

Appendix 1

Unit Cards

Appendix 1, 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 ROD are in numerical order by VCU. The unit cards summarize the silvicultural prescriptions, and describe the resource concerns and mitigation measures for each unit.

In the Iyouktug project and associated maps, unit boundaries do not include stream (RMA) buffers, high vulnerability karst, or non-forested areas. Areas of resource concern, including RMAs, high vulnerability karst, goshawk nest buffers, leave strips, as well as areas to be harvested in ongoing small timber sales, are displayed as areas dropped from the alternative in the attached maps or are described in the unit card. These areas will not be harvested. Areas of slopes over 72%, bear dens, or wetlands are described in the text of the unit cards and/or displayed on the maps; the management of these areas is described in the text. Harvest acres could be less than unit acres due to management of these areas.

The following sections provide background information for the unit cards. The Introduction to Unit Cards section of this appendix explains information displayed in the individual unit cards and maps. The Project Design, General Mitigation Measures, and Unit Layout Instructions section summarizes project design elements (including silvicultural prescription), mitigation measures, and unit layout instructions that apply to all units, either where a particular resource or resource condition is found, or where these conditions are found during unit layout. These elements and measures can be either from the Forest Plan or project specific.

Introduction to Unit Cards

Unit Card Maps

Each unit card map in this appendix displays a unit number at the top of the map. This unit number corresponds with the unit on that map designated by the wide, dark outline symbol ("ROD Unit Boundary" in the map key). Some units are divided into multiple pieces on the unit card maps.

Silvicultural Prescriptions

Silvicultural prescriptions (referred to as RX in the unit cards) have been developed for each unit to meet site specific management objectives and Forest Plan direction. These objectives may include retaining old-growth characteristics for biodiversity, protection of soils, watershed, wildlife habitat

or scenery values or designing systems that are most economical for logging feasibility on a site.

Minor changes to unit boundary location and to prescriptions are expected during implementation to better meet on-site conditions. Prescription information included on unit cards and included in the Iyouktug Record of Decision is meant to provide basic guidelines to achieve desired stand structure and to address resource concerns and logging system operability.

Additional information is provided below (under Project Design, General Mitigation Measures, and Unit Layout Instructions) for implementing the single tree selection prescription. Detailed silvicultural prescriptions and marking guides located in the project record should also be followed during layout.

Percent species composition is calculated based on stand exam data. Species composition observed during layout may vary somewhat from these percentages.

Watershed and Fisheries

All known streams, either field surveyed or identified from the GIS layer, are shown on the unit card maps. Field surveys have been done on all units that will be harvested using ground-based equipment. Several proposed helicopter units have not yet been field-verified for streams. "GIS-mapped streams" are mapped and classified based on aerial photos. It is likely that when field verification takes place prior to layout, stream inventory and protection will be updated. These streams, and any additional streams found during layout, will be protected by following the Forest Plan Riparian Standards and Guidelines listed below. Class IV streams will be protected by following Best Management Practices. Timing restrictions for instream work may be required for each fish stream crossing listed on unit cards (for temporary roads) and road cards. Instream work will be permitted through the Alaska Office of Habitat Management and Planning.

Process Groups and Channel Types

A process group describes streams with similar interrelationships between watershed runoff, landform relief, geology, and glacial or tidal influences on erosion and deposition. A channel type more precisely characterizes a stream and helps predict the probable responses to natural and human influences. Channel types incorporate other aspects such as gradient, pattern, stream bank incision and containment and riparian area vegetation communities. See the Forest Plan, Figure D-1 (page D-4) for a visual representation of the typical distribution of channel process groups. The following table shows the Forest Plan codes used on the unit card narratives. Unit cards summarize protection needed for each stream in the unit by process group.

