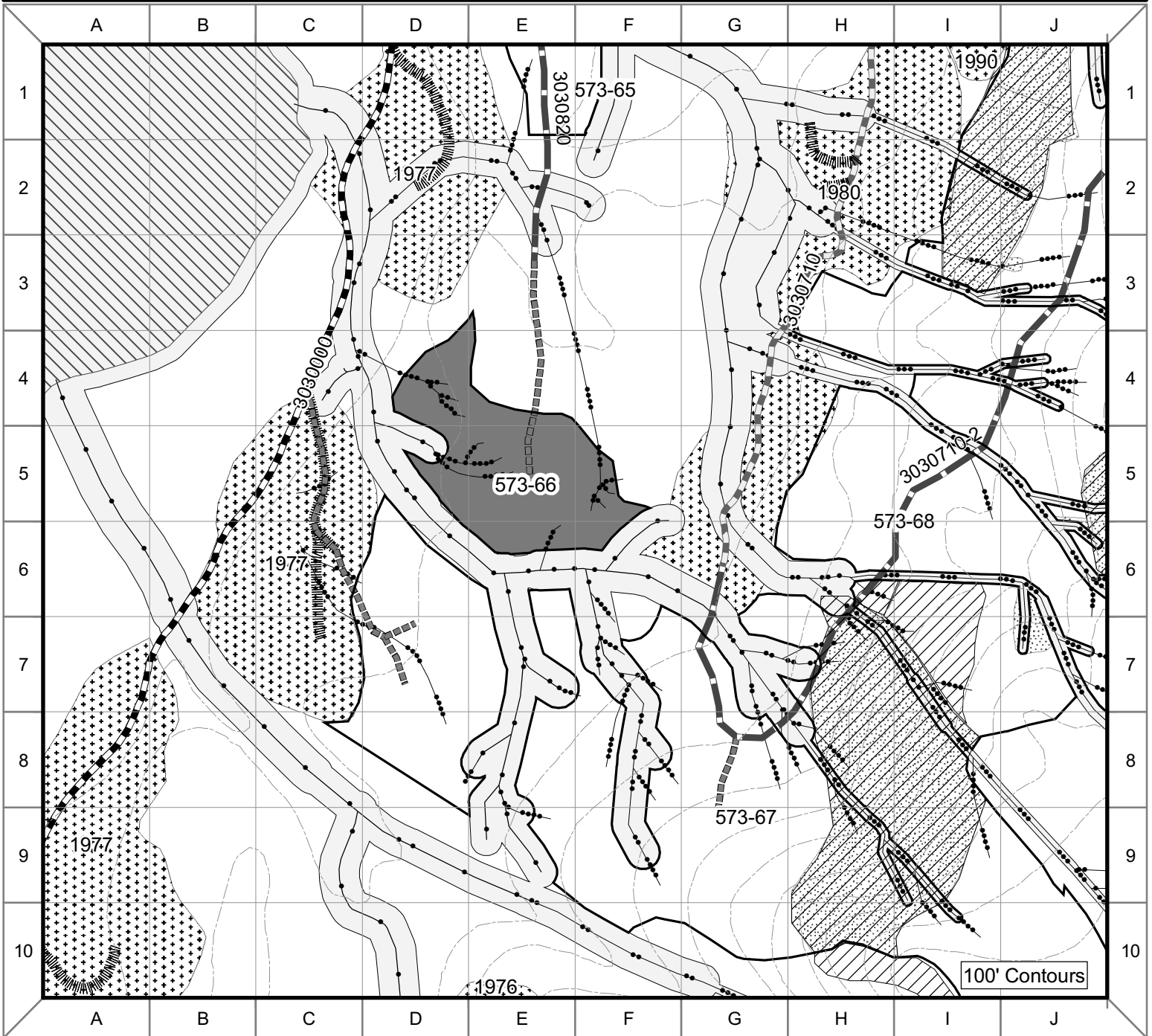
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2 and 5 are - Visuals from FR3030.

Concerns in Alternative 3 are – Beaver complex present in proposed unit; Visuals from FR3030.

Concerns in Alternative 4 are – Beaver complex –not a high concern; Visuals from FR3030

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<ul style="list-style-type: none"> --- Project Area Boundary ••• Past Harvest □ Riparian Management Area □ Unsuitable Soils ▨ Slope > 72% ▨ Other Ownership 	<ul style="list-style-type: none"> --- Existing System Road --- Coffman Cove Road ▨ Decom. Temp Road --- Proposed System Road --- Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit Proposed Unit Logging System ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▨ Lake
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0 0.05 0.1 Miles

Unit 573-66 Alternative 2

Unit Number: 573-66	Alternatives: 2	Total Unit Acres: 27	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel	Net Harvest Volume (MBF): 679	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth structure, mature timber with high defect redcedar, scattered wet areas in unit, some windthrow noted in west edge. Muskeg and a 1980s harvest about the unit for a short distance at the eastern most point. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel yarding to a temporary extension of proposed NFSR 3030820.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 1,400 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-66/67-1 Location: C3, C4, D4, D5, D6, E6, F6, G6

Class: I Flagging: B/W C-type: MM1, HC1, HC2

Concerns: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. (for MM1) and 100ft. (for HC1 and HC2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-66-1.2L Location: D4, D5, E5

Class: I, IV Flagging: B/W, G/W C-type: MM0, HC0

Concerns: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-66-1.4L Location: F6, F5

Class: I Flagging: B/W C-type: MM1

Concerns: heavy blow down occurred adjacent to stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 573-66: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The temporary road would cross about 1 acre of forested wetland and a ¼ acre of forested wetland/emergent short sedge complexes (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

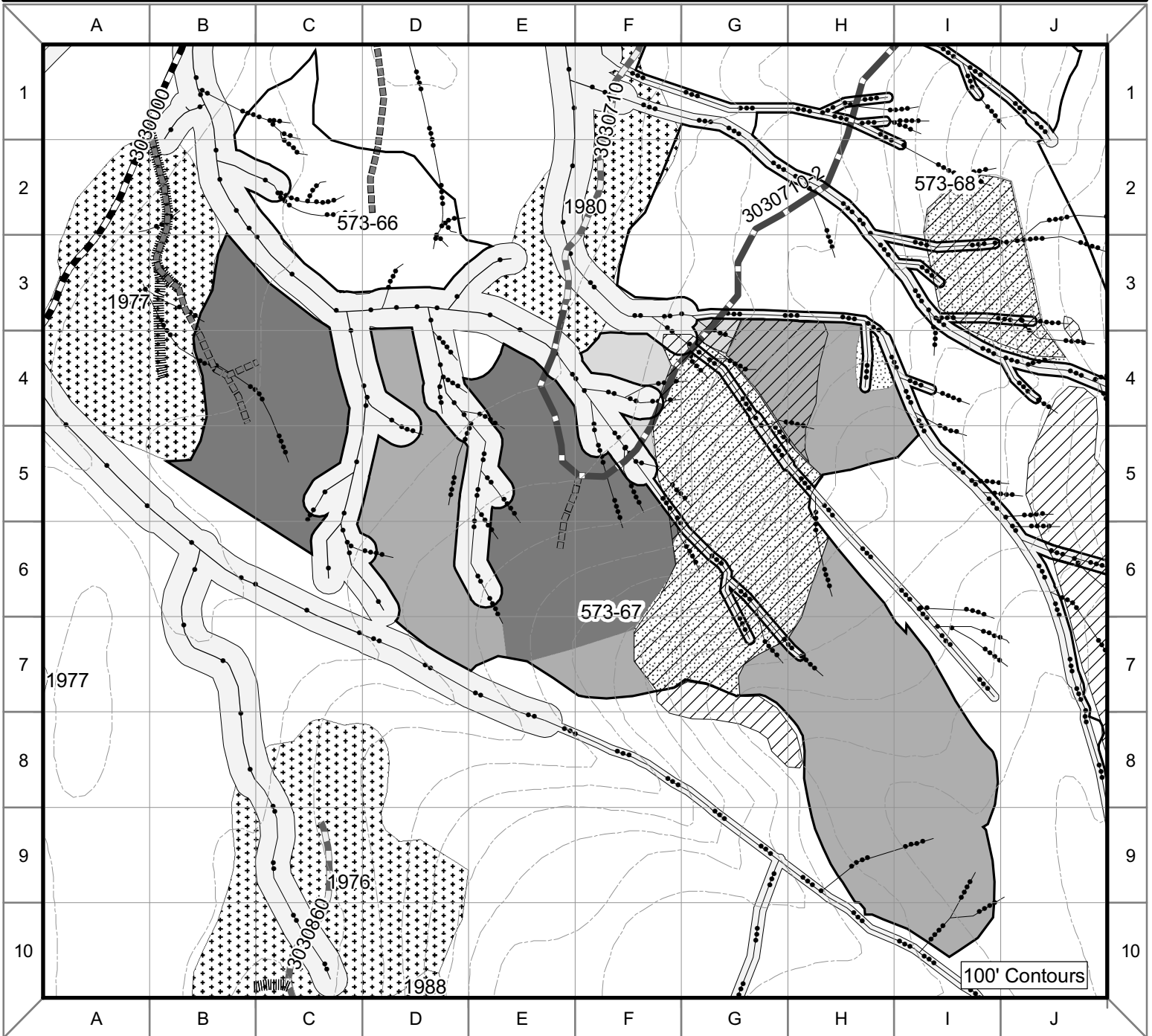
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

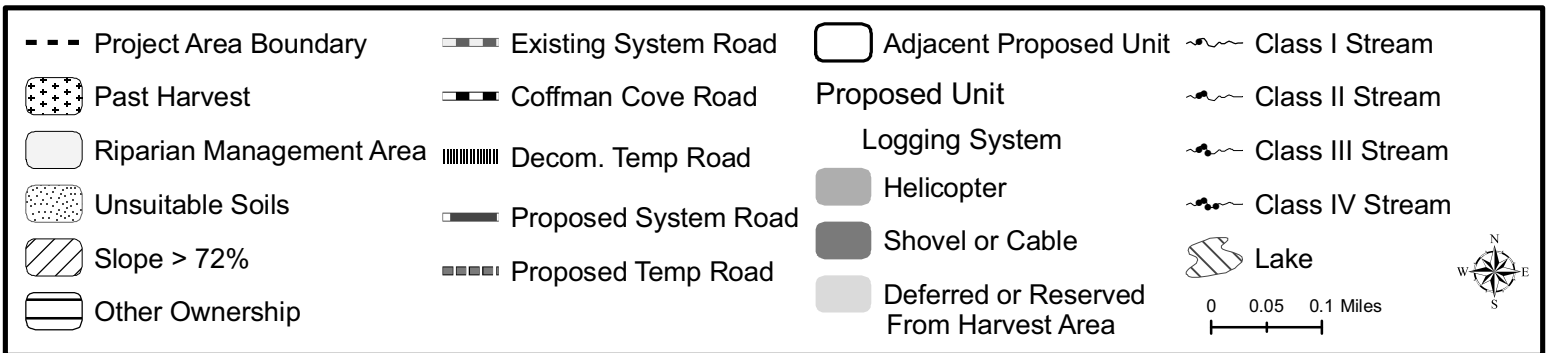
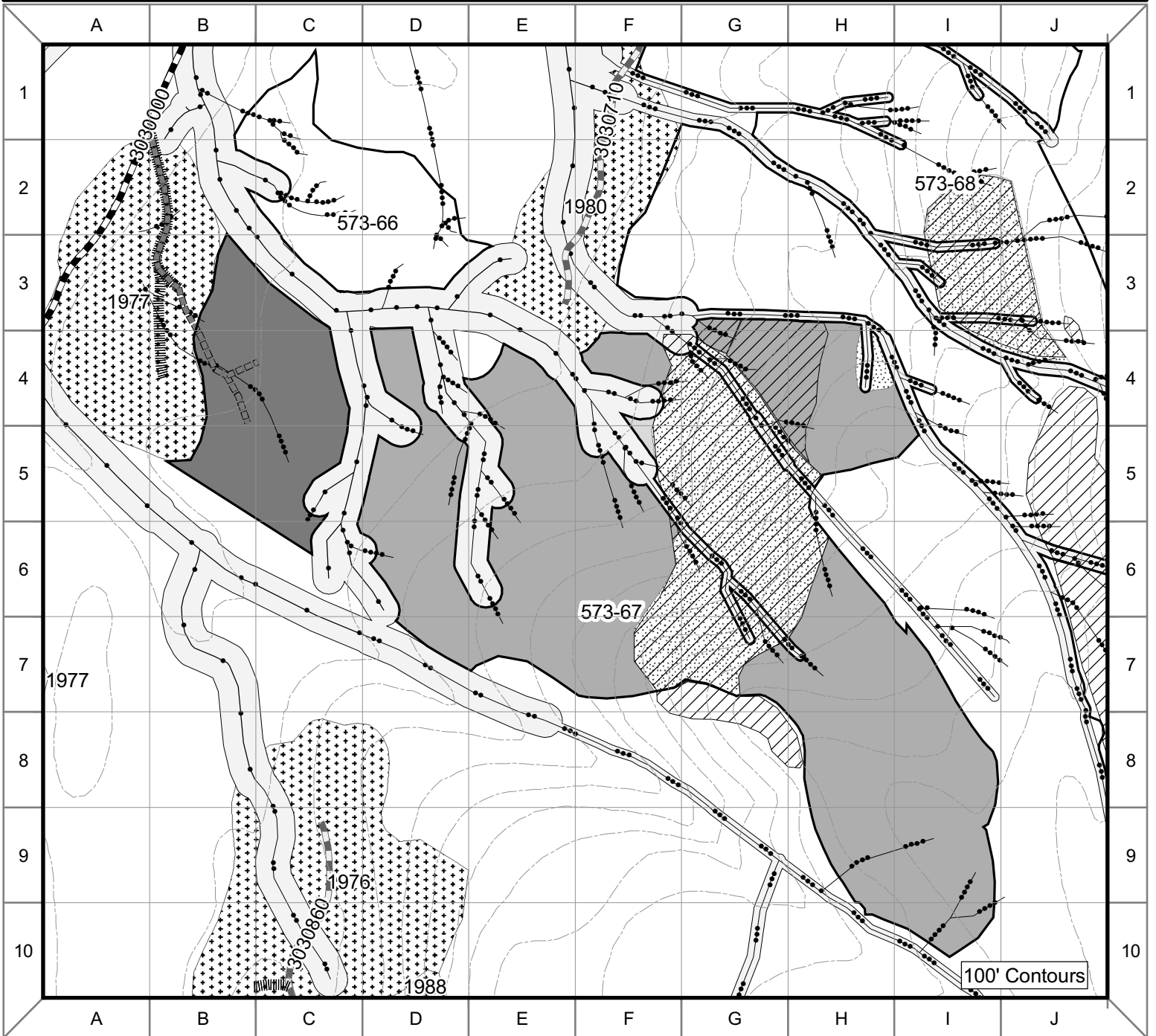
COMMENTS: Concerns in Alternative 3 are – Drop unit. Poor economics; Fish recommends dropping a large portion of the unit based on lots of stream and wetlands concerns; Potential water quality (sediment) concerns.

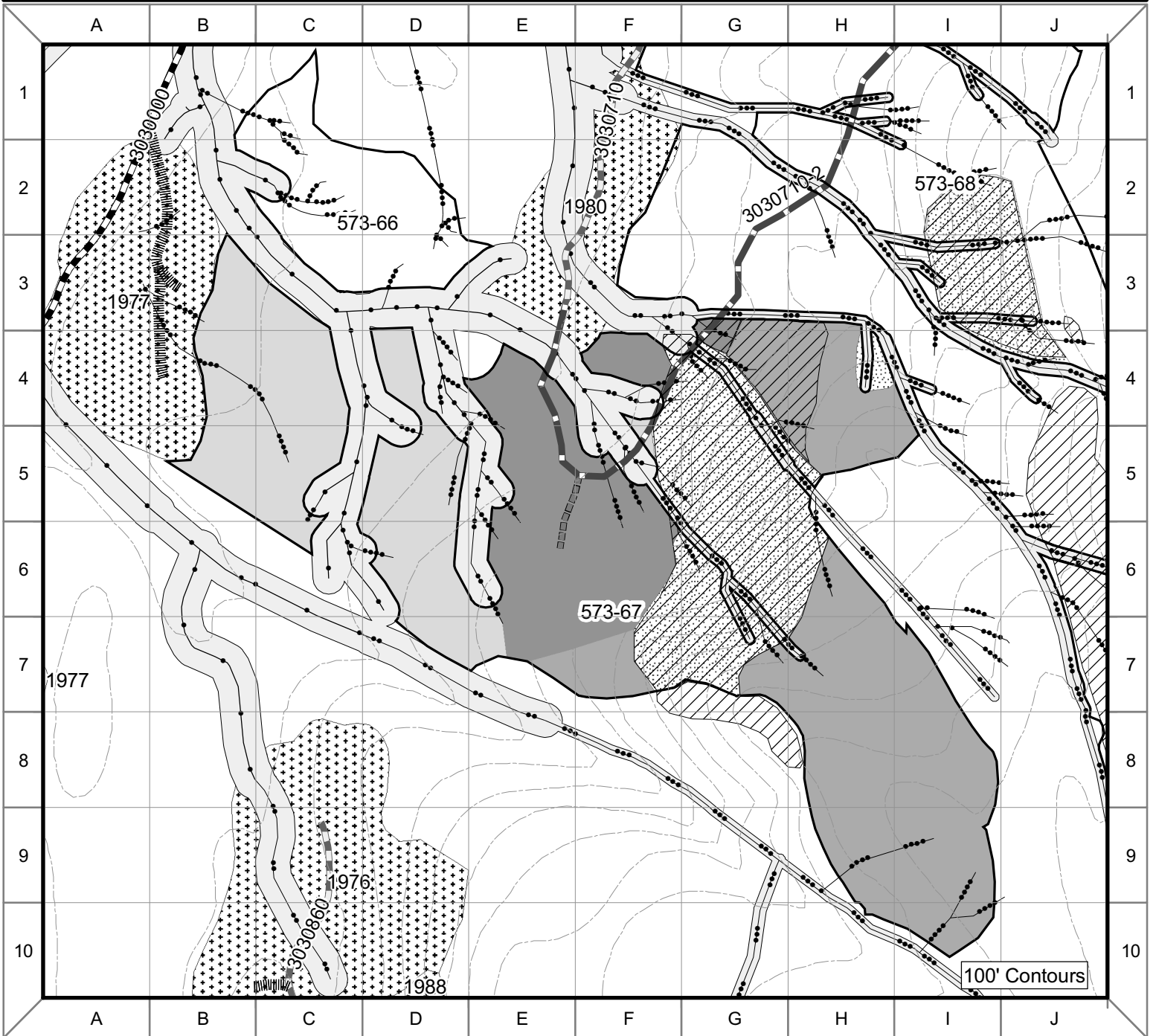
Concerns in Alternative 4 are – Drop unit. Unit as planned blocks access to Sweetwater Lake; Poor economics; Unit as proposed is adjacent to an OGR.

Concerns in Alternative 5 are – Drop unit. Poor economics in western poly, high road construction costs for marginal timber volume/ value.

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Unit 573-67 Alternatives 2, 3, 4, 5

Unit Number: 573-67	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 163 Alt. 3 – 167 Alt. 4 – 115 Alt. 5 – 163	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 2,223 Alt. 3 – 1,585 Alt. 4 – 1,532 Alt. 5 – 2,223	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Stand is large and variable but predominantly is hemlock /redcedar. Structure is mostly old growth but even-aged appearing structure is evident as patches in southwest exposed areas. Lower elevation flatter ground in the west is dominated by redcedar with patches of hydric soils, as you go west in the stand and gain elevation, the stand becomes better drained and more hemlock and yellow-cedar occur. Spruce is found scattered in the stand. This unit abuts planned setting 573-68 along a short boundary in the north. Windthrow risk is high. Mistletoe occurrence is heavy-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk unit, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is divided into three separate harvest areas by streams and areas of soils concern. The western harvest area is planned for shovel yarding to a proposed temporary spur of NFSR 30. The central harvest area is planned for a combination of shovel, and downhill cable yarding to landings on proposed NFSR 3030710-2. An additional temporary spur of NFSR 3030710-2 is also planned to access cable landings and to reduce shovel yarding distances. The eastern harvest area and portions of the central area that cannot be reached using shovel or cable are planned for helicopter yarding to landings on the proposed roads.

In Alternative 3 this unit is divided into four separate harvest areas by streams and areas of soils concern. The western harvest area is planned for shovel yarding to a proposed temporary spur of NFSR 30. The remaining harvest areas are planned for helicopter yarding to landings on existing NFSR 3030710 and the proposed temporary spur.

In Alternative 4, the western harvest area and the western half of the central area are planned for deferral to maintain wildlife travel corridors. The remaining portion of the central harvest area is planned for a combination of shovel, and downhill cable yarding to landings on proposed NFSR 3030710-2 and an additional temporary spur. The eastern harvest area and portions of the central area that cannot be reached using shovel or cable are planned for helicopter yarding to landings on the proposed roads.

ENGINEERING/ROADS: In Alternatives 2, 4, and 5 unit is accessed by proposed NFS road 3030710-2 (see road card) and by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 2 and 5 – accessed by temporary roads 2,800 feet in length. Alternative 3 – accessed by temporary roads 2,300 feet in length. Alternative 4 – accessed by temporary roads 500 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of

Gravel Sources and Quarries.

In Alternative 3 this unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-66/67-1 Location: B1, B2, C3, D3, E3, E4, F4, F5, G6, G7, H7
Class: I, II, III, IV Flagging: B/W, OW, G/W C-type: MM1, HC1, HC2, HC5, HC0
Concerns: heavy blow down along stream adjacent to past harvested units.
Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1 and HC2) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-67-1.1R Location: B1
Class: I Flagging: B/W C-type: MM0

Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-1.1R.1L Location: B1
Class: I Flagging: B/W C-type: MM0

Concerns: heavy blow down along stream adjacent to past harvested unit.
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-1.2R Location: C3, C4, D4, D5
Class: I, IV Flagging: B/W, G/W C-type: MM1, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 573-67-1.2R.1R Location: D4, D5, C5, C6, D6
Class: I, II, IV Flagging: B/W, G/W C-type: MM0, HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. (for MM0) and 100ft. (for HC0) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 573-67-1.2R.1R.1R Location: C6
Class: I Flagging: B/W C-type: MM0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 573-67-1.2R.1R.2R Location: C6, D6
Class: I Flagging: B/W C-type: MM0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-1.2R.1R.3R Location: C5
Class: I, IV Flagging: B/W, G/W C-type: MM0
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 4 RAW Buffer: none

Stream#: 573-67-1.3R Location: D3, D4, E5, E6, E7
Class: I, II, IV Flagging: B/W, G/W C-type: MM1, HC1, HC0
Concerns: heavy blow down along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 and 4 RAW Buffer: none

Stream#: 573-67-1.3R.1R Location: D4
Class: I, IV Flagging: B/W, G/W C-type: MM0
Concerns: heavy blow down along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-1.3R.5L Location: E5, E6
Class: II, IV Flagging: B/W, G/W C-type: HC1, HC0
Concerns: heavy blow down along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 and 4 RAW Buffer: none

Stream#: 573-67-1.4L Location: F4
Class: II, IV Flagging: B/W, G/W C-type: HC1, HC0
Concerns: heavy blow down and unstable soils along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-1.5R Location: F4, F5, F6
Class: II, IV Flagging: B/W, G/W C-type: HC1, HCO
Concerns: heavy blow down and unstable soils along stream.
Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 573-67-1.7L Location: F5, G5
Class: IV Flagging: O/W C-type: HC5
Concerns: heavy blow down and unstable soils along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the

stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-1.9R Location: G6, G7

Class: III Flagging: O/W C-type: HC5

Concerns: unstable banks and active bank slumps along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-2 Location: A5, B5, B6, C6, C7, D7, E7, E8, F8, G8, G9, H9, H10, I10

Class: I, II, III Flagging: B/W, O/W C-type: MM1, HC1, HC3, HC5

Concerns: heavy blow down and unstable soils along stream. A large landslide has deposited debris in the stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for HC1 and HC3) or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67/68-3 Location: E3, F3, G3, H3, H4, I4, I5, J5, J6

Class: II, III Flagging: B/W, O/W C-type: HC2, HC5, HC6

Concerns: heavy blow down and unstable banks along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-3.1R Location: F3, F4, G4, G5, H5, H6, I6, I7

Class: II, III Flagging: B/W, O/W C-type: HC5, HC2

Concerns: heavy blow down and unstable banks along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-3.1R.2L Location: G4

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: steep gradient and stored sediment.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-3.1R.3L.1L Location: G4, H4, H5

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: steep gradient and stored sediment.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-67-3.3R Location: H3, H4

Class: III Flagging: O/W C-type: HC5

Concerns: unstable banks and bank slides along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-67: Alternatives 2, 3, and 5 — four Class IV stream crossings and Alternative 4 – no known stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY Scenic Integrity Objectives for this unit is Low. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 4. Areas of the unit using individual tree marking must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 44 acres of steep slopes, landslides, and unstable soils. A band of steep slopes ranging from 65 to 120% are located in the center of the unit and occur in the deferred area. See unit report in Project File for details.

Alternatives 2, 5: Slopes range from 20 to >72% in the lower and upper portions of the unit. There are 7 acres of slopes >72% suitable for harvest in with partial suspension in the middle of the unit. Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The unit contains about 40 acres of forested wetland and at high elevations scrub-scrub (BMP 12.5). The temporary roads would cross about 1.5 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

Alternative 3: Slopes range from 20 to >72% in the lower and upper portions of the unit. There are 8 acres of slopes >72% suitable for harvest in with partial suspension in the middle of the unit. Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The unit contains about 40 acres of forested wetland and at high elevations scrub-scrub (BMP 12.5). The temporary roads would cross about 1 acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

Alternative 4: Slopes range from 20 to >72% in the lower and upper portions of the unit. There are 8 acres of slopes >72% suitable for harvest in with partial suspension in the middle of the unit. Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. The unit contains about 40 acres of forested wetland and at high elevations scrub-scrub (BMP 12.5). The temporary roads would cross about a ½ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

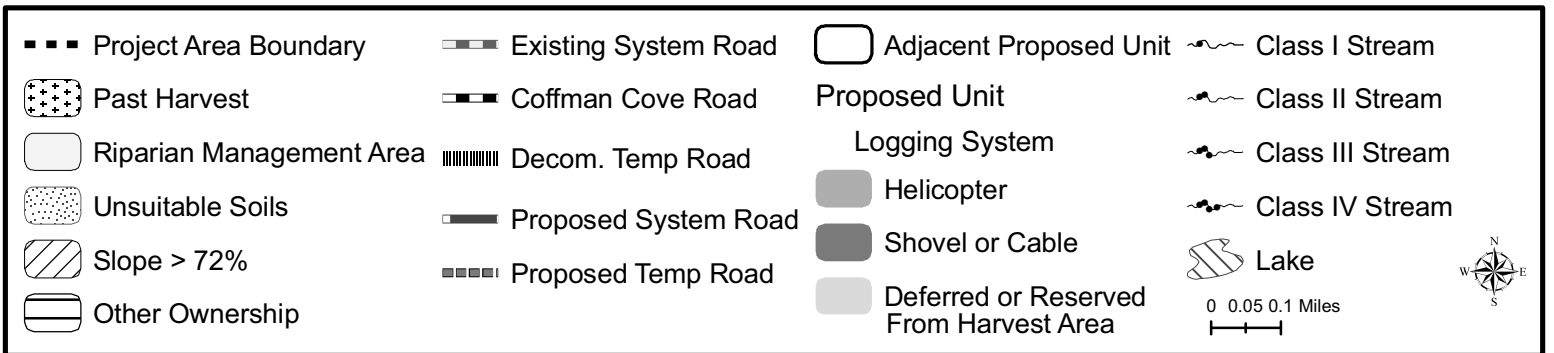
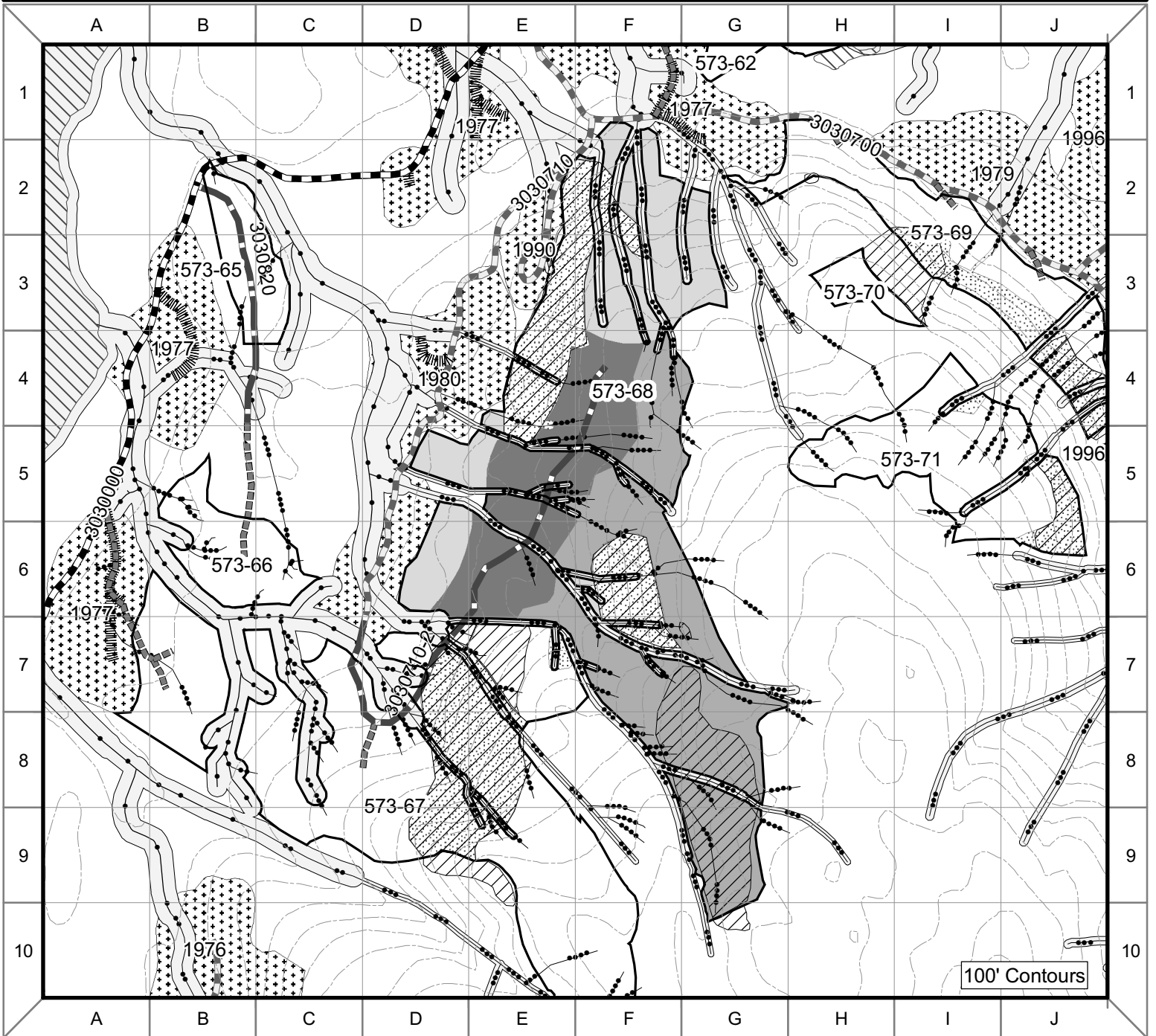
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

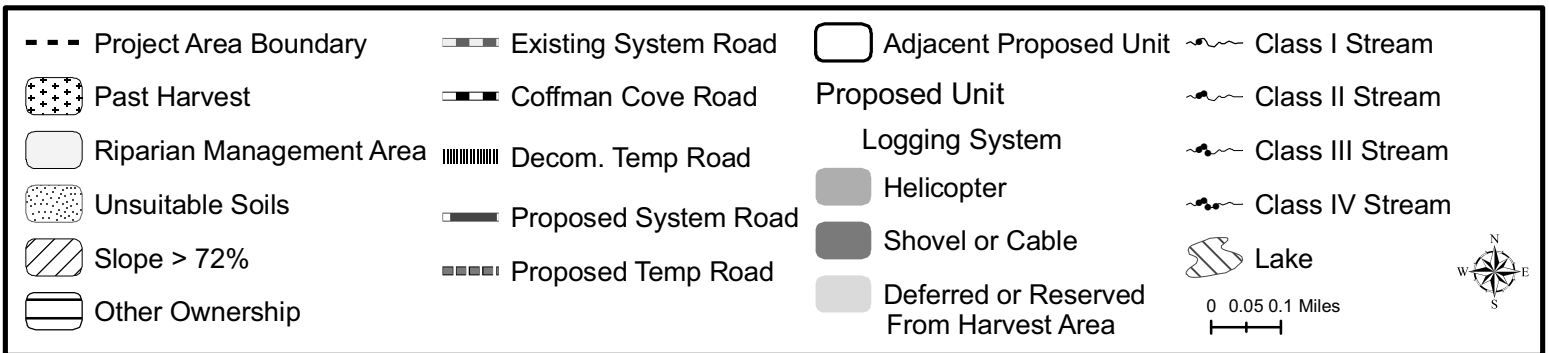
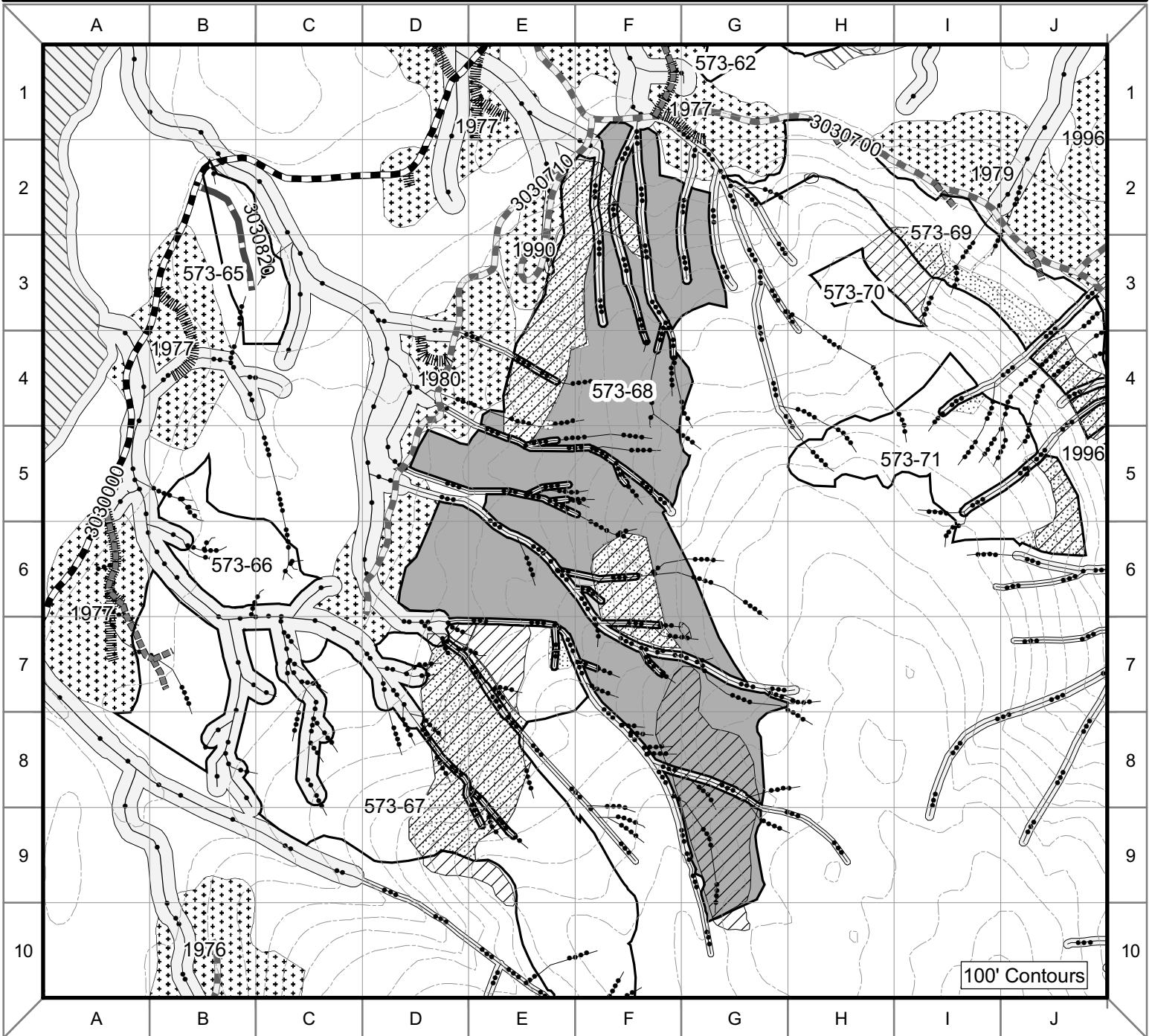
COMMENTS: Concerns in Alternatives 2 and 5 are - Visual Concerns; Opening size not to exceed 60 acres. Helicopter Partial Cut areas not accessible from proposed roads.

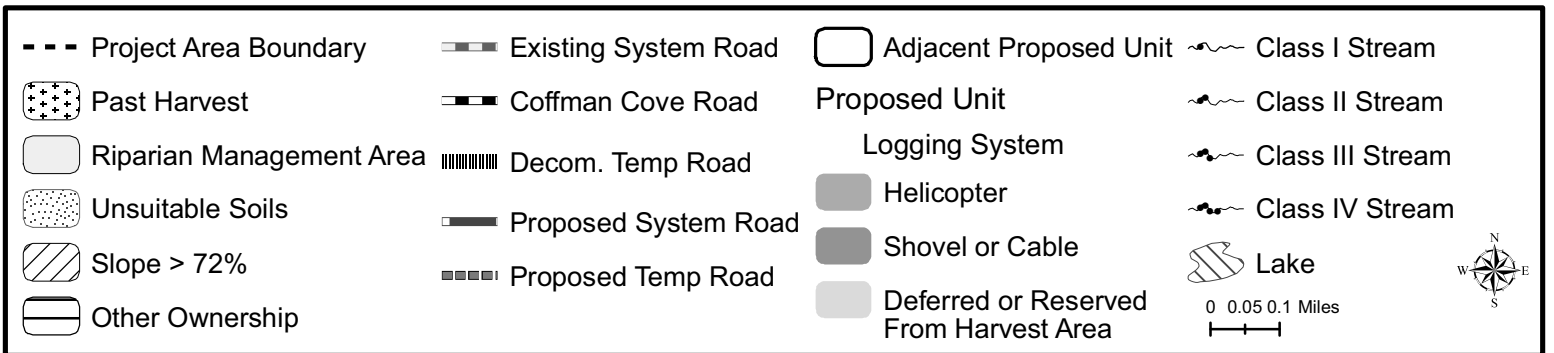
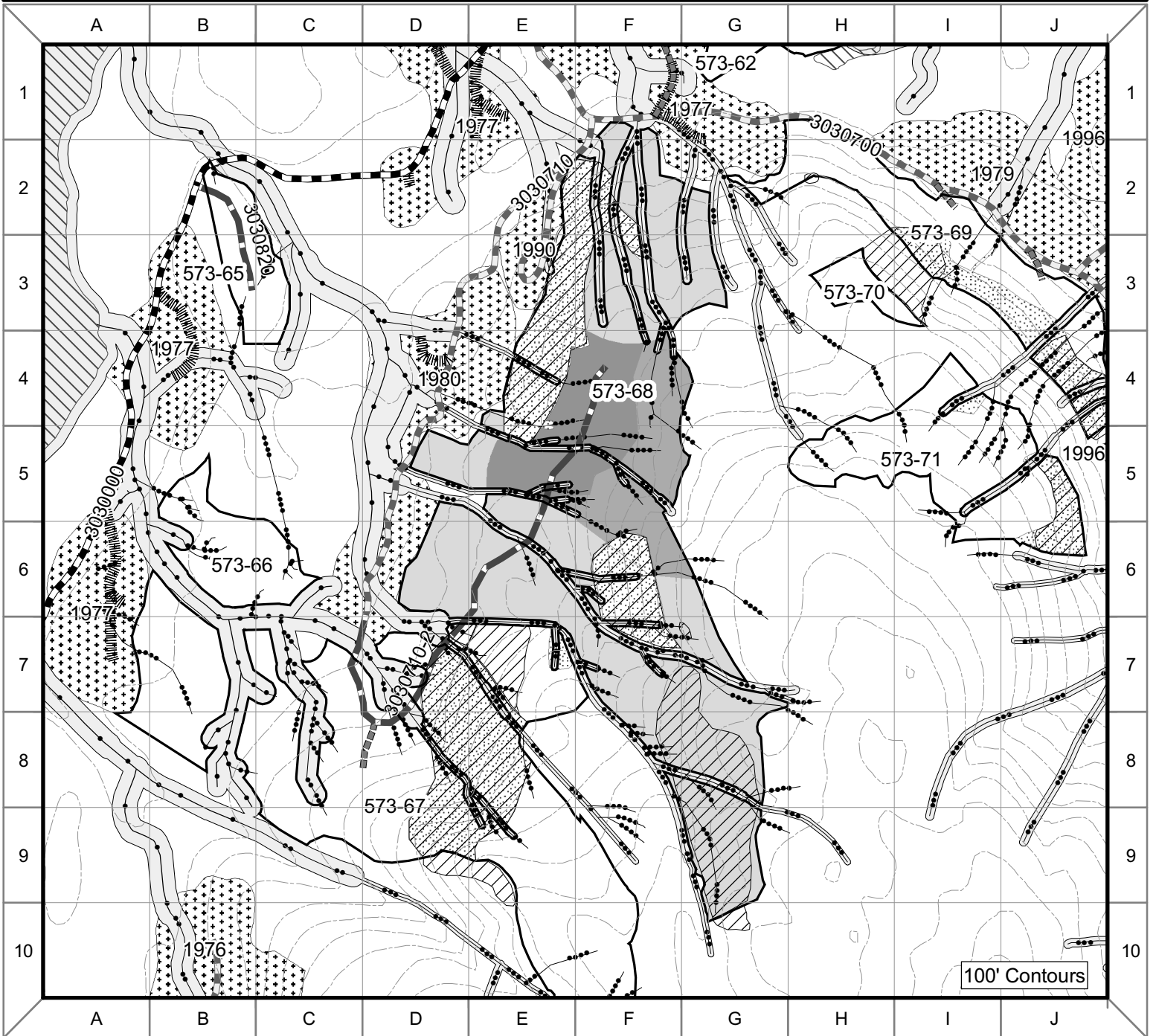
Concerns in Alternative 3 are - Shovel Clearcut southwest corner to proposed temp spur; Drop upper road; Helicopter Partial-cut remaining unit area. Multiple Class I, III streams; Upper road requires many crossings; Cumulative effects.