Table R1-1: Process Groups in the Iyouktug Project Area (Paustian et al. 1992)

Process Group	Description	Channel Morphometry	Riparian Management Area
HC	High Gradient Contained	Steep mountain slope tributaries	Within side-slope break
AF	Alluvial Fan	Multi-branched channels on depositional footslopes	Greater of 140 feet or active fan surface, remove no more than 10% of trees on remainder of fan
MC	Moderate Gradient Contained	Confined stream entrenched in footslopes or lowlands	Within side-slope break
MM	Moderate Gradient/Mixed Control	Valley bottom streams with variable confinement	Greater of 120 feet or floodplain, riparian wetland extent
LC	Large Contained	Confined streams in lowlands and valleys	Greater of 100 feet or within side-slope break
FP	Floodplain	Unconfined valley flood plain streams	Greater of 130 feet or extent of floodplain or riparian vegetation or wetlands
PA	Palustrine	Placid, sinuous, lowland streams	100 feet (Class I, II)
ES	Estuarine	Unconfined streams on tidal deltas	1,000 feet

Source: Forest Plan, pages D-1 - D-4.

Riparian Management Areas and Riparian Standards and Guidelines for Timber Harvest

Stream buffers maintain biodiversity and productivity, streambank and stream channel processes, and the natural and beneficial qualities of large woody debris over the short and long term. Riparian Management Areas are areas of special concern to fish, other aquatic resources and wildlife. They are generally delineated as identified in the process group direction (RIP2, III, E).

Forest Plan Standards and Guidelines for riparian areas are applied to all fish streams (Class I and II) within the project area and to non-fish-bearing Class III streams.

The Tongass Timber Reform Act (TTRA) mandates the use of minimum 100-foot wide buffer strips along both sides of all Class I and Class II streams that flow into Class I streams. This was incorporated into the Forest Plan Standards and Guidelines as “No commercial harvest within 100 feet of Class I streams and Class II streams that flow into Class I streams.” All Class II streams in or adjacent to timber units flow into Class I streams.

Reasonable Assurance of Windfirmness (RAW) Zone for Streams

These areas alongside stream buffers are managed to improve windfirmness to the stream buffer where windthrow is a concern. RAW zones are intended to protect the no-harvest stream buffer from accelerated windthrow. These areas, for example, may be harvested to produce a feathered edge or the most

windfirm trees may be retained while the trees more likely to blowdown are harvested. Other RAW zones may be based on topography. For Class I, II, and III Floodplain (FP), High Gradient Contained (HC), Large Contained (LC), Moderate Gradient Contained (MC), Moderate Gradient/Mixed Control (MM), and Palustrine (PA) areas, manage an appropriate distance beyond the no-harvest stream buffer to provide for a reasonable assurance of windfirmness of the Riparian Management Area (pay special attention to the area within one site-potential tree height of the Riparian Management Area). Site-potential tree heights vary according to the channel type as follows:

- Floodplain - 130 feet
- High Gradient Contained - 120 feet
- Large Contained - 100 feet
- Moderate Gradient Contained - 100 feet
- Moderate Gradient/Mixed Control - 120 feet
- Palustrine - 85 feet or less

Karst

Karst lands impose land management challenges not encountered in non-karst areas because this three-dimensional landform functions differently than other landforms. The activities on moderate vulnerability karst systems lands pose little or no threat to organic, sediment, and debris introduction into the karst hydrologic systems beneath. Partial suspension was required on these lands to minimize soil disturbance. Any sinkholes or features directly connected to the karst system require a buffer.

Lands and Encumbered Land

The timber sales are more than a mile away from private lands. About 5,050 acres of the Iyouktug project area are encumbered. These are lands that have a claim, lien, charge or liability attached to and binding real property. This includes Native Selection land which is selected but as yet un conveyed by the USDI Bureau of Land Management for lands withdrawn in fulfillment of Native entitlements established under ANSCA. Huna Totem Corporation has “selected” all but approximately 6 acres of encumbered lands from other federally-managed land parcels; none of these selected lands fall within the Iyouktug project area.