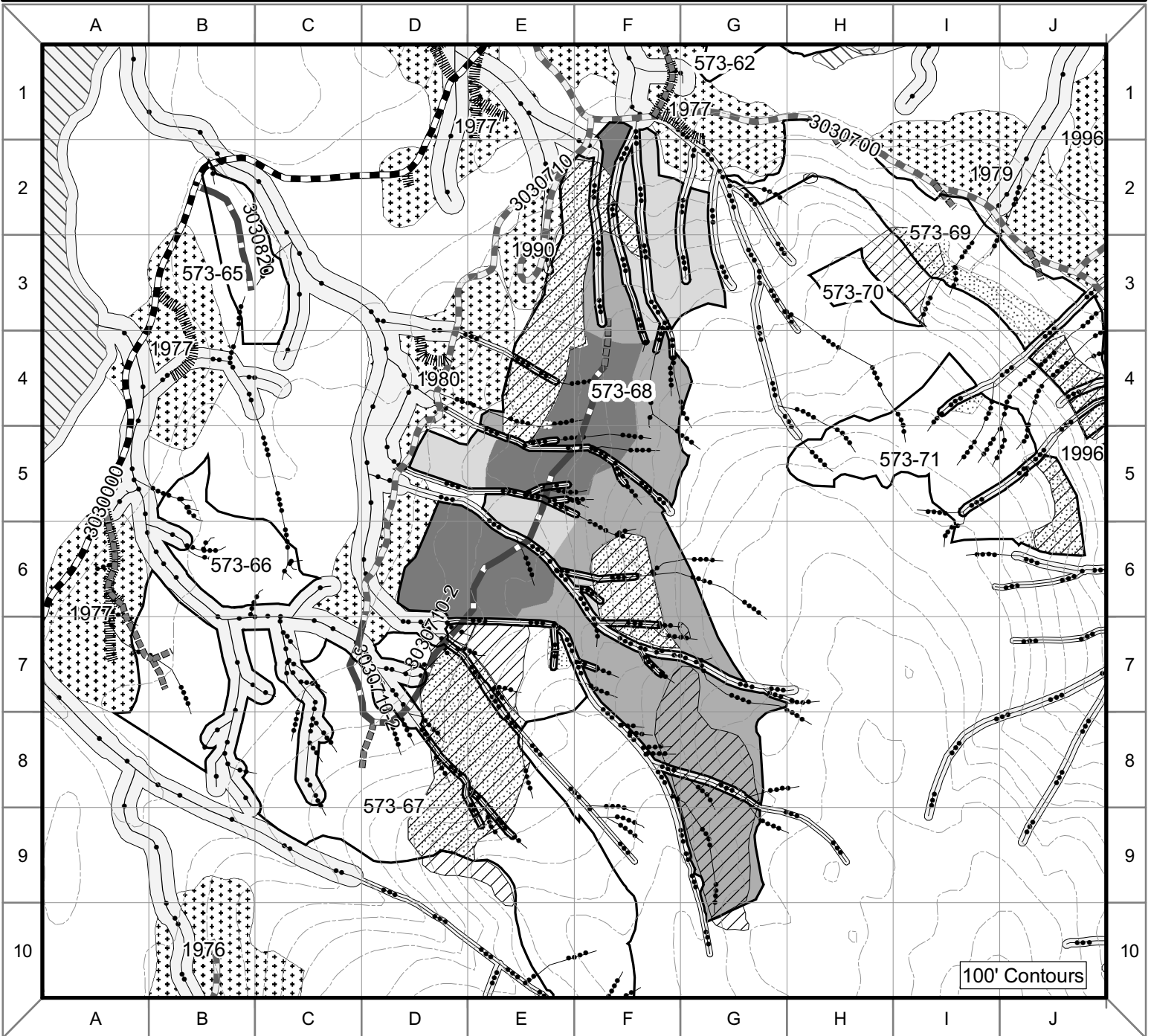
Concerns in Alternative 4 are - Drop western portion of unit to maintain travel route; Maintain travel route associated with Unit 66. Unit as planned blocks north-south travel route; Unit as proposed is adjacent to an OGR.

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--- Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 573-68 Alternatives 2, 3, 4, 5

Unit Number: 573-68	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 166 Alt. 3 – 223 Alt. 4 – 63 Alt. 5 – 181	Prescription: Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): Alt. 2 – 2,421 Alt. 3 – 1,648 Alt. 4 – 1,163 Alt. 5 – 2,924	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Extreme upper elevations have non-merchantable timber. Lower to mid elevations are hemlock/yellow-cedar with scattered spruce, upper elevations turn to more hemlock and decadent spruce. Pockets of western redcedar are found in lower elevations mainly in southern portion of unit. Stand should abut a 1980 harvest area to the west. Planned unit 573-67 is just across a class III stream to the southwest. Windthrow risk is high. Mistletoe occurrence is heavy-scattered.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk unit, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is divided into several harvest areas by class III streams and areas of soils concern. In Alternatives 2, 4 and 5, the unit is accessed by proposed NFSR 3030710-2. Cable settings are planned for uphill and downhill yarding to this proposed road location. Areas that cannot be reached using cable systems are planned for helicopter yarding to landings on the proposed road. Alternative 5 includes additional settings in the north that are accessed by a temporary extension of proposed NFSR 3030710-2 and existing NFSR 3030710. Streams in this area have not yet been field verified and mapped locations are likely to change between DEIS and FEIS. Logging systems will be reassessed when streams locations have been verified. Central portions of the unit are deferred in Alternative 4 to maintain wildlife travel corridors.

In Alternative 3 this unit is planned for helicopter yarding to landings on existing NFSR 3030710.

ENGINEERING/ROADS: In Alternatives 2, 4 and 5, the unit is accessed by proposed NFS road 3030710-2 (see road card) and by proposed temporary road as displayed on the unit card. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternative 5 – accessed by temporary road 500 feet in length. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPs: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries.

In Alternative 3 there is no proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake. (Location is depicted from confluence to headwaters.)

Stream#: 573-67/68-3 Location: D6, D7, E7, F7, F8, G8, G9, H9

Class: II, III Flagging: B/W, O/W C-type: HC2, HC5, HC6
Concerns: heavy blow down and unstable banks along stream.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-3.4L Location: F7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
Concerns: heavy blow down along stream and unstable banks.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-3.10R Location: F8, F9, G9, G10
Class: III Flagging: O/W C-type: HC6, HC5
Concerns: large slides and blow down along stream banks.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-4 Location: D5, E5, E6, F6, F7, G7, H7
Class: II, III Flagging: B/W, O/W C-type: HC1, HC6, HC2
Concerns: large slides and unstable banks along stream.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 and 4 RAW Buffer: none

Stream#: 573-68-4.2L Location: E6, F6, G6, G7
Class: III, IV Flagging: O/W, G/W C-type: HC5
Concerns: blow down along stream.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-4.3L Location: F6
Class: III Flagging: O/W C-type: HC5
Concerns: heavy blow down along stream and a land slide deposited debris in channel.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-4.5L Location: F7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
Concerns: heavy blow down along stream and unstable banks.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-4.6R Location: F7
Class: III, IV Flagging: O/W C-type: HC5
Concerns: heavy blow down, unstable banks, and active bank slides along stream.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-4.10R Location: G7, H7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: blow down along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-5 Location: D4, D5, E5, F5, F6
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-5.1L Location: E5
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-5.2L Location: E5, F5
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-6 Location: D4, E4, E5, F5
Class: III Flagging: O/W C-type: HC5, HC6

Concerns: blow down, unstable banks, and active bank slides along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternative 2, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3 RAW Buffer: none

Stream#: 573-68-6.1L Location: E5, F5
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-6.3R Location: F5
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: unstable banks and active bank slides along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-7 Location: D4, E4, F4
Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: unstable banks and active bank slides along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-8 Location: D3, D4, E4, F4
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: heavy blow down along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-9 Location: F1, F2, F3, F4
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-10 Location: F1, F2, F3, F4, G4
Class: III, IV Flagging: O/W, G/W C-type: HC6, HC5, HC0

Concerns: blow down, unstable banks, and active bank slides along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-10.1R Location: F3
Class: III Flagging: O/W C-type: HC5

Concerns: blow down and unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-10.2R Location: F3, F4, F5, G5
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-1.2R Location: G2, G3
Class: III Flagging: O/W C-type: HC5

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-1.3R Location: G2, F2, F3, G3
Class: III Flagging: O/W C-type: HC6

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-68-11 Location: E1, F2, F3
Class: III Flagging: O/W C-type: HC5

Concerns: blow down and unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-68: Alternative 5 – no known stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Low. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 4. Areas of the unit using individual tree marking must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. Slopes range from 20 to 50% in the lower portion, northern portion, and high elevations of the unit. Slopes in the center of the unit range from 60 to 100%. Most of these slopes are included in the deferred area.

Alternative 2, 5: The unit was modified following soil reconnaissance to defer 48 acres of steep slopes, landslides, and unstable soils. See soils report for details. There are 33 acres of slopes >72% suitable for partial harvest with full suspension requirements located in the southeastern portion of the unit in the high elevations. Full suspension, partial suspension, and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands are present along the footslopes in the lower margins of the unit and shrub-scrub and subalpine wetlands exist in the high elevations. There are no resource concerns with the temporary roads (BMP 12.5).

Alternative 3: There are 33 acres of slopes >72% suitable for partial harvest with full suspension requirements located in the southeastern portion of the unit in the high elevations. Full suspension and partial suspension are required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Forested wetlands are present along the footslopes in the lower margins of the unit and shrub-scrub and subalpine wetlands exist in the high elevations. There are no resource concerns with the temporary roads (BMP 12.5).

Alternative 4: The unit was modified following soil reconnaissance to defer 48 acres of steep slopes, landslides, and unstable soils. Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands are present along the footslopes in the lower margins of the unit and shrub-scrub and subalpine wetlands exist in the high elevations. There are no resource concerns with the temporary roads (BMP 12.5).

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

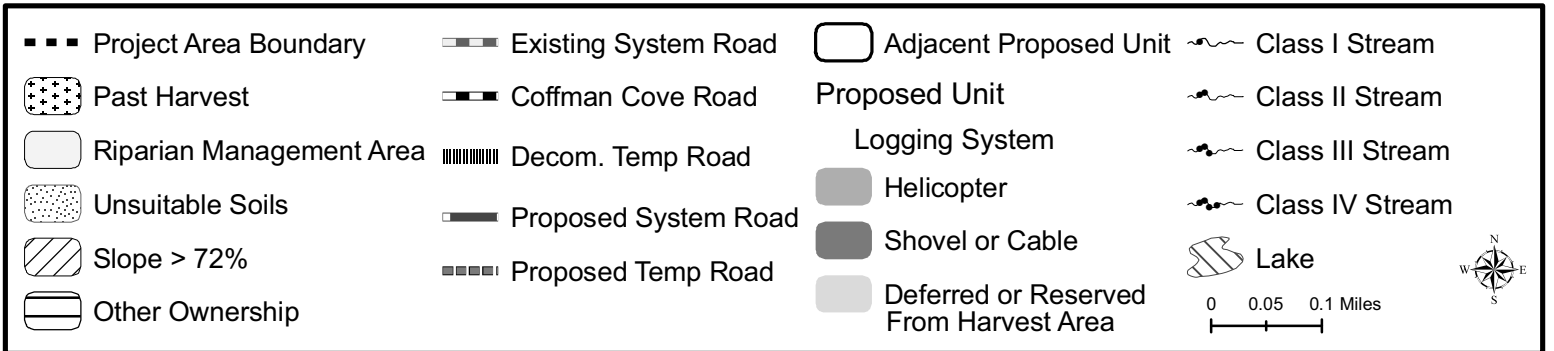
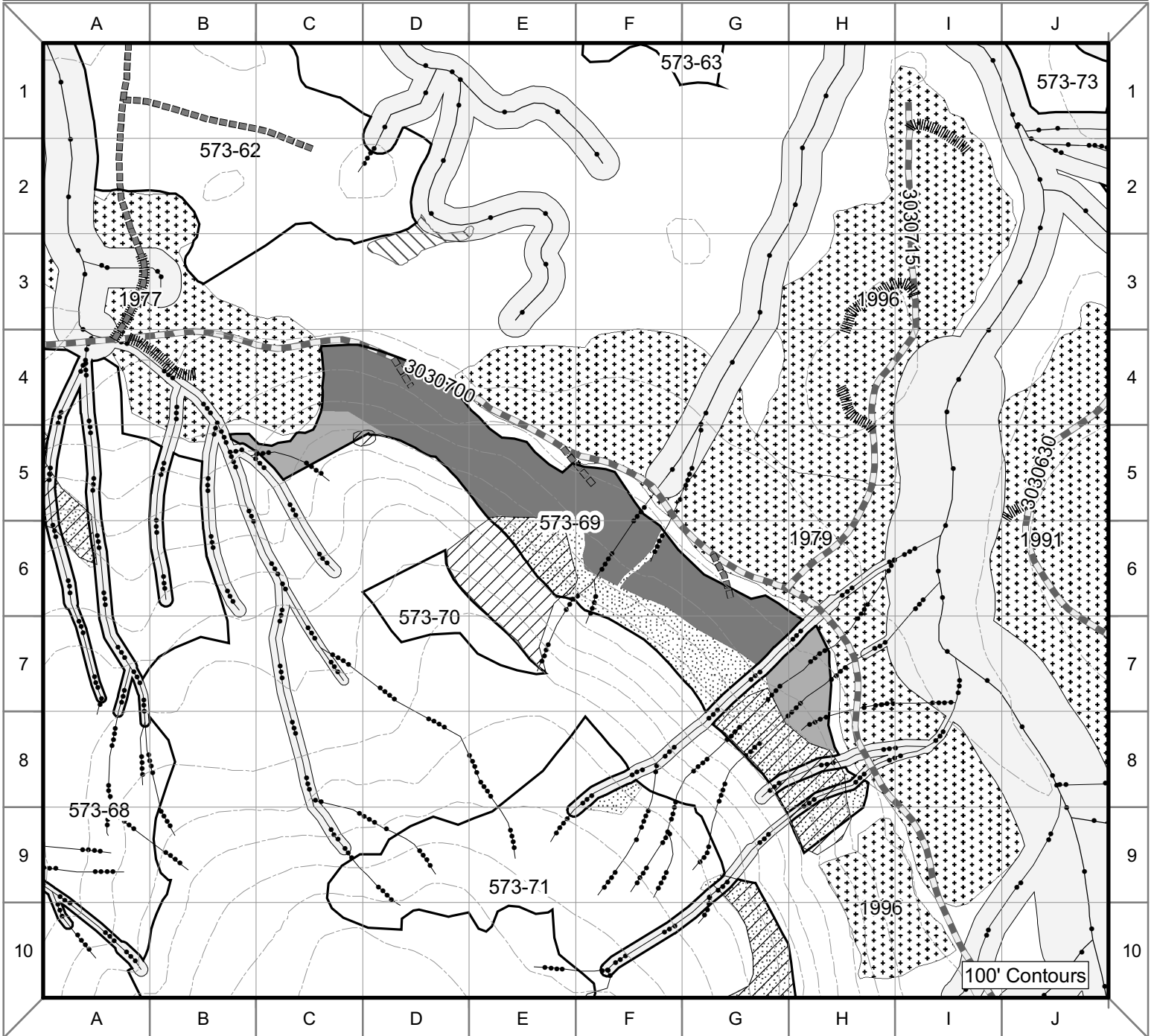
COMMENTS: Concerns in Alternative 2 are - Visuals; Opening size not to exceed 60 acres. Helicopter Partial Cut areas not accessible from proposed roads.

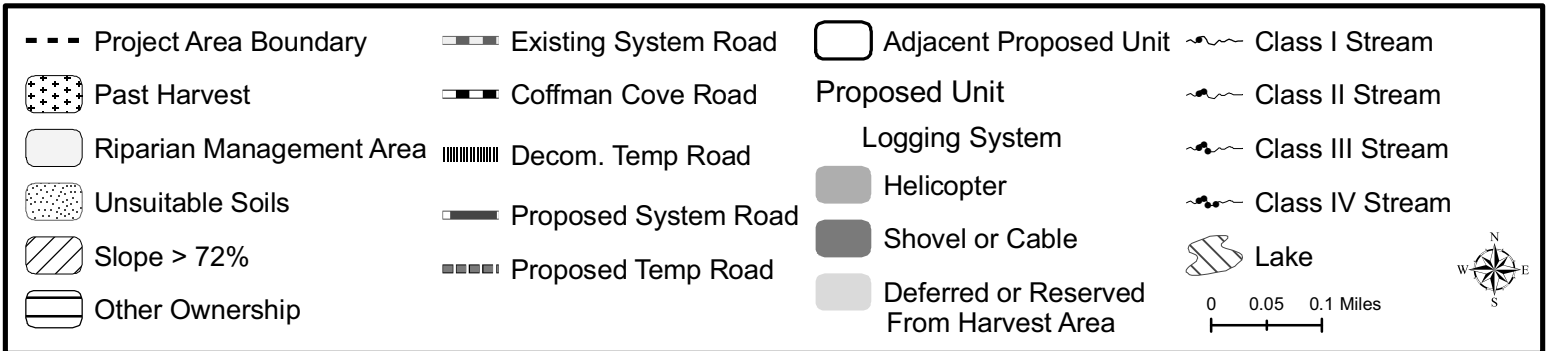
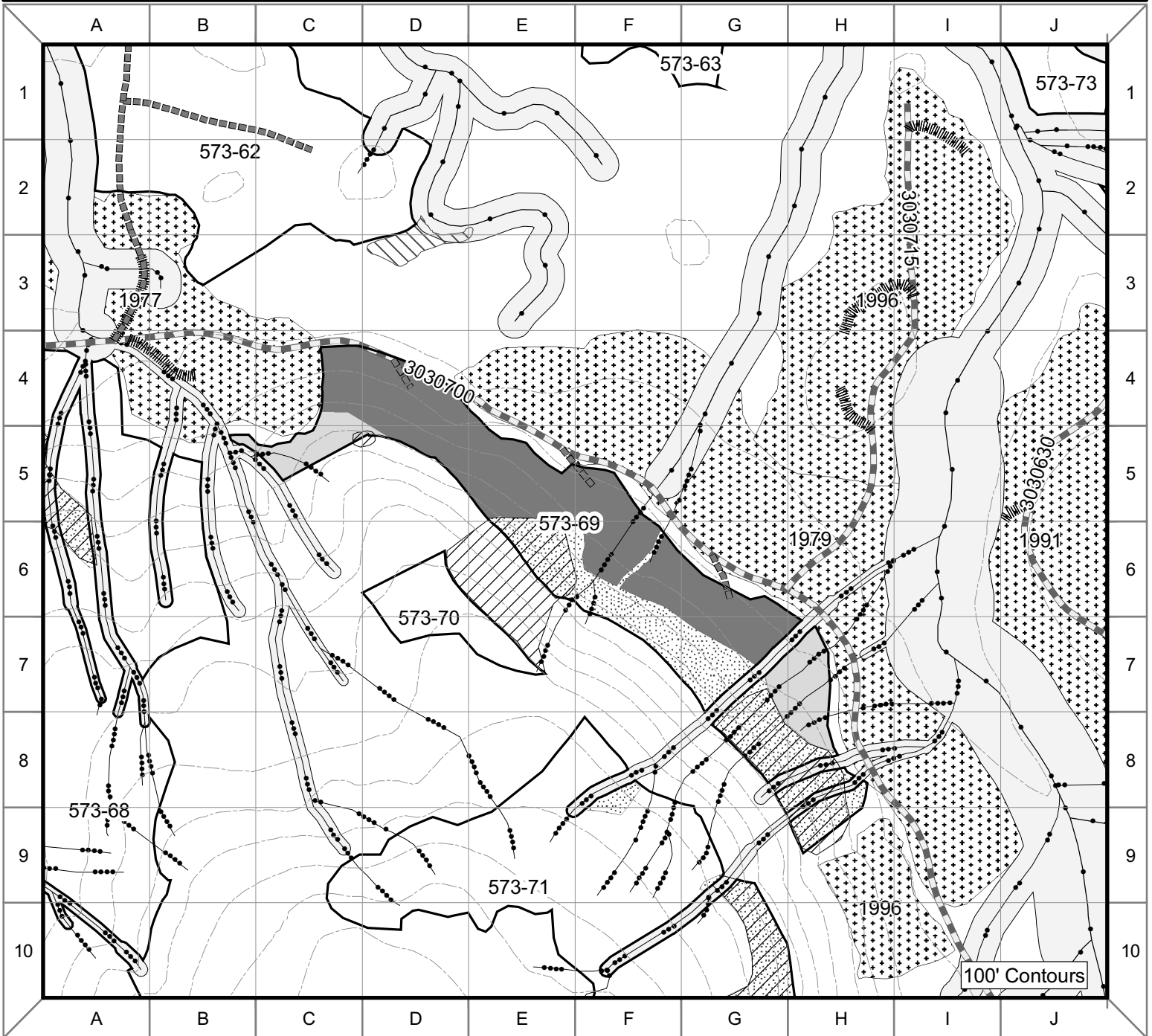
Concerns in Alternative 3 are – Setting 68 Helicopter Partial Cut - Drop Road. During unit lay-out phase the areas containing unsuitable soils will be removed from harvest activities. Setting 68a - During unit lay-out phase the areas containing unsuitable soils will be removed from harvest activities. Setting 68 - Approximately 15 acres identified as containing unsuitable soils located in the central unit area. Setting 68a - Approximately 20 acres identified as containing unsuitable soils located in the west and central unit

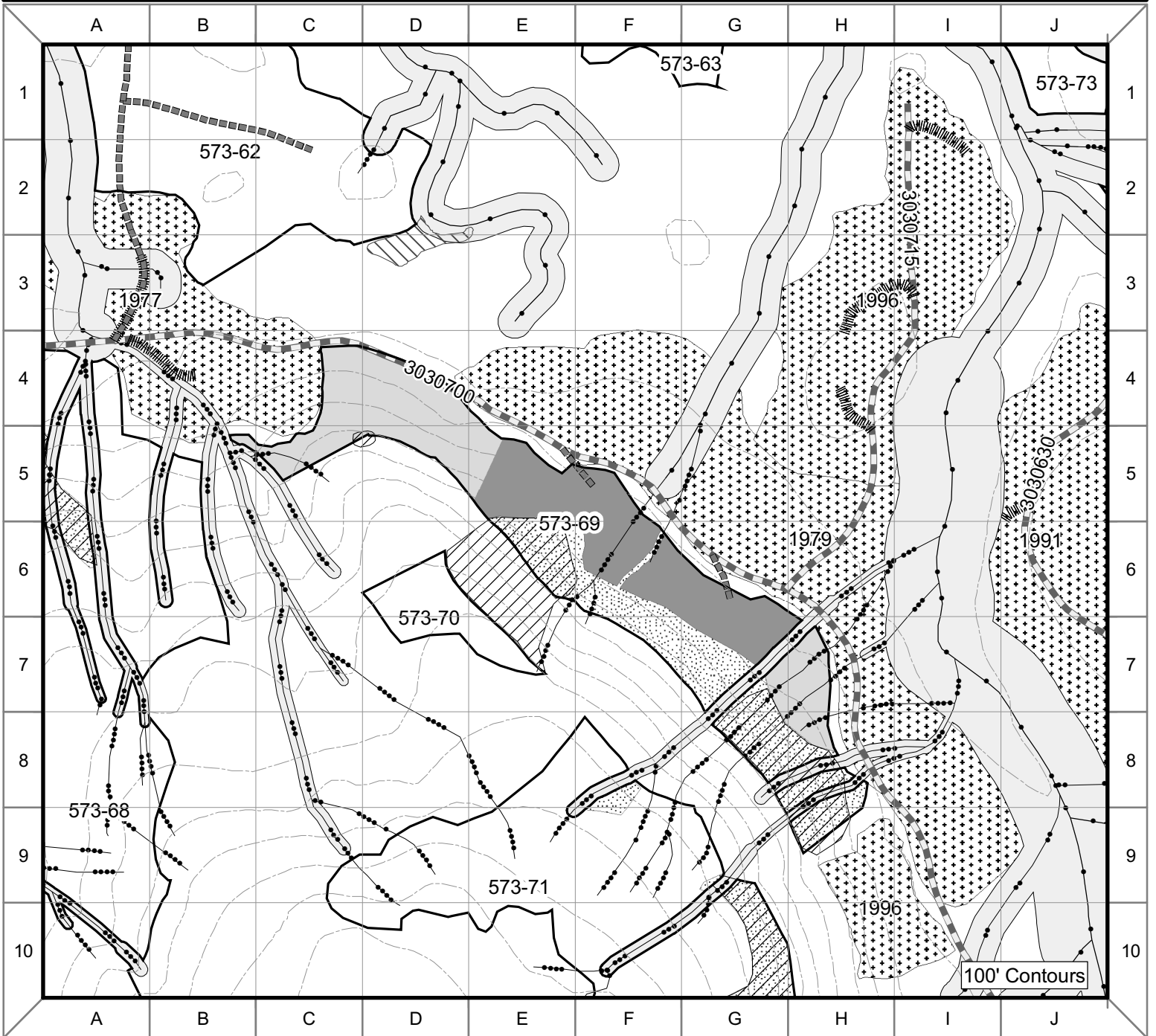
Concerns in Alternative 4 are - Drop southern edge to reduce overall size; Do not add proposed addition. Overall size of unit; Unit as planned blocks north-south travel route; Visuals.

Concerns in Alternative 5 are - Shovel/ Cable Clearcut; Opening size not to exceed 60 acres. Helicopter Partial Cut areas not accessible from proposed roads; Add conventional settings along W and N edge where feasible. Visuals.

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▨ Past Harvest	--- Coffman Cove Road	Proposed Unit	~ Class II Stream
▨ Riparian Management Area	▨ Decom. Temp Road	Logging System	~ Class III Stream
▨ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▨ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	○ Lake
▨ Other Ownership		■ Deferred or Reserved From Harvest Area	0 0.05 0.1 Miles

Unit 573-69 Alternatives 2, 3, 4, 5

Unit Number: 573-69	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 41 Alt. 3 – 32 Alt. 4 – 20 Alt. 5 – 41	Prescription Clearcut/Clearcut With reserves
VCU Number: 5730	Harvest System: Helicopter Cable	Net Harvest Volume (MBF): Alt. 2 – 1,095 Alt. 3 – 969 Alt. 4 – 600 Alt. 5 – 1,095	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Predominantly a hemlock stand of old growth with multiple canopies, north facing with gap development. Lower elevations have mixed western redcedar and western hemlock, middle and upper elevations are mainly western hemlock. Sitka spruce is found scattered. Unit has steep areas and subsurface water flow indicated by heavy patches of Devils club. Areas of blowdown were found in the stand. Hemlock regeneration is abundant.

The unit abuts a 1977, 1978 and 1996 harvest areas. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for downhill cable yarding to short proposed temporary spurs of NFSR 3030700. Those areas that cannot be reached using cable are planned for helicopter yarding to proposed temporary spurs.

In Alternatives 3 and 4 this unit is planned for downhill cable yarding to short proposed temporary spurs of NFSR 3030700. The western and eastern portions of the unit not accessible by cable systems are planned for deferral. In Alternative 4 the westernmost cable setting is also planned for deferral.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2, 3 and 5 – accessed by temporary roads 850 feet in length. Alternative 4 – accessed by temporary roads 600 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Trumpeter Creek. (Location is depicted from confluence to headwaters.)

Stream#: 573-69-1 Location: B4, B5, C5, C6
 Class: III Flaggng: O/W C-type: HC6
 Concerns: blow down, unstable banks, and active bank slides along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-69-1.1L Location: B5, C5

Class: IV Flagging: O/W C-type: HC5

Concerns: unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-69-2 Location: G4, G5, F5, F6, E6, E7

Class: IV Flagging: O/W C-type: HC5

Concerns: unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: to the top of the side slope break.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-69-4 Location: I6, H6, H7, G7, G8, F8, E9

Class: III Flagging: O/W C-type: HC6

Concerns: blow down and unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-69-5 Location: H6, H7, G7, G8, F8, F9

Class: IV Flagging: O/W C-type: HC5

Concerns: unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-69-6 Location: I6, I7, H7, H8, G8, G9

Class: IV Flagging: O/W C-type: HC5

Concerns: unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-69-8 Location: I8, H8, G8

Class: III Flagging: O/W C-type: HC6

Concerns: heavy blow down and unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

Stream#: 573-69-9 Location: I7, I8, H8, H9, G9, G10, F10

Class: III Flagging: O/W C-type: HC6

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, 4, and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-69: All Alternatives — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 33 acres of steep slopes, landslides, and unstable soils. See Project File (unit report) for details. Slopes range from 30 to 50% in the lower half of the unit. In the upper half of the unit, the slopes range from 60 to 70%.

Partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Utilize the cable to remove logs from steeper slopes or directionally fall the trees instead. Several acres of forested wetland are located along the lower margins of the unit. There are no resource concerns with the temporary roads (BMP 12.5).

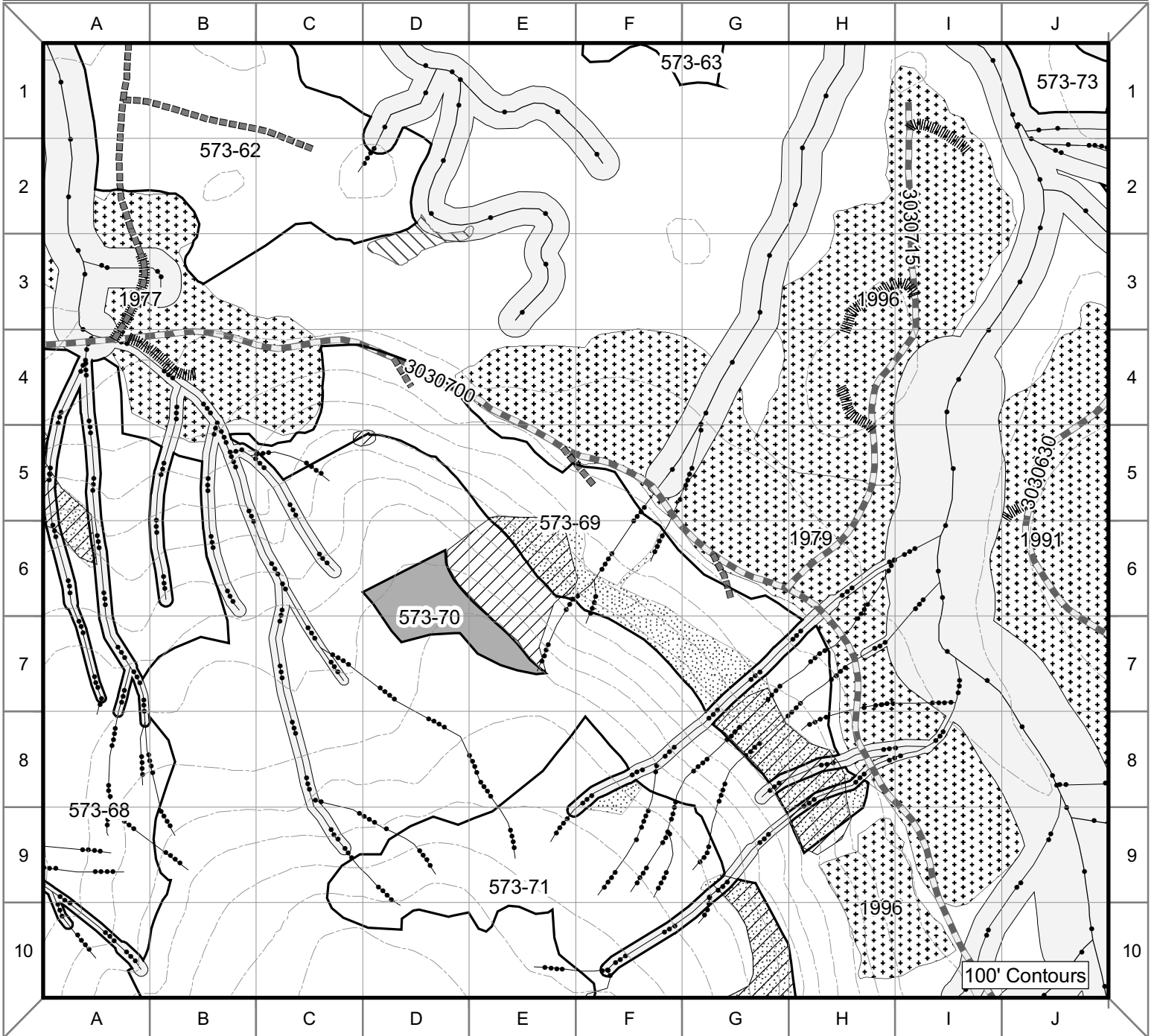
See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternatives 2 and 5 are - Cable Clearcut; Areas isolated by stream buffers or blind leads can be Helicopter Partial-cut.

Concerns in Alternative 3 are - Cable Clearcut; Defer southeast corner due to identified stream channel and soils concerns; Defer small northwest corner due to streams. Class IV orange and white streams located in the northwest corner, central portion, and southeast corner.

Concerns in Alternative 4 are - Cable Clearcut; Areas isolated by stream buffers or blind leads can be Helicopter Partial-cut; Drop northwest portion to maintain corridor. Unit as planned blocks travel route.



<ul style="list-style-type: none"> ■ ■ ■ Project Area Boundary ▤ Past Harvest □ Riparian Management Area ▨ Unsuitable Soils ▩ Slope > 72% ▭ Other Ownership 	<ul style="list-style-type: none"> ▬ Existing System Road ▬ Coffman Cove Road ▬ Decom. Temp Road ▬ Proposed System Road ▬ Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit □ Proposed Unit ■ Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▭ Lake
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0 0.05 0.1 Miles

Unit 573-70 Alternative 2

Unit Number: 573-70	Alternatives: 2	Total Unit Acres: 8	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 112	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Stand is located upper elevation along a ridge nose with slight north aspect. Old growth dominated by western hemlock with some western redcedar as scattered patches. Stand is two canopies with well stocked overstory and obvious second level understory. Understory is western hemlock. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings in unit 573-69 on proposed temporary spurs of NFSR 3030700.

ENGINEERING/ROADS: No proposed road construction for this unit.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes average 30 to 50% across most of the unit. Avoid the slope break along the slopes>72% close to the eastern unit boundary during unit layout. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Minor areas of forested wetland are located in the upper elevations of the unit. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

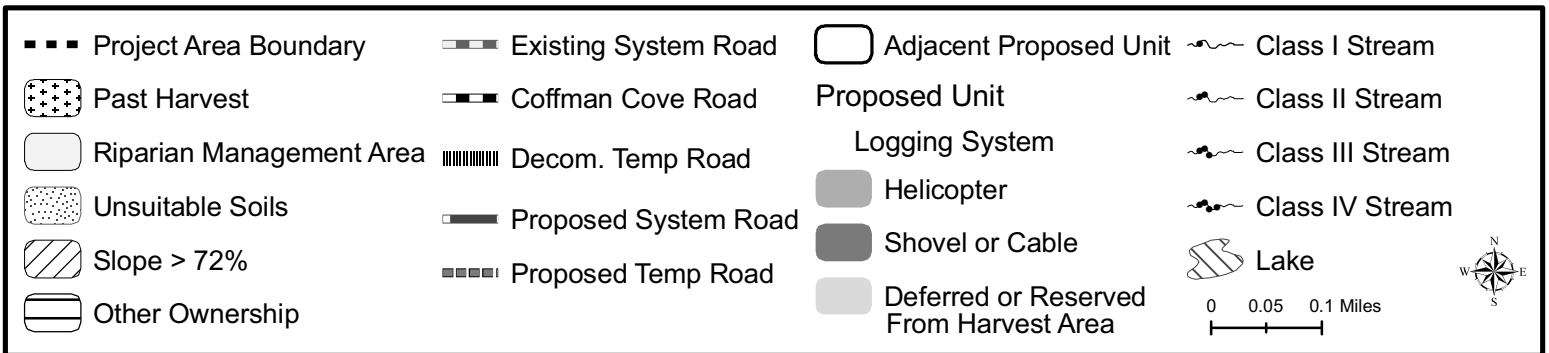
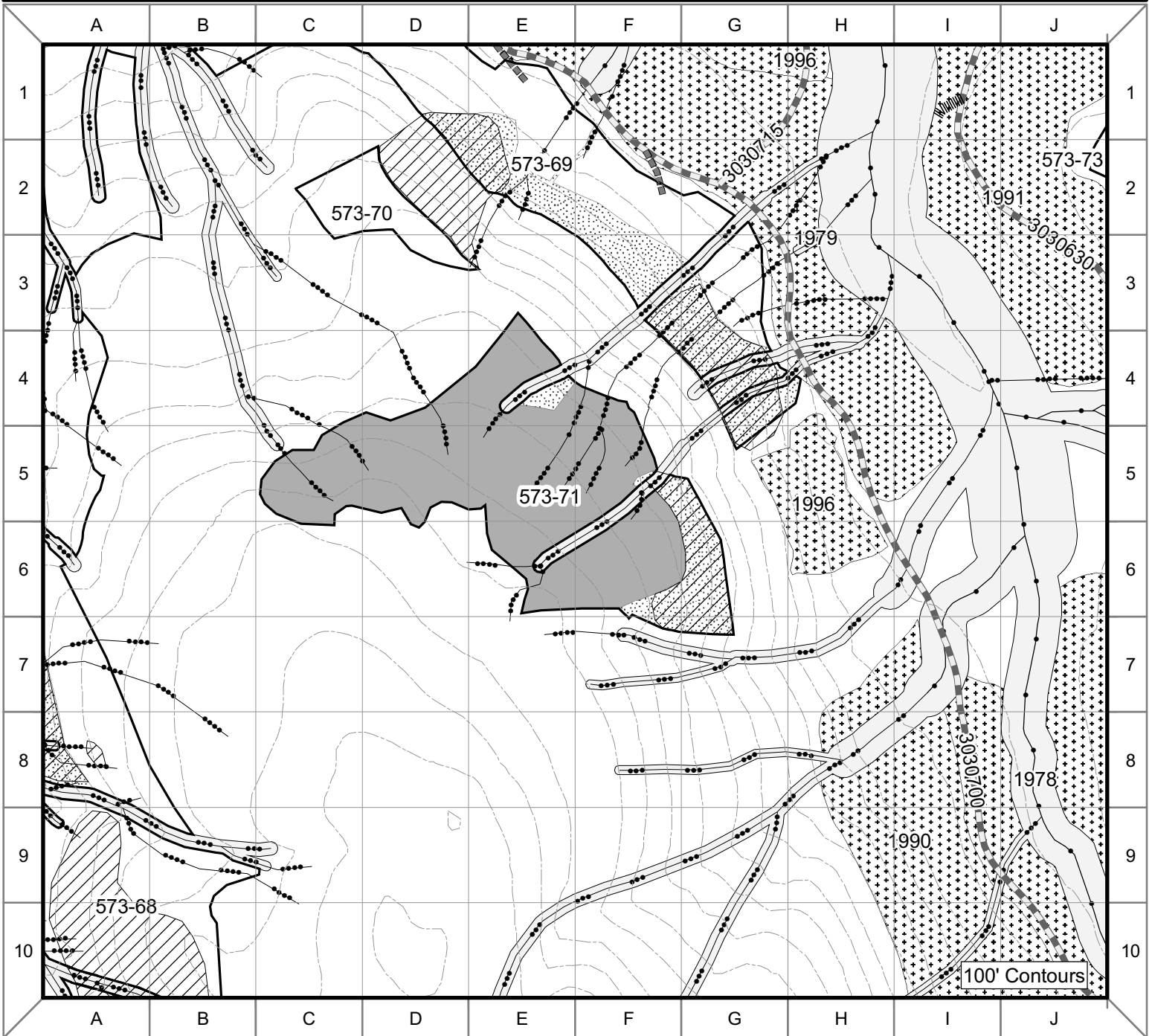
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

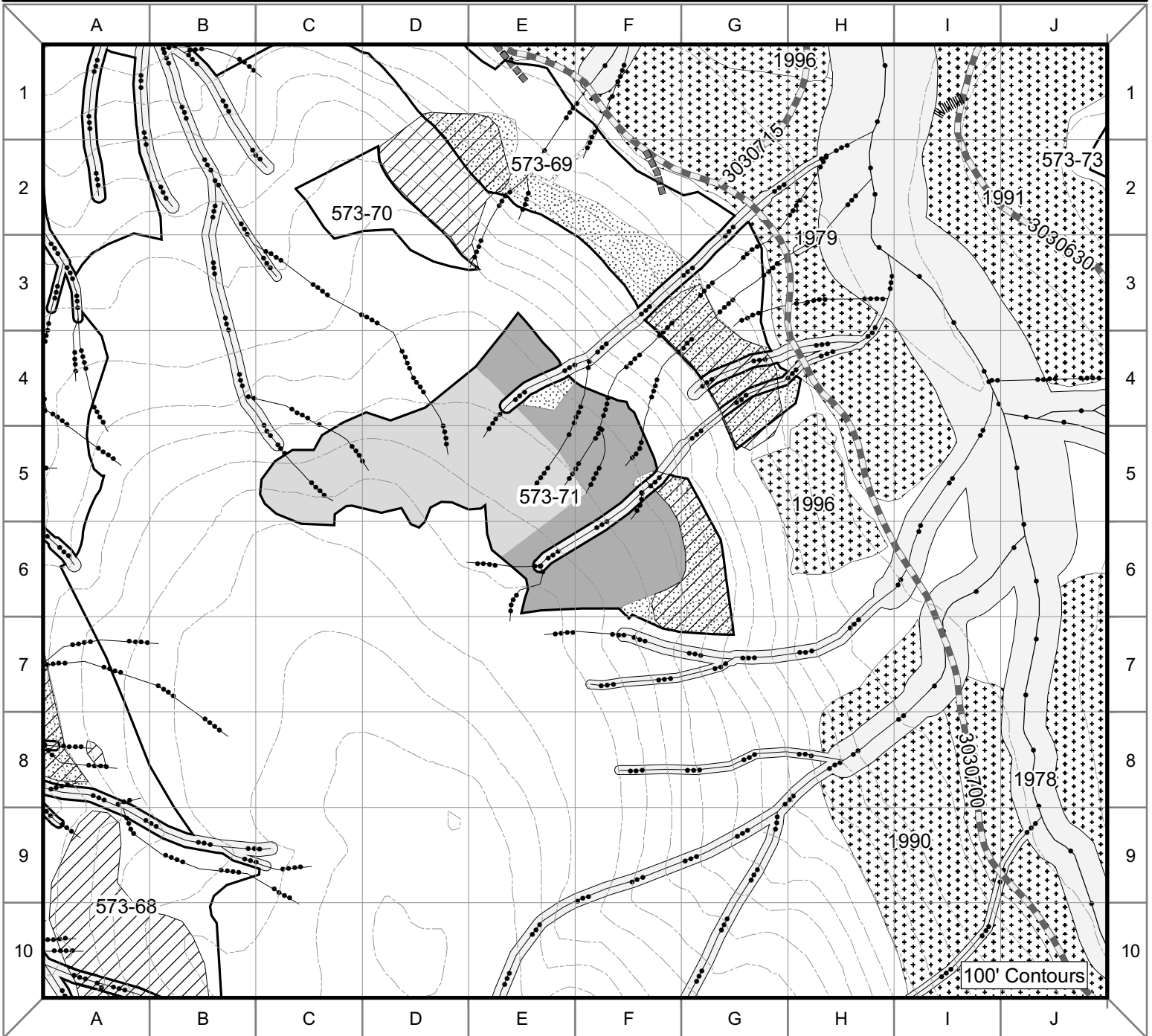
COMMENTS: Concerns in Alternative 2 are - Helicopter- partial cut of up to 50% basal area.

Concerns in Alternative 3 are – Drop unit. Poor economics; Low value timber, high logging costs Potential windthrow concerns.

Concerns in Alternative 4 are – Drop unit. No wildlife concerns; Poor economics.

Concerns in Alternative 5 are – Drop unit. Poor economics; Low value timber, high logging costs.





Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Road	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 573-71 Alternatives 2, 5

Unit Number: 573-71	Alternatives: 2,5	Total Unit Acres: Alt. 2 – 54 Alt. 5 – 25	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): Alt. 2 – 352 Alt. 5 – 170	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Upper elevation hemlock/yellow-cedar stand. Old growth structure with patches of older blowdown mainly in southern ½ of stand. Average quality stand for the elevation. Two main storied to multi-storied stand. Heavy hemlock regeneration is present in understory. Stand has steep rocky areas that are poorly stocked as well as non-commercial timber in muskeg patches along NW lobe. Windthrow risk is high. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk unit, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030700. Western upper elevation portions of the unit are deferred in Alternative 5.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

FISHERIES: Streams are tributaries to Sweetwater Lake and Trumpeter Creek. (Location is depicted from confluence to headwaters.)

Stream#: 573-71-4 Location: F3, F4, E4, E5
 Class: III, IV Flagging: O/W, G/W C-type: HC6 , HC5
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 and 5 RAW Buffer: none

Stream#: 573-71-4.1L Location: F4, E5
 Class: IV Flagging: O/W, G/W C-type: HC5
 Concerns: unstable banks and slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternative 2 and 5 RAW Buffer: none

Stream#: 573-71-5 Location: F3, F4, F5, E5
 Class: IV Flagging: O/W, G/W C-type: HC5, HC0
 Concerns: unstable banks and slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternative 2 and 5 RAW Buffer: none

Stream#: 573-71-7 Location: G4, G5, F5, F6, E6, E7
Class: III, IV Flagging: O/W, G/W C-type: HC6, HC0
Concerns: heavy blow down and unstable banks along stream.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternative 2 and 5 RAW Buffer: none

Stream#: 573-71-8 Location: H7, G7, F7, E7
Class: III, IV Flagging: O/W, G/W C-type: HC6 , HC5
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternative 2 and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

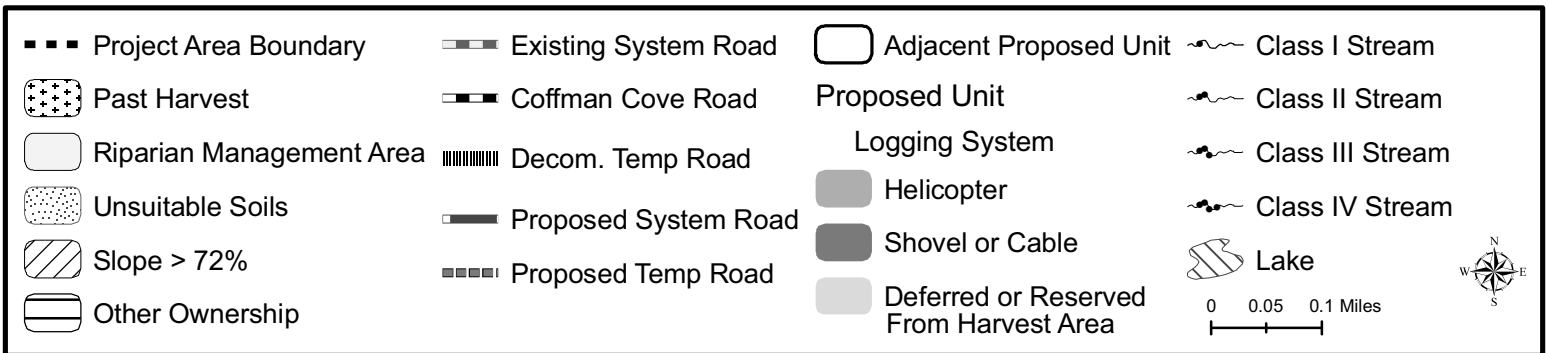
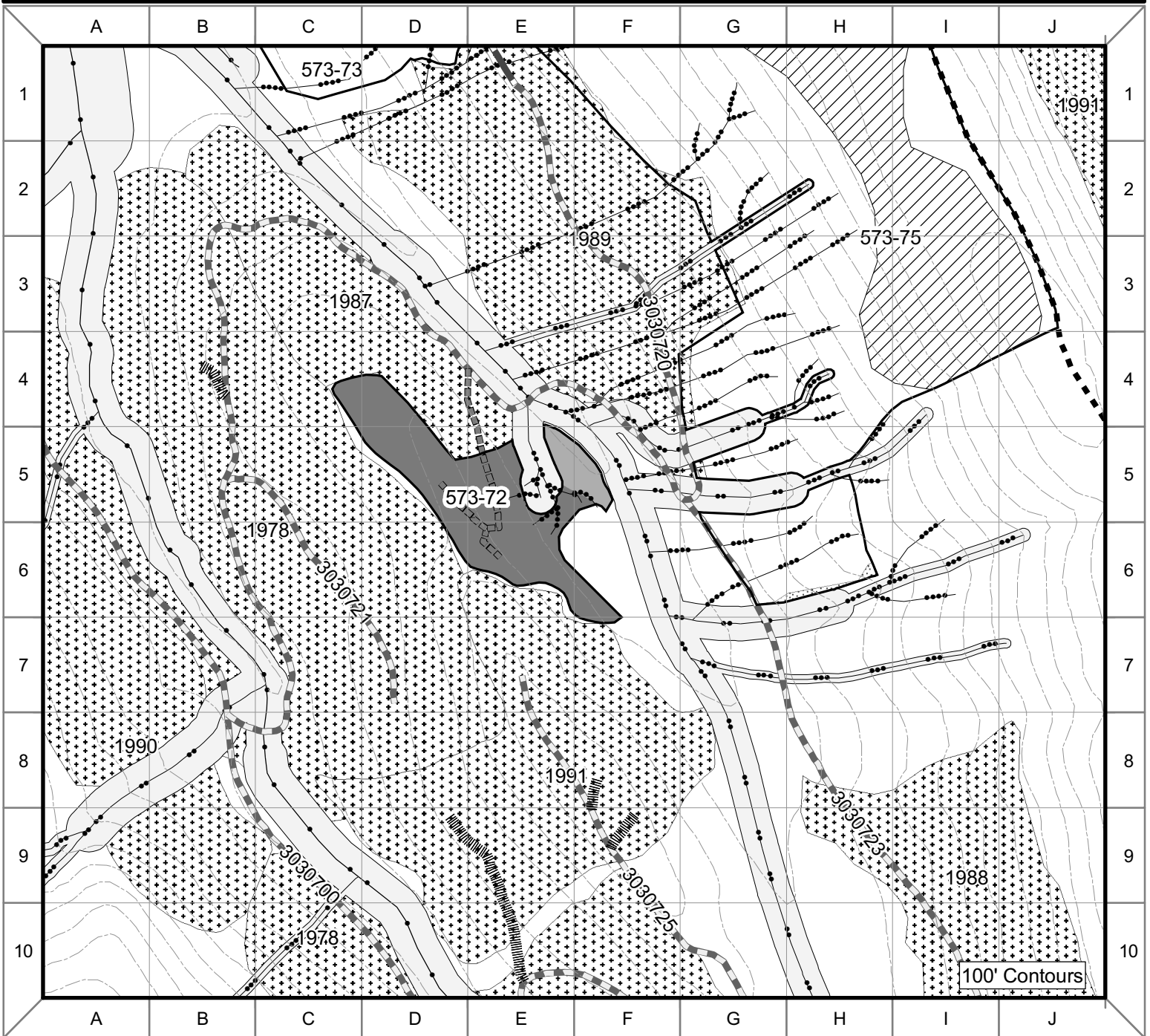
SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 7 acres of steep slopes, landslides, and unstable soils. See unit report in Project File for details.
Slopes average 20 to 50% across most of the unit. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Approximately >75% of the unit is comprised of forested wetland, shrub-scrub, and alpine muskeg. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 2 are - Helicopter- partial cut.
Concerns in Alternative 3 are – Drop unit. Several orange and white streams located within the proposed unit; Northwest arm not high value (alpine muskeg terrain); Soil identified concerns based on slope steepness; Economic concerns; Trumpeter Creek is a watershed already containing greater than 20% in 2nd growth at the watershed level.
Concerns in Alternative 4 are – Drop unit. No wildlife concerns; Steep slopes and soils concerns; Poor economics--Low value timber.
Concerns in Alternative 5 are – Drop NW section of unit. Poor economics on NW unit (ridgetop); Low value timber, high logging costs.



Unit 573-72 Alternative 2

Unit Number: 573-72	Alternatives: 2	Total Unit Acres: 23	Prescription Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter Shovel Cable	Net Harvest Volume (MBF): 592	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Boggy open stand in the east with better stocked higher site index ridge line running to the northwest. Old growth structure with multiple canopies. Hemlock mixed with western redcedar and Alaska yellow-cedar in the better drained areas, mainly hemlock and western redcedar in the lower boggy areas. Past even-age harvest is to the west (1978 origin), to the east (1987 origin) and to the south (1991 origin). Muskeg inclusion noted along the west central boundary. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for a combination of shovel and uphill cable yarding to landings on a proposed temporary spur of existing NFSR 3030720. One additional temporary spur will be needed to reach cable landings and to minimize shovel yarding distances. The northeastern corner of the unit that cannot be reached with cable is planned for helicopter yarding to existing NFSR 3030720.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary roads 1,800 feet in length. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-72-1 Location: D3, D4, E4, F4, F5, F6, F7
 Class: II Flagging: B/W C-type: HC1
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2 RAW Buffer: none

Stream#: 573-72-1.1R Location: E4, E5, E6
 Class: II, IV Flagging: B/W, G/W C-type: HC0
 Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-72-1.1R.1R Location: E5

Class: II Flagging: B/W C-type: HC0

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternative 2 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-72: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. There are no resource concerns with the temporary roads (BMP 12.5). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

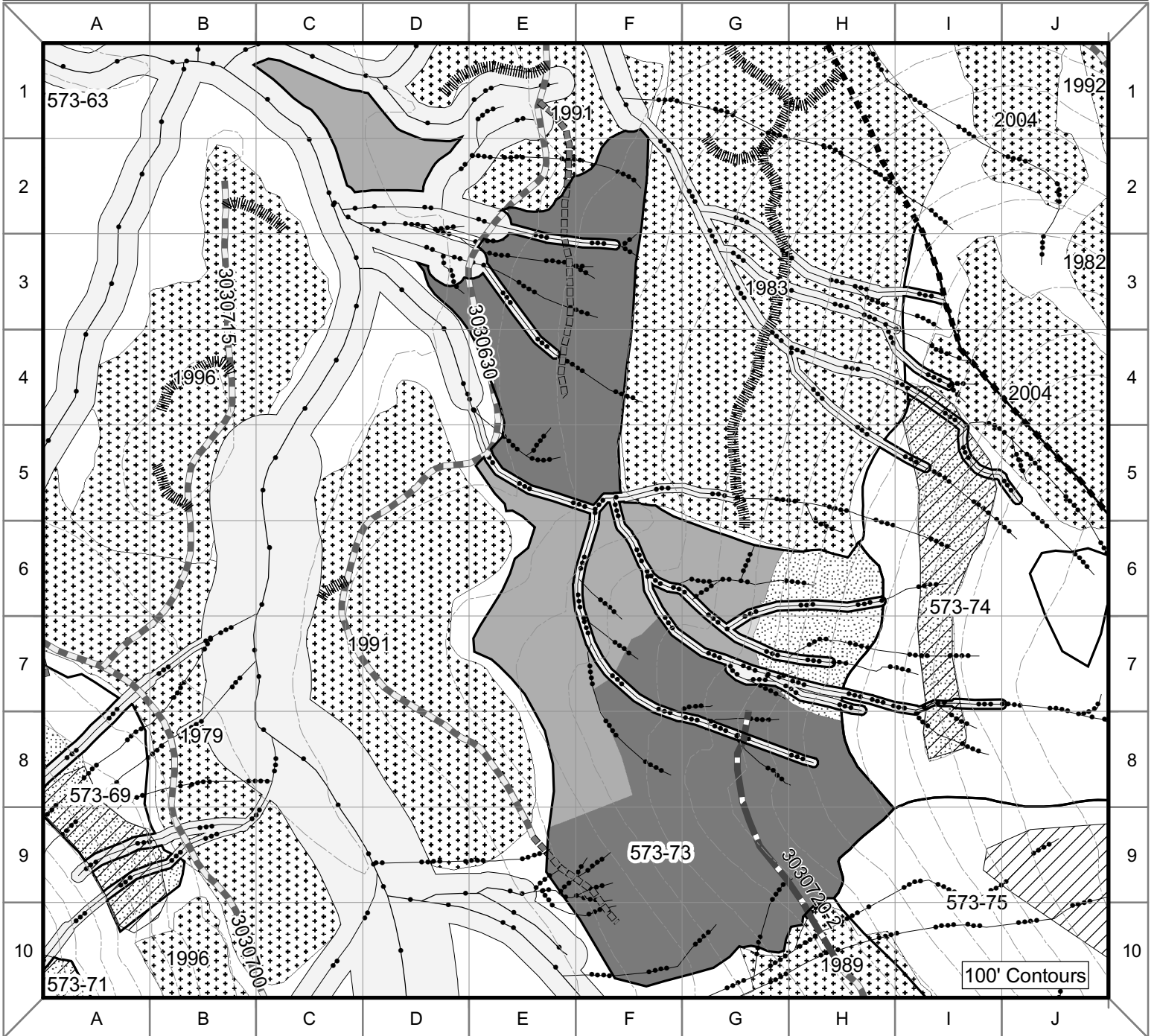
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs

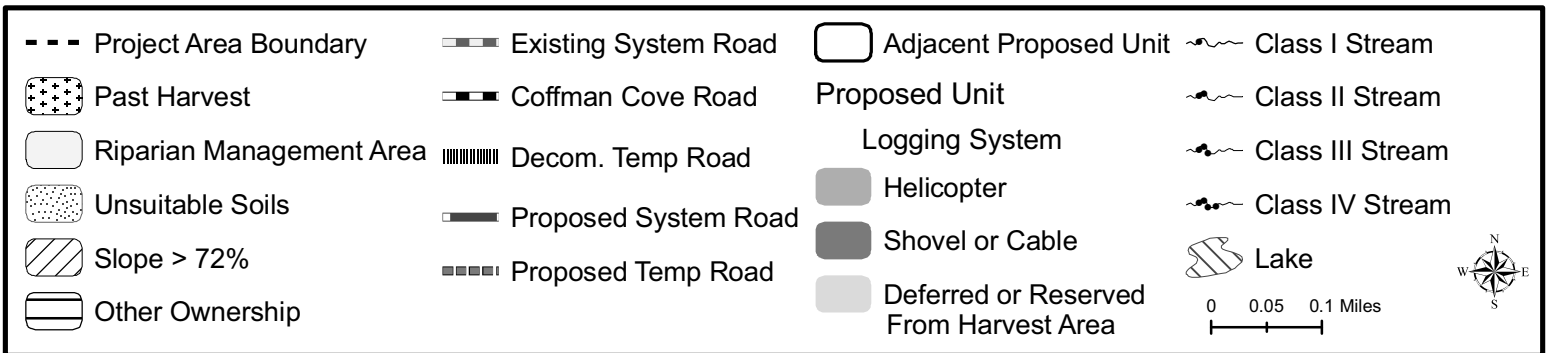
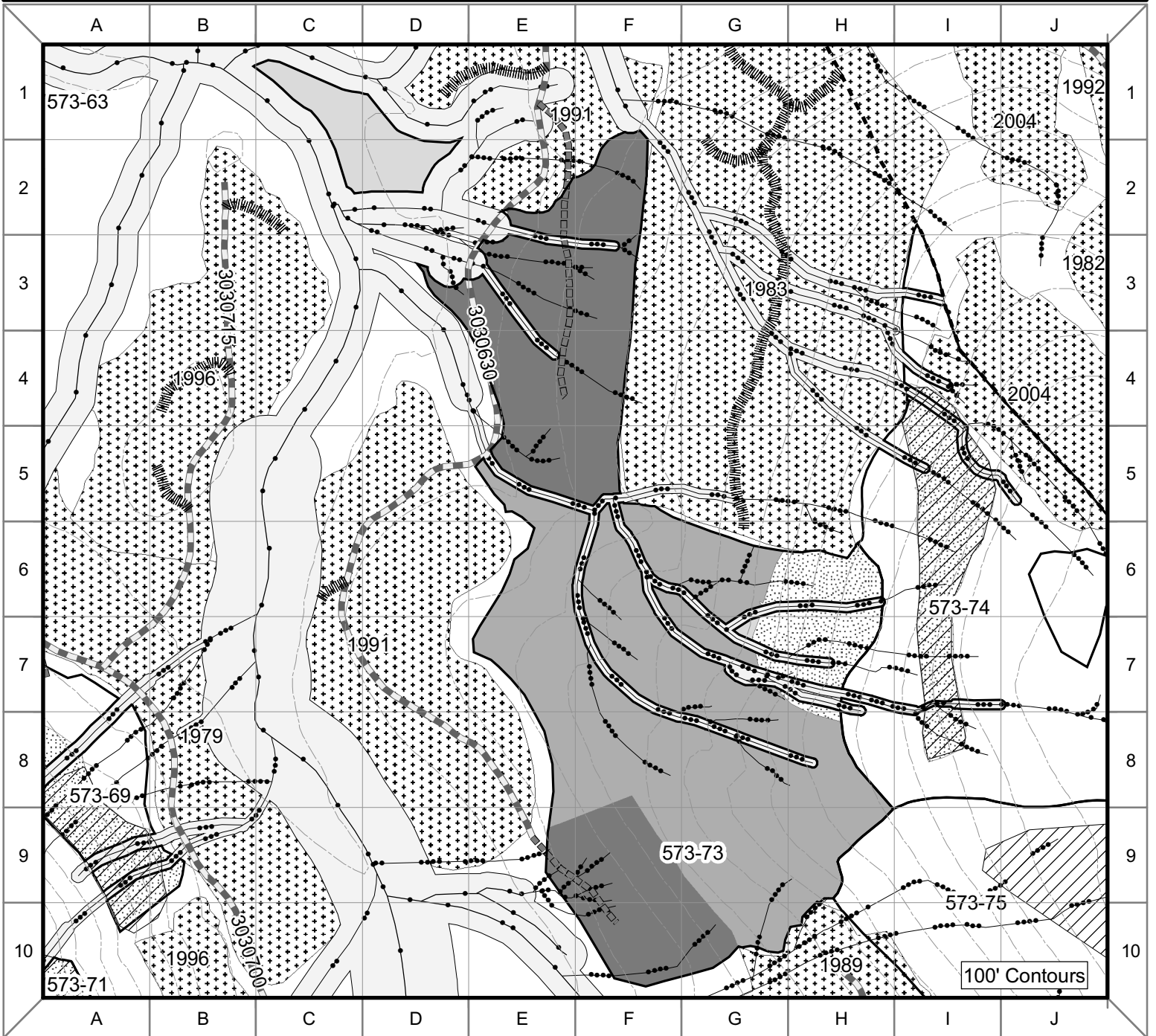
Concerns in Alternative 4 are – Drop unit. Poor economics; No wildlife concerns.

Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

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<ul style="list-style-type: none"> ■ ■ ■ Project Area Boundary ▤ Past Harvest □ Riparian Management Area ▨ Unsuitable Soils ▧ Slope > 72% ▩ Other Ownership 	<ul style="list-style-type: none"> ▬ Existing System Road ▬ Coffman Cove Road ▬ Decom. Temp Road ▬ Proposed System Road ▬ Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit Proposed Unit Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▭ Lake
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Unit 573-73 Alternatives 2, 3, 5

Unit Number: 573-73	Alternatives: 2,3,5	Total Unit Acres:	Alt. 2 – 160 Alt. 3 – 150 Alt. 5 – 160	Prescription	Clearcut/Clearcut With Reserves
VCU Number: 5730	Harvest System:	Net Harvest Volume (MBF):	Alt. 2 – 3,326 Alt. 3 – 2,277 Alt. 5 – 3,326	LUD:	Modified Landscape
	Helicopter Shovel Cable				

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mixed hemlock and cedar stand, old growth stage with multiple canopy layers. Western redcedar occurs in patches on knobs, Alaska yellow-cedar and Sitka spruce are scattered. Blowdown in stand oriented to the west. Heavy defect in western hemlock and Alaska yellow-cedar. Past even-aged harvest to the north (1991) to the east (1983) and to the southwest (1991). Windthrow risk is high. Mistletoe occurrence is heavy-in most hemlock.

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.

Silviculture Prescription:

Helicopter yarding areas: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk area, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

Cable and Shovel Yarding areas: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription.

Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2, 3 and 5 this unit is planned for a combination of shovel, cable and helicopter yarding. The northern portion of the unit is planned for shovel and uphill cable yarding to a proposed temporary spur of NFSR 3030630. A setting in the southwest is planned for downhill cable yarding to a proposed temporary extension of NFSR 3030630. In Alternatives 2 and 5, settings in the southeast are planned for uphill and downhill cable yarding to a proposed temporary extension of NFSR 3030720. This temporary extension is not planned in Alternative 3 requiring helicopter yarding in these areas. The remaining harvest area is planned for helicopter yarding to landings on the proposed temporary spurs and to existing NFSR 3030630 for all three alternatives.

ENGINEERING/ROADS: Alternatives 2 and 5 unit is accessed by proposed NFS road 3030720-2 (see road card) and by proposed temporary road as displayed on the unit card. Alternative 3 proposes temporary road only. NFS road will be stored and temporary road decommissioned after harvest activities are complete. Alternatives 2, 3, and 5 - accessed by temporary roads 2,800 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-73-4 Location: B1, C1, C2, C3, C4, C5, C6, C7, C8, C9, D9, D10

Class: I Flagging: B/W C-type: LC1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.3L Location: B1, C1, D1, E1
Class: I, II Flagging: B/W C-type: HC1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.4L Location: C3, D3, D4, E4, E5, F5, F6, F7, F8, G8, H8
Class: I, III Flagging: B/W, O/W C-type: HC1, HC5
Concerns: moderate blow down along stream.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.
Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-73-4.4L.2L Location: F5, F6, F7, G7, H7, I7, J7
Class: III Flagging: O/W C-type: HC5
Concerns: large slides, unstable banks, and active bank slides along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.
Alternatives 3 RAW Buffer: none

Stream#: 573-73-4.4L.2L.1L Location: F5, G5, H5, H6, I6
Class: III Flagging: O/W C-type: HC5
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.4L.2L.2L Location: F6, G6, G7, H7, I7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.4L.2L.2L.2L Location: G7, G6, H6, I6
Class: III Flagging: O/W C-type: HC5
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.4L.2L.2L.3L Location: H7, I7
Class: IV Flagging: O/W, G/W C-type: HC0
Concerns: extreme gradient and scour.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.4L.2L.3R Location: G7
Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
Concerns: unstable banks along stream and a land slide deposited debris in channel.
Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3

RAW Buffer: none

Stream#: 573-73-4.4L.2L.3R.1L Location: G7

Class: III Flagging: O/W C-type: HC5

Concerns: unstable banks along stream and a land slide deposited debris in channel.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3

RAW Buffer: none

Stream#: 573-73-4.4L.2L.4R Location: G7, H7

Class: III Flagging: O/W C-type: HC5

Concerns: unstable banks along stream and a land slide impacted and deposited debris in channel.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: will be identified by an IDT during layout.

Alternatives 3

RAW Buffer: none

Stream#: 573-73-4.5L Location: C2, D2, D3, E3, E4, F4

Class: I, II, III, IV Flagging: B/W, O/W, G/W C-type: MM1, HC1, HC5

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of the side slope break.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-73-4.5L.1L Location: C2, D2, E2, E3, F3,

Class: I, II, III, IV Flagging: B/W, O/W, G/W C-type: HC1, HC5, MM1

Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater. Class III: to the top of the side slope break.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-73-4.5L.1L.1L Location: D2, E2, E1

Class: II Flagging: B/W C-type: MM1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.5L.2L Location: C2, D2, D3, E3

Class: I, IV Flagging: B/W, G/W C-type: HC1, HC5

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.5L.3R Location: D3

Class: II, IV Flagging: B/W, G/W C-type: HC0

Stream Protection – Category A and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 573-73-4.6L Location: D9, D10, E10, F10

Class: I Flagging: B/W C-type: MC2

Concerns: heavy blow down along stream.

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.6L.1L Location: D9, E9, E10
Class: I Flagging: B/W C-type: MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
Concerns: heavy blow down along stream.
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73-4.6L.1L.1L Location: E9, F9
Class: I, IV Flagging: B/W, O/W, G/W C-type: MM0, HC5, HC0
Concerns: moderate blow down along stream.
Stream Protection – Category A, B, and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class I: minimum 120ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary roads for unit 573-73: Alternatives 2, 3, and 5 — One Class III stream crossing and nine Class IV stream crossings. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 15 acres of steep slopes, landslides, and unstable soils. See Project File (unit report) for details.

Slopes average less than 40% in the low lying northern tip of the unit and on footslopes in the southern half of the unit. Slopes average 50 to 60% and are located in the upper portion of the southern half of the unit. Partial suspension and shovel yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetlands occupy approximately 75% of low-lying areas in the northern tip of the unit. Additional areas are found along the footslopes of the southern half of the unit. The proposed temporary road would cross about 2 acres of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

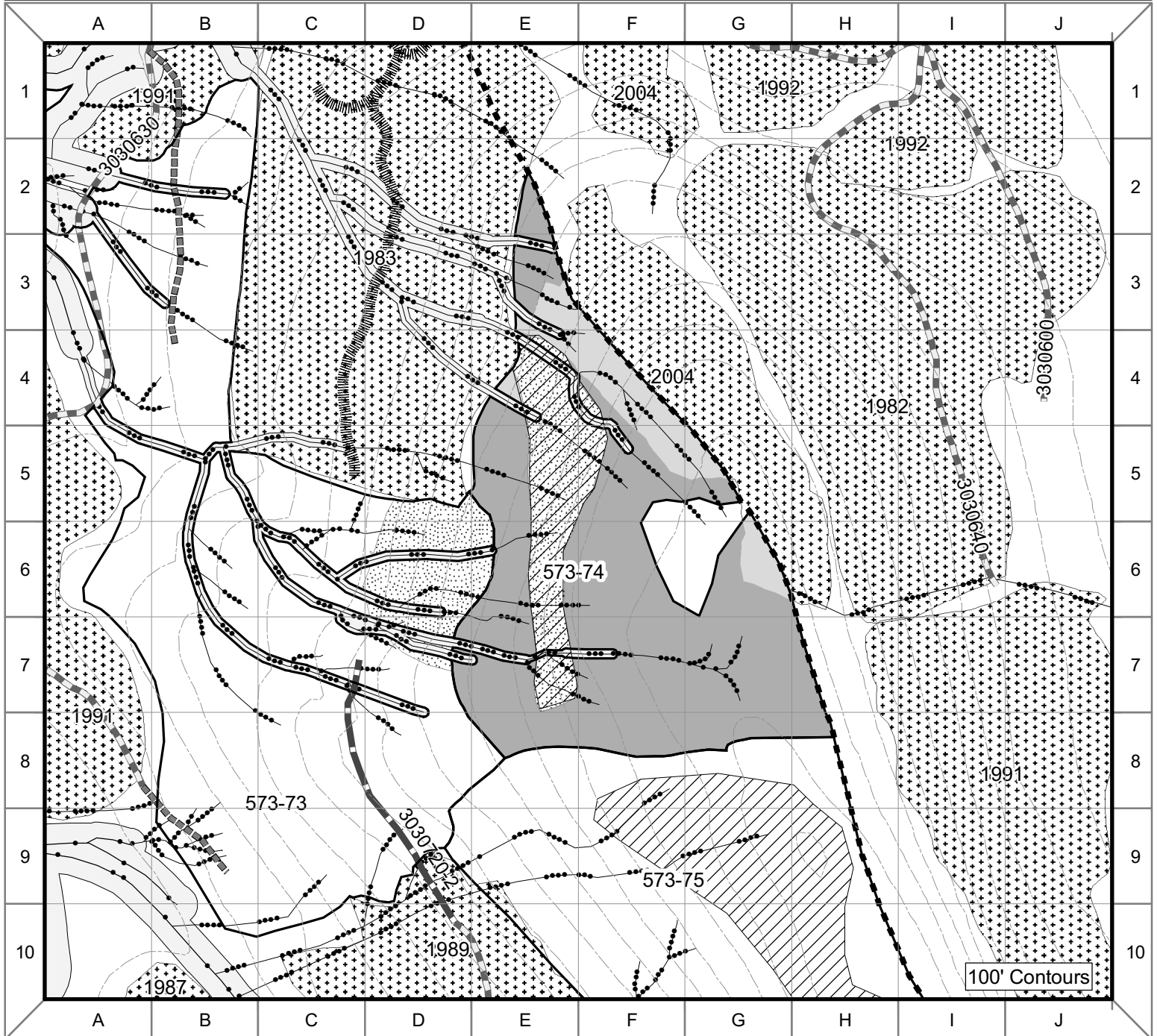
COMMENTS: Concerns in Alternatives 2 and 5 are - Shovel/ Cable Clearcut to proposed roads; Helicopter partial cut central and northeastern portions of unit that can't be yarded to roads.

Concerns in Alternative 3 are - Shovel/ Cable Clearcut settings accessible from 3030630 Defer the northwest corner (below the existing road) based on the identified fish concerns; Drop proposed extension of 3030720. Helicopter Partial-cut harvest in the remainder of the unit. Enlarge RAW buffer during field unit lay-out near identified soil concerns. Fish identified concerns in the northwest corner (below existing 3030630 road); 18 acres identified by soils as being unsuitable

for timber harvest located in the east corner; Fish recommends RAW buffers along margins where Soil has identified slope concerns to be present. Cumulative effects.

Concerns in Alternative 4 are - Drop unit. 182 acres total; This unit combined with unit 74 and 75 blocks elevation access.

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<ul style="list-style-type: none"> ■ ■ ■ Project Area Boundary ▤ Past Harvest □ Riparian Management Area ▨ Unsuitable Soils ▧ Slope > 72% ▩ Other Ownership 	<ul style="list-style-type: none"> ▬ Existing System Road ▬ Coffman Cove Road ▬ Decom. Temp Road ▬ Proposed System Road ▬ Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit □ Proposed Unit ■ Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▨ Lake
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Unit 573-74 Alternatives 2, 3, 5

Unit Number: 573-74	Alternatives: 2,3,5	Total Unit Acres: 72	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 449	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Upper elevation stand with heavy blowdown along ridge top. Old growth structure with multiple canopies. Mature hemlock with large spruce, cedar is scattered throughout, very steep on the north end, ridge has boggy sub-alpine areas. Windthrow risk is high. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk unit, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for helicopter yarding to landings on a proposed temporary extension of existing NFSR 3030720 and a proposed temporary spur of existing NFSR 3030630. In Alternative 3 this unit is planned for helicopter yarding to landings on existing NFSR 3030630, as well as a proposed temporary extension and a proposed temporary spur of that road.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-73/74-4.4L.2L Location: D7, E7, F7, G7

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0, HC1

Concerns: large slides, unstable banks, and active bank slides along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III - to the top of the side slope break.

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73/74-4.4L.2L.2L Location: D6, E7

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III - to the top of the side slope break.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73/74-4.4L.2L.2L.3L Location: D6, E6, F6

Class: IV Flagging: O/W, G/W C-type: HC0, HC5

Concerns: extreme gradient and scour.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-73/74-4.4L.2L.2L.2L Location: C6, D6, E6

Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III - to the top of the side slope break.
 Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-74-6 Location: C2, D2, D3, E3
 Class: III Flagging: O/W C-type: HC5
 Concerns: heavy blow down, unstable banks and active bank slides along stream.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III - to the top of the side slope break.
 Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-74-7 Location: D3, D4, E4, E5, F5
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC1, HC0
 Concerns: unstable banks and active bank slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III - to the top of the side slope break.
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-74-8 Location: C3, D3, E3, E4, F4, F5, G5, G6
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
 Concerns: heavy blow down, unstable banks and active bank slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III - to the top of the side slope break.
 Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-74-8.1L Location: E4, F4, F5
 Class: IV Flagging: O/W, G/W C-type: HC5, HC0
 Concerns: unstable banks and active bank slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-74-9 Location: C2, D2, D3, E3, E4
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
 Concerns: heavy blow down, unstable banks and active bank slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III - to the top of the side slope break.
 Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-74-10 Location: E3
 Class: IV Flagging: O/W, G/W C-type: HC5
 Concerns: unstable banks and active bank slides along stream.
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternatives 2, 3, and 5 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Low. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 5. Areas of the unit using individual tree marking must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 17 acres of steep slopes, landslides, and unstable soils. See Project File (unit report) for details.

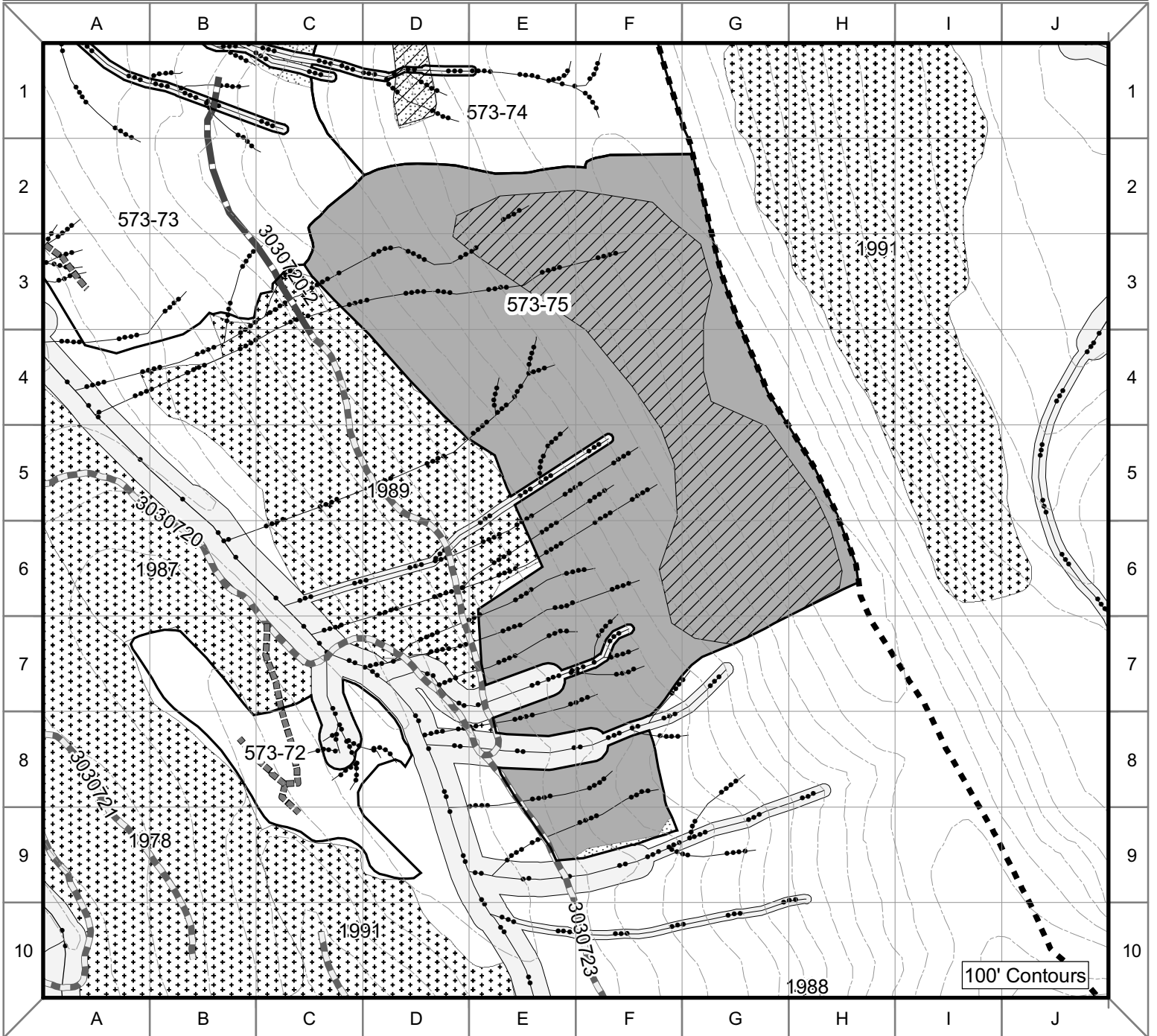
Slopes range from 40 to 60% along the lower unit boundary. Slopes above the deferred area are less than 40%. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Wetlands comprise of 50% of the unit. Forested wetland is present in the northern tip of the unit. Moss muskeg, emergent short sedge, and shrub-scrub wetlands are dominant along the ridgeline in the subalpine areas of the unit. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

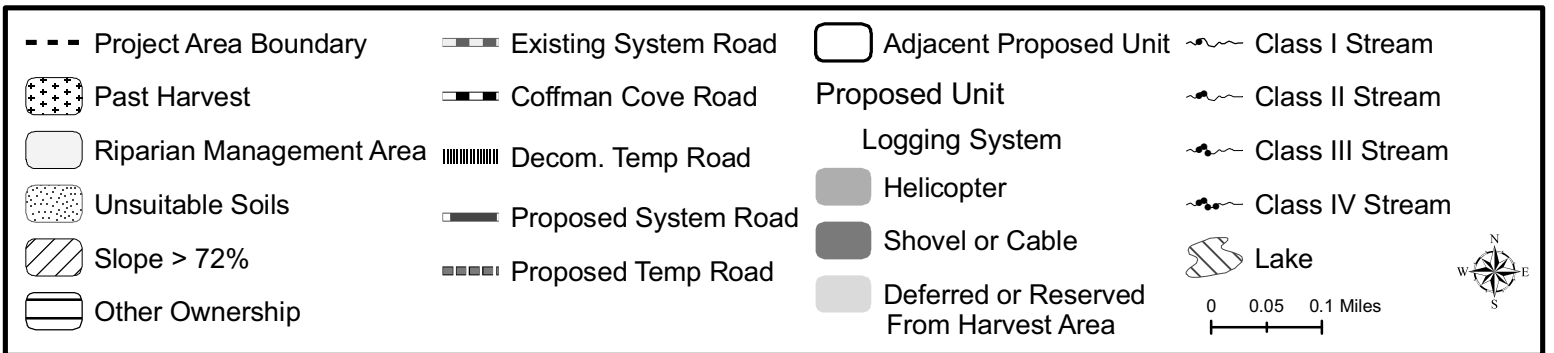
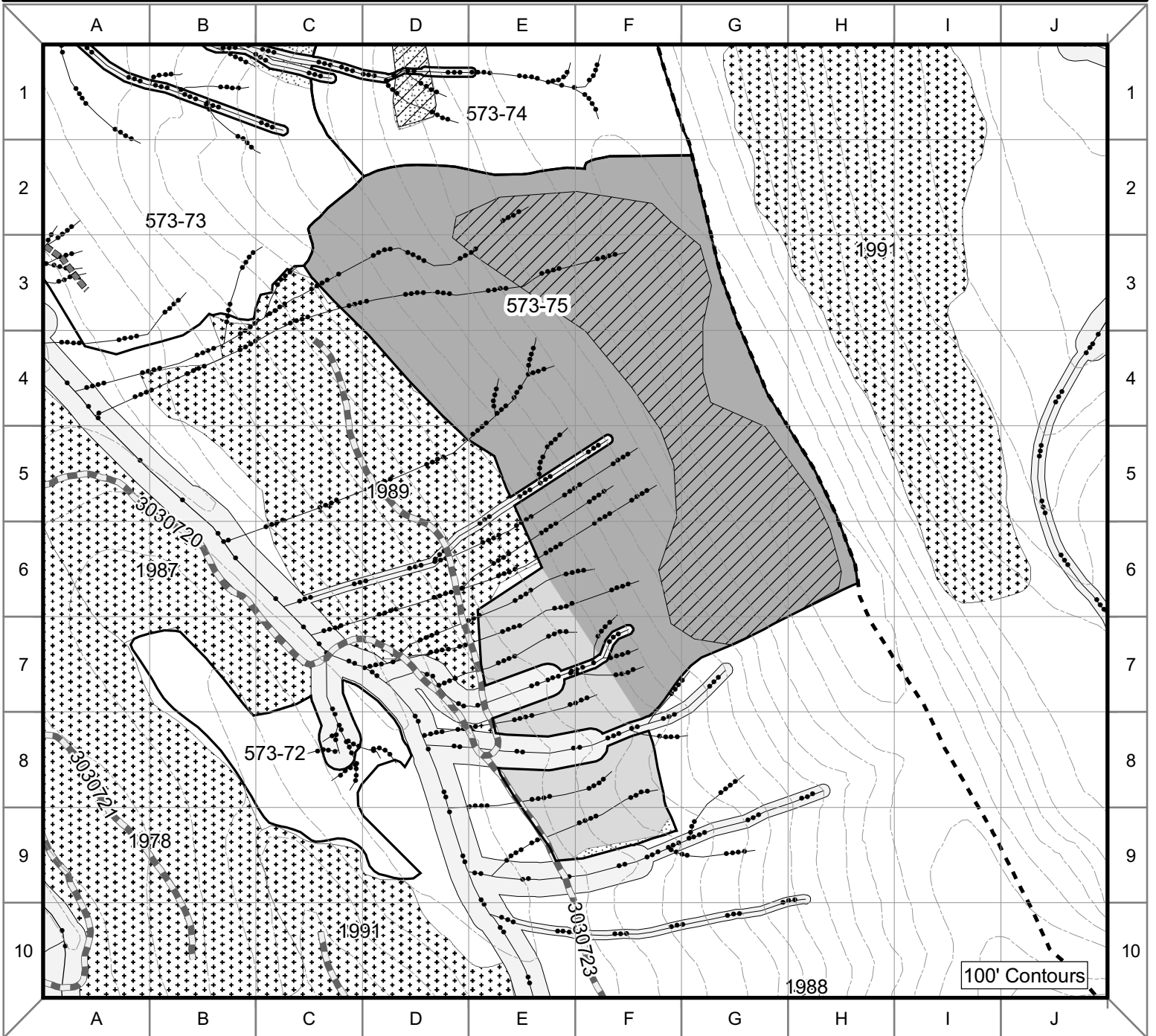
COMMENTS: Concerns in Alternatives 2 and 5 are - Helicopter Partial-cut with up to 50% removal.

Concerns in Alternative 3 are - Remove the southern corner. Soils have removed 17 acres identified as soils/ sedimentation concern located in the southern corner.

Concerns in Alternative 4 are - Drop unit. This unit combined with unit 73 and 75 blocks elevation access.



<ul style="list-style-type: none"> --- Project Area Boundary ⊞ Past Harvest □ Riparian Management Area ⊞ Unsuitable Soils ▨ Slope > 72% ▭ Other Ownership 	<ul style="list-style-type: none"> --- Existing System Road --- Coffman Cove Road ▨ Decom. Temp Road --- Proposed System Road --- Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit Proposed Unit Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▭ Lake
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Unit 573-75 Alternatives 2, 3, 5

Unit Number: 573-75	Alternatives: 2,3,5	Total Unit Acres: Alt. 2 – 181 Alt. 3 – 155 Alt. 5 – 181	Prescription: Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): Alt. 2 – 1,287 Alt. 3 – 1,100 Alt. 5 – 1,287	LUD: Timber Production Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Upper elevation old growth hemlock and spruce stand. Multiple canopy layers with large scattered dominant spruce over co-dominant and intermediate hemlock. Steep slopes noted in a central southern band. Alaska yellow-cedar and western redcedar are found in patches mainly on benches from the mid-slope of the unit down. Mountain hemlock is in upper elevations mainly from where the ridge breaks over up to the very top.