Recreation

Recreation concerns are the same as the Scenery resource concerns. Scenery resource protection and management reduces effects to recreation.

Project Design, General Mitigation Measures, and Unit Layout Instructions

The following general project design, mitigation measures, and unit layout instructions apply to all units, actions, and roads in the Iyouktug project where those conditions exist. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see

Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook), where applicable.

**Silvicultural
Prescription-
Guidelines for All
Single Tree
Selection Units**

The following are general guidelines for Single tree selection prescription: Designate up to specified percent of the existing basal area for harvest emphasizing spruce 24 inches DBH or greater and yellow-cedar. Designate trees for harvest either singly or, preferably, in small clumps (cut-tree mark) to facilitate helicopter yarding and singly and/or in small clumps or corridors to facilitate shovel yarding. Clumps will range from several trees up to approximately an acre in size with some clumps as large as 2 acres to favor spruce regeneration. Percent basal area designated for harvest should not be increased to account for non forested/nonproductive areas within unit.

Harvest of other species and diameter classes will be based on market conditions at the time and refined during layout. Retain trees that represent all species and diameter classes currently in the stand; retain especially large diameter (30" +DBH) high defect trees that meet safety reserve guidelines and, if present, mid-sized (16-20" DBH) and representative large (30" + DBH) spruce and yellow-cedar with high vigor and good seed producing potential (refer to individual unit prescription marking guidelines). Designate reserve trees of sufficient size and condition within areas of high value marten habitat to meet marten standards and guidelines. The residual stand and advanced spruce/yellow-cedar regeneration should be protected to the extent possible during harvest. Refer to individual unit prescriptions and marking guides for additional site-specific information.

**Silvicultural
Prescription-
Planting**

Inter-planting of yellow-cedar or spruce should be scheduled to increase post-harvest composition or maintain pre-harvest composition of these species.

In Units 105, 108, and 111:

Natural regeneration is expected to be similar to the current species mix, however, to support natural regeneration and provide for a post-harvest yellow-cedar composition that is greater than what currently exists, inter-planting of yellow-cedar is prescribed following harvest. Planting density will be 222 trees per acre (TPA) (14x14 spacing) and should occur as soon as possible (within two growing seasons) following harvest in created openings where clumps of trees have been harvested.

In Units 114 and 121 (based on scientific recommendations by Paul Hennon):

Based on scientific recommendations (Hennon 2007 and 2006) and in response to the public's concern about cedar decline, yellow-cedar will be planted in these units in an effort to increase yellow cedar composition and establish yellow-cedar in areas judged to be suitable for long-term yellow-cedar survival (i.e. not prone to future yellow-cedar decline). Currently yellow-cedar is not

present or is a minor component in these units, but these units are considered to have favorable site characteristics for promoting yellow-cedar establishment and long-term growth. Adequate late-winter and spring snow make these units an unlikely candidate for future yellow-cedar decline.

Planting density will be 222 TPA (14x14 spacing) and should occur as soon as possible (within two growing seasons) following harvest. The prescribed planting density takes into account expected seedling mortality due to deer browsing, shading, competing natural regeneration, weather, and other variables.

Surveys/monitoring of planting will occur as described in the ROD.

Windthrow

Risks of windthrow have been evaluated for the project area and for each unit and addressed through unit design and in the silvicultural prescriptions. Units with edges at risk of windthrow will receive further evaluation during layout.

Temporary Roads- Locations and Decommissioning

Temporary road locations on the maps are estimated. Temporary road locations may change based on agreements between the Forest Service and the purchaser. Temporary roads were assigned a number on analysis maps and in unit cards to provide location information only. These numbers will not be used in the transportation atlas or other documents or maps.