The stand abuts a 1989 even-aged harvest to the west. Windthrow risk is high. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk unit, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for helicopter yarding to landings on existing NFSR 3030720. In Alternative 3 this unit is planned for helicopter yarding to landings on a temporary extension of existing NFSR 3030630. A portion of the unit in the southwest is deferred in Alternative 3.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-75-1 Location: C3, D3, E3, E2

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: heavy blow down, steep banks and active bank erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-2 Location: C3, D3, E3, F3

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: heavy blow down, steep banks and active bank erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-3 Location: D5, E5, E4

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: steep banks and active bank erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-4 Location: C6, D6, E6, E5, F5

Class: III Flagging: O/W C-type: HC5

Concerns: heavy blow down along stream adjacent to past harvested unit.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-4.1L Location: E5

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: steep banks and active bank erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-5 Location: D6, E6, E5, F5

Class: IV Flagging: O/W C-type: HC5

Concerns: steep banks and active bank erosion along stream..

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-7 Location: C7, D7, D6, E6, F6, F5

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: steep banks and active bank erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-9 Location: D7, E7, E6, F6

Class: IV Flagging: O/W, G/W C-type: HC5, HC0

Concerns: steep banks and active bank erosion along stream.

Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-11 Location: D7, E7, F7

Class: II, III Flagging: B/W, O/W C-type: HC5

Concerns: moderate blow down, steep banks and active bank erosion along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Class III: to the top of the side slope break.

Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-11.1R Location: E7, F7

Class: IV Flagging: O/W C-type: HC5
Concerns: steep banks and active bank erosion along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-13 Location: D8, E8, F8, F7, G7
Class: II, III Flagging: B/W, O/W C-type: HC2, HC6
Concerns: moderate blow down, steep banks and active bank erosion along stream.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-13.1R Location: F8, G8
Class: IV Flagging: O/W C-type: HC5
Concerns: steep banks and active bank erosion along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-13.2L Location: F8, F7, G7
Class: IV Flagging: O/W C-type: HC5
Concerns: steep banks and active bank erosion along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-16 Location: E9, F9, G9, G8, H8
Class: II, III, IV Flagging: B/W, O/W C-type: HC6, HC5
Concerns: moderate blow down, steep banks and active bank erosion along stream.
Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-16.1R Location: F9, G9
Class: IV Flagging: O/W C-type: HC5
Concerns: steep banks and active bank erosion along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternatives 2, 3, and 5 RAW Buffer: none

Stream#: 573-75-16.2L Location: G9, G8
Class: IV Flagging: O/W C-type: HC5
Concerns: steep banks and active bank erosion along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternatives 2, 3, and 5

RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Low. The unit is within Modified Landscape LUD and is seen within middle ground distance zone from VPR Sweetwater Lake view point 4. Areas of the unit using individual tree marking must maintain 50% canopy retention immediately after harvest activities are complete.

RECREATION: No concerns

SOILS/WETLANDS:

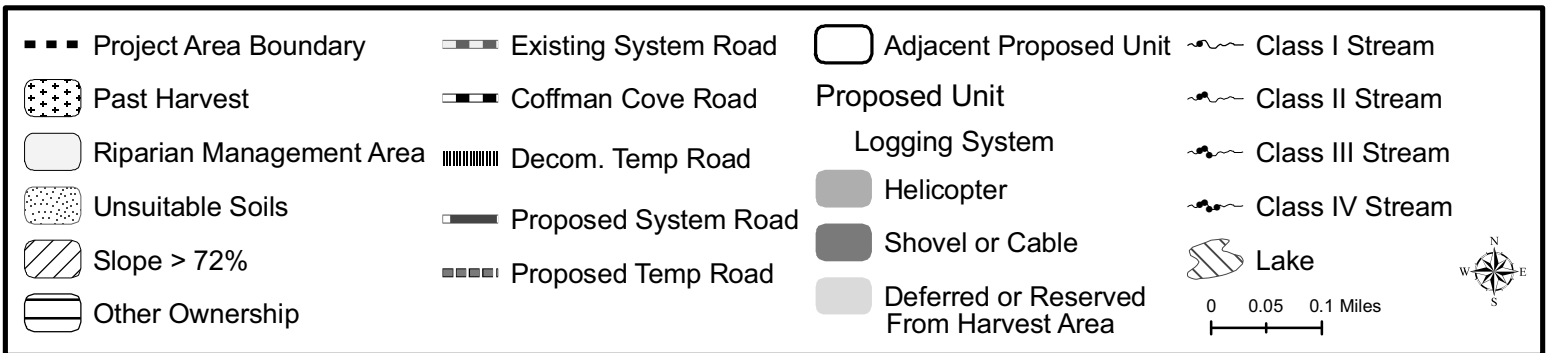
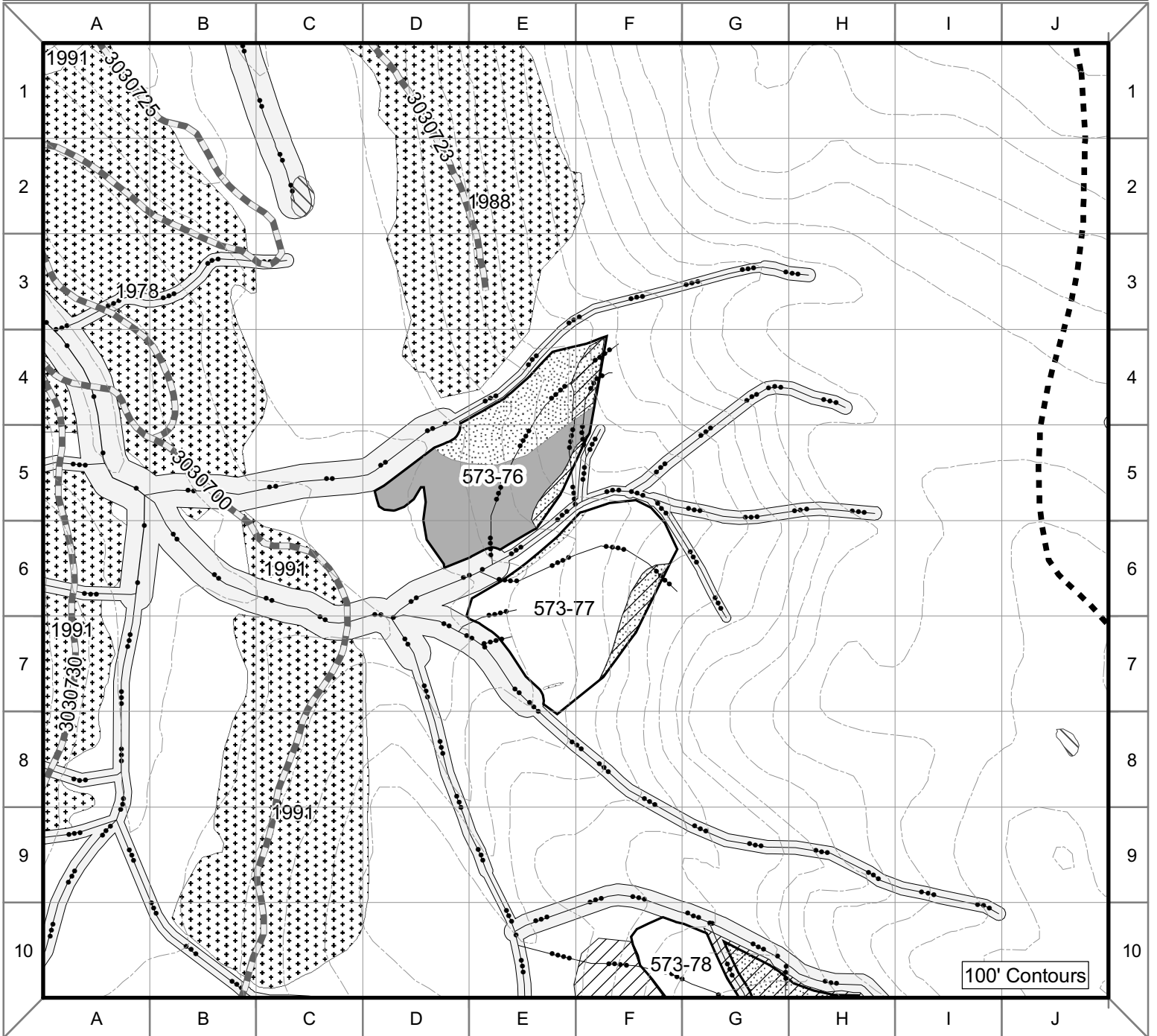
Alternative 2, 3, 5: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes range from 60 to 85% throughout the majority of the unit with the exception of 30 to 50% slopes in the southwest leg of the unit and gentle slopes along the ridgeline at the top of the unit. There are 61 acres of slopes >72% suitable for partial harvest with full suspension requirements. Full suspension with partial harvest is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). There is a 0.02 acre landslide located in the southwestern tip of the unit, special consideration is required (for Alt. 2 and 5) to avoid impacts to this area. Extensive forested wetlands and shrub-scrub wetlands are located along the ridgeline at the top of the unit. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop southeast corner. Multiple streams present in the southeast unit area. Concerns in Alternative 4 are – Drop southern portion of unit to maintain travel route. Overall size of unit; This unit combined with unit 73 and 74 blocks elevation access.



Unit 573-76 Alternative 2, 5

Unit Number: 573-76	Alternatives: 2,5	Total Unit Acres: 13	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 192	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth stand of western hemlock mixed with Alaska yellow-cedar, western redcedar and Sitka spruce. Alaska yellow-cedar is found in clumps, Sitka spruce and western redcedar are scattered. Multiple canopies. A 1988 harvest of about 70 acres is to the north. Windthrow risk is moderate. Mistletoe occurrence is moderate-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030700.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-76-1 Location: B5, C5, D5, D4, E4, E3, F3

Class: II, III Flagging: B/W, O/W C-type: HC5

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-76/77-2 Location: D6, E6, E5, F5, F6, G6, G7

Class: II, III Flagging: B/W, O/W C-type: HC4

Concerns: unstable banks along stream and a land slide impacted and deposited debris in channel.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-76-2.1L Location: E6, E5, E4, F4

Class: III Flagging: O/W C-type: HC6

Concerns: unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-76-2.2L Location: E5, E4

Class: IV Flagging: O/W C-type: HC5

Concerns: unstable banks along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the

stream.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-76-2.3L Location: F5

Class: III Flagging: O/W C-type: HC4

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-76-2.3L.1L Location: F5, F4

Class: IV Flagging: O/W C-type: HC5

Concerns: steep banks and active bank erosion along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 and 5 RAW Buffer: none

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 10 acres of steep slopes, landslides, and unstable soils. See Project File (unit report) for details.

Slopes range from 20% in the lower portion and 65% in the upper portion in the existing unit configuration. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Forested wetlands are located along the lower unit boundary. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

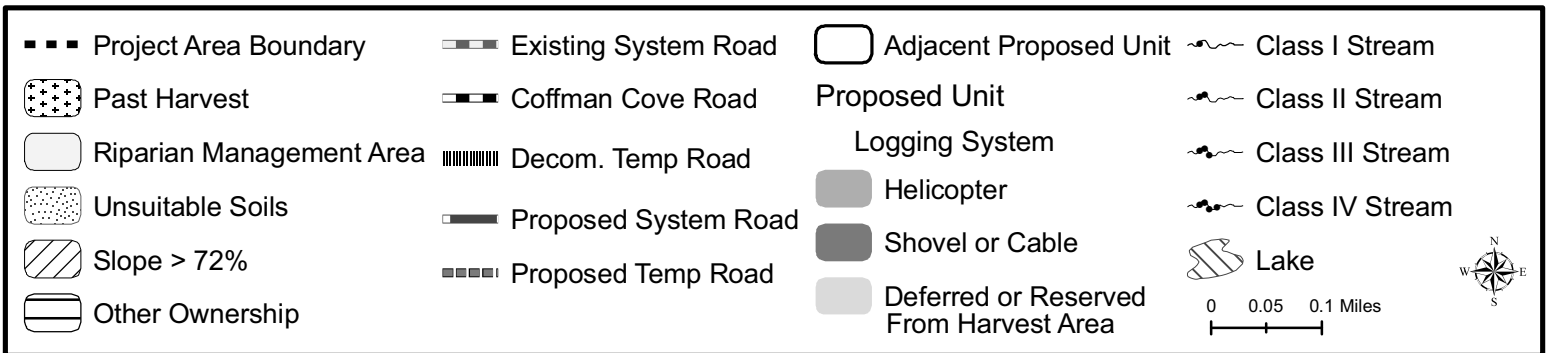
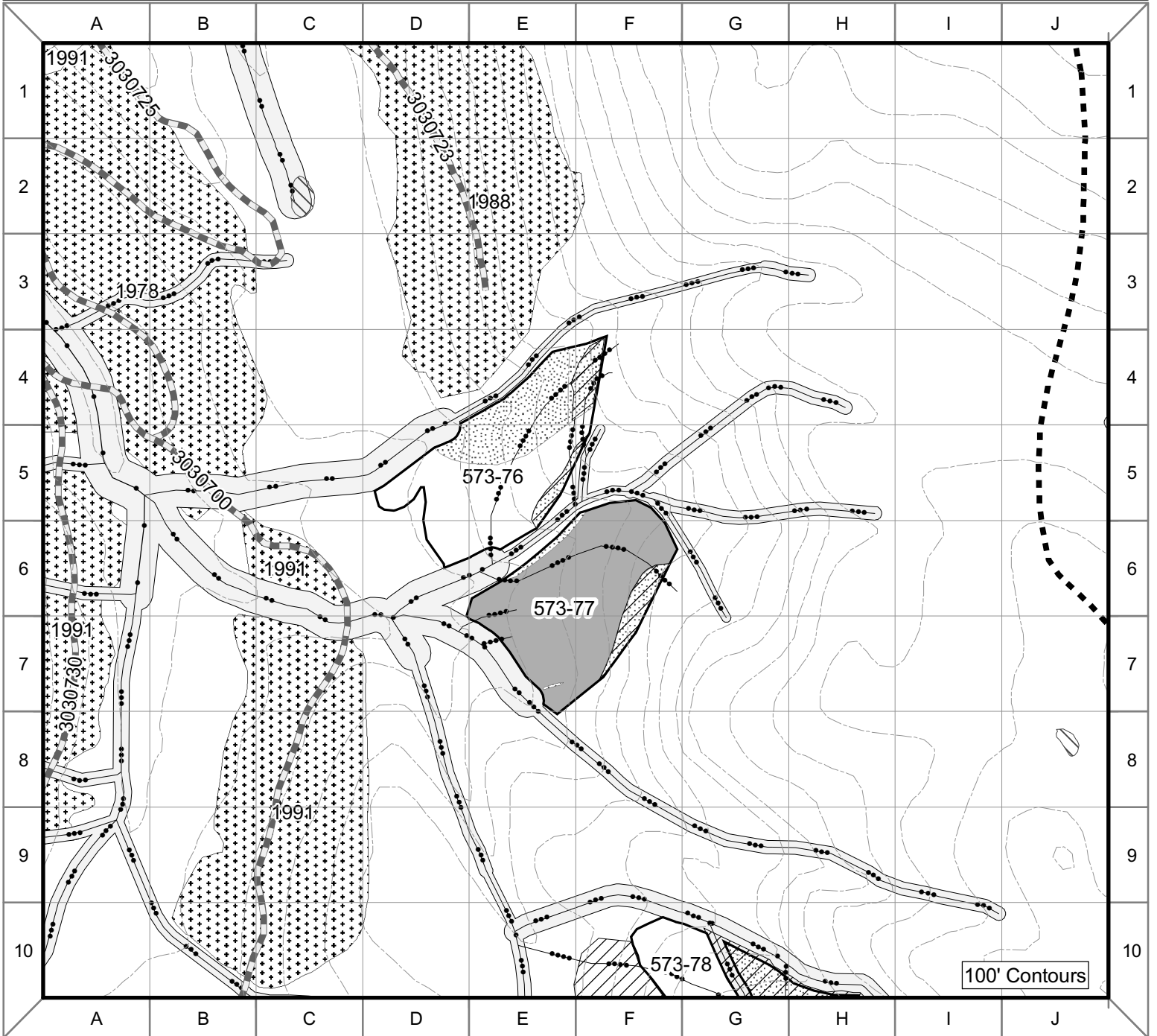
COMMENTS: Concerns in Alternative 2 are - Multiple special concern streams; soils.

Concerns in Alternative 3 are – Drop unit. Numerous special concern streams.

Concerns in Alternative 4 are – Drop unit. No wildlife concerns; Ridgetop unit-poor economics.

Concerns in Alternative 5 are – Multiple special concern streams; soils.

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Unit 573-77 Alternative 2, 5

Unit Number: 573-77	Alternatives: 2,5	Total Unit Acres: 21	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 307	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth western hemlock/western redcedar stand with scattered Sitka spruce. Multiple canopy stand. The northwest corner of the unit has areas of steep slopes. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030700.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-76/77-2 Location: D6, E6, E5, F5, F6, G6, G7

Class: II, III Flagging: B/W, O/W C-type: HC4

Concerns: unstable banks along stream and a land slide impacted and deposited debris in channel.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-77-3 Location: D7, E7, E8, F8

Class: II, III Flagging: B/W, O/W C-type: HC1, HC6

Concerns: heavy blow down and unstable banks along stream.

Stream Protection – Category A and B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Class III: to the top of the side slope break.

Alternative 2 and 5 RAW Buffer: none

Stream#: 573-77-3.1L Location: D7, E7, E6

Class: IV Flagging: O/W C-type: HC5

Concerns: blow down, steep banks and active bank erosion along stream.

Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: none

Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 and 5 RAW Buffer: none

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 2 acres of steep slopes and unstable soils. See Project File (unit report) for details.

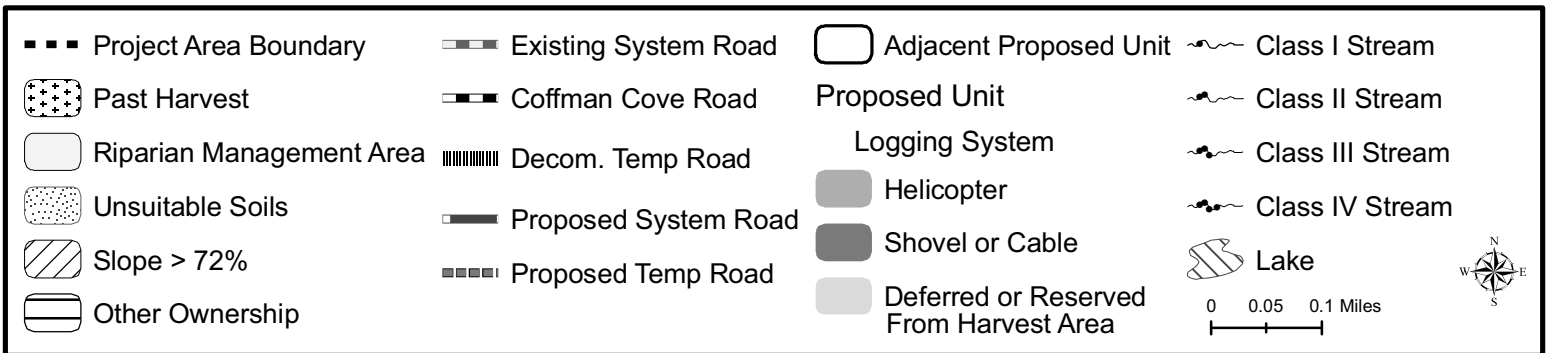
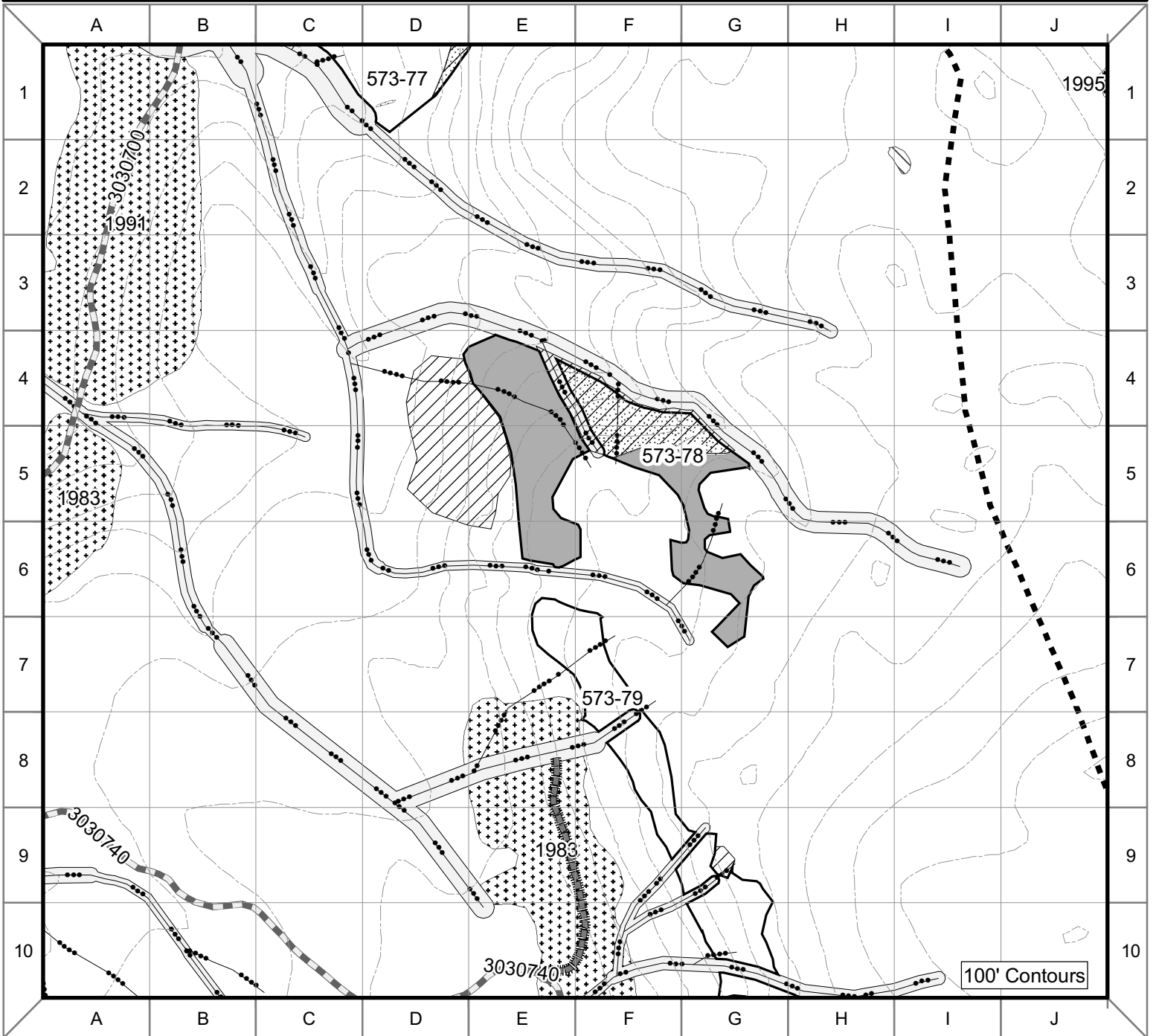
Slopes range from 40 to 50% throughout the existing unit. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). The lower half of the unit contains >75% forested wetland. There is a 0.04 acre landslide located in the southern tip of the unit, yarding will need to avoid impacting this area. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Marginal economics; Trumpeter Creek watershed contains a high percent of second-growth (>20%).

Concerns in Alternative 4 are – Drop unit. No wildlife concerns; Ridgetop unit-poor economics.

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Unit 573-78 Alternative 2

Unit Number: 573-78	Alternatives: 2	Total Unit Acres: 22	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 308	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth structure with multiple canopies. Mountain hemlock and mixed conifer plant associations indicate low site index. Non-commercial timber defines the southern and eastern unit boundaries. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030700.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-78-1 Location: C4, C5, D6, E6, F6, F7, G7
 Class: III Flagging: O/W C-type: HC4
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-78-1.1L.1L Location: C4, D4, E4, E5, F5
 Class: IV Flagging: O/W, G/W C-type: HC1
 Concerns: steep banks and active bank erosion along stream.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternative 2 RAW Buffer: none

Stream#: 573-78-1.1L Location: C4, D4, D3, E3, E4, F4, G4, G5, H5
 Class: III Flagging: O/W C-type: HC3
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-78-1.1L.1R Location: E4, F4, F5
 Class: III Flagging: O/W C-type: HC2
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-78-1.1L.2R Location: F4, F5
Class: IV Flagging: O/W C-type: HC1
Concerns: steep banks and active bank erosion along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 8 acres of steep slopes, landslides, and unstable soils. See Project File (unit report) for details.

Slopes range from 35 to 70% in the existing unit configuration. Avoid the slopes >72% along the western unit boundary during unit layout. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). The unit contains 60% wetland, mostly subalpine and alpine muskegs in the upper portions and southwest tip of the unit. Forested wetland is located on gentle slopes throughout the northwest tip of the unit. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

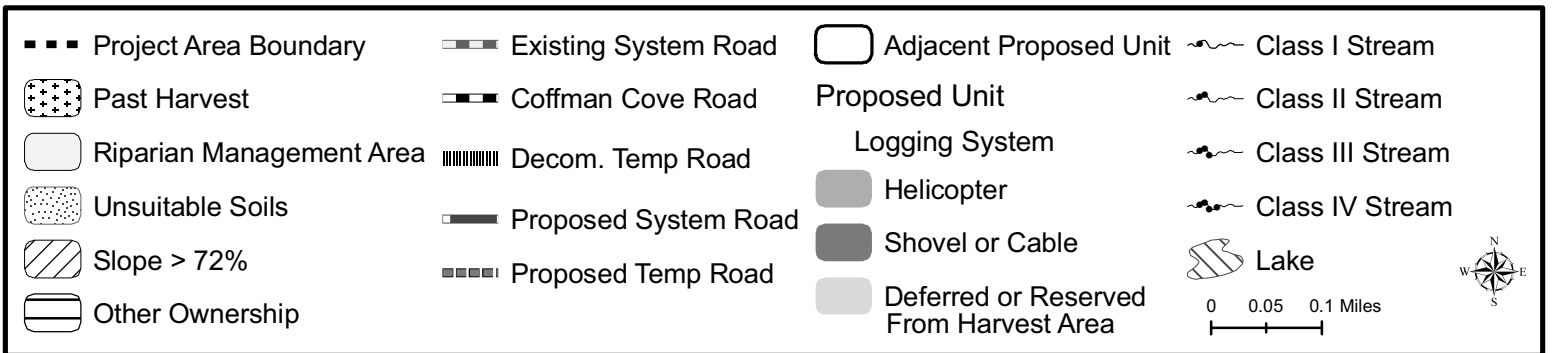
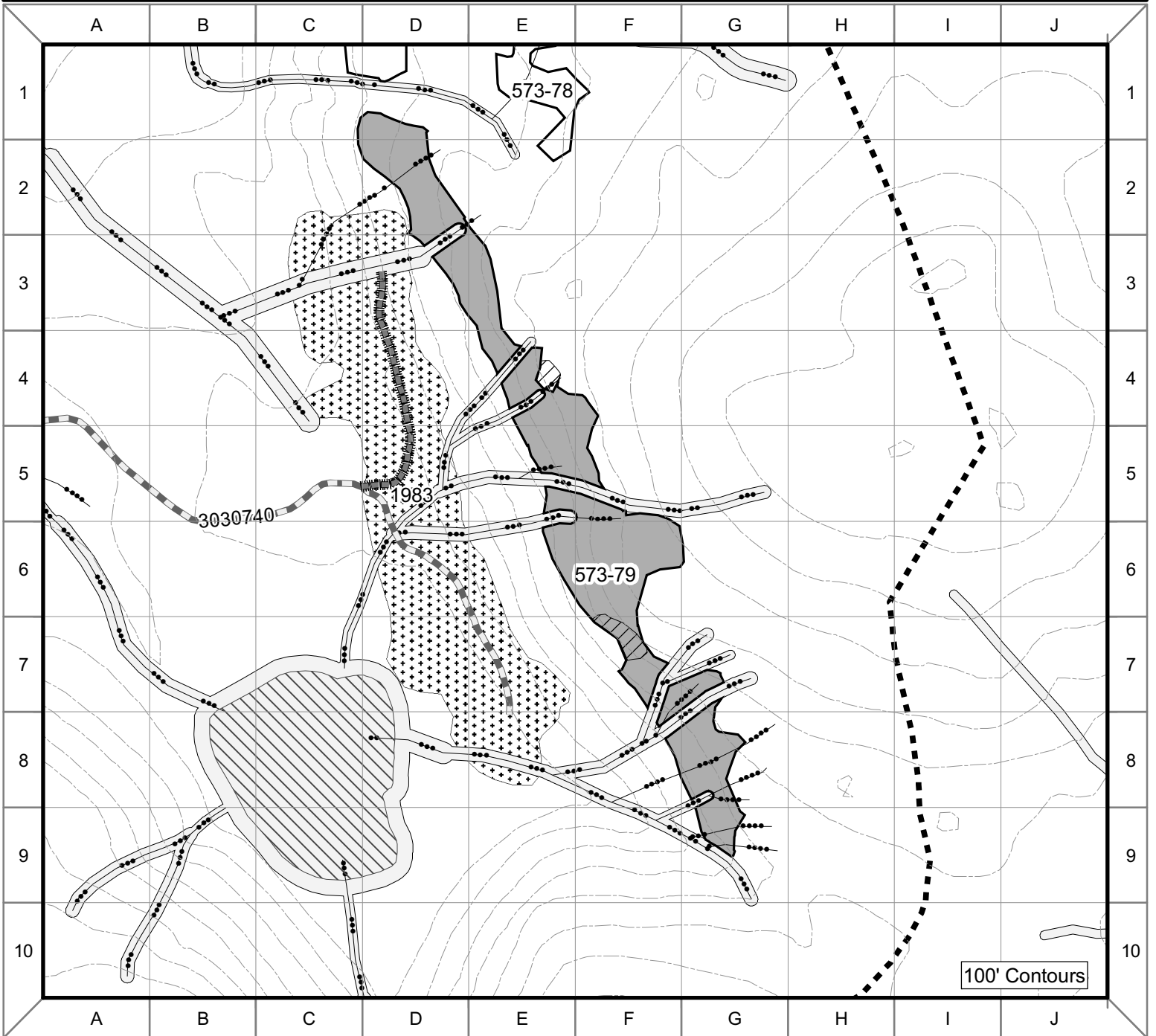
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Economics; Cumulative effects.

Concerns in Alternative 4 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

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Unit 573-79 Alternative 2

Unit Number: 573-79	Alternatives: 2	Total Unit Acres: 38	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 490	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Stand is a narrow strip of timber above a 1983 even-age harvest and sub alpine. Old growth timber with numerous non-commercial timber and muskeg inclusions. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030740.

ENGINEERING/ROADS: No proposed road construction. Alternative 2 – accessed by temporary roads 1,600 feet in length.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-79-2 Location: D8, E8, F8, F9, G9
 Class: III Flagging: O/W C-type: HC6
 Concerns: heavy blow down and steep side slopes along stream.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-79-2.1L Location: G9
 Class: IV Flagging: O/W C-type: HC5
 Concerns: heavy blow down and high gradient.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternative 2 RAW Buffer: none

Stream#: 573-79-2.2L Location: G9
 Class: IV Flagging: O/W C-type: HC5
 Concerns: heavy blow down and high gradient.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: none
 Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
 Alternative 2 RAW Buffer: none

Stream#: 573-79-2.3L Location: F9, G9, G8

Class: III, IV Flagging: O/W C-type: HC5
Concerns: heavy blow down, bank instability, and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

Stream#: 573-79-3 Location: F8, G8
Class: IV Flagging: O/W C-type: HC5
Concerns: heavy blow down and high gradient.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

Stream#: 573-79-4 Location: E8, F8, G8, G7
Class: III Flagging: O/W C-type: HC6
Concerns: heavy blow down, bank instability, and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 RAW Buffer: none

Stream#: 573-79-4.1L Location: F8, F7, G7
Class: III Flagging: O/W C-type: HC6
Concerns: bank instability and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 RAW Buffer: none

Stream#: 573-79-4.1L.1R Location: F7, G7
Class: III Flagging: O/W C-type: HC5
Concerns: bank instability and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.

Alternative 2 RAW Buffer: none

Stream#: 573-79-4.2L Location: F8, F7, G7
Class: IV Flagging: O/W C-type: HC5
Concerns: bank instability and high gradient.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

Stream#: 573-79-5 Location: D6, E6, E5, F5
Class: III, IV Flagging: O/W C-type: HC6, HC1
Concerns: bank instability and steep side slopes along stream. Evidence of a slide at confluence with stream 6 below the unit.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.

Alternative 2 RAW Buffer: none

Stream#: 573-79-6 Location: D5, E5, F5, G5
Class: III Flagging: O/W C-type: HC6
Concerns: heavy blow down, bank instability, and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternative 2 RAW Buffer: none

Stream#: 573-79-6.1L Location: E5
Class: IV Flagging: O/W C-type: HC1
Concerns: heavy blow down, side slope instability, and high gradient.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: none
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 RAW Buffer: none

Stream#: 573-79-7 Location: D5, E5, E4
Class: III, IV Flagging: O/W C-type: HC5, HC1
Concerns: bank instability and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 RAW Buffer: none

Stream#: 573-79-8 Location: D5, D4, E4
Class: III Flagging: O/W C-type: HC5
Concerns: heavy blow down, side slope instability, and steep side slopes along stream.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Alternative 2 RAW Buffer: none

Stream#: 573-79-9 Location: B3, C3, D3, D2, E2
Class: III, IV Flagging: O/W C-type: HC6, HC1
Concerns: heavy blow down, bank instability, and steep side slopes along stream. Evidence of a past slide adjacent to stream and below unit.
Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class III: to the top of the side slope break.
Response: O/W stream reach - Directionally fall and yard trees away from the stream or fully suspend trees over the stream.
Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for

details.

Slopes range from 40 to >72%. There are 1 acre of slopes >72% suitable for partial harvest with full suspension requirements. Full suspension and partial suspension are required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). The unit contains >70% wetland, mostly subalpine and alpine muskeg. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

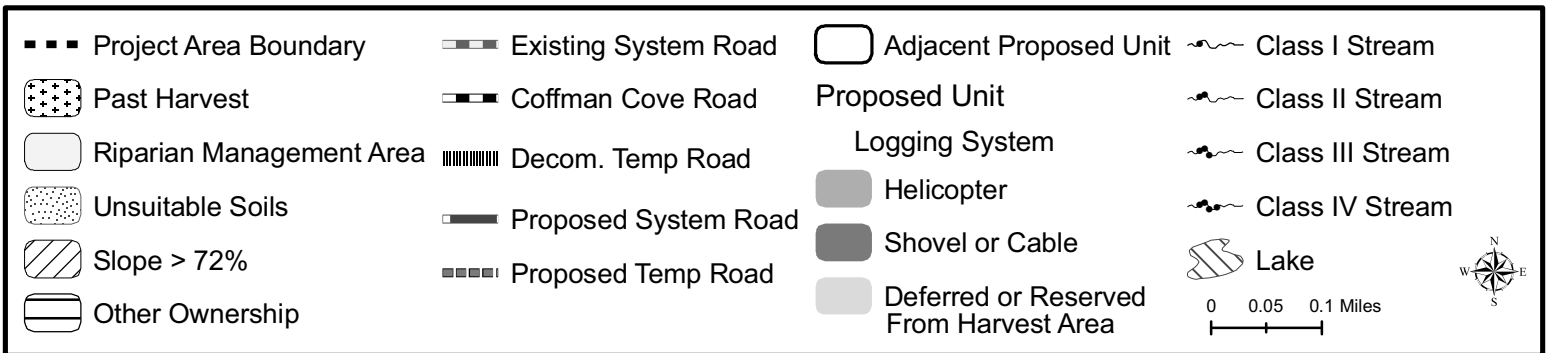
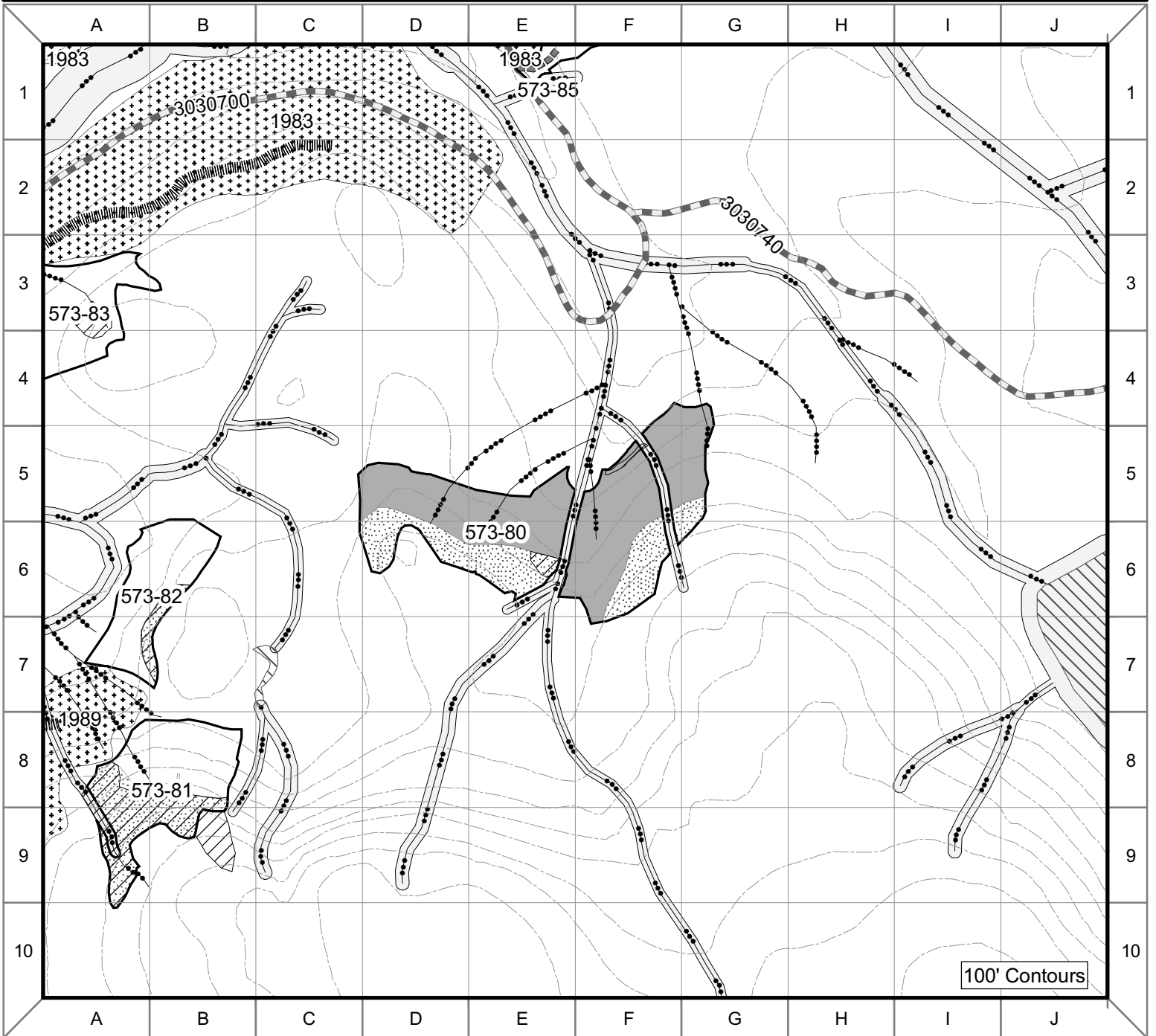
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Economics; Cumulative effects.

Concerns in Alternative 4 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs

Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs

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Unit 573-80 Alternative 2

Unit Number: 573-80	Alternatives: 2	Total Unit Acres: 24	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 347	LUD: Modified Landscape Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Upper elevation north facing old growth stand of mountain and western hemlock with larger diameter dominant spruce. Understory is predominantly mountain and western hemlock and devils club. Steep slopes were noted in the southeastern corner of the unit. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030700.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-80-1 Location: F3, F4, F5, E5, E6, E7
 Class: III Flagging: O/W C-type: HC5
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-80-1.1R Location: E6
 Class: III Flagging: O/W C-type: HC5
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-80-3 Location: F4, F5, F6
 Class: III Flagging: O/W C-type: HC5
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
 Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: Surveys have been completed. Karst has been found in this unit. Final unit layout will follow Karst Standards and Guidelines.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 11 acres of steep slopes and unstable soils. A small landslide is located within the stream buffer in the middle of the unit. See unit report in Project File for details. Slopes range from 40 to 100% across the unit but averaging about 60%. There is less than ¼ acre of slopes >72% suitable for harvest with partial suspension. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Forested wetland covers approximately 40% of the unit, most along the lower unit boundary. Road construction is not recommended in this unit due to inability to avoid steep slopes (BMP 14.7). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

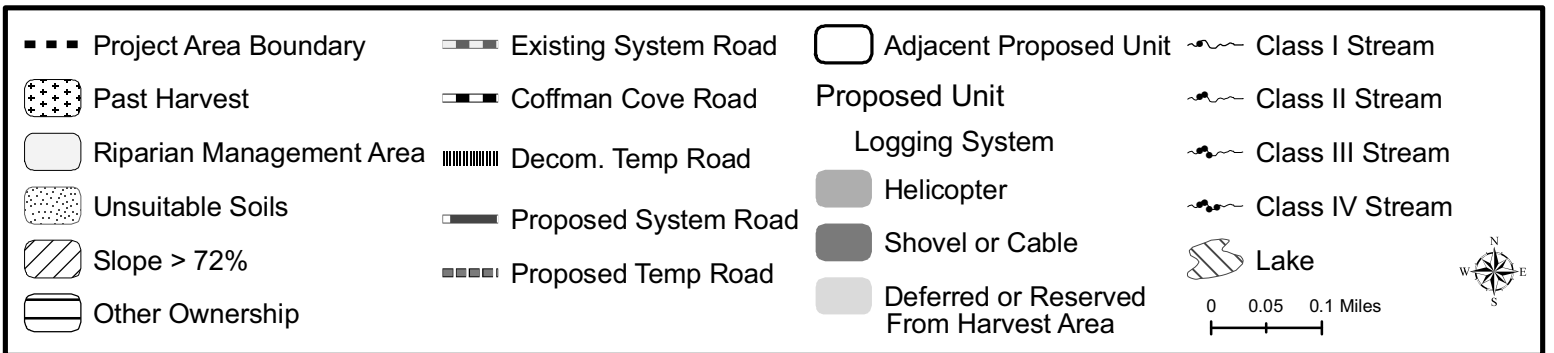
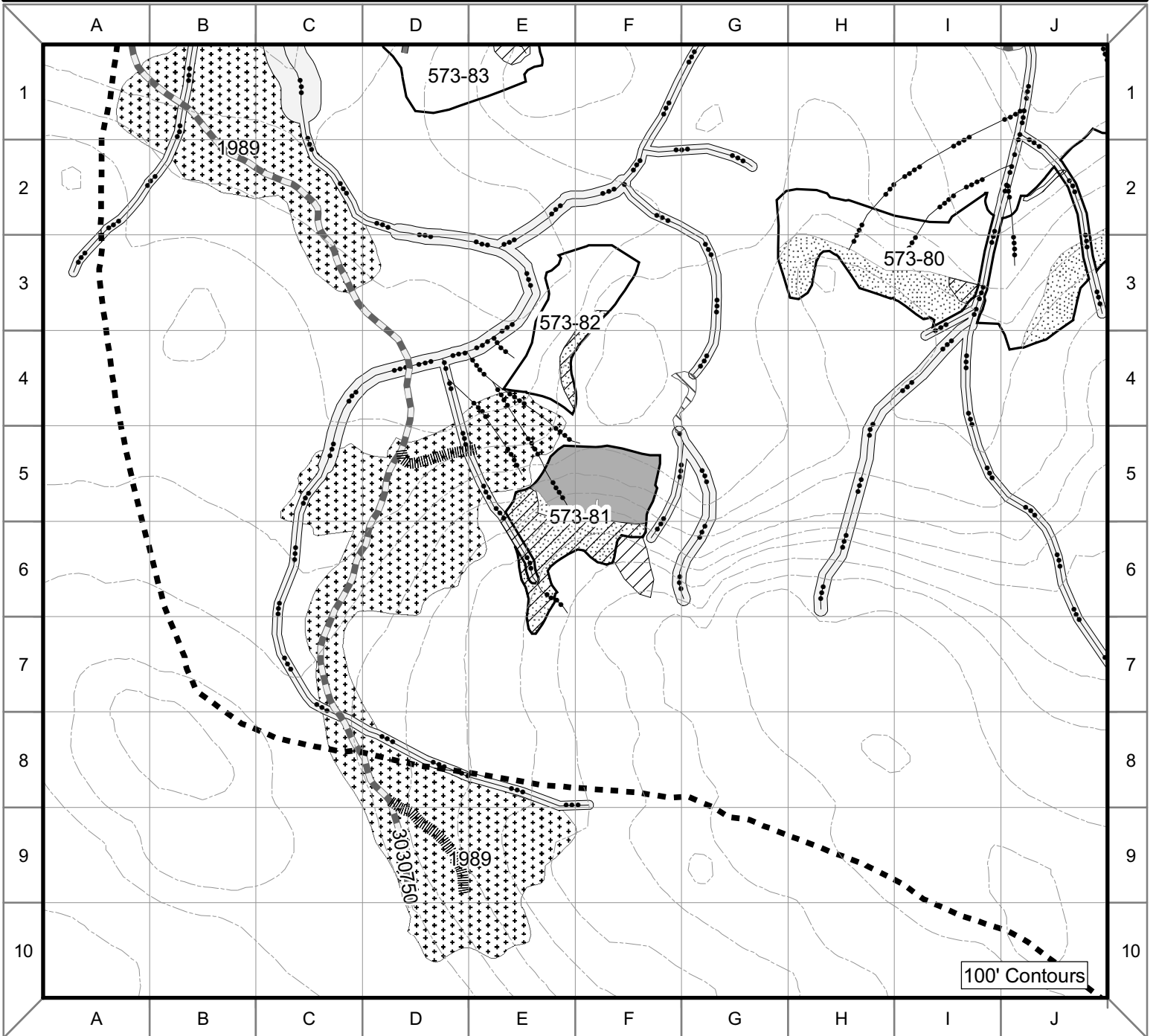
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Economics; Cumulative effects.

Concerns in Alternative 4 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs

Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs

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Unit 573-81 Alternative 2

Unit Number: 573-81	Alternatives: 2	Total Unit Acres: 7	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 100	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Upper elevation multiple canopied old growth stand on predominantly north facing slope. A 1989 even-age harvest adjoins to the west. Stand consists of western hemlock co-dominants with scattered dominant spruce. Alaska yellow-cedar is found in patches thru-out the stand. Regeneration is heavy western hemlock. Windthrow risk is moderate. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030750.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-81-2 Location: D4, D5, E5, E6
 Class: III, IV Flagging: O/W, G/W C-type: HC5, HC0
 Stream Protection – Category B and C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Stream#: 573-81-3 Location: F5, F6
 Class: III Flagging: O/W C-type: HC5
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: Surveys have been completed. Karst has been found in this unit. Final unit layout will follow Karst Standards and Guidelines.

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 8 acres of steep slopes, landslides, and unstable soils. See Project File (unit report) for details.

Slopes range from 40 to 60% in the existing unit configuration. Full suspension via helicopter is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). Forested wetland and subalpine muskeg occupy about 60% of the unit. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

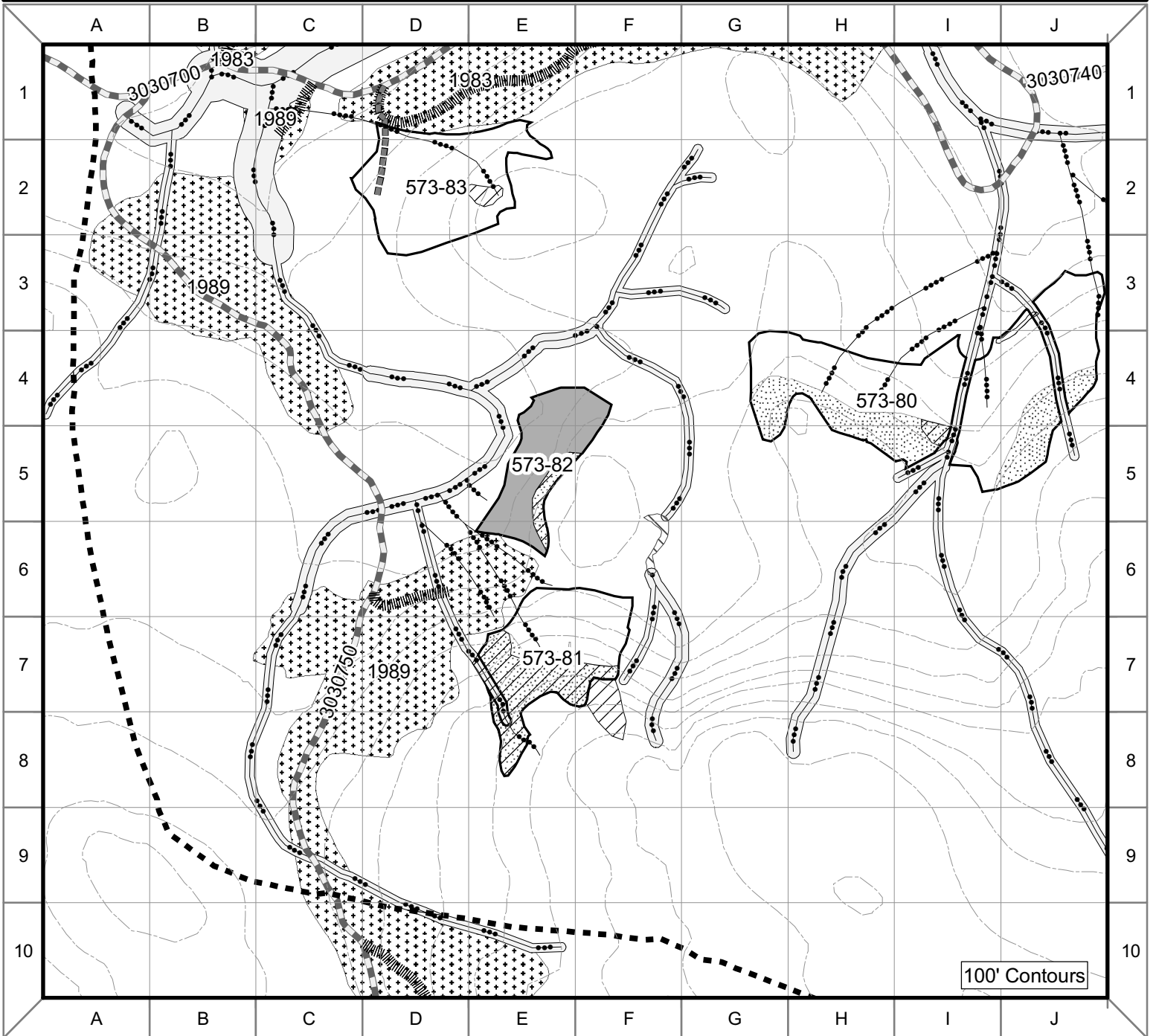
WILDLIFE: Goshawk sighting in unit. Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Economics; Cumulative effects.

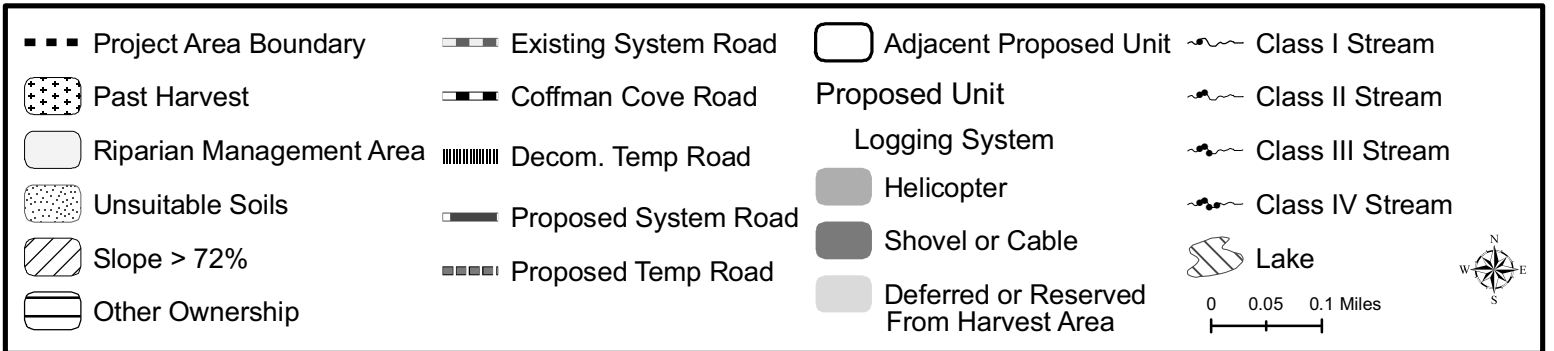
Concerns in Alternative 4 are – Drop unit due to economics; Maintain travel route associated with Unit 66; This corridor maintains access to OGR.

Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

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100' Contours



Unit 573-82 Alternative 2

Unit Number: 573-82	Alternatives: 2	Total Unit Acres: 8	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 59	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth hemlock stand with some scattered Alaska yellow-cedar. Blowdown noted thru-out unit. Multiple canopied stand with heavy advanced hemlock regeneration and some spruce regeneration in openings created by windthrow. A 1989 even-aged harvest area is to the south. Windthrow risk is high. Mistletoe occurrence is light-scattered.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. High wind risk unit, maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on existing NFSR 3030700.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-82-1 Location: D5, E5, E4, F4, G4
 Class: II Flagging: O/W C-type: MC1
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
 Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. The unit was modified following soil reconnaissance to defer 1 acre of steep slopes, a landslide, and unstable soils. See unit report in Project File for details.

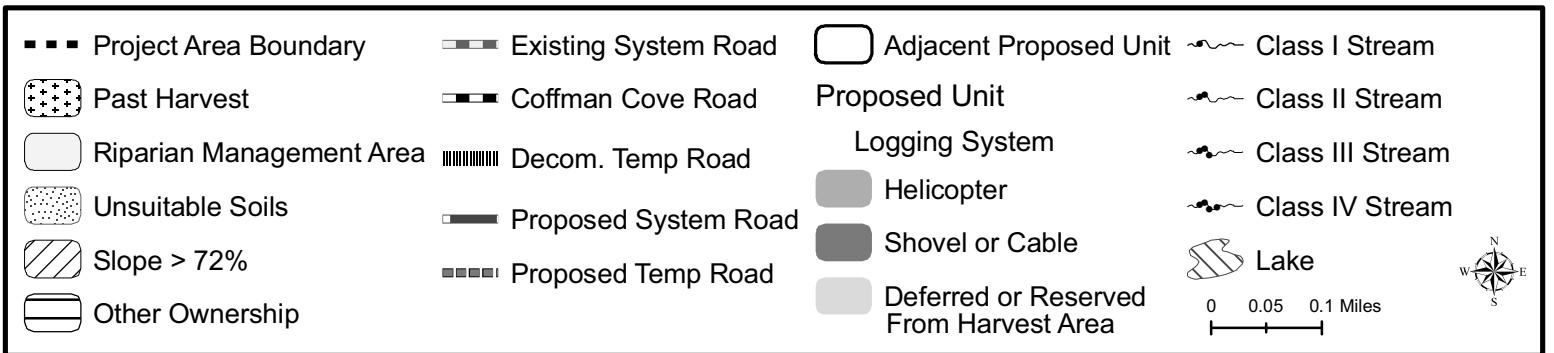
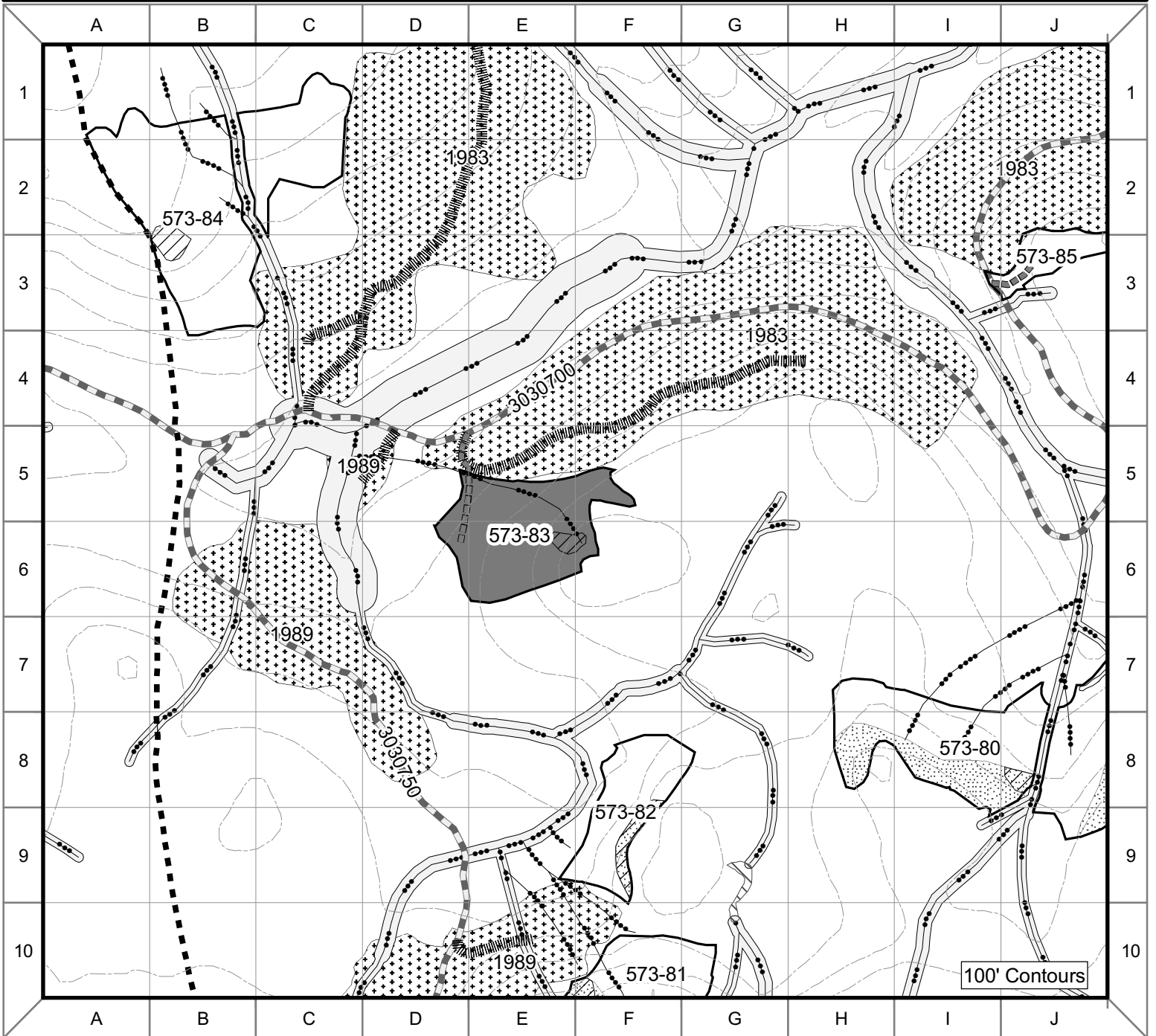
Slopes average 50% across the existing unit. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). The unit contains 2 acres of forested wetland and muskeg along the lower unit boundary. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Economics; Cumulative effects.
 Concerns in Alternative 4 are – Drop unit due to economics; Maintain travel route associated with Unit 66; This corridor maintains access to OG.

Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

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Unit 573-83 Alternatives 2, 4, 5

Unit Number: 573-83	Alternatives: 2,4,5	Total Unit Acres: 15	Prescription Clearcut
VCU Number: 5730	Harvest System: Shovel Cable	Net Harvest Volume (MBF): 410	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old growth, multi-canopied mixed stand of hemlock, spruce, redcedar and yellow-cedar. Both cedar species are typically located in patches within the lower elevations of the stand and along benches where drainage is somewhat restricted. Spruce is scattered in the stand. Mountain hemlock is primarily in the upper elevations. Understory is comprised of western hemlock regeneration. A 1983 even-aged harvest is adjacent to the north stand boundary. Windthrow risk is moderate. Mistletoe occurrence is heavy-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is planned for shovel and downhill cable yarding to landings on a proposed temporary spur of existing NFSR 3030700. Uppermost areas that cannot be reached with cable may require helicopter yarding

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Decommissioned road bed is being used a base for part of the new construction. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 4, and 5 - accessed by temporary road 750 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 573-83: Alternatives 2, 4, and 5 — One Class IV stream crossing. Crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See Project File (unit report) for details.

Slopes range from 40 to 80% across the unit. There is about ½ acre of slopes >72% suitable for harvest with partial suspension requirements. Partial suspension and shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetland and muskeg occupy about 5 acres primarily along the lower and upper margins of the unit. The proposed temporary road would cross about a ½ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

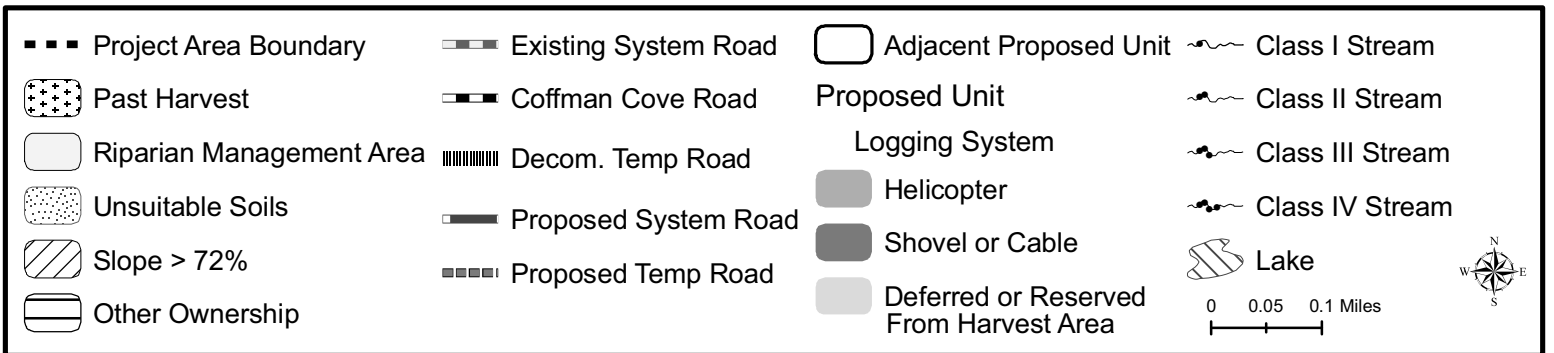
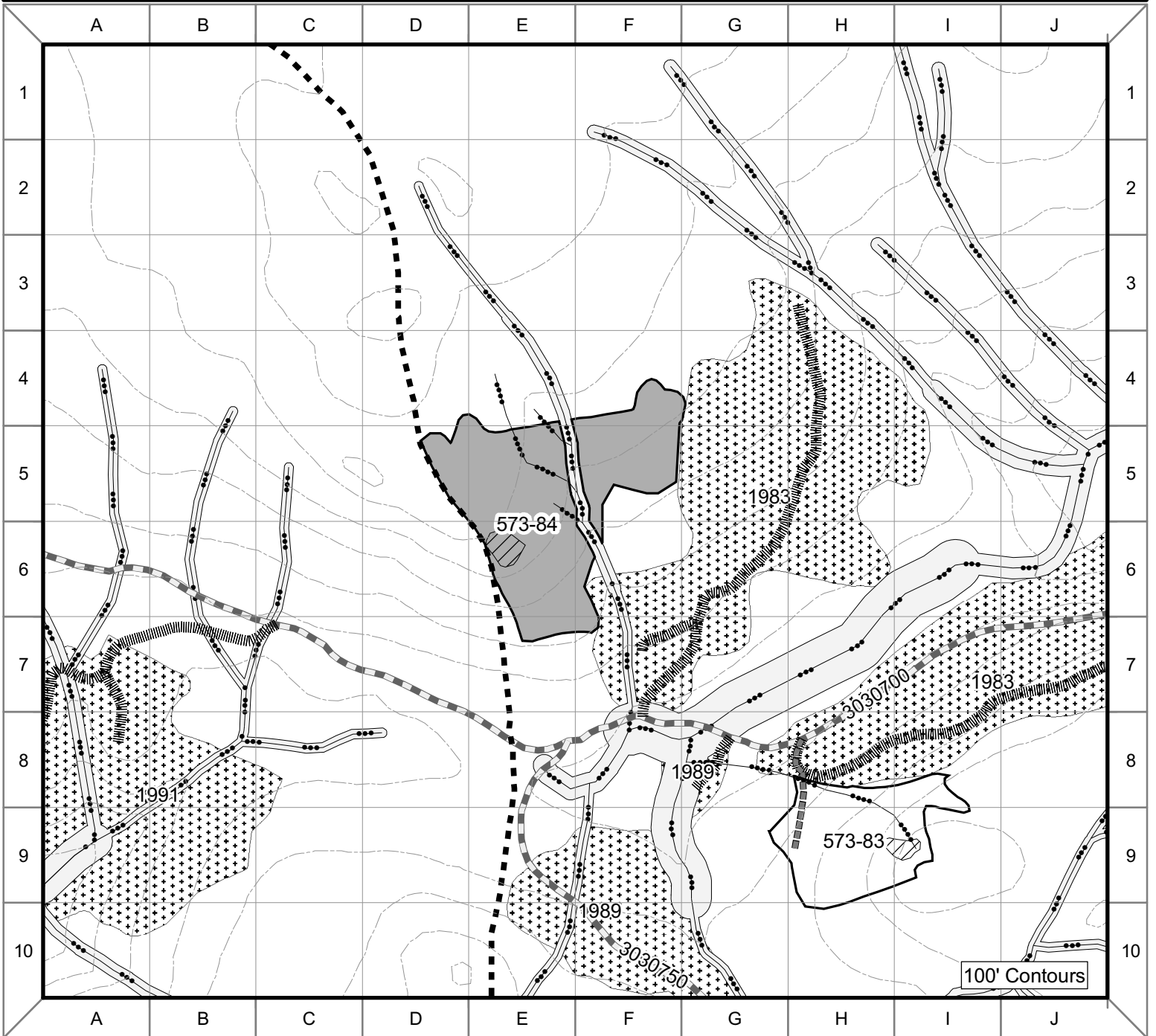
WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Economics; Cumulative effects.

Concerns in Alternative 4 are – Potential sensitive plant along northern boundary; Unit as proposed is near an OGR but access to OGR maintained through other areas.

Concerns in Alternative 5 are – Marginal economics.

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Unit 573-84 Alternative 2

Unit Number: 573-84	Alternatives: 2	Total Unit Acres: 31	Prescription Clearcut With Reserves
VCU Number: 5730	Harvest System: Helicopter	Net Harvest Volume (MBF): 445	LUD: Scenic Viewshed

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Mixed species, multi canopy, old growth stand. Understory is primarily hemlock. The stand is adjacent to a 1983 even-aged harvest unit.

Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Two-aged Management, Clearcut with Reserves, Individual Tree Marking. Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups. Any small groups will usually be less than one acre but may occasionally go up to two acres in size. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review full silvicultural prescription and marking guides prior to layout. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. In general, additional retention to meet RAW requirements is not expected to be required where dispersed retention occurs in helicopter yarding areas.

TIMBER/LOGGING: This unit is planned for helicopter yarding to landings on a proposed temporary spur of existing NFSRR 3030700.

ENGINEERING/ROADS: No proposed road construction.

BOTANY: Unusual plant along northeast corner and outside unit along southern boundary

INVASIVE SPECIES: No concerns

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

Stream#: 573-84-1 Location: F7, F6, F5, E5, E4
 Class: III Flagging: O/W C-type: HC2
 Concerns: heavy blow down and bank instability along stream.
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class III: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
 RMA Buffer: none RAW Buffer: none
 Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
 Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

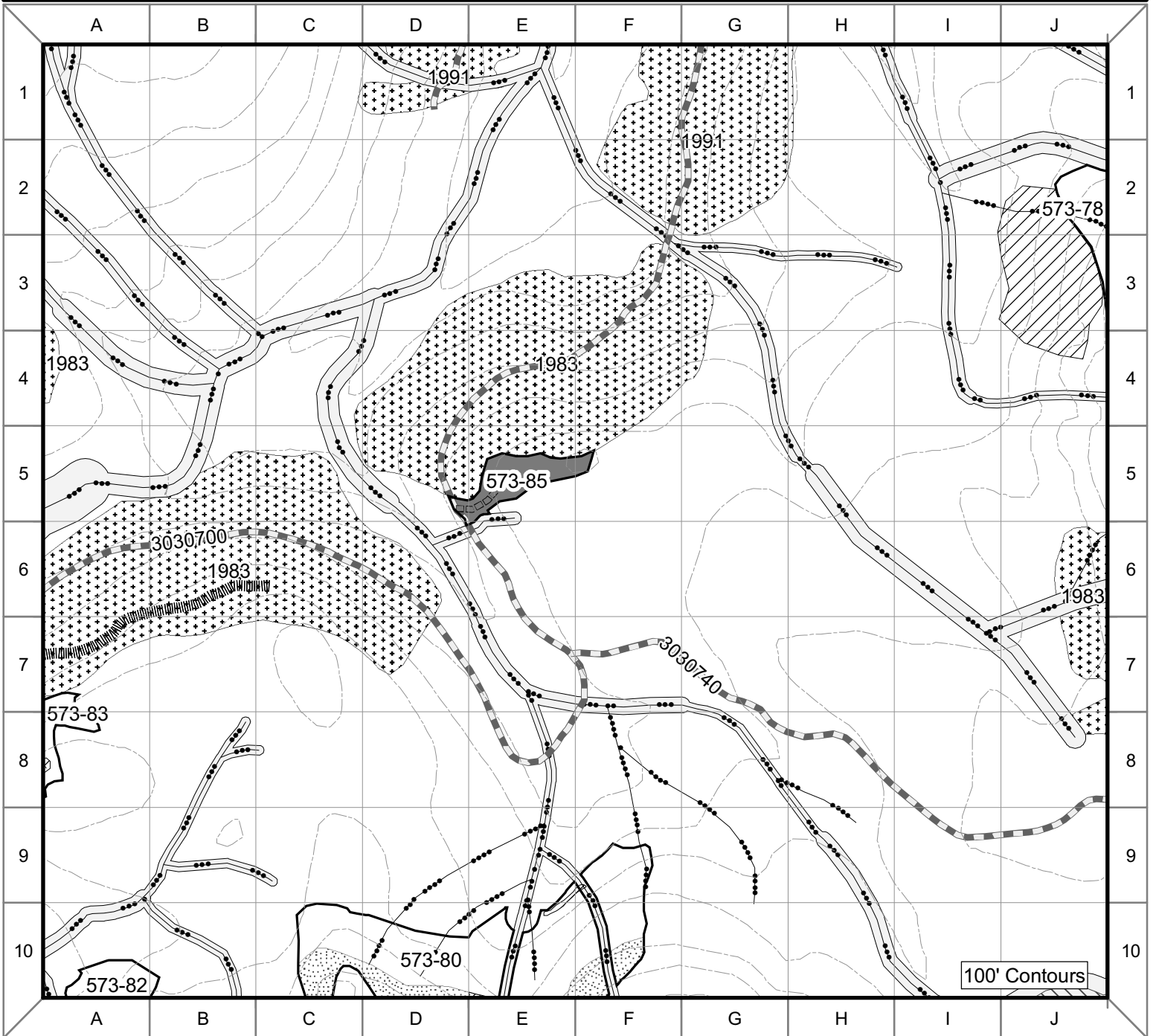
SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.
 Slopes average 50% in most areas. There is <1 acre of slopes >72% suitable for harvest with partial suspension requirements. Partial suspension is required to meet soil quality standards and to protect wetland resources (BMPs 12.5, 13.5, 13.9). The unit contains >80% forested wetland with minimal amount of muskeg. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are – Drop unit. Poor economics ; Cumulative effects.

Concerns in Alternative 4 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.
Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

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<ul style="list-style-type: none"> ■ ■ ■ Project Area Boundary ▨ Past Harvest □ Riparian Management Area ▨ Unsuitable Soils ▨ Slope > 72% ▨ Other Ownership 	<ul style="list-style-type: none"> --- Existing System Road --- Coffman Cove Road ▨ Decom. Temp Road --- Proposed System Road --- Proposed Temp Road 	<ul style="list-style-type: none"> □ Adjacent Proposed Unit Proposed Unit Logging System <ul style="list-style-type: none"> ■ Helicopter ■ Shovel or Cable ■ Deferred or Reserved From Harvest Area 	<ul style="list-style-type: none"> ~ Class I Stream ~ Class II Stream ~ Class III Stream ~ Class IV Stream ▨ Lake
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0 0.05 0.1 Miles

Unit 573-85 Alternative 2

Unit Number: 573-85	Alternatives: 2	Total Unit Acres: 4	Prescription Clearcut
VCU Number: 5730	Harvest System: SHC	Net Harvest Volume (MBF): 58	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Small old growth stand of hemlock and Alaska yellow-cedar. All Spruce sampled were dead. Multi-storied stand with open canopy. The stand has wet places where growth is somewhat restricted. A 1983 even-age harvest is to the north. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: Unit is planned for shovel yarding to a short proposed temporary spur of NFSR 3030740.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternative 2 – accessed by temporary road 300 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 573-85-1 Location: D6, E6, E5
 Class: III Flagging: O/W C-type: HC2
 Stream Protection – Category B (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: to the top of the side slope break.
 Alternative 2 RAW Buffer: none

Temporary road for unit 573-85: Alternative 2 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

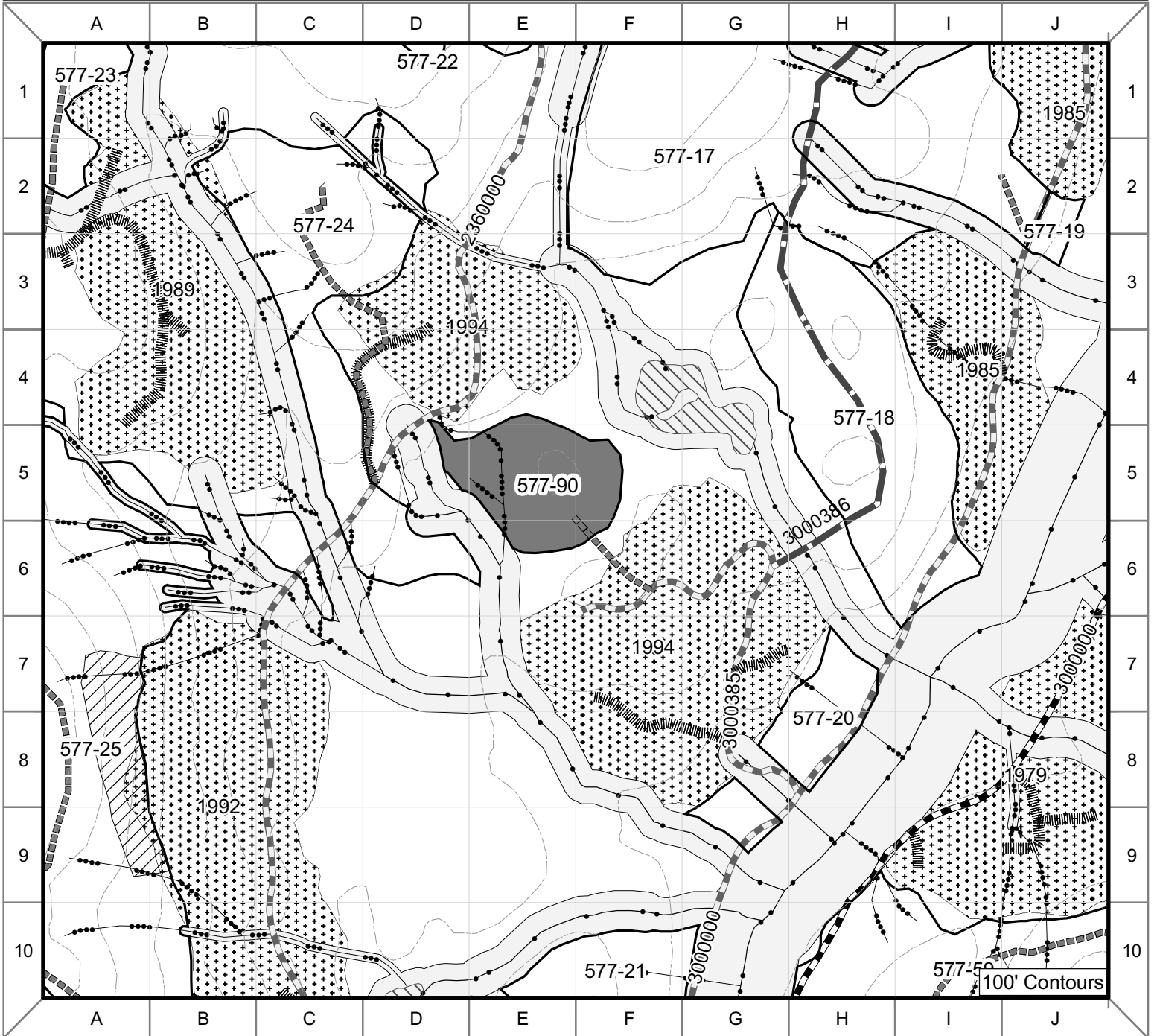
SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.
 Slopes average 30 to 40%. Shovel yarding would meet resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of

poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. Forested wetland occupies the entire unit. The temporary road would cross about ¼ acre of forested wetland (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

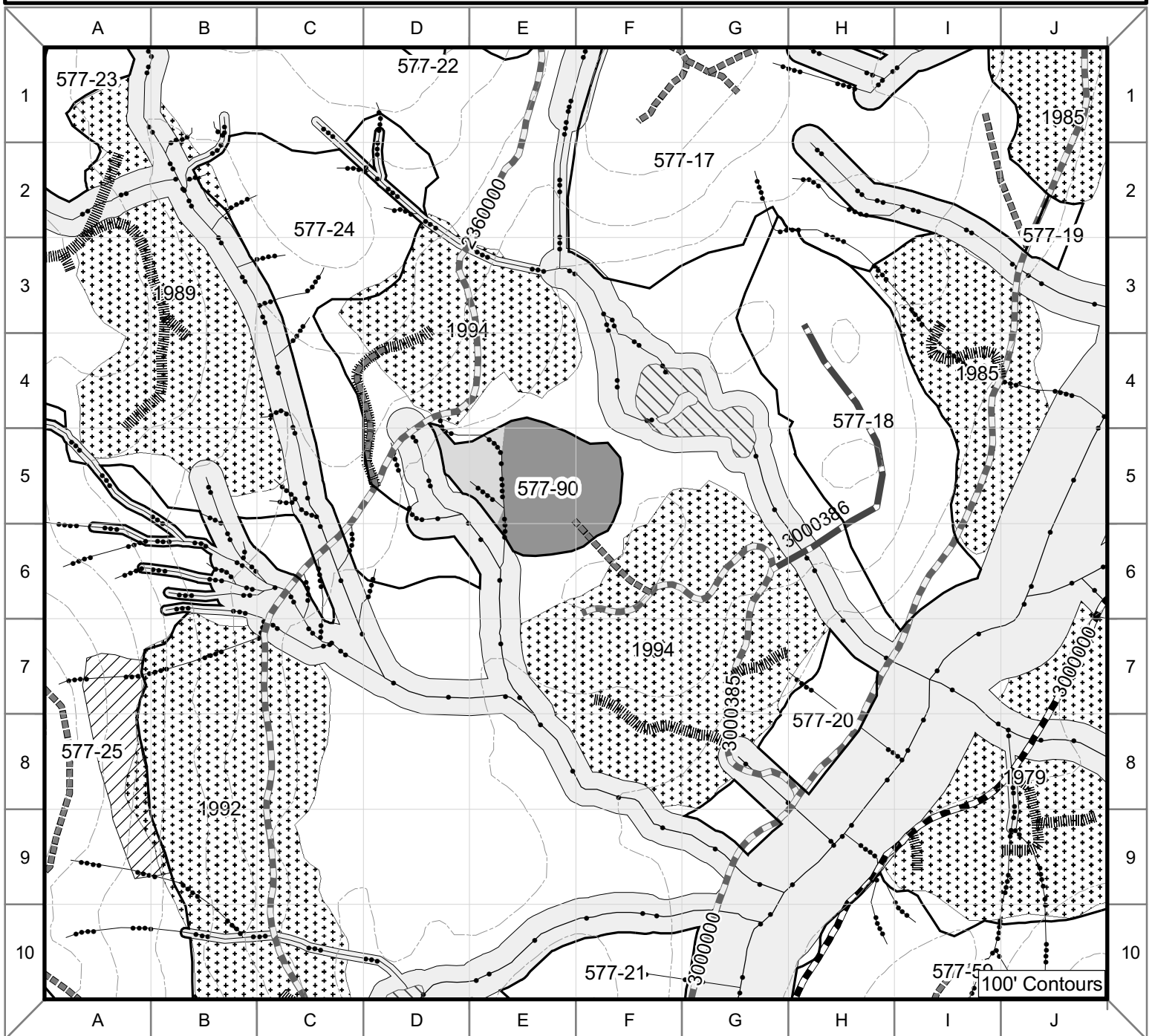
COMMENTS: Concerns in Alternative 3 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.
Concerns in Alternative 4 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.
Concerns in Alternative 5 are – Drop unit. Poor economics ; Low value/ volume timber, high logging costs.

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--- Project Area Boundary	--- Existing System Road	□ Adjacent Proposed Unit	~ Class I Stream
▤ Past Harvest	--- Coffman Cove Rd	□ Proposed Unit	~ Class II Stream
□ Riparian Management Area	▤ Decom. Temp Road	▤ Logging System	~ Class III Stream
▤ Unsuitable Soils	--- Proposed System Road	■ Helicopter	~ Class IV Stream
▤ Slope > 72%	--- Proposed Temp Road	■ Shovel or Cable	○ Lake
□ Other Ownership		□ Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles



Project Area Boundary	Existing System Road	Adjacent Proposed Unit	Class I Stream
Past Harvest	Coffman Cove Rd	Proposed Unit	Class II Stream
Riparian Management Area	Decom. Temp Road	Logging System	Class III Stream
Unsuitable Soils	Proposed System Road	Helicopter	Class IV Stream
Slope > 72%	Proposed Temp Road	Shovel or Cable	Lake
Other Ownership		Deferred or Reserved From Harvest Area	

0 0.05 0.1 Miles

Unit 573-90 Alternatives 2, 3, 5

Unit Number: 577-90	Alternatives: 2,3,5	Total Unit Acres: Alt. 2 – 17 Alt. 3 – 13 Alt. 5 – 17	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 399 Alt. 3 – 307 Alt. 5 – 399	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Boggy mixed species old growth stand. Western redcedar and Alaska yellow-cedar are found in patches within a matrix of western hemlock. An open muskeg area with shore pine is located in the northwest central part of the unit. The stand has multiple canopy layers. Even age harvest areas from 1994 adjoin this unit to the northwest and southeast. Windthrow risk is moderate. Mistletoe occurrence is moderate-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: In Alternatives 2 and 5 this unit is planned for shovel yarding to existing NFSR 2360 in the west and a proposed temporary spur of NFSR 3000385 in the east. In Alternative 3 the western portion of the unit is deferred and the remaining harvest area is planned for shovel yarding to the proposed temporary spur of NFSR 3000385

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Alternatives 2, 3, and 5 - accessed by temporary road 700 feet in length.

Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: Unusual plant outside unit along northern boundary

INVASIVE SPECIES: Population of Canada thistle located on 2360 road

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

Stream#: 577-24/90-1.1R Location: E7, E6, D5

Class: I, II Flagging: B/W C-type: MM1, PA1

Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)

RMA Buffer: Class I and II: minimum 120ft. (for MM1) and 100ft. (for PA1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.

Alternatives 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.

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

RMA Buffer: none RAW Buffer: none

Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).

Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

Temporary road for unit 577-90: Alternatives 2, 3, and 5 — no known stream crossings. If any stream crossings are found, all crossing 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 13.10, 13.11, 14.3, and 14.5. Upon completion of unit harvest, store road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

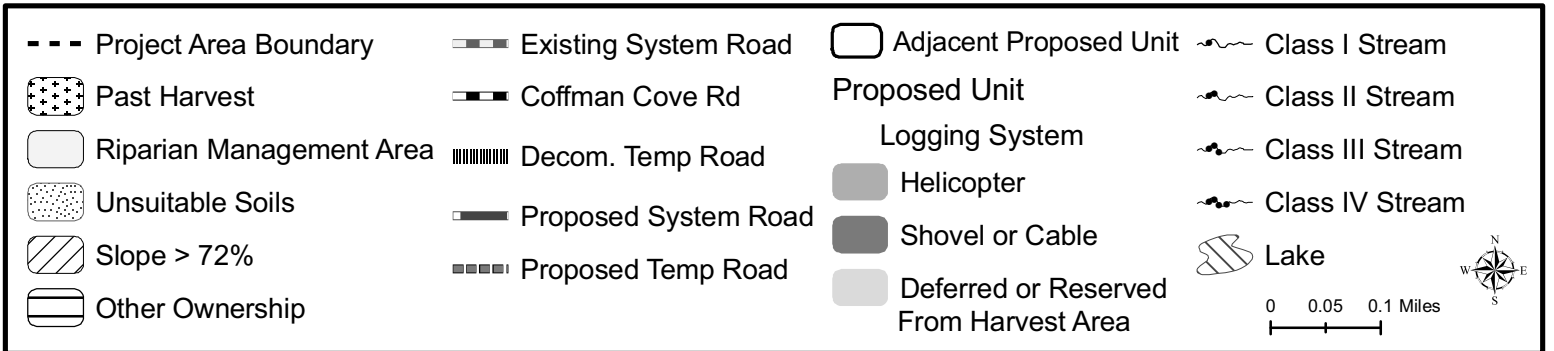
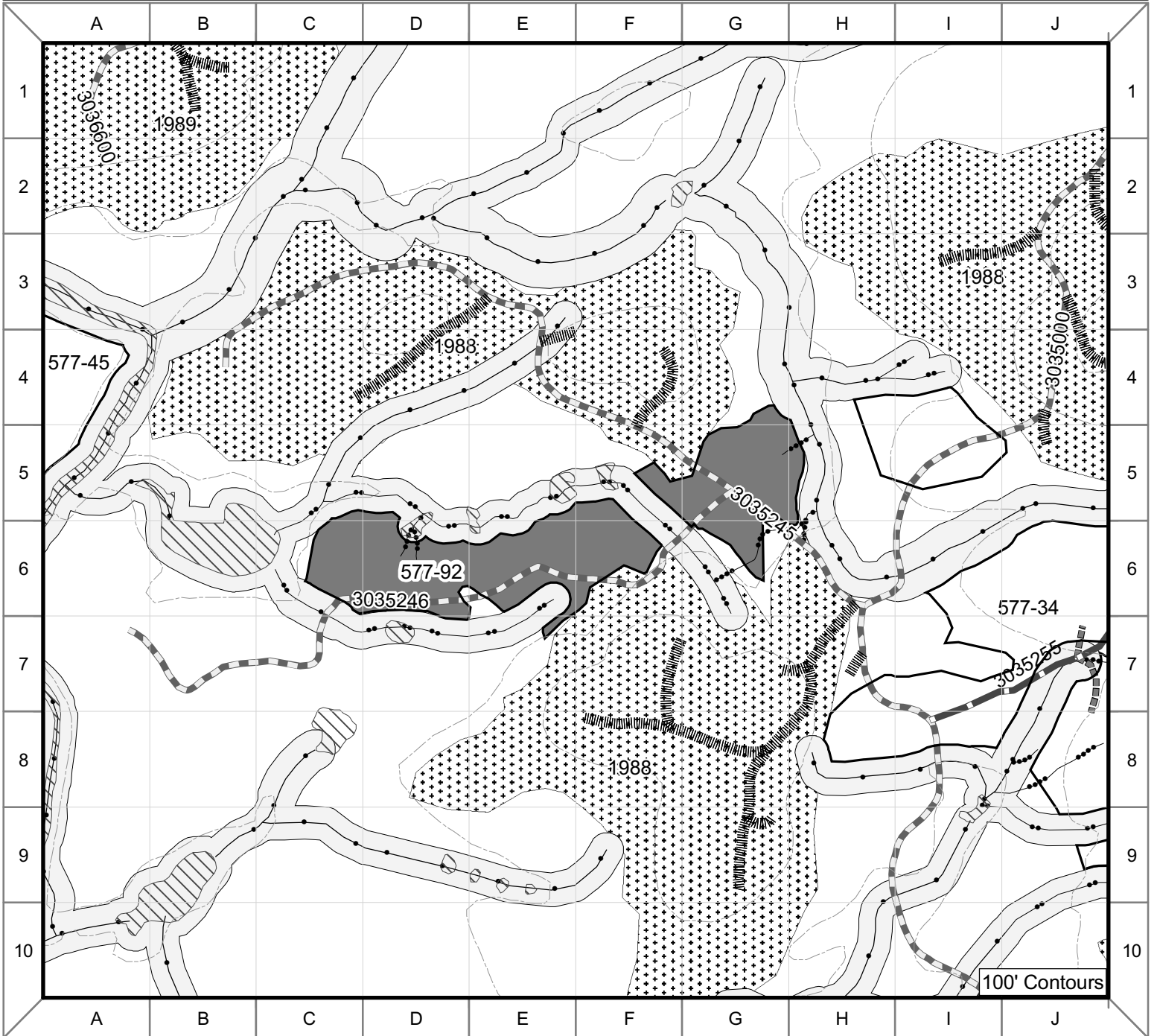
RECREATION: No concerns

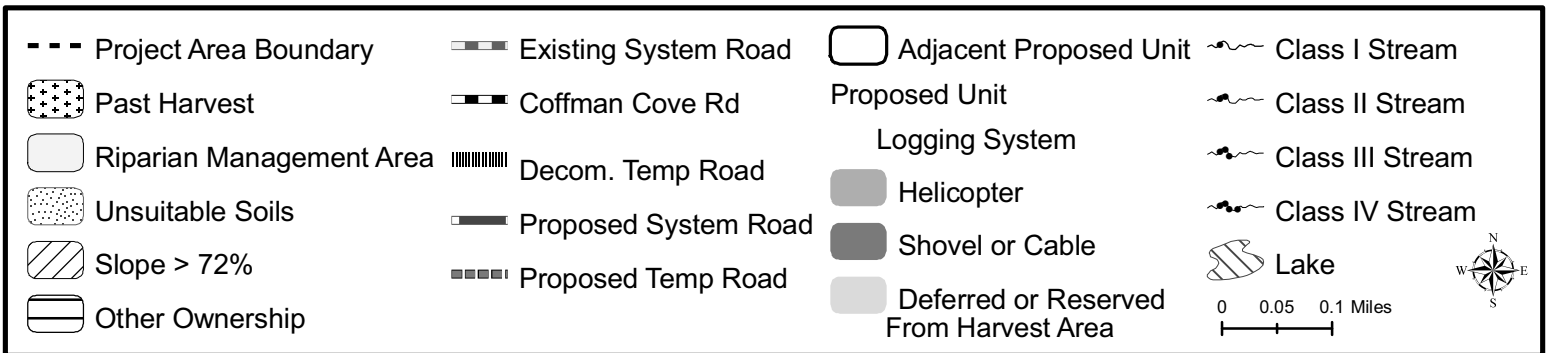
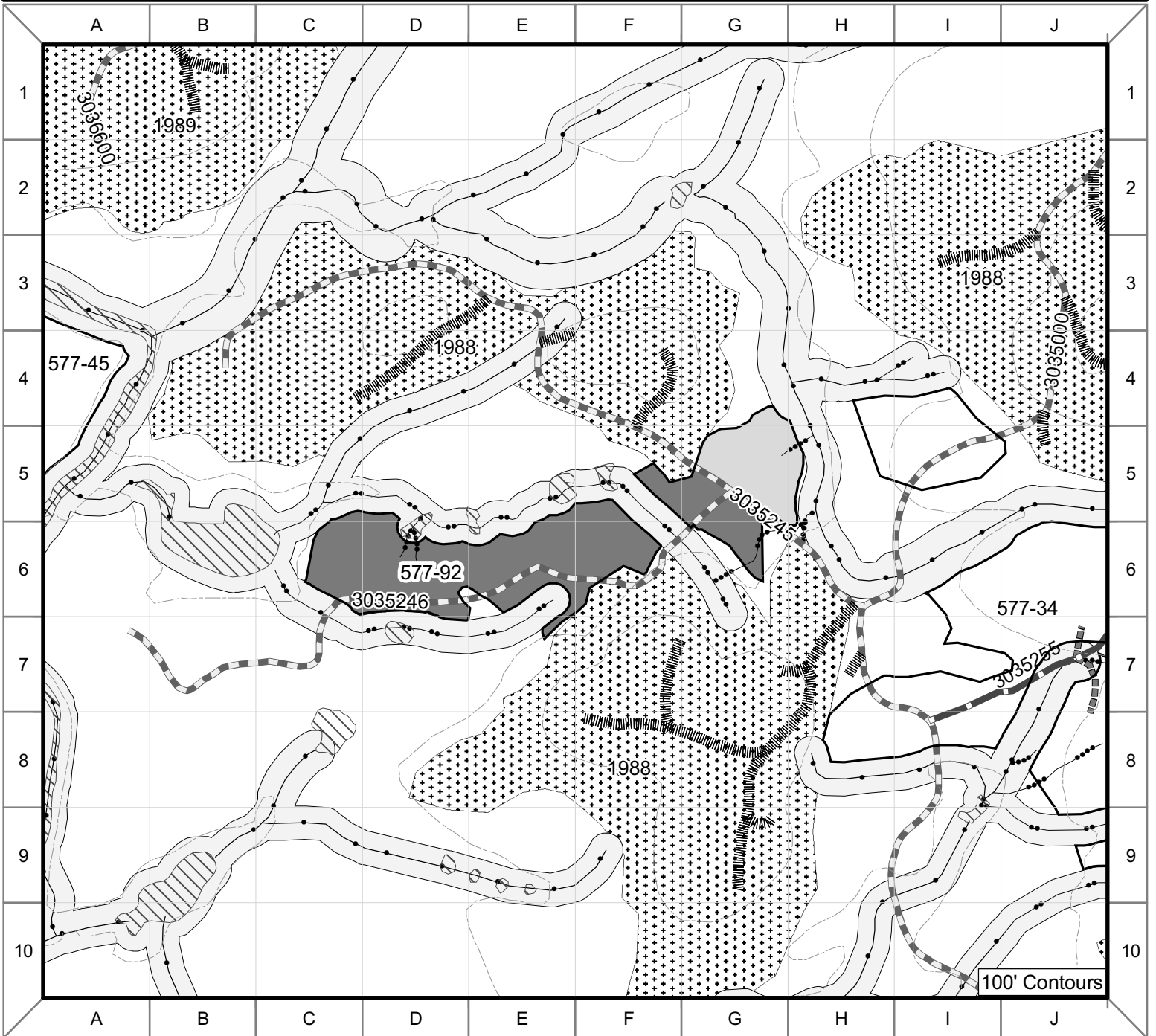
SOILS/WETLANDS: Shovel yarding would meet soils and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. No soil or slope concerns were identified; therefore no field reconnaissance was completed by the soil scientist. The proposed temporary road would cross a ½ acre of forested wetland and less than ¼ of an acre of moss muskeg (BMP 12.5). Provide adequate cross drainage, remove structures and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Remove west 1/3 of the proposed unit area. Low to moderate blowdown on adjacent clear-cuts; West portion contains green-white stream channels.

Concerns in Alternative 4 are - Drop unit. Unit as proposed blocks east-west and north –south access; Population of Canada thistle located on 2360.





Unit 573-92 Alternatives 2, 3, 4, 5

Unit Number: 577-92	Alternatives: 2,3,4,5	Total Unit Acres: Alt. 2 – 37 Alt. 3 – 37 Alt. 4 – 30 Alt. 5 – 37	Prescription Clearcut
VCU Number: 5770	Harvest System: Shovel	Net Harvest Volume (MBF): Alt. 2 – 1,057 Alt. 3 – 1,057 Alt. 4 – 835 Alt. 5 – 1,057	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Flat hemlock /redcedar old growth stand with gaps resulting from windthrow. Redcedar is found on the higher ground with hemlock. Boggy lower site areas and old gaps are exclusively hemlock. Hemlock advanced regeneration is extensive. Windthrow risk is high. Mistletoe occurrence is heavy-in most hemlock.

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.

Silviculture Prescription: Even-aged management –Clearcut. Mark boundaries paying particular attention to windfirmness. For example, bring unit boundaries to the edge of existing young-growth or muskeg and to the lee side of a ridgeline where possible. Interdisciplinary review of RAW zones as described in the fish/watershed section on unit card should occur at the time of layout to determine the RAW zone prescription. Even-aged clearcutting is being prescribed for this unit to preclude or minimize the occurrence of potentially adverse impacts from hemlock dwarf mistletoe or other insect or disease infections, logging damage and windthrow. All past harvest areas adjacent to or near this prescribed clearcut are adequately restocked with trees at least 5 feet tall.

TIMBER/LOGGING: This unit is divided into two harvest areas by a class II stream. In all action alternatives the unit is planned for shovel yarding to existing NFSR 3035245 and existing NFSR 3035246. In Alternative 4 the area east of NFSR 3035245 is deferred.

ENGINEERING/ROADS: Unit is accessed by proposed temporary road as displayed on the unit card. Temporary road will be decommissioned after harvest activities are complete. Follow applicable BMPs during construction and layout. In particular adhere to the following BMPS: 14.2 - Location of Transportation Facilities, 14.6-Timing Restrictions for Construction Activities, 14.7-Measures to Minimize Mass Failures, 14.8-Measures to Minimize Surface Erosion, 14.9-Drainage Control to Minimize Erosion and Sedimentation, 14.10-Pioneer Road Construction, 14.12-Control of Excavation and Sidecast Material, 14.18-Development and Rehabilitation of Gravel Sources and Quarries

BOTANY: No concerns

INVASIVE SPECIES: No concerns

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

Stream#: 577-92-1 Location: G4, H4, H5, H6
 Class: I Flagging: B/W C-type: MC2
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternative 2, 3, and 5 RAW Buffer: will be identified by an IDT during layout.
 Alternatives 4 RAW Buffer: none

Stream#: 577-92-Lake1 Location: A5, B5, B6, C6
 Class: I Flagging: B/W C-type: L
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class I: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-2 Location: C6, C5, D5, D6, E6, E5, F5, F6, G6
 Class: II Flagging: B/W C-type: PA1
 Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
 RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
 Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-Pond1 Location: D5, D6
Class: II Flagging: B/W C-type: L
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-Pond2 Location: E5, E6
Class: II Flagging: B/W C-type: L
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-Pond3 Location: E5
Class: II Flagging: B/W C-type: L
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-Pond4 Location: F5
Class: II Flagging: B/W C-type: L
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-3 Location: C6, C7, D7, E7, E6
Class: II Flagging: B/W C-type: PA1, MM1
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. (for PA1) and 120ft. (for MM1) or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

Stream#: 577-92-Pond5 Location: D7
Class: II Flagging: B/W C-type: L
Stream Protection – Category A (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9)
RMA Buffer: Class II: minimum 100ft. or to the extent of floodplain and riparian vegetation or soils; whichever is greater.
Alternatives 2, 3, 4, and 5 RAW Buffer: will be identified by an IDT during layout.

All other streams in unit: Class: IV Flagging: G/W C-type: HC or MM
RMA Buffer: none RAW Buffer: none
Stream Protection – Category C (implement BMPs 12.6, 12.6a, 13.14, 13.16, and 13.9).
Directionally fall timber away from streams whenever possible, remove logging debris from channel, equipment will not operate in stream-courses and will not cross streams without a temporary structure.

GEOLOGY/KARST: No geology or karst resource concerns:

HERITAGE RESOURCES: A sample-based heritage resource survey and analysis was conducted of the Logjam Planning Area by Forest Service archaeologists. There will be no adverse effects to historic properties in the area of potential effects.

SCENERY: Scenic Integrity Objectives for this unit is Very Low. The unit is Not Seen in any alternative from a Visual Priority Travel Route or Use Area. There are no Scenery Resource concerns.

RECREATION: No concerns

SOILS/WETLANDS: An on-site analysis for suitability on slopes >72% was conducted on this unit per Forest Plan standards. No boundary modifications were made to the unit for unstable slopes. See unit report in Project File for details.

Slopes are gentle throughout the unit. Shovel yarding would meet soils and wetland resource concerns (BMPs 12.5, 13.5, 13.9). Shovel yarding would require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting on poorly drained organic soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9). To prevent rutting, do not operate shovel on slopes greater than 25%. This guideline applies to areas where the shovel tracks are operated, not to adjacent steeper slopes. Forested

wetlands, tall sedge fens, short sedge muskegs, and emergent moss and sedge muskegs occupy 75% of the unit. Avoid the sedge fens and muskegs during unit layout (BMP 12.5). Utilize the boom, a short choker, or cable to remove logs from steeper slopes or directionally fall the trees instead. See fisheries section for complete details on stream course protections (BMPs 12.6 and 13.16).

WILDLIFE: Any nests/animal dens discovered at any time will receive the necessary standard and guideline applications.

COMMENTS: Concerns in Alternative 3 are - Place RAW buffer on south side of Class I stream channel at time of unit layout.

Concerns in Alternative 4 are - Drop portion E of 3035245. Unit E of road blocks wildlife travel corridor.

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Appendix C - Road Cards

Road Management Objectives

Purpose and Use

The road management objectives (RMOs) presented in this appendix establish the intended purpose and the display design, maintenance, and operation criteria (per FSH 7709.55) for proposed and existing roads within the Logjam Project Area. Site-specific design criteria are discussed in the second section of the RMOs; these will be used during design, construction, and initial monitoring of any road work proposed in this document. For proposed roads, a map is also included, showing the proposed road location and identification of areas discussed in the site-specific design criteria. Site-specific design criteria include road location objectives, wetland information, erosion control, and proposed rock borrow sources. Streams within the project area with proposed construction rehabilitation of stream crossing structures are shown on maps for existing roads.

General Design Criteria

The general design criteria provide various descriptions of the type of road and the intended purpose and future use of the road. Three Functional Classes are used by the Forest Service. They are Arterial, Collector, and Local. Arterial roads function as mainlines with collectors feeding traffic to arterials and locals feeding traffic to collectors. Service Life indicates duration of road use. Choices are Short-term (less than 10 years) or Long-term. Long-term is used in conjunction with the entry cycle. The choices are Long-term Constant or Long-term Intermittent. The roads on the island are listed as Long-term Intermittent (LI). Maintenance and operation criteria are developed from functional class, service life and other general design criteria.

Maintenance Criteria

The maintenance criteria include a discussion of how the road is to be maintained, centering on three strategies. Corresponding Alaska Forest Practices Act (AFPA) terminology is shown in Chapter 3 on Table 3-26. The three maintenance strategies are:

Active: Provide frequent cleanout of ditches and catch basins to ensure controlled drainage. Control roadside brush to maintain sight distance. Grade as needed to maintain crown and running surface.

Stormproof: Provide water bars, rolling dips, out sloping, etc., to ensure controlled runoff until any needed maintenance can be performed on the primary drainage system. Control roadside brush to maintain passage.

Storage: Remove or bypass all drainage structures to restore natural drainage patterns; add water bars as needed to control runoff; revegetate.

Maintenance levels and traffic service levels are discussed in Chapter 3, Road Management. The operational maintenance level is the current or planned condition and is the level during timber harvest. Objective maintenance level is the desired future condition after harvest activities are completed.

The **active** maintenance strategy is applied to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. These roads are assigned Maintenance Level 3. The active maintenance strategy will also at times be applied to roads intended only for use by high-clearance vehicles, or Maintenance Level 2 roads. This will usually be the case when log haul is expected in the near future.

An intermediate maintenance strategy is to **stormproof**, or stabilize, the road by providing roadway features, such as drivable water bars, and out sloping to control runoff in case the primary drainage system of culverts and ditches is overwhelmed during a storm event. Each culvert will be evaluated as to where the water would go if the culvert were to fail to carry the high flow. A water bar or out slope at this location will minimize the potential of erosion of long stretches of ditch line or roadway. This is intended to be the primary maintenance strategy applied to roads assigned Maintenance Level 2.

Storage is intended to be the primary maintenance strategy on intermittent use roads during their closure cycle. Road storage is defined in FSH 5409.17 as the “the process/action of closing a road to vehicle traffic and placing it in a condition that requires minimum maintenance to protect the environment and preserve the facility for future use.” In this strategy, bridges and culverts on live streams are completely removed to restore natural drainage patterns. Cross drains and ditch relief culverts will be bypassed with deep water bars but may be left in place to minimize the cost of reusing these roads in the future. Roads in storage are left in a self-maintaining state in order to use more road maintenance funds on the open drivable roads on the island. Maintenance Level 1, closure and basic custodial maintenance, is assigned.

Operation Criteria

The operation criteria include a presentation of each of the five traffic management strategies identified in FSM 7731 (encourage, accept, discourage, prohibit, and eliminate) to be applied to different traffic classes on each road. The traffic management narrative describes what actions will be taken in order to apply each strategy. For example, if the strategy “eliminate” is prescribed for standard passenger and high-clearance vehicles, the narrative describes the method to accomplish this, such as removal of stream crossing structures, gating, etc. Travel management strategies were discussed in greater detail in Chapter 3, Road Management.

Site-specific Design Criteria

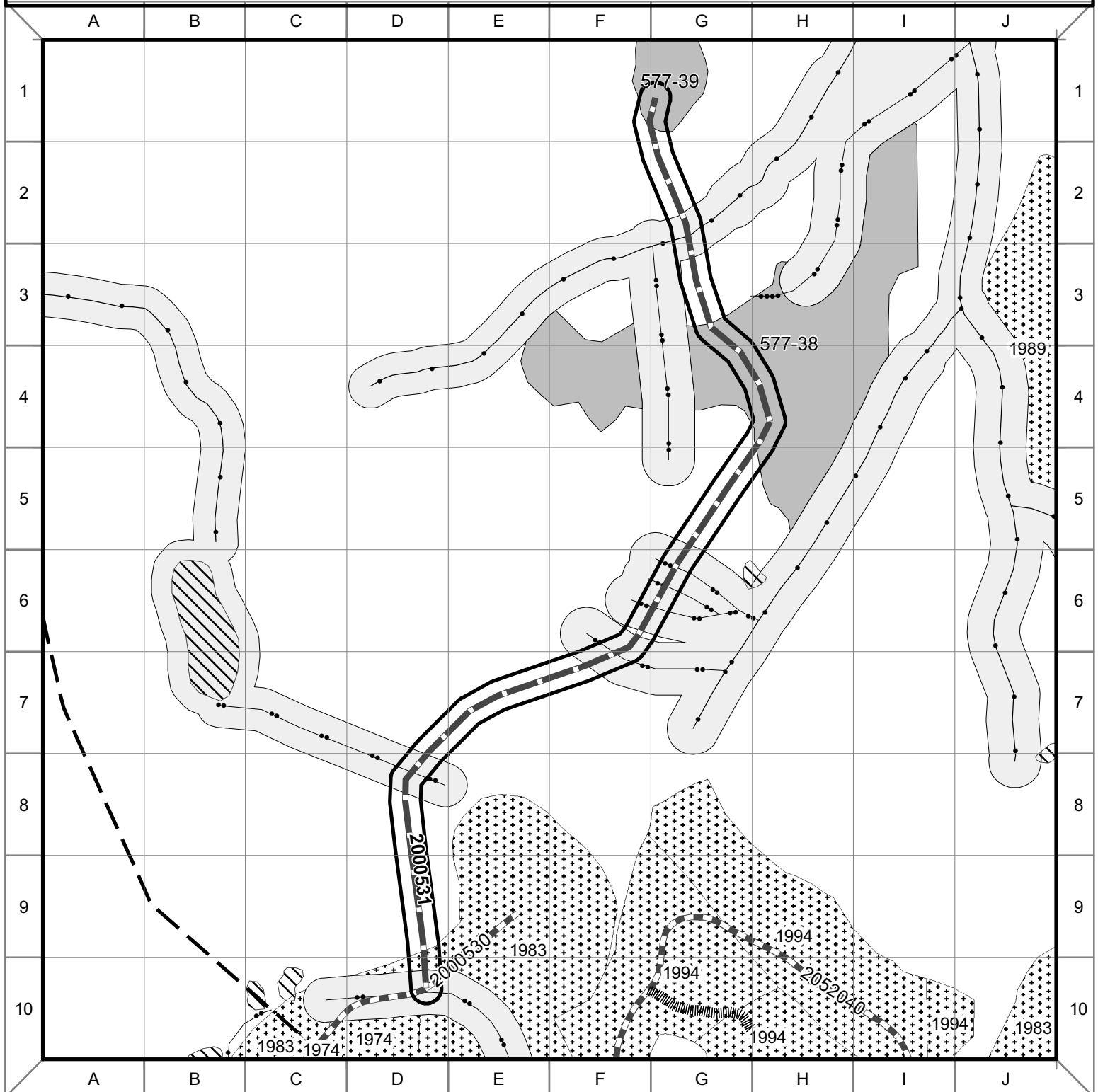
The site-specific design criteria include road location objectives, wetland information, erosion control, proposed rock borrow sources, and all streams within the project area with proposed construction or rehabilitation of stream crossing structures. The road location discussion documents why the road is proposed in a specific location, control points, and alternative routes considered (if any). A main location objective is to avoid crossing wetlands. At times, however, it is necessary to cross wetlands in order to minimize the total impact of a road. These areas are discussed, documenting areas of mapped wetlands and why the road is located across these areas. All fish streams are identified, as well as nonfish streams with sufficient flow to require a 48-inch or larger culvert. The stream crossing information describes the stream in enough detail to lead to a preliminary crossing structure recommendation and to evaluate the adequacy of the proposed structure.

Other Resource Information

The resource information section presents issues of concern (if any) for the following categories: timber/logging systems, wildlife, visual/recreation, cultural, lands/minerals/geology/karst, and soils/water. For proposed roads, potential concern exists for lines that pass through high-value

deer habitat, medium- or high-vulnerability karst, or soils with a mass movement index ranking of 4 (MMI 4 soils). For existing roads, potential concern focuses on karst and soil issues. All stream crossings are for system roads only. Temporary road crossings are discussed on unit cards. Stream crossings listed in these road cards are the inspected crossings. There are other crossings (mentioned in the DEIS) that require inspection to collect specific crossing design information.

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Selected Road	Project Area Boundary	Class I Stream
Proposed System Road	Proposed Harvest Area	Class II Stream
Existing System Road	Past Harvest	Class III Stream
Coffman Cove Road	Old Growth Reserve	Class IV Stream
Decom. Temp Road	Existing Rock Pit	Riparian Management Area
End of Prop. Rd by Alt.	Lake	

Area Locator

0 0.05 0.1 Miles

Road Management Objectives--Road 2000531

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
2000531		2000530 MP 0.34		MP 1.0	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	1.0	Planned	100554		2

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	1.0	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 2000531

ROAD LOCATION: Access for units 577-38 and 577-39. Road location follows BMP 14.2. Route crosses wet muskegs, road will be routed through areas of scrub timber to avoid crossing muskegs where possible (BMP 14.2). Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The majority of the road traverses through moss muskeg, tall sedge fens, short sedge fens, and minimal forested wetland. Road construction through wetlands is unavoidable due to the high amount of wetlands surrounding units 577-38 and 577-39 (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream; five Class II streams.

Crossing: 1	AHMU Class: II	Channel Type: PA1	Incision: 0 ft
Max. Width: 21.8 in		Gradient: 4%	Substrate: organic/silt
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square C8 on the road card map. This stream is a typical palustrine channel even though it exceeds maximum gradient. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 2	AHMU Class: II	Channel Type: MM1	Incision: 27 in
Max. Width: 29 in		Gradient: 5%	Substrate: organic/gravel
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square E7 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 3	AHMU Class: II	Channel Type: MM1	Incision: 6 in
Max. Width: 46.5 in		Gradient: 5%	Substrate: organic/silt
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square F6 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 4	AHMU Class: II	Channel Type: MM1	Incision: 6 in
Max. Width: 19 in		Gradient: 5%	Substrate: organic/silt
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square F6 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 5	AHMU Class: II	Channel Type: MM1	Incision: 6 in
Max. Width: 36 in		Gradient: 5%	Substrate: organic/silt
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square F6 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 6	AHMU Class: I	Channel Type: PA1	Incision: 19 in
Max. Width: 6 ft		Gradient: 3%	Substrate: organic/silt
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square F2 on the road card map. This stream is a typical palustrine channel even though it exceeds maximum gradient. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout, Dolly Varden char, and coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and storage of road.

WILDLIFE: No concerns

BOTANY: High plant diversity in the area

INVASIVE SPECIES: Reed canary grass known along existing road

VISUAL/RECREATION: No concerns

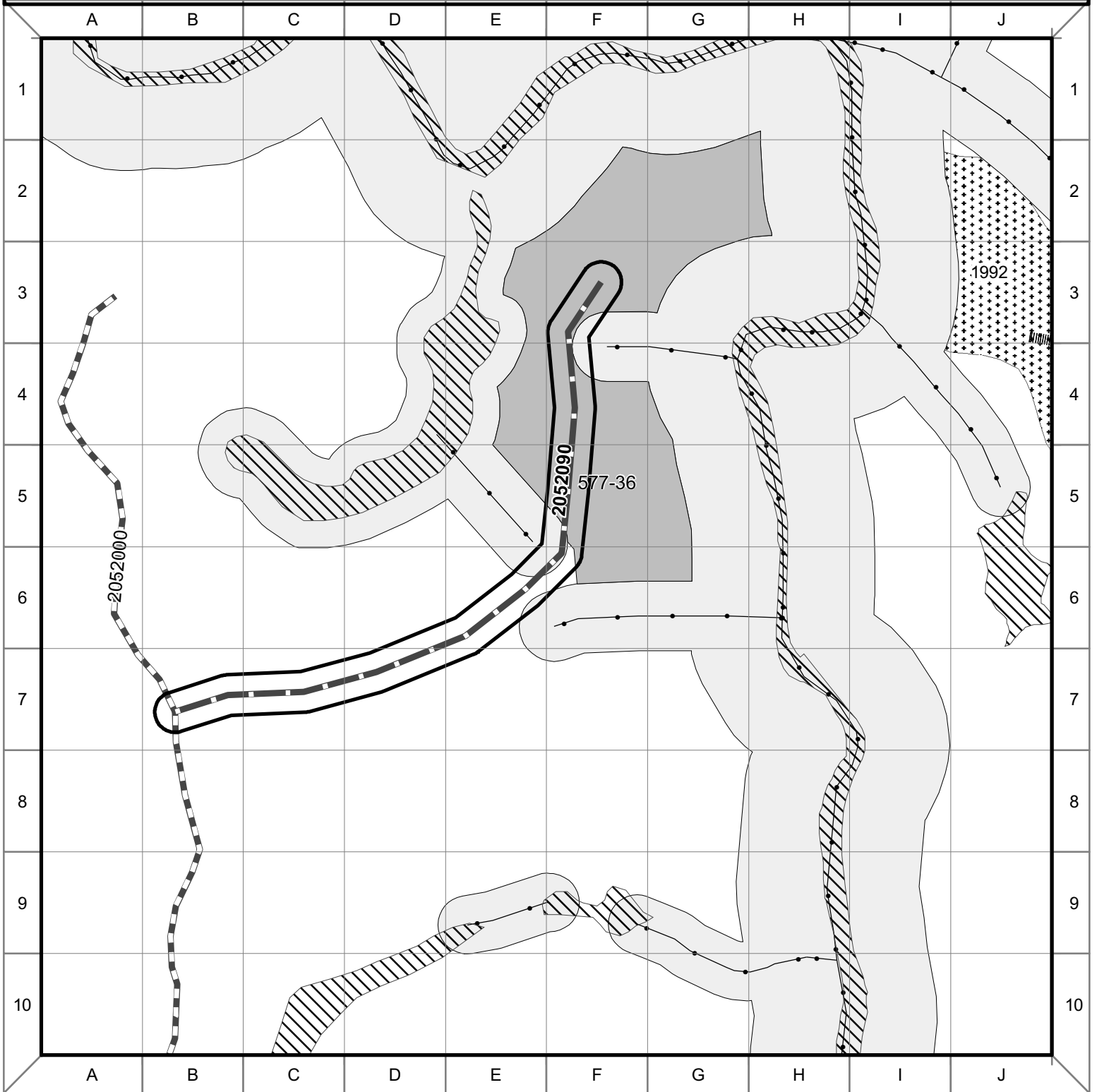
CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes of less than 15% to access units 577-38 and 577-39. The majority of the road crosses wetlands with minimal upland. Apply BMPs 12.5, 14.2, and CFR BPs 1, 2, 5, 6, 7, 8, and 14. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating

road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).

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|-------------------------|-----------------------|--------------------------|
| Selected Road | Project Area Boundary | Class I Stream |
| Proposed System Road | Proposed Harvest Area | Class II Stream |
| Existing System Road | Past Harvest | Class III Stream |
| Coffman Cove Road | Old Growth Reserve | Class IV Stream |
| Decom. Temp Road | Existing Rock Pit | Riparian Management Area |
| End of Prop. Rd by Alt. | Lake | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 2052090

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
2052090		2052000 MP 5.07		MP 0.50	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.50	Planned	100554		2, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.50	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 2052090

ROAD LOCATION: Access for unit 577-36. Road location follows BMP 14.2. Construction is moderate to easy. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The majority of the road traverses through moss muskeg, tall sedge fens, short sedge fens, and forested wetland. Road construction through wetlands is unavoidable due to the high amount of wetlands surrounding unit 577-36 (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses only Class IV streams.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before road storage.

WILDLIFE: Goshawks seen in area just east of planned road line

BOTANY: No concerns

INVASIVE SPECIES: Reed canary grass and ox-eye daisy known along existing road

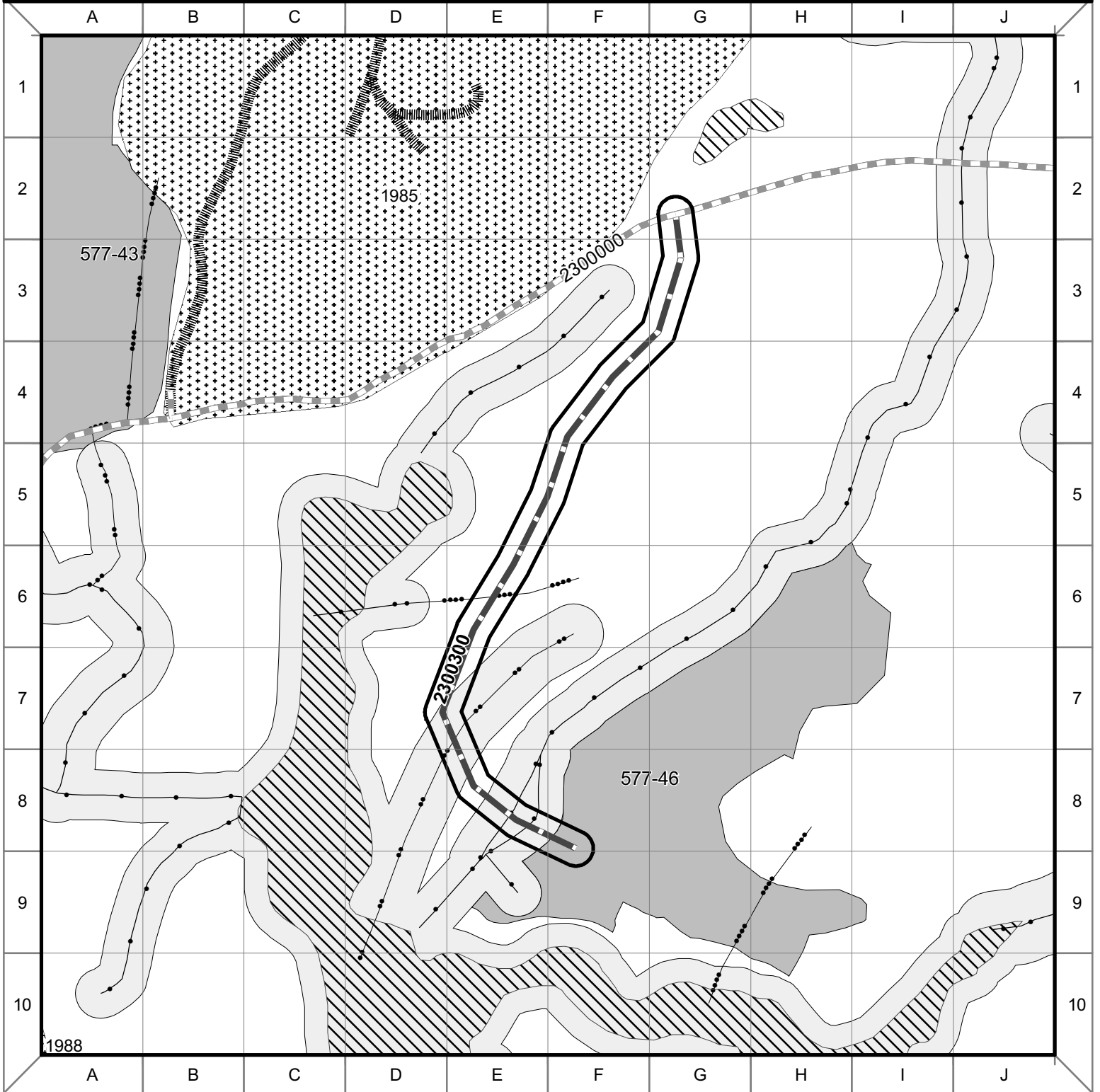
VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes to access unit 577-36. Less than ¼ mile of the road crosses wetlands. Apply BMPs 12.5, 14.2, and CFR BPs 1, 2, 5, 6, 7, 8, and 14. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).

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| Selected Road | Project Area Boundary | Class I Stream |
| Proposed System Road | Proposed Harvest Area | Class II Stream |
| Existing System Road | Past Harvest | Class III Stream |
| Coffman Cove Road | Old Growth Reserve | Class IV Stream |
| Decom. Temp Road | Existing Rock Pit | Riparian Management Area |
| End of Prop. Rd by Alt. | Lake | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 2300300

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
2300300		2300000 MP 1.2		MP 0.62	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.62	Planned	100554		2

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.62	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 2300300

ROAD LOCATION: Access for unit 577-46. Road location follows BMP 14.2. Road construction should be moderate to easy. Two identified fish streams are crossed; provide fish passage as required. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The entire road traverses through moss muskeg, tall sedge fens, short sedge fens, and forested wetland. Road construction through wetlands is unavoidable due to the high amount of wetlands surrounding unit 577-46 (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses two Class I streams; one Class II stream; all others are Class IV streams.

Crossing: 2	AHMU Class: II	Channel Type: MM1	Incision: 3 ft
Max. Width: 5 ft		Gradient: 3%	Substrate: organic/cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square E7 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 3	AHMU Class: I	Channel Type: MM1	Incision: 8 ft
Max. Width: 10 ft		Gradient: 2%	Substrate: gravel/bedrock
Structure: Bridge	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square E8 on the road card map. This stream crossing is along a section of channel that has bedrock banks. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout, Dolly Varden char, and coho salmon and concurrence from the State will be solicited prior to starting the work.

Crossing: 4	AHMU Class: I	Channel Type: PA1	Incision: 2 ft
Max. Width: 12 ft		Gradient: 2%	Substrate: organic/gravel
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square E8 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout, Dolly Varden char, and coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

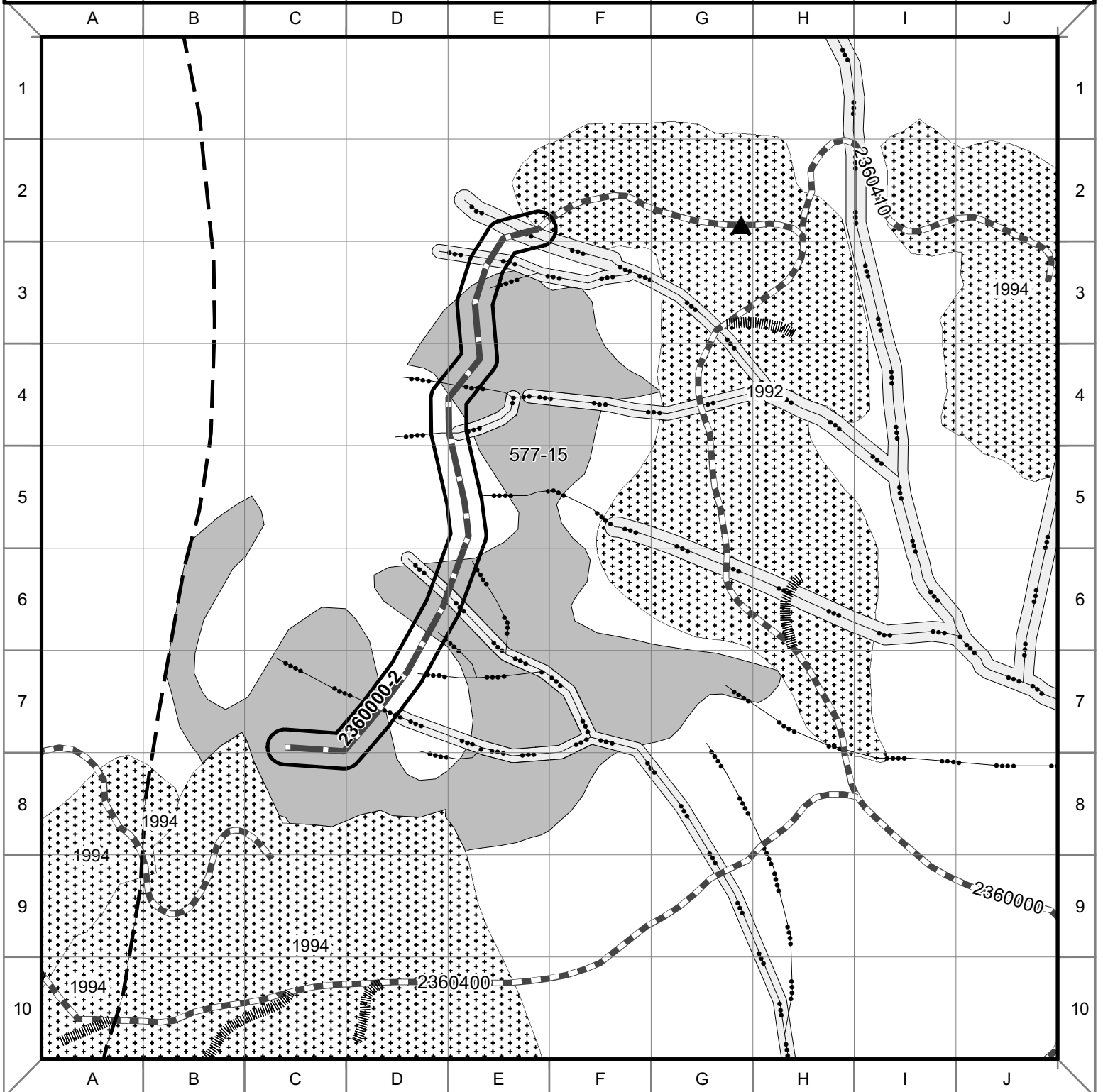
INVASIVE SPECIES: Reed canary grass along existing mainline road in area

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes to access unit 577-46. The entire 0.62 miles of road crosses wetlands. Apply BMPs 12.5, 14.2, and CFR BPs 1, 2, 5, 6, 7, 8, and 14. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



	Selected Road		Project Area Boundary		Class I Stream
	Proposed System Road		Proposed Harvest Area		Class II Stream
	Existing System Road		Past Harvest		Class III Stream
	Coffman Cove Road		Old Growth Reserve		Class IV Stream
	Decom. Temp Road		Existing Rock Pit		Riparian Management Area
	End of Prop. Rd by Alt.		Lake		

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 2360000-2

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
2360000-2		2360000 MP 4.38		MP 4.92	
Begin MP	Length	Status	Managing Organization		Alternatives
4.38	0.54	Planned	100554		2

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation. Access road is closed to motorized traffic due to removed culvert at MP 2.83. Road will be stored after timber haul is complete.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
4.38	4.92	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 2360000-2

ROAD LOCATION: Access for unit 577-15. Road location follows BMP 14.2. Roadline begins at end of existing road 2360000. Immediately after leaving old clear cut, road crosses 2 streams then climbs to a crossing above a third stream at 5% grade, station 8+00. From this crossing the road drops at -5% to station 22+00. From this point the road climbs a 15% to the end. Construction is moderate to difficult. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The entire road traverses through moss muskeg, short sedge fens, and forested wetland. Road construction through wetlands is unavoidable due to the high amount of wetlands surrounding unit 577-15 (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses three Class III streams; all others are Class IV streams or non-streams.

Crossing: 1	AHMU Class: III	Channel Type: HC5	Incision: 18 ft
Max. Width: 4 ft		Gradient: 17%	Substrate: cobble/bedrock
Structure: bridge	Passage: No	Timing dates	

Narrative: This crossing is located in square E2 on the road card map. This is a difficult location for a culvert without blasting. After the sale the structure will be removed.

Crossing: 2	AHMU Class: III	Channel Type: HC5	Incision: 15 ft
Max. Width: 3 ft		Gradient: 20%	Substrate: bedrock
Structure: bridge	Passage: No	Timing dates	

Narrative: This crossing is located in square E3 on the road card map. This is a difficult location for a culvert without blasting. Crossing is located between two sets of waterfalls. After the sale the structure will be removed.

Crossing: 7	AHMU Class: III	Channel Type: HC5	Incision: 15 ft
Max. Width: 3 ft		Gradient: 22%	Substrate: gravel/cobble
Structure: bridge	Passage: No	Timing dates	

Narrative: This crossing is located in square E6 on the road card map. There is some slope erosion at proposed crossing. After the sale the structure will be removed.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before road storage.

WILDLIFE: Heron nest found to east of planned road line

BOTANY: No concerns

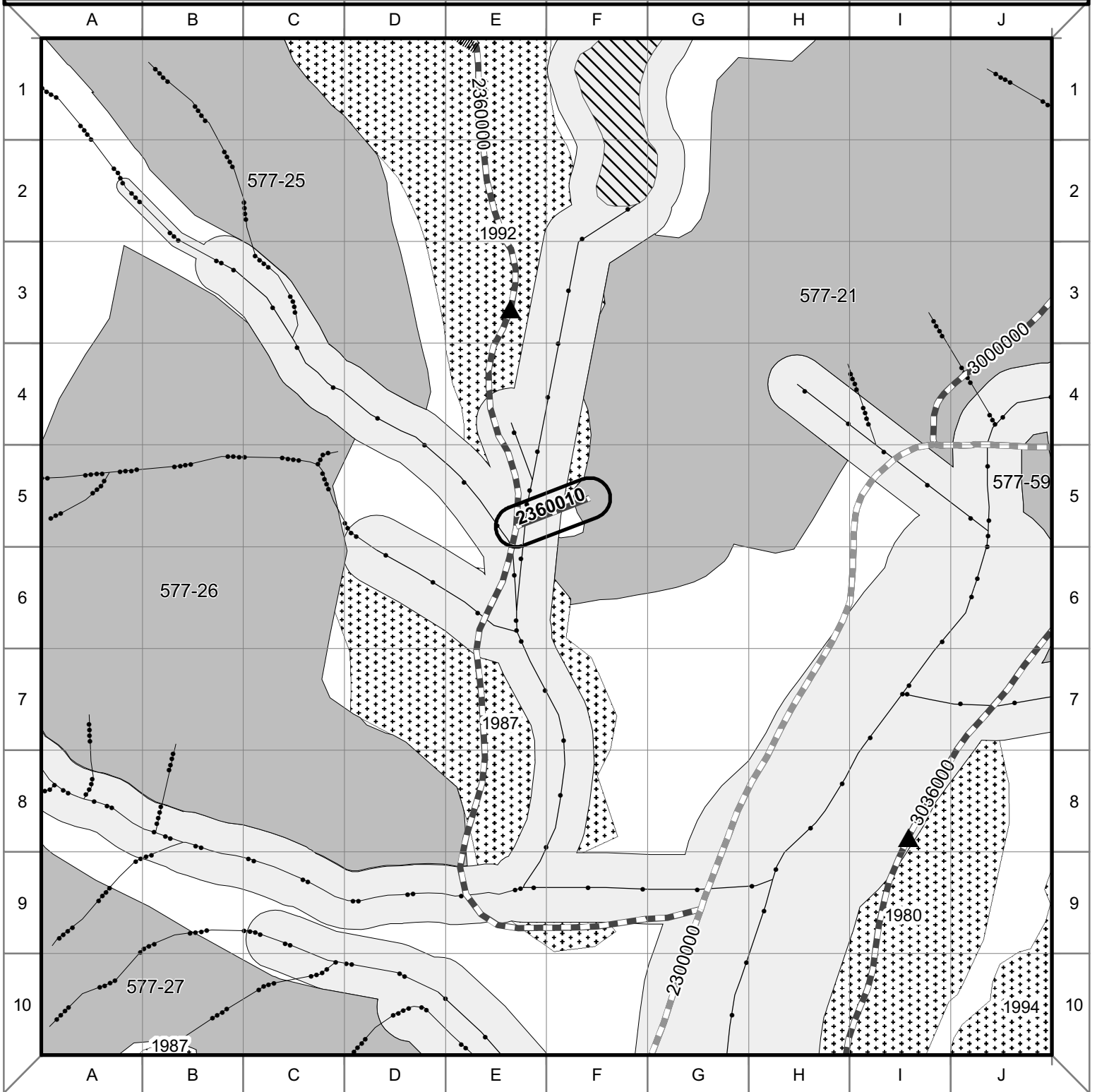
INVASIVE SPECIES: Bull Thistle exists along 2360 road several miles back; reed canary grass exists along entire road system

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes to access unit 577-15. The entire 4.92 miles of road crosses wetlands. Apply BMPs 12.5, 14.2, and CFR BPs 1, 2, 5, 6, 7, 8, and 14. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



	Selected Road		Project Area Boundary		Class I Stream
	Proposed System Road		Proposed Harvest Area		Class II Stream
	Existing System Road		Past Harvest		Class III Stream
	Coffman Cove Road		Old Growth Reserve		Class IV Stream
	Decom. Temp Road		Existing Rock Pit		Riparian Management Area
	End of Prop. Rd by Alt.		Lake		

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 2360010

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
2360010		2360000 MP 0.45		MP 0.06	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.06	Planned	100554		2, 3, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.06	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 2360010

ROAD LOCATION: Access for unit 577-21. Road location follows BMP 14.2. A class 1 stream is crossed at about station 0+45 follow BMP 14.14. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The entire road traverses through forested wetland. Road location was completed to avoid wetlands, although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream.

Crossing: 1	AHMU Class: I	Channel Type: MM1	Incision: 3 ft
Max. Width: 30 in		Gradient: 2%	Substrate: gravel/cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square E5 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

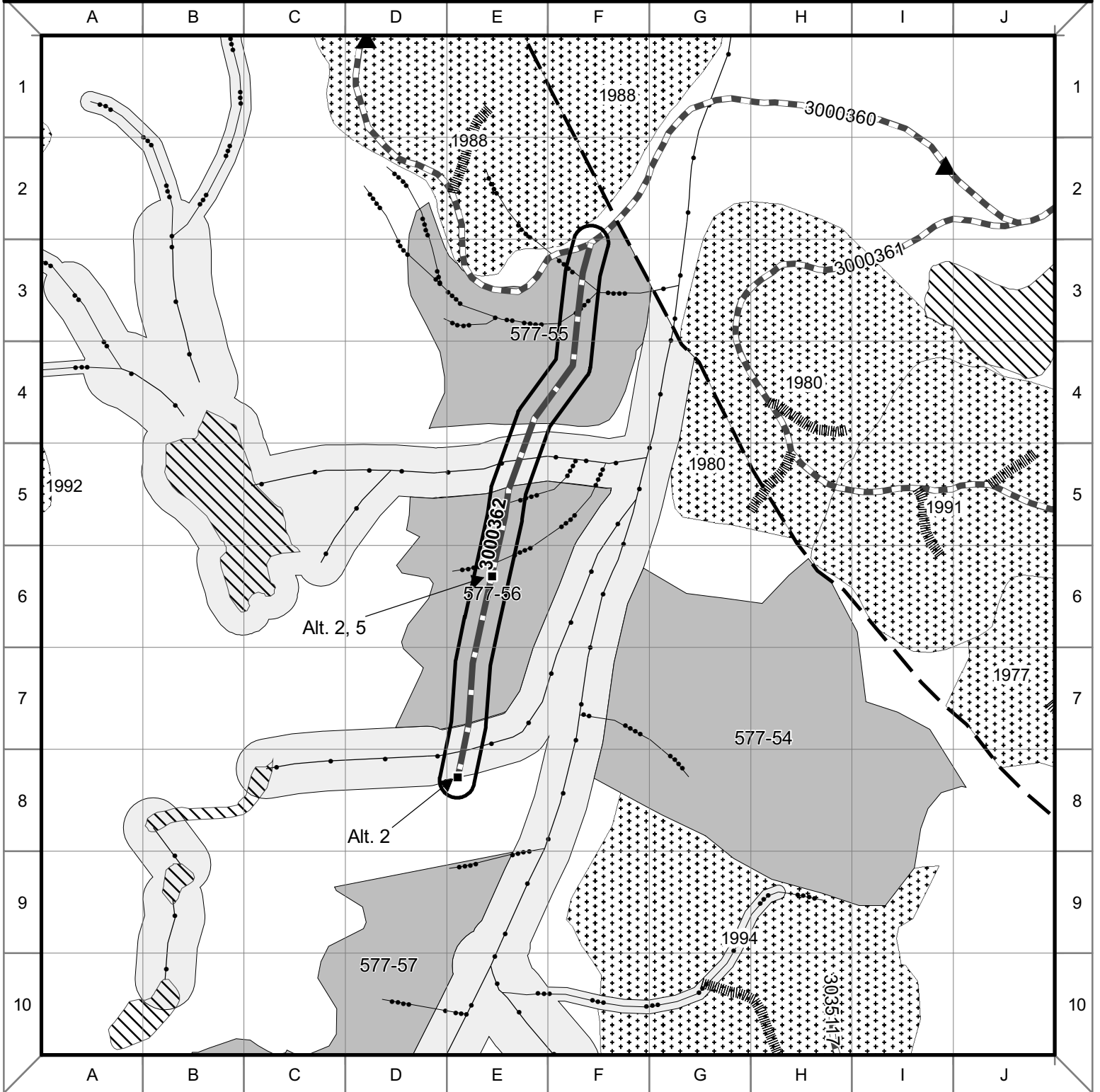
INVASIVE SPECIES: Reed canary grass along 2360 road; Bull thistle exists up the road from this planned road line

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes to access unit 577-21. The entire 0.06 miles of road crosses forested wetlands. Apply BMPs 12.5, 14.2, and CFR BPs 1, 2, 5, 6, 7, 8, and 14. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



	Selected Road		Project Area Boundary		Class I Stream
	Proposed System Road		Proposed Harvest Area		Class II Stream
	Existing System Road		Past Harvest		Class III Stream
	Coffman Cove Road		Old Growth Reserve		Class IV Stream
	Decom. Temp Road		Existing Rock Pit		Riparian Management Area
	End of Prop. Rd by Alt.		Lake		

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3000362

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
3000362		3000360 MP 0.6		0.29 Alt 5 0.46 Alt 2	
Begin MP	Length	Status	Managing Organization	Alternatives	
0.00	0.29 Alt 5 0.46 Alt 2	Planned	100554	MP 0 - 0.29 Alt 5 MP 0 - 0.46 Alt 2	

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.29 Alt 5 0.46 Alt 2	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3000362

ROAD LOCATION: Access for units 577-55, 577-56, and 577-57. Road Location follows BMP 14.2. Road leaves existing road 3000360 and travels in a southerly direction for approximately 0.75 miles. The topography covered is rolling to slightly broken which necessitates adjustment to accommodate grade and alignment. Three stream crossings require some adjustment of the road line to reach suitable crossings. Road begins slightly adverse off the existing road for approximately 500' and runs basically flat for 0.5 miles then climbs at 10-12% to the end. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: About ¼ of a mile of road traverses through forested wetland. Road location was completed to avoid wetlands to access units 577-55, 577-56, and 577-57. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses two Class I streams; all others are Class IV streams.

Crossing: 3	AHMU Class: I	Channel Type: HC1	Incision: 16 ft
Max. Width: 13 ft		Gradient: 10%	Substrate: cobble.bedrock
Structure: bridge	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square E5 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for coho salmon and concurrence from the State will be solicited prior to starting the work.

Crossing: 5	AHMU Class: I	Channel Type: HC1	Incision: 13 ft
Max. Width: 16 ft		Gradient: 15%	Substrate: gravel/bedrock
Structure: bridge	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square E7 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

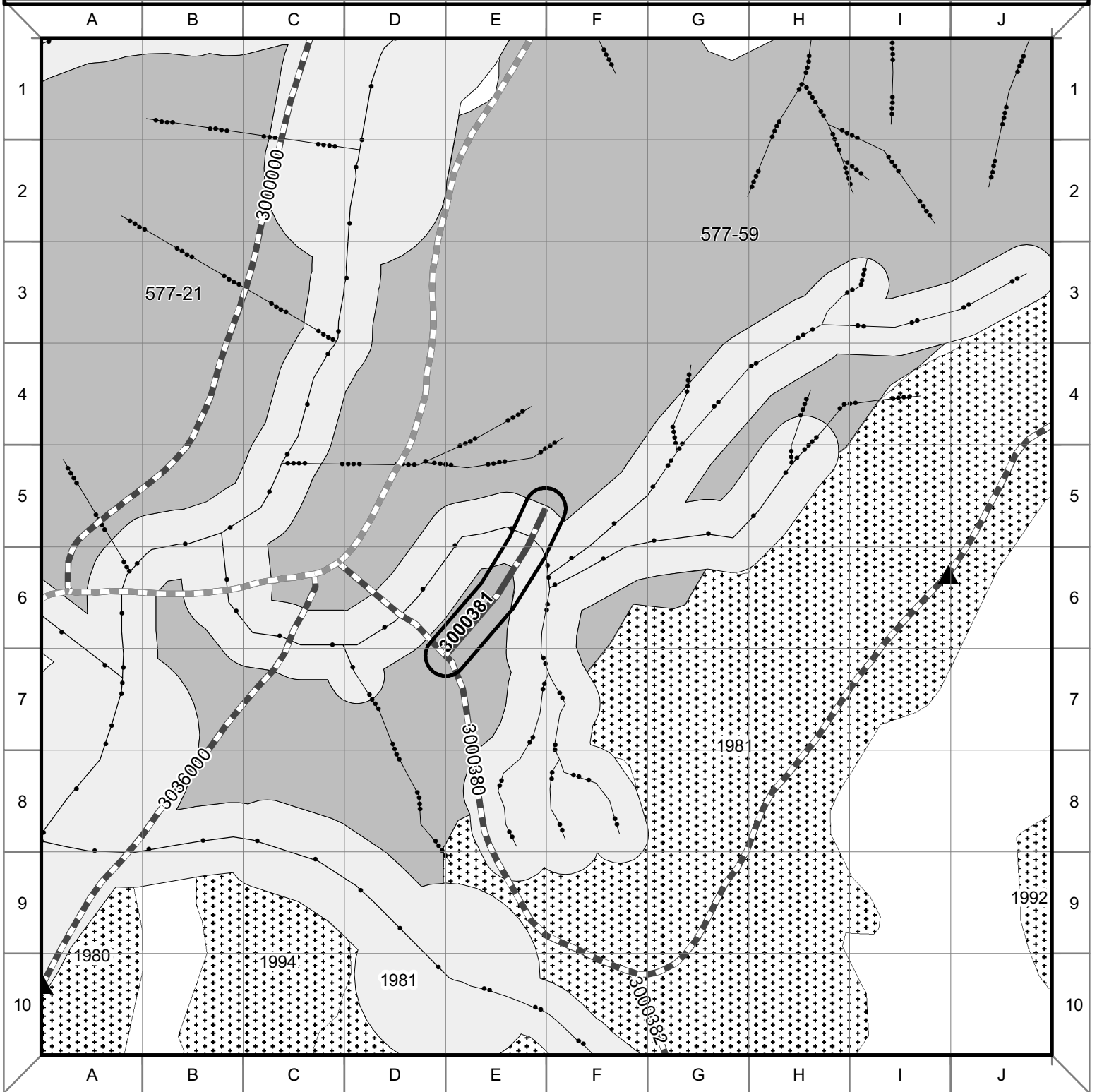
INVASIVE SPECIES: Reed canary grass along mainline road

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes to access unit 577-55, 577-56, and 577-57. Less than ¼ of a mile of road crosses forested wetlands. Apply BMPs 12.5, 14.2, and 14.7 and CFR BPs 1, 2, 5, 6, 7, 8, and 14. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



Selected Road	Project Area Boundary	Class I Stream
Proposed System Road	Proposed Harvest Area	Class II Stream
Existing System Road	Past Harvest	Class III Stream
Coffman Cove Road	Old Growth Reserve	Class IV Stream
Decom. Temp Road	Existing Rock Pit	Riparian Management Area
End of Prop. Rd by Alt.	Lake	

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3000381

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
3000381		3000380 MP 0.1		MP 0.13	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.13	Planned	100554		2, 3, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.13	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives

Site Specific Design Criteria

Road 3000381

ROAD LOCATION: Access for unit 577-59. Road Location follows BMP 14.2. Road crosses a class 1 stream at about MP 0.10. Provide for fish passage, follow fish timing windows specified below (BMP 14.6). Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: All locations where road crosses designated wetlands would have adequate drainage structures installed (BMP 12.5).

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream.

Crossing: 1	AHMU Class: 1	Channel Type: MM1	Incision: 3 ft
Max. Width: 12 ft		Gradient: 4%	Substrate: sand/cobble
Structure: bridge	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square E5 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

INVASIVE SPECIES: Reed canary grass and ox-eye daisy exist along mainline road

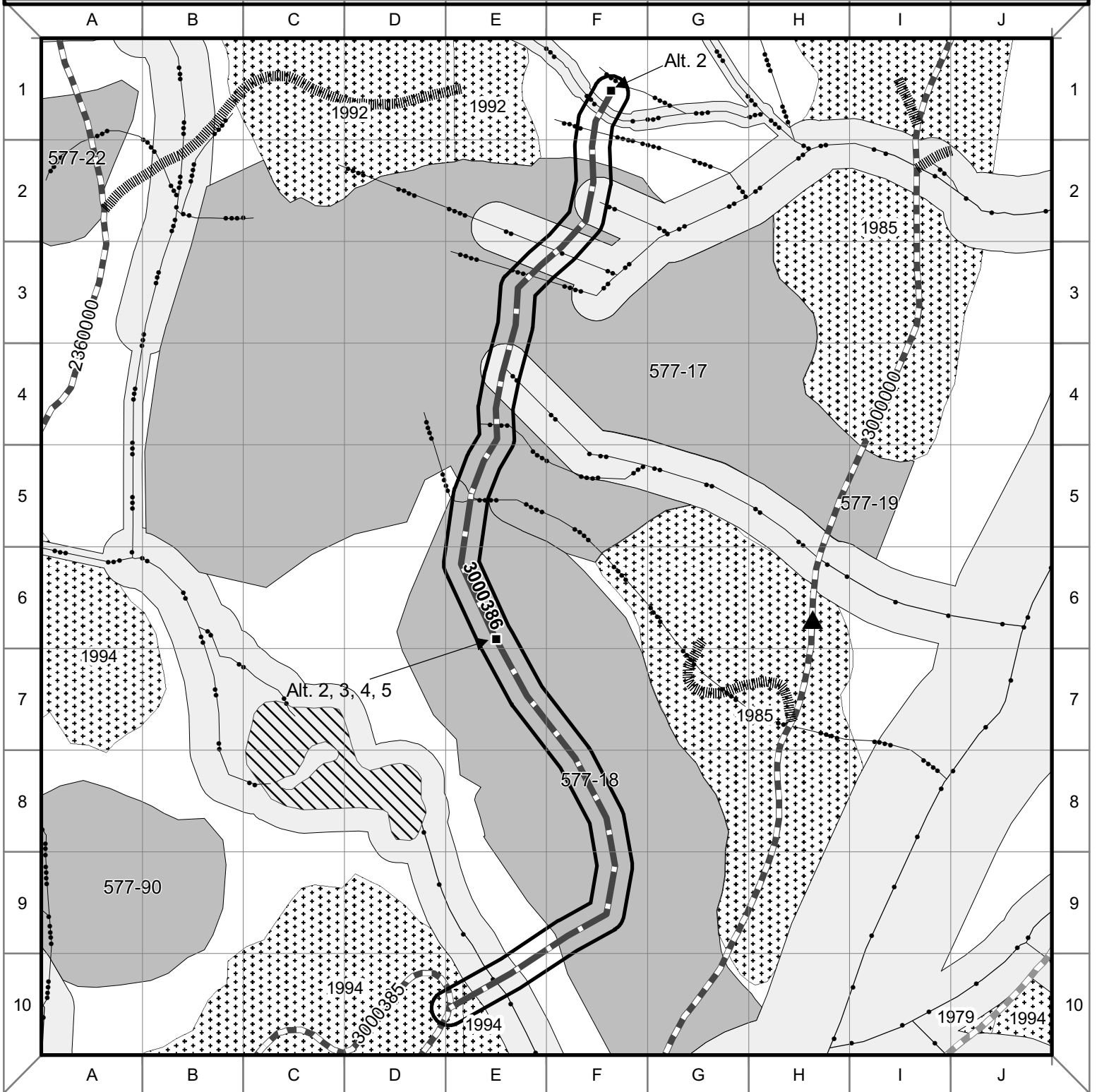
VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses gentle slopes to access unit 577-59. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential

erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



- | | | | | | |
|--|-------------------------|--|-----------------------|--|--------------------------|
| | Selected Road | | Project Area Boundary | | Class I Stream |
| | Proposed System Road | | Proposed Harvest Area | | Class II Stream |
| | Existing System Road | | Past Harvest | | Class III Stream |
| | Coffman Cove Road | | Old Growth Reserve | | Class IV Stream |
| | Decom. Temp Road | | Existing Rock Pit | | Riparian Management Area |
| | End of Prop. Rd by Alt. | | Lake | | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3000386

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM, SV	
Route No.	Route Name	Begin Terminus		End Terminus	
3000386		3000385 MP 0.34		0.40 Alts 3,4,5 0.89 Alt 2	
Begin MP	Length	Status	Managing Organization	Alternatives	
0.00	0.40 Alts 3,4,5 0.89 Alt 2	Planned	100554	MP 0 - 0.40 Alts 3,4,5 MP 0 - 0.89 Alt 2	

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.40 Alts 3,4,5 0.89 Alt 2	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3000386

ROAD LOCATION: Access for units 577-16, 577-17 and 577-18. Road Location follows BMP 14.2. Provide for fish passage at class 1 and 2 stream crossings, follow fish timing windows specified below (BMP 14.6). Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: Most of the road traverses through forested wetland and forested wetland/emergent short sedge complex. Road location was completed to avoid wetlands to access units 577-16, 577-17, and 577-18. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream, one Class II stream; one Class III stream; all others are Class IV streams.

Crossing: 1	AHMU Class: I	Channel Type: MM1	Incision: 5 ft
Max. Width: 14 ft		Gradient: 3%	Substrate: organic/cobble
Structure: bridge	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square E10 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout, Dolly Varden char, and coho salmon and concurrence from the State will be solicited prior to starting the work.

Crossing: 6	AHMU Class: II	Channel Type: HC1	Incision: 22 in
Max. Width: 31 in		Gradient: 8%	Substrate: cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square F3 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 8	AHMU Class: III	Channel Type: HC5	Incision: 11 ft
Max. Width: 5 ft		Gradient: 25%	Substrate: bedrock

Structure: log culvert Passage: No Timing dates:

Narrative: This crossing is located in square F1 on the road card map. After the sale the structure will be removed.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: Uncommon plants and high plant diversity around lake to the north

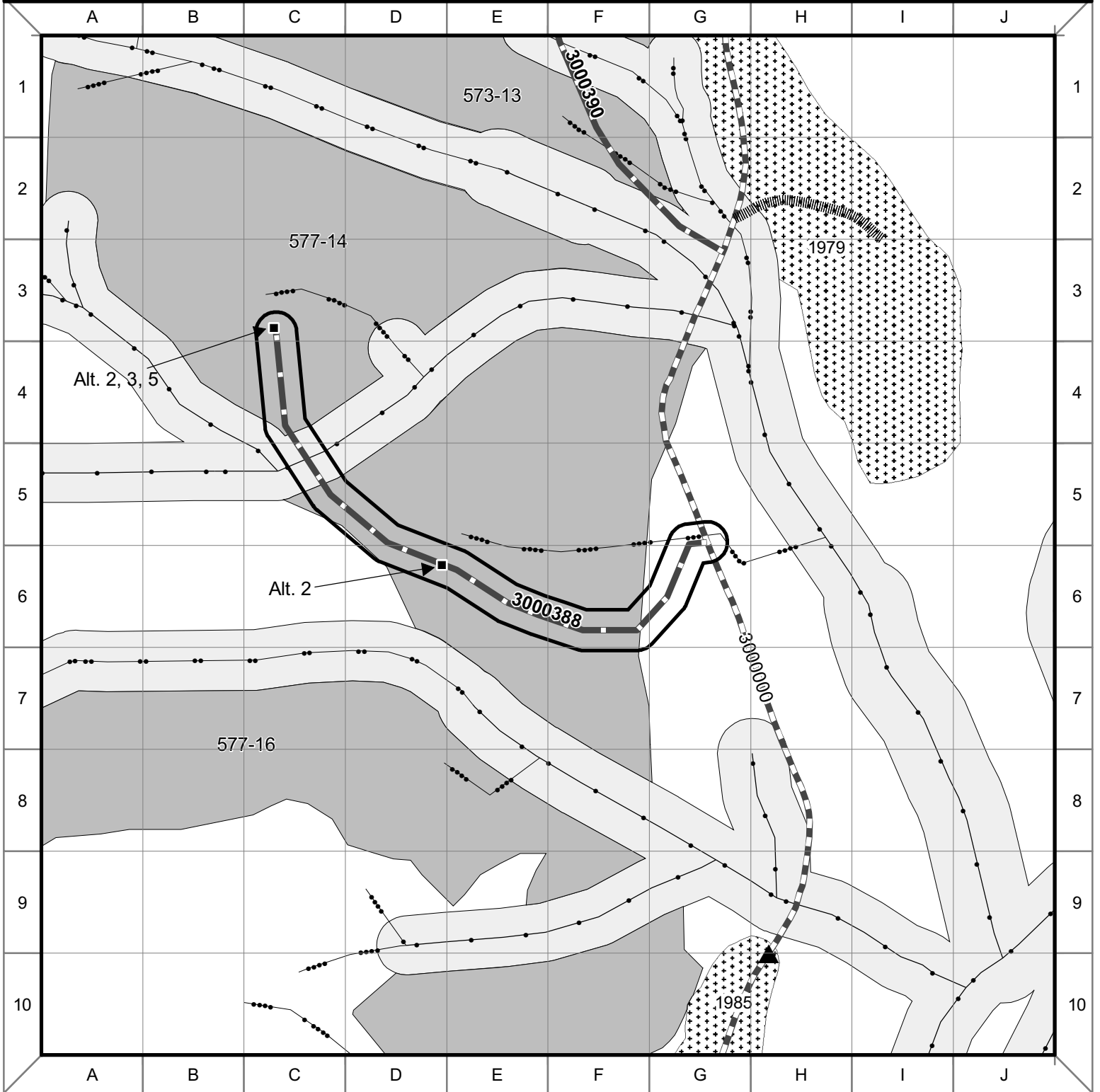
INVASIVE SPECIES: Reed canary grass and ox-eye daisy along main road

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses 30 to 50% slopes to access units 577-16, 577-17, and 577-18. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



Selected Road	Project Area Boundary	Class I Stream
Proposed System Road	Proposed Harvest Area	Class II Stream
Existing System Road	Past Harvest	Class III Stream
Coffman Cove Road	Old Growth Reserve	Class IV Stream
Decom. Temp Road	Existing Rock Pit	Riparian Management Area
End of Prop. Rd by Alt.	Lake	

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3000388

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		RR, SV	
Route No.	Route Name	Begin Terminus		End Terminus	
3000388		3000000 MP 62.29		0.18 Alt 4 0.44 Alts 2,3,5	
Begin MP	Length	Status	Managing Organization	Alternatives	
0.00	0.18 Alt 4 0.44 Alts 2,3,5	Planned	100554	MP 0 - 0.18 Alt 4 MP 0 - 0.44 Alts 2,3,5	

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.18 Alt 4 0.44 Alts 2,3,5	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives

Site Specific Design Criteria

Road 3000388

ROAD LOCATION: Access for unit 577-14. Road Location follows BMP 14.2. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The majority of the road traverses through forested wetland. Road location was completed to avoid wetlands to access unit 577-14. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream.

Crossing: 1	AHMU Class: I	Channel Type: HC2	Incision: 2 ft
Max. Width: 4.5 ft		Gradient: 8%	Substrate: gravel/cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in squares C/D 5 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident for coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: Bear den just past the end of the planned road

BOTANY: Uncommon plants just north of planned road line

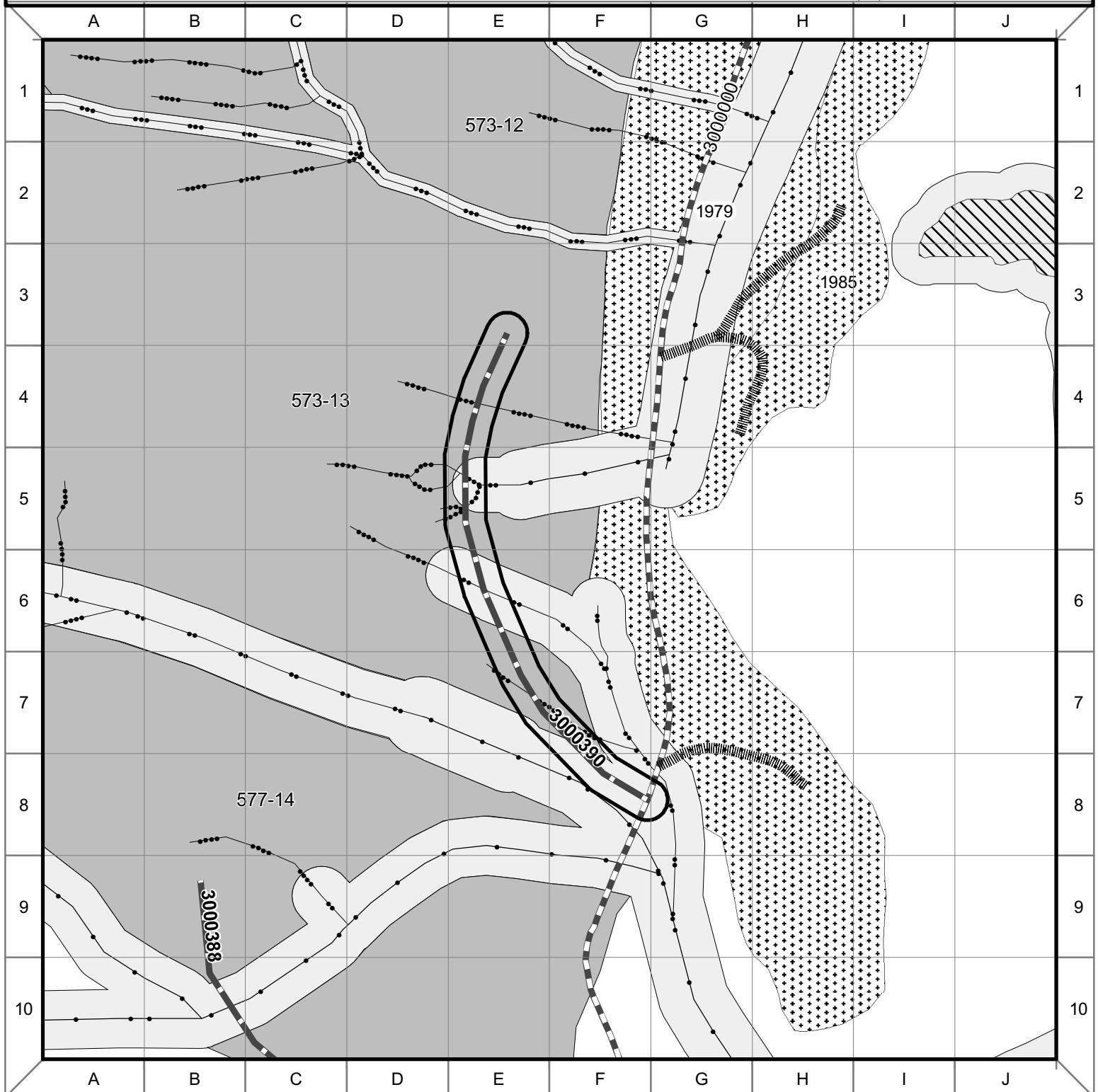
INVASIVE SPECIES: Reed canary grass and ox-eye daisy known to exist along mainline road

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses 30 to 50% slopes to access unit 577-14. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



Selected Road

Proposed System Road

Existing System Road

Coffman Cove Road

Decom. Temp Road

End of Prop. Rd by Alt.

Project Area Boundary

Proposed Harvest Area

Past Harvest

Old Growth Reserve

Existing Rock Pit

Lake

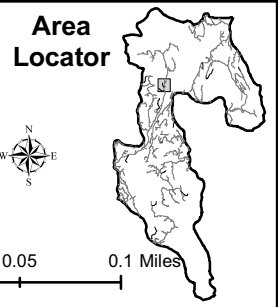
Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Riparian Management Area



Road Management Objectives-- Road 3000390

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		SV	
Route No.	Route Name	Begin Terminus		End Terminus	
3000390		3000000 MP 62.47		MP 0.38	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.38	Planned	100554		2, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.38	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives

Site Specific Design Criteria

Road 3000390

ROAD LOCATION: Access for unit 573-13. Road Location follows BMP 14.2. Accesses possible helicopter landings for units 573-12 and 573-13. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through some forested wetland. Road location was completed to avoid wetlands to access unit 573-13. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class II stream; all others are Class IV streams.

Crossing: 2	AHMU Class: II	Channel Type: HC1	Incision: 5 ft
Max. Width: 3 ft		Gradient: 8%	Substrate: gravel/cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square E6 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

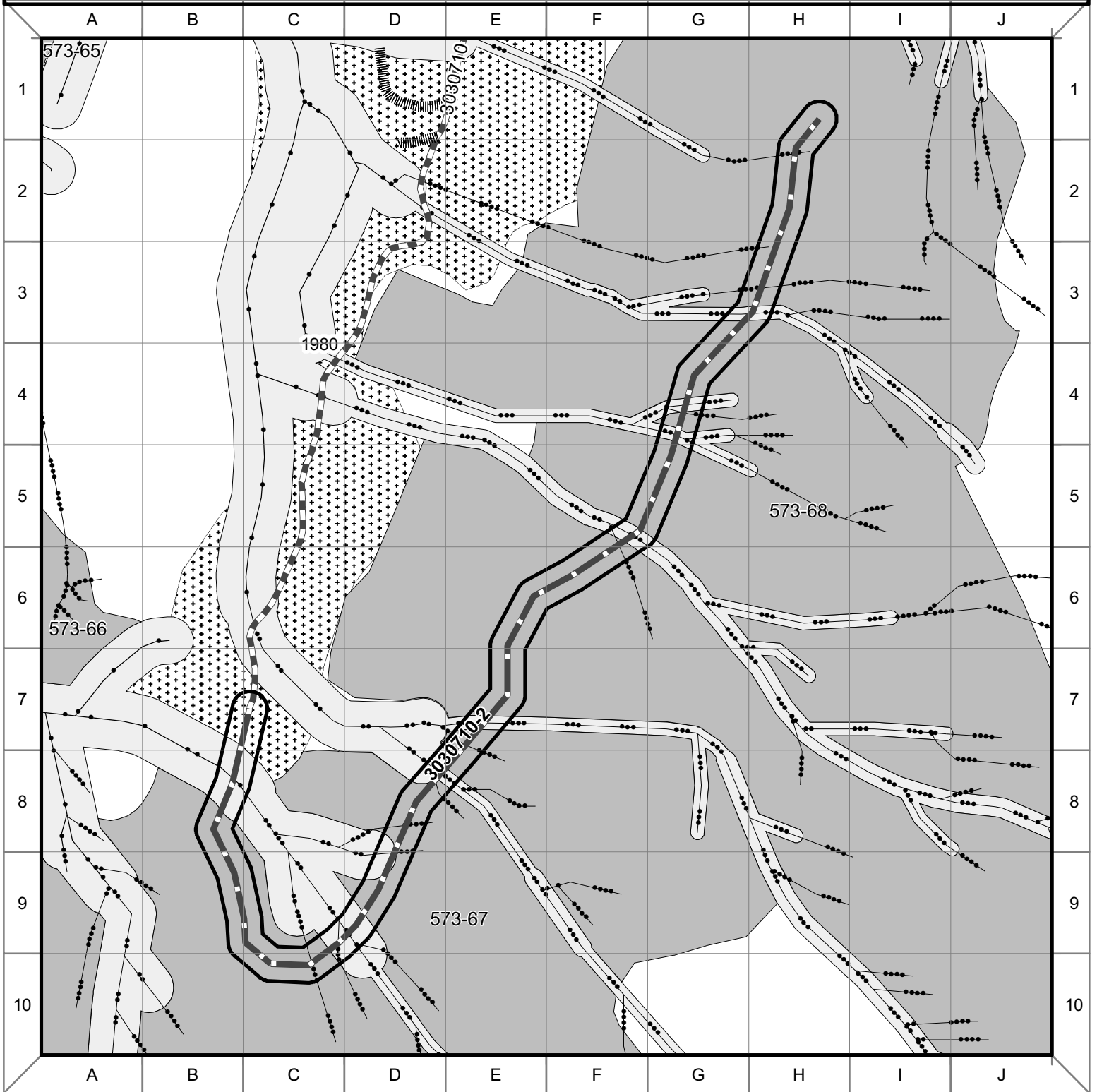
INVASIVE SPECIES: Reed canary grass and ox-eye daisy along mainline road

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses 30 to 50% slopes to access unit 573-13. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



- | | | |
|-------------------------|-----------------------|--------------------------|
| Selected Road | Project Area Boundary | Class I Stream |
| Proposed System Road | Proposed Harvest Area | Class II Stream |
| Existing System Road | Past Harvest | Class III Stream |
| Coffman Cove Road | Old Growth Reserve | Class IV Stream |
| Decom. Temp Road | Existing Rock Pit | Riparian Management Area |
| End of Prop. Rd by Alt. | Lake | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3030710-2

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		ML	
Route No.	Route Name	Begin Terminus		End Terminus	
3030710-2	Sweetwater Southeast	3030710 MP 1.25		MP 2.35	
Begin MP	Length	Status	Managing Organization		Alternatives
1.25	1.10	Planned	100554		2, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
1.25	2.35	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3030710-2

ROAD LOCATION: Access for units 573-67 and 573-68. Road Location follows BMP 14.2. Areas of full bench require end haul of excavated material. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through some areas of forested wetland. Road location was completed to avoid wetlands to access units 573-67 and 573-68. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream, one Class II stream; six Class III streams; all others are Class IV streams. Proposed road flag line wasn't completed when reviewed. The last three crossings are based on stream reconnaissance notes.

Crossing: 1	AHMU Class: I	Channel Type: MM1	Incision: 4 ft
Max. Width: 4 ft		Gradient: 5 %	Substrate: gravel/cobble
Structure: log culvert	Passage: Yes	Timing dates: 7/18 to 8/03	

Narrative: This crossing is located in square B8 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat and steelhead trout and coho and pink salmon. Concurrence from the State will be solicited prior to starting the work.

Crossing: 4	AHMU Class: II	Channel Type: HC1	Incision: 2 ft
Max. Width: 6 ft		Gradient: 14%	Substrate: gravel/cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/25 to 9/01	

Narrative: This crossing is located in square D9 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout and concurrence from the State will be solicited prior to starting the work.

Crossing: 8	AHMU Class: III	Channel Type: HC5	Incision: 15 ft
Max. Width: 9 ft		Gradient: 24%	Substrate: gravel/boulder/bedrock

Structure: bridge Passage: No Timing dates: 6/25 to 9/01

Narrative: This crossing is located in square D8 on the road card map. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout for immediate downstream fish habitat.

Crossing: 10 AHMU Class: III Channel Type: HC5 Incision: 4 ft
Max. Width: 15 ft Gradient: 10 % Substrate: gravel/bedrock

Structure: log bridge Passage: No Timing dates: 6/25 to 9/01

Narrative: This crossing is located in square E7 on the road card map. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for resident cutthroat trout for immediate downstream fish habitat.

Crossing: 12 AHMU Class: III Channel Type: HC2 Incision: 4 ft
Max. Width: 8 ft Gradient: 14 % Substrate: gravel/bedrock

Structure: log culvert Passage: No Timing dates:

Narrative: This crossing is located in square F5 on the road card map. After the sale the structure will be removed.

Crossing: 13 AHMU Class: III Channel Type: HC5 Incision:
Max. Width: Gradient: Substrate: cobble/boulder

Structure: log culvert Passage: No Timing dates:

Narrative: This crossing is located in square G4 on the road card map. After the sale the structure will be removed.

Crossing: 15 AHMU Class: III Channel Type: HC5 Incision:
Max. Width: Gradient: Substrate: cobble/boulder

Structure: log culvert Passage: No Timing dates:

Narrative: This crossing is located in square G4 on the road card map. After the sale the structure will be removed.

Crossing: 16 AHMU Class: III Channel Type: HC5 Incision:
Max. Width: Gradient: Substrate: cobble/bedrock

Structure: log culvert Passage: No Timing dates:

Narrative: This crossing is located in square H3 on the road card map. After the sale the structure will be removed.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

INVASIVE SPECIES: Reed canary grass along road

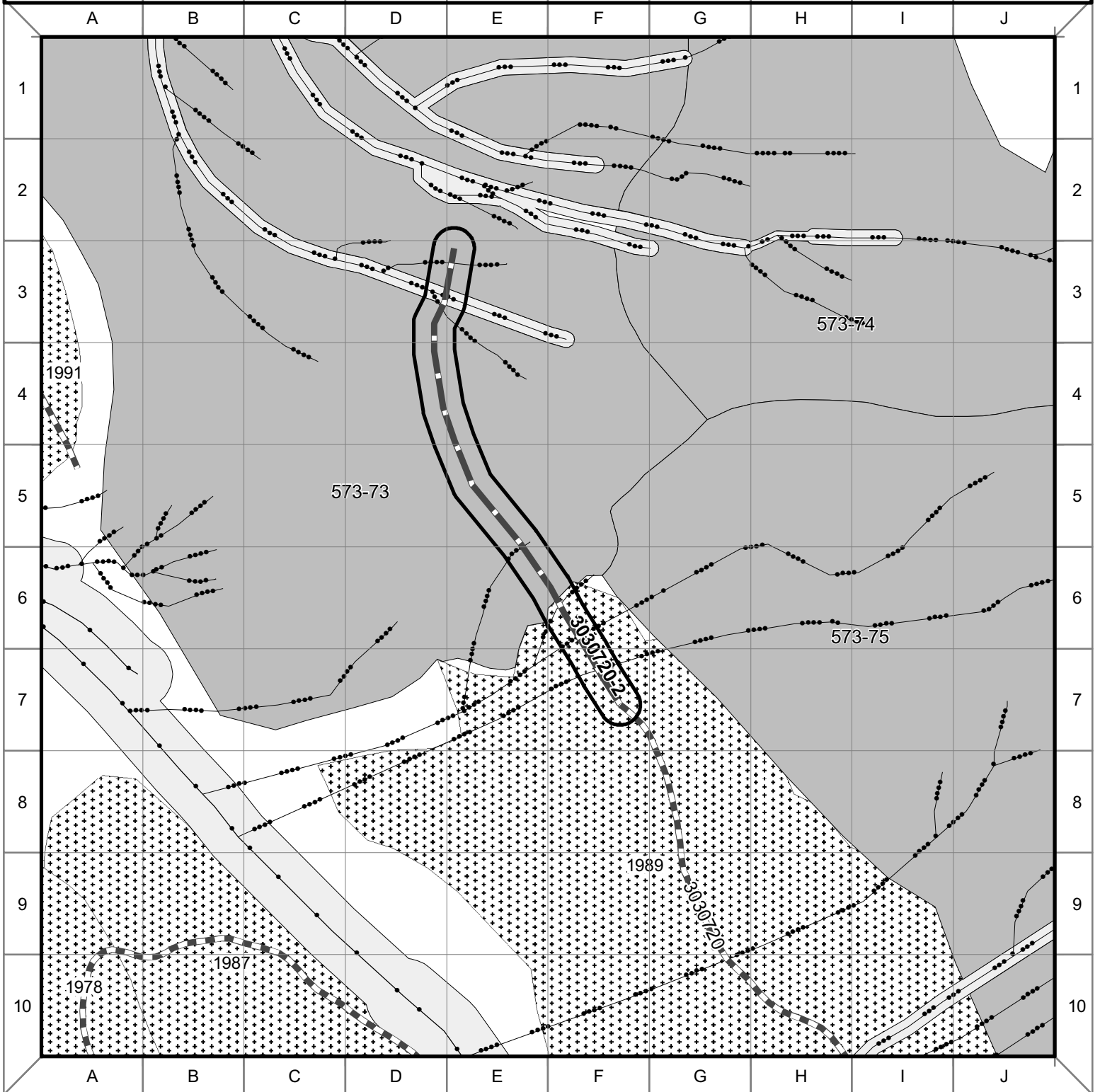
VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses 20 to 55% slopes to access units 573-67 and 573-68. Apply BMPs 14.2 and 14.7. Areas of full bench and endhaul are required on slopes greater than 50% on this road. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).

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|--|-------------------------|--|-----------------------|--|--------------------------|
| | Selected Road | | Project Area Boundary | | Class I Stream |
| | Proposed System Road | | Proposed Harvest Area | | Class II Stream |
| | Existing System Road | | Past Harvest | | Class III Stream |
| | Coffman Cove Road | | Old Growth Reserve | | Class IV Stream |
| | Decom. Temp Road | | Existing Rock Pit | | Riparian Management Area |
| | End of Prop. Rd by Alt. | | Lake | | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3030720-2

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		ML	
Route No.	Route Name	Begin Terminus		End Terminus	
3030720-2	Trumpeter	3030720 MP 2.02		MP 2.38	
Begin MP	Length	Status	Managing Organization		Alternatives
2.02	0.36	Planned	100554		2, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
2.02	2.38	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives

Site Specific Design Criteria

Road 3030720-2

ROAD LOCATION: Access for units 573-73 and 573-74. Road Location follows BMP 14.2. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through scattered areas of forested wetland. Road location was completed to avoid wetlands to access units 573-73 and 573-74. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class III stream; all others are Class IV streams and non-streams.

Crossing: 1	AHMU Class: III	Channel Type: HC5	Incision: 7 ft
Max. Width: 5 ft		Gradient: 45%	Substrate: gravel/cobble
Structure: log culvert	Passage: No	Timing dates:	

Narrative: This crossing is located in square E4 on the road card map. After the sale the structure will be removed.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: No concerns

WILDLIFE: No concerns

BOTANY: No concerns

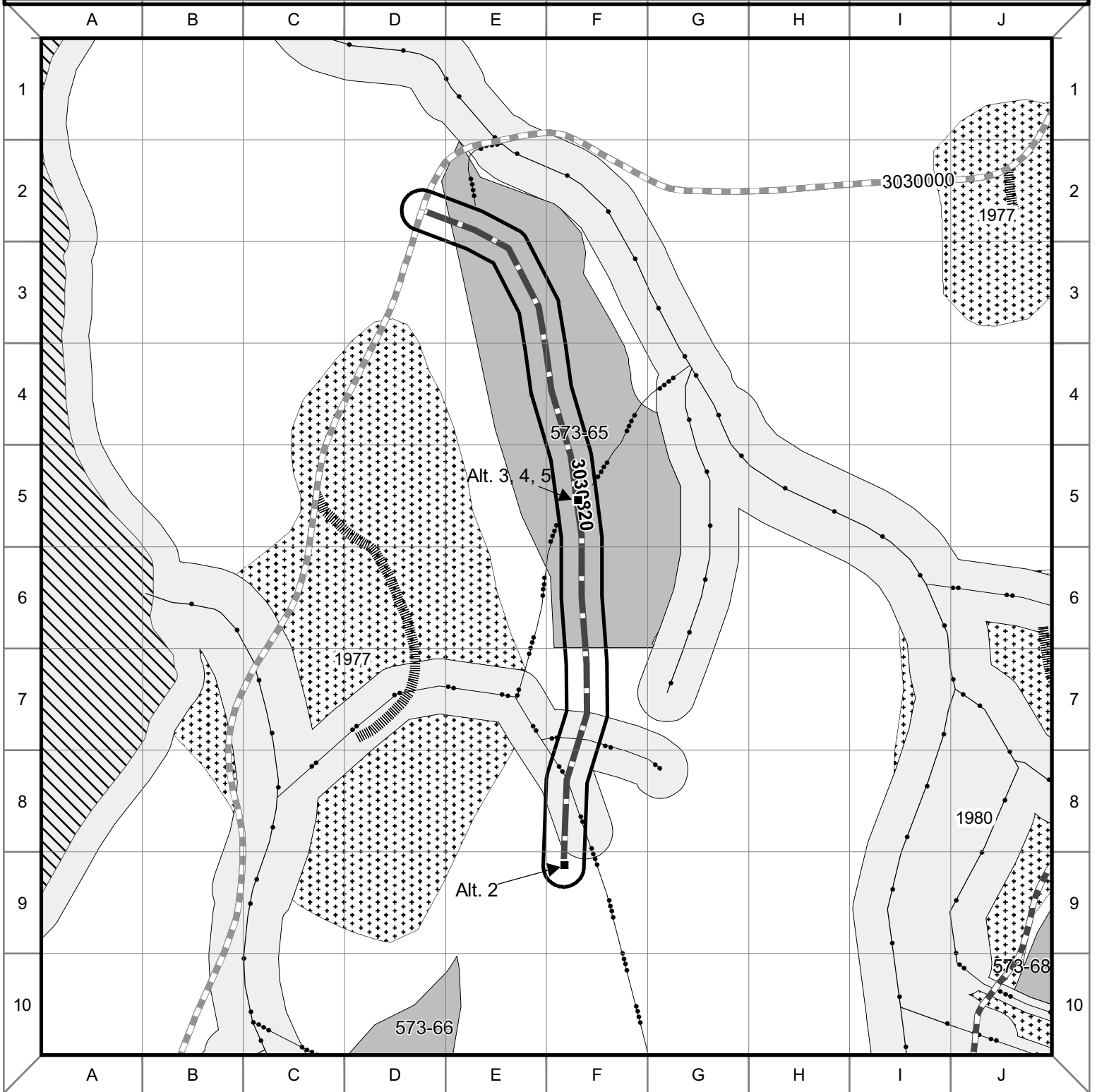
INVASIVE SPECIES: No concerns

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses 40 to 60% slopes to access units 573-73 and 573-74. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



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|-------------------------|-----------------------|--------------------------|
| Selected Road | Project Area Boundary | Class I Stream |
| Proposed System Road | Proposed Harvest Area | Class II Stream |
| Existing System Road | Past Harvest | Class III Stream |
| Coffman Cove Road | Old Growth Reserve | Class IV Stream |
| Decom. Temp Road | Existing Rock Pit | Riparian Management Area |
| End of Prop. Rd by Alt. | Lake | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3030820

Project		System	Land Use Designation
Logjam EIS		Central Prince of Wales	RR, ML
Route No.	Route Name	Begin Terminus	End Terminus
3030820		303000 MP 15.2	MP 0.25 Alts 3, 4, 5 MP 0.51 Alt 2
Begin MP	Length	Status	Managing Organization
0.00	0.25 Alts 3, 4, 5 0.51 Alt 2	Planned	100554
		Alternatives	
			2, 3, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.25 Alts 3, 4, 5 0.51 Alt 2	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3030820

ROAD LOCATION: Access for units 573-65 and 573-66. Road location follows BMP 14.2. Leaves the 3030000 road and immediately enters the unit on the north end and traverses south by a south-easterly direction through the unit. The grade is basically flat except the last 300' in the unit which climbs to a landing at 15%. Line continues to 573-66, about 0.05 miles of drill and shoot construction required. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through forested wetland and forested wetland/emergent short sedge complex. Road location was completed to avoid wetlands to access units 573-65 and 573-66. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses two Class II stream.

Crossing: 1	AHMU Class: II	Channel Type: MM1	Incision: 2 ft
Max. Width: 4 ft		Gradient: 2%	Substrate: organic/cobble
Structure: log culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square F7 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

Crossing: 2	AHMU Class: II	Channel Type: HC0	Incision: 0.5 ft
Max. Width: 2 ft		Gradient : 9%	Substrate: organic/gravel
Structure: log culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square F7 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concern

BOTANY: No concern

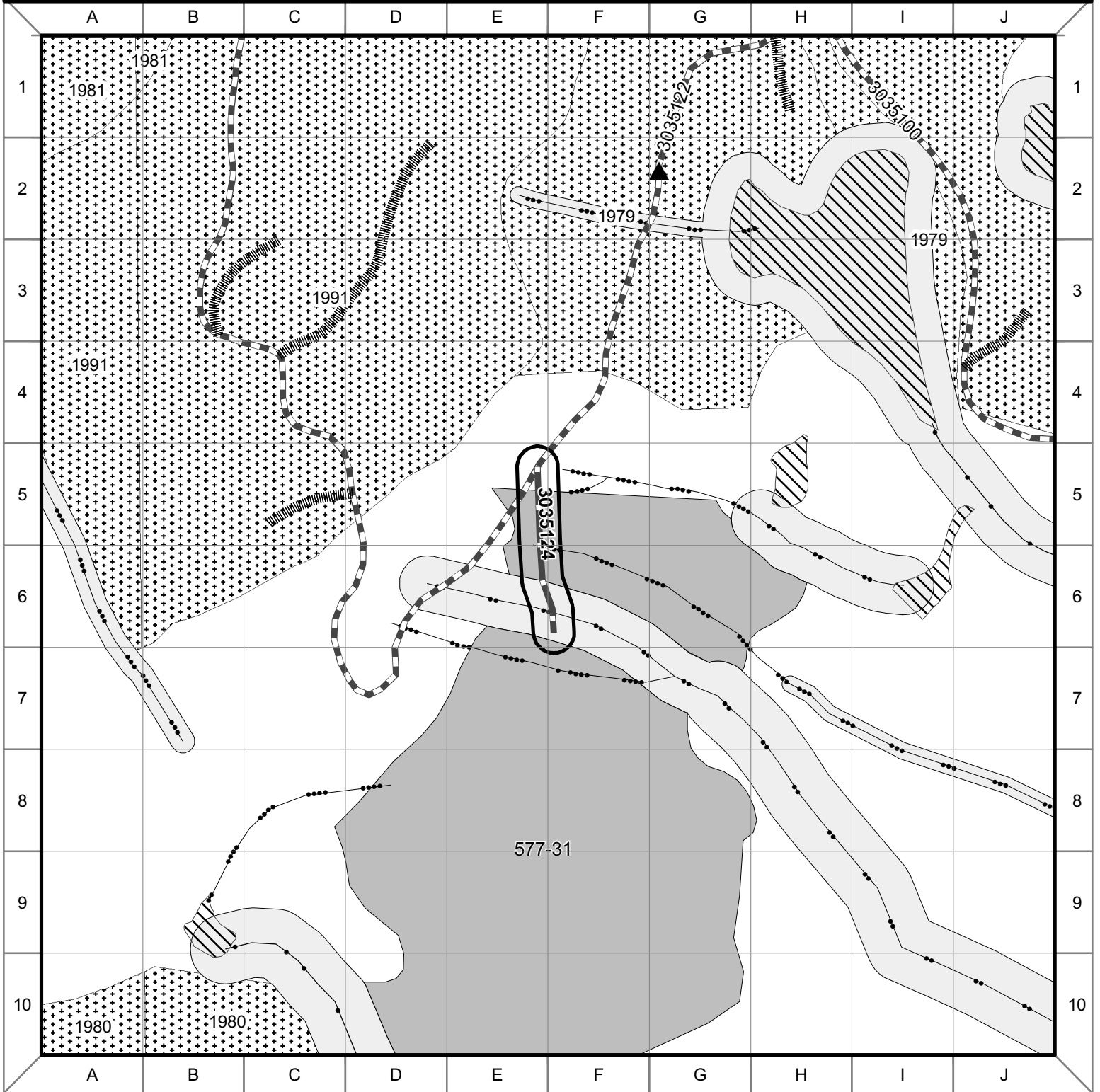
INVASIVE SPECIES: Reed canary grass and ox-eye daisy along road

VISUAL/RECREATION: No concern

CULTURAL: No concern

LANDS/MINERALS/GEOLOGY/KARST: No concern

SOILS/WATER: The proposed route traverses gentle slopes to access units 573-65 and 573-66. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



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|-------------------------|-----------------------|--------------------------|
| Selected Road | Project Area Boundary | Class I Stream |
| Proposed System Road | Proposed Harvest Area | Class II Stream |
| Existing System Road | Past Harvest | Class III Stream |
| Coffman Cove Road | Old Growth Reserve | Class IV Stream |
| Decom. Temp Road | Existing Rock Pit | Riparian Management Area |
| End of Prop. Rd by Alt. | Lake | |

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3035124

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
3035124		3035122 MP 0.4		MP 0.12	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.12	Planned	100554		2, 3, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.12	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3035124

ROAD LOCATION: Access for unit 577-31. Road location follows BMP 14.2. The road begins approximately 300' south of the old clear cut. From the 3035122 road the roadline drops at 10% for 500' to a bench/slope break. The roadline then runs flat along the slope break. A class 2 fish stream is crossed at about mp 0.10 (BMP 14.6). Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The planned location of Road 3035124 does not cross any wetlands. If that changes, all locations where road crosses designated wetlands would have adequate drainage structures installed (BMP 12.5).

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class II stream; all others are Class IV

MP : Stream #3	AHMU Class: II	Channel Type: HC0	Incision: 8 ft
Max. Width: 3 ft		Gradient: 22%	Substrate: gravel/cobble
Structure: Log Culvert	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square E6 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed as well as all drainage and stream structures beyond it. The crossing will be installed under current timing constrictions for resident Dolly Varden char and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: Bear den in unit near planned road line

BOTANY: Uncommon near planned road line; sensitive plants outside planned unit boundary to south

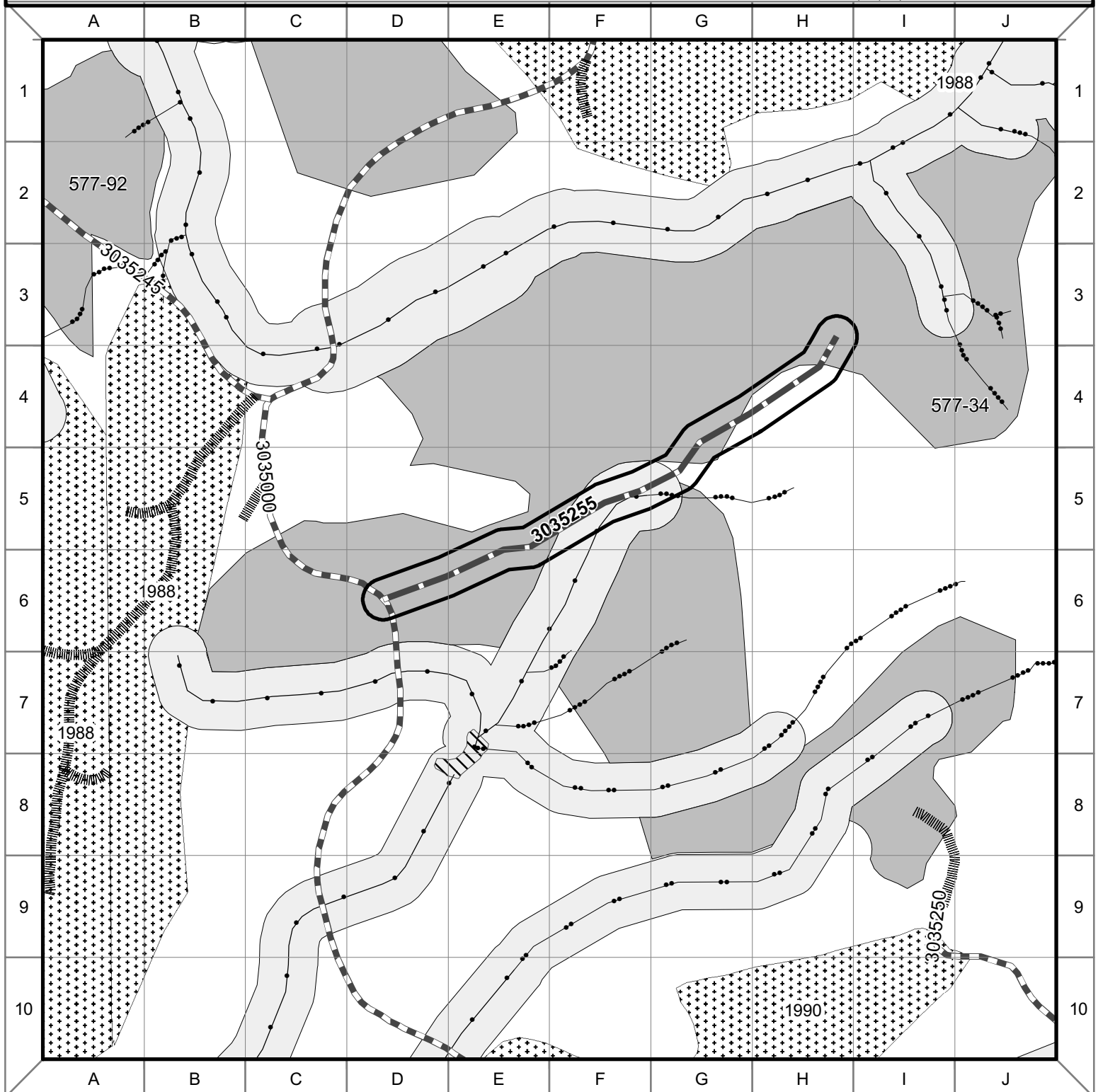
INVASIVE SPECIES: Reed canary grass and orange hawkweed on road system

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: The proposed route traverses 30 to 50% slopes to access unit 577-31. Apply BMPs 14.2 and 14.7. All areas of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



	Selected Road		Project Area Boundary		Class I Stream
	Proposed System Road		Proposed Harvest Area		Class II Stream
	Existing System Road		Past Harvest		Class III Stream
	Coffman Cove Road		Old Growth Reserve		Class IV Stream
	Decom. Temp Road		Existing Rock Pit		Riparian Management Area
	End of Prop. Rd by Alt.		Lake		

Area Locator

0 0.05 0.1 Miles

Road Management Objectives --Road 3035255

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
3035255		3035000 MP 5.3		MP 0.37	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.37	Planned	100554		2, 3, 4, 5

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.37	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3035255

ROAD LOCATION: Access for unit 577-34. Road location follows BMP 14.2. Roadline runs at 10% favorable up a ridgeline. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through forested wetland. Road location was completed to avoid wetlands to access unit 577-34. Wetlands were unavoidable on the proposed road due to abundance and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: No Class I, II or III streams crossed, but see notes under Karst, Soil & Water below.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: Sensitive plant just to the north of planned road line

INVASIVE SPECIES: Reed canary grass, orange hawkweed, and Canada thistle all on road system to access this road

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: Approximately 50 meters of this road crosses through a high vulnerability karst no-harvest buffer. This road will be rerouted during layout to avoid high vulnerability karst. Final road alignment must be approved by a Resource Geologist. The road passes through moderate vulnerability karst. The following mitigation measures are required on moderate vulnerability karst:

- Existing quarries and roads will be utilized in preference to the construction of new ones.
- Roads shall avoid sinkholes and other collapse features and loosing streams to the maximum extent possible. If road can not be rerouted the Forest Geologist and road

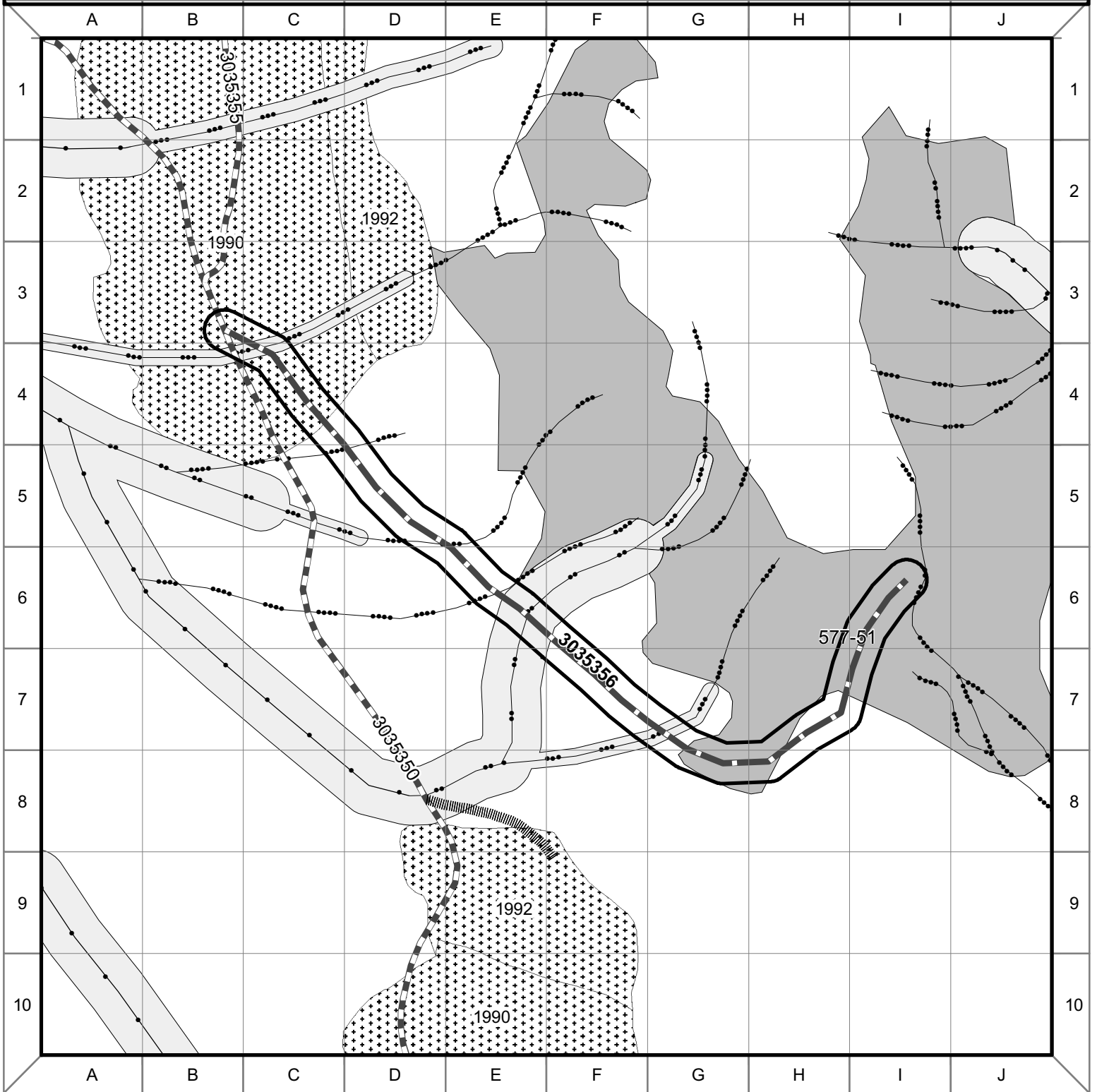
engineer will be consulted regarding culvert installation or determination of other required mitigation

- Roads should not divert water to or from karst features
- Measures shall be taken to reduce erosion and sediment transport from the road surface and cut slopes
- No quarry shall be developed atop karst without consulting with the Forest Geologist, adequate site survey and design, and obtaining their approval for the quarry
- Quarries shall be properly closed after use is completed

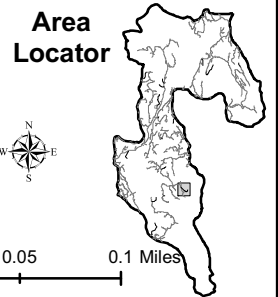
For construction adjacent to high vulnerability karst land or features the following mitigation is required. These mitigation measures apply if the road alignment can not avoid high vulnerability karst:

- Minimize clearing limits and grubbing. Flush cut stumps to the ground. Do not deck logs pioneered from the road clearing limits outside of the clearing limits
- Use a fill-type construction rather than a balanced cut and fill design. These most likely will be possible since the slope gradient of these areas is generally > 15%
- Sediment traps and erosion control measures should be installed and maintained where the road is adjacent to the significant karst feature
- Same season revegetation of the cut and fill slopes should be required to minimize sediment production potential
- A “plan-in-hand” review of the proposed road construction prior to actual construction is required.

SOILS/WATER: Road as planned does not cross Class I, II, or III streams. However, it encroaches on riparian area of Class I MM1. Appropriate BMPs will be determined during relocation for karst protection. The proposed route traverses gentle slopes to access unit 577-34. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



- | | | | | | |
|--|-------------------------|--|-----------------------|--|--------------------------|
| | Selected Road | | Project Area Boundary | | Class I Stream |
| | Proposed System Road | | Proposed Harvest Area | | Class II Stream |
| | Existing System Road | | Past Harvest | | Class III Stream |
| | Coffman Cove Road | | Old Growth Reserve | | Class IV Stream |
| | Decom. Temp Road | | Existing Rock Pit | | Riparian Management Area |
| | End of Prop. Rd by Alt. | | Lake | | |



Road Management Objectives-- Road 3035356

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM, SV	
Route No.	Route Name	Begin Terminus		End Terminus	
3035356		3035350 MP 0.63		0.66	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.66	Planned	100554		

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.66	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

**Road Management Objectives
Site Specific Design Criteria
Road 3035356**

ROAD LOCATION: Access for unit 577-51. Road location follows BMP 14.2. Road begins in existing clearcut about 1,100' from the southern boundary. The roadline leaves 3035355 at a grade of 12-15% for the first 1200', then runs basically flat for 1000' around the base of a hill to the junction with temporary spurs. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through some forested wetland. Road location was completed to avoid wetlands to access unit 577-51. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: one Class II stream, all others Class IV

MP : Stream #5	AHMU Class: II	Channel Type: HC2	Incision: < 6 ft
Max. Width: 6 ft		Gradient: 25%	Substrate: bedrock/cobble
Structure	Passage	Timing dates	
Narrative: Rainbow trout sampled downstream			

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before road storage.

WILDLIFE: No concerns

BOTANY: No concerns

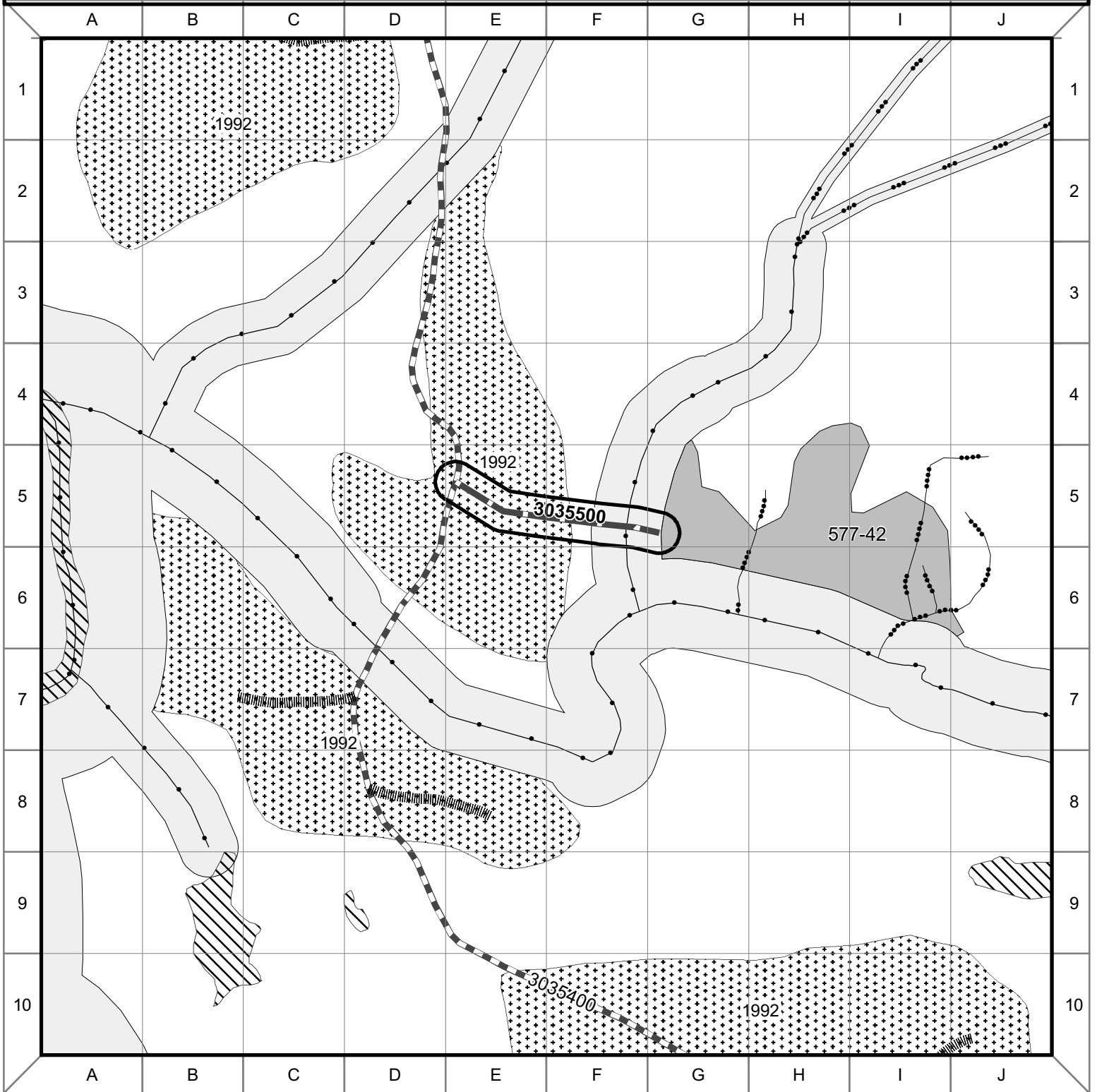
INVASIVE SPECIES: Weed survey not done on portion of road accessing this road building

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: Road crosses headwater tributaries to Logjam Creek. Ensure natural drainage across road is restored beyond Class II stream prior to structure removal (BMP 14.20). The proposed route traverses 30 to 50% slopes to access unit 577-51. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond fish stream crossings prior to temporary structure removal (BMP 14.20).



Selected Road	Project Area Boundary	Class I Stream
Proposed System Road	Proposed Harvest Area	Class II Stream
Existing System Road	Past Harvest	Class III Stream
Coffman Cove Road	Old Growth Reserve	Class IV Stream
Decom. Temp Road	Existing Rock Pit	Riparian Management Area
End of Prop. Rd by Alt.	Lake	

Area Locator

0 0.05 0.1 Miles

Road Management Objectives-- Road 3035500

Project		System		Land Use Designation	
Logjam EIS		Central Prince of Wales		TM	
Route No.	Route Name	Begin Terminus		End Terminus	
3035500		3035400 MP 1.5		MP 0.15	
Begin MP	Length	Status	Managing Organization		Alternatives
0.00	0.15	Planned	100554		2

General Design Criteria and Elements

Functional Class	Service Life	Surface	Width	Design Speed	Critical Vehicle	Design Vehicle	Design Speed
Local	I	Shot rock	14'	10	Lowboy	Logging Truck	10 mph

Intended Purpose/Future Use

Access for silvicultural activities; during periods of operation manage as maintenance level 2. Manage as maintenance level 1, storage, between periods of operation.

Maintenance Criteria

Bmp	Emp	Operational Maintenance Level (Current or Planned Initial Condition)	Objective Maintenance Level (Desired Future Condition)	Traffic Service Level	Alaska Forest Practices Act
0.00	0.15	2	1 - Storage	C	Active during haul Inactive while stored

Maintenance Narrative

Road will be maintained in "Active" status while road is open during timber haul; post timber haul road will be stored and maintained in "Inactive" status.

AFR&P Regs. "Active" status: Keep culverts, catch basins, ditches and ditch blocks functional. Grade as needed to maintain crown and running surface. Control roadside brush to maintain sight distance.

AFR&P Regs. "Inactive" status: Road is stored. Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and seed and fertilize disturbed soils. The road will be placed in a self maintaining state.

Operation Criteria

Highway Safety Act: No Jurisdiction: USFS National Forest Ownership

Travel Management Strategies

Encourage: N/A
Accept: Non-motorized use after timber harvest
Discourage: N/A
Prohibit: N/A
Eliminate: Motor Vehicles

Travel Management Narrative

After timber harvest, road will be stored and motor vehicle use will be eliminated.

Approved _____

District Ranger

Date

Road Management Objectives Site Specific Design Criteria Road 3035500

ROAD LOCATION: Access for 577-42. Road location follows BMP 14.2. This route accesses the unit from the west via 3035400. The roadline leaves existing road and travels in an easterly direction for ¼ mile to EOL; grades are basically flat. One B/W stream crossing must be made at approximately station 10+00. This crossing is moderately difficult and will require a 36" CMP. Install adequate cross drains so as not impede natural flows (BMP 14.3). During construction follow BMPs 14.6, 14.7, 14.12, 14.14, 14.17, and 14.19.

WETLANDS: The road traverses through forested wetland and forested wetland/emergent short sedge complex. Road location was completed to avoid wetlands to access unit 577-42. Although wetlands were unavoidable on the proposed road due to safety considerations, engineering design constraints, and considerations for other resources (BMP 12.5 and 14.2). Overlay construction would be used where possible, excavation would be avoided, and extra cross drains would be installed to avoid altering subsurface flow (BMP 12.5, 14.3, 14.9, 14.17, and CFR BPs 5, 7, and 8). The road is planned for storage following harvest by means of removing drainage structures (BMP 14.22 and CFR BPs 2 and 7). Storage should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the silviculture exemption for 404 permitting through the Army Corps of Engineers.

EROSION CONTROL: An erosion control plan will be developed by the contractor and subject to approval by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.5, 14.8, 14.11, and 14.12). Practice erosion control measures in accordance to contract specifications and BMPs 14.8, 14.9, 14.10, 14.11 and 14.12.

ROCK PITS: During periods of high rainfall (as defined by regional specifications), blasting operations will be suspended at quarries near potentially unstable sites where ground vibrations may induce mass movement (BMP 14.6). Also during these periods, road construction that requires rock supplied from quarries shall be suspended in high risk areas on roads where rock hauling would increase the risk of mass failure (BMP 14.7). Follow BMP 14.18 for development and rehabilitation of rock sources.

STREAM CROSSINGS: Road crosses one Class I stream.

Crossing: 1	AHMU Class: I	Channel Type: MM1	Incision: < 12 ft
Max. Width: 8 ft		Gradient: < 6%	Substrate: gravel/cobble
Structure: bridge	Passage: Yes	Timing dates: 6/15 to 9/01	

Narrative: This crossing is located in square F5 on the road card map. This stream crossing will be designed to accomplish fish passage during the sale. After the sale the structure will be removed. The crossing will be installed under current timing constrictions for coho salmon and concurrence from the State will be solicited prior to starting the work.

OTHER RESOURCE INFORMATION (if applicable)

TIMBER/LOGGING SYSTEMS: Evaluate salvage sale opportunities before bridge removal and road storage.

WILDLIFE: No concerns

BOTANY: No concerns

INVASIVE SPECIES: Weed survey not done on portion of road accessing this road building

VISUAL/RECREATION: No concerns

CULTURAL: No concerns

LANDS/MINERALS/GEOLOGY/KARST: No concerns

SOILS/WATER: Road crosses tributaries to Class I FP3 tributary to Logjam Creek. Temporary bridge will be installed in Class I crossing (BMP 14.17). Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Ensure natural drainage across road is restored beyond bridge prior to bridge removal (BMP 14.20). The proposed route traverses gentle slopes to access unit 577-42. Apply BMPs 14.2 and 14.7. All Area of organic and mineral soil exposed during construction shall be grass seeded and fertilized (BMPs 12.7 and 14.8). Road is scheduled for storage following timber sale activities. Storage activities would involve culvert removal, water bar placement, and revegetating road bed and potential erosion sources (BMP 14.8 and 14.22).

Appendix D

List of Projects in the Logjam Timber Sale Cumulative Effects Area

Introduction

This appendix discloses a summary of actions considered in the cumulative effects sections of each resource in Chapter 3. The size of the cumulative effects analysis area varies by resource. Some resources, such as watershed and wildlife resources, include a larger scope of analysis than the project area. Because the project area boundary does not coincide with watershed boundaries, the watershed analysis area for cumulative effects includes all watersheds with any proposed ground disturbance in any alternative. Wildlife used the Wildlife Analysis Area (WAA) for the cumulative effects area. Most resources use the Logjam project area or even separate units as the cumulative effects analysis area. Because most resources use the project area for cumulative effects analysis, this table lists all known activities that have occurred, are occurring, or are reasonably foreseeable in the Logjam Timber Sales project area. A catalog of timber harvests in the Logjam project area has been summarized below, and the entire catalog is located in the project record.

Cumulative effects analysis areas are defined by resource in the Specialist Reports in the project record. Resources with cumulative effects areas larger than the project area list and describe those activities affecting their resource in their specialist report; cumulative effects, if any, are displayed in the EIS.

D List of Projects

Table 83. Past, Present and Reasonably Foreseeable Activities in the Logjam Project Area

PAST ACTIVITY	DATE COMPLETED	NEPA DOCUMENT	ACTIVITY DOCUMENT
Timber Harvest On A Total of Approximately 10,300 Acres, Mostly Even-aged Harvesting From 1953 - 2004		CPOW	BIG DEWEY
		LUCK LAKE	TWIN BRIDGES II
		PRIORITY WINDTHROW 2000	NAUKATI BLOWDOWN
		ROADSIDE	MICROSALE # 26
		UNKNOWN	COFF-WINTER
		UNKNOWN	TRUMPETER 6
Approximately 60 Acres of Release or Weeding Need	1982	UNKNOWN	UNKNOWN
Approximately 560 Acres of Thinning for Fish Habitat Improvement	2001 - 2004	UNKNOWN	UNKNOWN
Approximately 470 Acres of Area Release and Weeding	1982	UNKNOWN	UNKNOWN
Approximately 470 Acres of Burning site Preparation for Natural Regeneration	1986	UNKNOWN	UNKNOWN
Approximately 80 Acres of Burning site preparation for seeding	1987	UNKNOWN	UNKNOWN
Approximately 295 Acres of Precomm thinning/cleaning w/o treatment	2004	UNKNOWN	UNKNOWN
Approximately 6,430 Acres of Precommercial Thinning	1994	UNKNOWN	UNKNOWN

D List of Projects

PRESENT ACTIVITY	DATE PLANNED FOR COMPLETION	DESCRIPTION
Road Maintenance	Ongoing	Maintenance of these of Maintenance Level 2 and 3 roads in the project area. Maintenance can include bridge repair, cleaning and inspections, bridge replacement, ditch and culvert cleaning and blading annually, brushing right-of-way every 3 years and RCS updates as needed. Maintenance Level 1 roads have no planned maintenance other than a random update of RCS.
Free Use Timber Harvest on NFS land	Ongoing	Personal use permits for fuelwood/saw timber are expected to be issued each year in the Logjam project area, but outside proposed Logjam units. Each permit is for up to 10 mbf and harvest usually occurs on up to 2 acres per permit.
Hatchery Creek Storage Special Use Permit Categorical Exclusion	2007	Storage of weir materials for 2 years.
Coffman Cove Common Use Areas Decision Memo	2006	Designation of all pits within 5 miles of Coffman Cove as Common Use Areas for mineral materials.
ET Rock Crushing Negotiated Sale Decision Memo	2006	Negotiated Sale of 4000cy of mineral materials from a pit located near Coffman Cove.
Naukati Mud Bog Special Use Permit Categorical Exclusion	2008	Permit the storage of Mud Bog facility and allow Recreation Events, under separate permit to occur.
Rabbit Ears Lake Picnic Pavilion Categorical Exclusion	2007	Special Use Permit for the City of Coffman Cove for building & maintaining a picnic pavilion at Rabbit Ears Lake.
Personal Use Firewood	Ongoing	Individuals use the area for fuel wood removal that does not require a permit. Removal occurs along the existing road system.
Recreation Use (includes use in the entire Logjam project area)	Ongoing	Activities that occur along roads and in other recreation developed and dispersed sites include: subsistence gathering, driving for pleasure, fishing, hunting, picnicking, berry picking, rock hounding, wildlife viewing, photography, trapping, camping, rock climbing and hiking. Most users of the area engage in several different activities during a visit; road access and activities occur mainly in the spring, summer and fall.

REASONABLY FORESEEABLE FUTURE ACTIVITY	DATE PLANNED FOR COMPLETION	DESCRIPTION
Road Maintenance	2008 – Unknown	Maintenance of these of Maintenance Level 2 and 3 roads in the project area. Maintenance can include bridge repair, cleaning and inspections,

D List of Projects

REASONABLY FORESEEABLE FUTURE ACTIVITY	DATE PLANNED FOR COMPLETION	DESCRIPTION
		bridge replacement, ditch and culvert cleaning and blading annually, brushing right-of-way every 3 years and RCS updates as needed. Maintenance Level 1 roads have no planned maintenance other than a random update of RCS.
Free Use Timber Harvest on NFS land	2008 – Unknown	Free Use Permits/ Other Special Forest Product Permits. Personal use permits for fuelwood/saw timber are expected to be issued each year in the Logjam project area, but outside proposed Logjam units. Each permit is for up to 10 mbf and harvest usually occurs on up to 2 acres per permit.
Small Sales – Timber Harvest on NFS Land	2008 – Unknown	Small roadside salvage sales less than 50 MBF (microsales) are ongoing as they become available
Precommercial Thinning2008	2013 Approximately 4, 000 acres would be precommercially thinned in the project area.	Precommercial Thinning2008
Moxie, Dogleg Sales	2008	Originally planned as part of the Wolf Pup sale. Currently under contract as two small sales.
Fishsticks, Bogo Sales	2008	Originally planned as part of the Logjam sale. Currently under contract as two small sales.
Hook, Oxbow Sales	2008	Originally planned as part of the Logjam sale. Currently planned for offer as two small sales in 2008.
Personal Use Firewood	2008 – Unknown	Individuals use the area for fuel wood removal that does not require a permit. Removal is approximated at XX cords per year and occurs along the existing road system.
Staney Creek Enhancement and Restoration Project 1 Environmental Analysis	Ongoing Analysis	Watershed restoration via in-stream work, road maintenance/decommissioning, and riparian thinning. Upland young growth thinning and gapping to improve understory forage production.
ET Rock Crushing Expansion MMP	Ongoing Analysis	Sale of more material.
Bicknell Mineral Sale MMP	Ongoing Analysis	Sale of material
Recreation Site Management	2008 – Unknown	Normal Recreation Site Maintenance
Recreation Use (includes use in the entire Logjam project area)	2008 – Unknown	Activities that occur along roads and in other recreation developed and dispersed sites include: subsistence gathering, driving for pleasure,

List of Projects **D**

REASONABLY FORESEEABLE FUTURE ACTIVITY	DATE PLANNED FOR COMPLETION	DESCRIPTION
		fishing, hunting, picnicking, berry picking, rock hounding, wildlife viewing, photography, trapping, camping, rock climbing and hiking. Most users of the area engage in several different activities during a visit; road access and activities occur mainly in the spring, summer and fall.
Timber harvest on private lands in the project area	2009	138 acres planned for harvest on lands owned by the State of Alaska. AKDNR plans to offer timber in this area in 2009 (C. Clark, Resource Forester)
Access Travel Management	Ongoing Analysis	Road closures, road decommissioning, and roads converted to Off-highway vehicle (OHV) trails are expected at locations across the Island. Specific proposal is not yet identified.

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