On the ground actions for decommissioning temporary roads range from blocking the entrance and removing drainage structures to obliterating the road, returning the natural contours, and replanting vegetation. For temporary road decommissioning in the Iyouktug project, the roads will be closed to all motorized vehicles, access blocked, and all drainage structures removed. The end result is the stabilization and restoration of unneeded roads to a more natural state. Temporary road decommissioning will be part of the timber sale contract and will occur immediately after timber harvest is completed.

Timber/Logging and Yarding Methods

Yarding methods were proposed for Iyouktug units by the IDT based on operability, and those yarding methods were analyzed by the IDT for environmental effects. Different yarding methods have different environmental effects. Because aerial yarding methods (helicopter yarding in particular) generally have less impact than shovel yarding, a change from shovel yarding to cable or helicopter yarding, or cable to helicopter yarding would not change or would reduce environmental effects; this change to aerial yarding can be made at the discretion of the timber sale administrator without further change analysis as long as concerns in the unit cards are responded to. A change from aerial yarding to shovel yarding will require further review of effects by an IDT and decision by the responsible official prior to harvest.

Helicopter Logging Service/Staging Area Designation

Service/staging areas for helicopter logging operations will be needed. These service areas will be existing openings like rock pits, older landings, less traveled roads, or open areas in old cut units. In some cases, an area may be

**Stream Channel
Protection Measures
Incorporated into
Unit Design**

constructed and/or an existing area may be enlarged. All sites will be located in pre-existing developed sites or in areas that are proposed for development such as temporary roads.

The following stream protection measures are required in all units with streams. See individual unit cards for stream categories.

Stream Protection Categories

Category A: Class I streams and Class II streams are marked with blue and white striped flagging, and will be protected by no-cut buffers designated by process group in Forest Plan Riparian Standards and Guidelines. No commercial timber will be removed from these buffers. Trees identified for harvest will be felled to avoid no-cut buffers. Prior to any operations within a buffer, a Stream course Protection Plan will be developed for that buffer (BMP 13.16).

Category B: Class III streams are marked with orange and white striped flagging. These stream courses will be protected by no-cut buffers within the v-notch. Class IV streams with unstable side-slopes may also be assigned Category B protection without buffers. The following are Category B protections:

Split yard and directionally fall trees away from Class III and IV streams without buffers (RIP2-II). Felled trees that inadvertently enter or cross stream courses shall not be bucked or limbed until clear of stream courses, unless limbing or bucking would reduce damage to the riparian vegetation or stream banks. Debris in Stream courses resulting from falling or yarding shall be removed immediately to a stable location above high water mark. Existing natural stable debris will be left undisturbed. When ground skidding systems are employed, logs will be end-lined out of riparian areas. Fully suspend logs where yarding is to be done across streams or the full length of a stream or drainage (BMP 13.16, RIP2-II).

Category C: Class IV streams and all other intermittent, ephemeral, and small perennial channels and V notches designated for soil and water quality protection are marked with green and white striped flagging and will be protected in the following manner:

Where practicable, trees will be felled and yarded away from stream courses. The trees that cannot be felled away from stream courses will be felled to bridge the stream providing these trees will be yarded during the same operating season. Trees felled to bridge stream courses will be bucked, limbed, and topped clear of stream course and its banks. Debris which restrict natural water flow, adversely affect water quality or have potential for debris flow will be removed to a stable location above high water mark before the yarder leaves the unit or upon completion of seasonal logging activities in the unit, whichever comes first (BMP 13.16).

Stream Crossing Protections (BMP 13.16)

1. Location and method of stream crossings must be agreed to prior to construction. Crossings are authorized after the location of skid trails, tractor roads, and the Forest Service and the Purchaser agree to temporary roads. Temporary crossings shall not impede fish passage, or result in significant degradation of water quality (BMP 14.17).
2. Material from temporary road and skid trail stream crossings will be removed from the stream channel and the stream banks will be restored to an acceptable condition upon completion of Purchaser's use or prior to the next seasonal high runoff period, unless otherwise agreed (BMPs 13.11, 13.14, 14.17, and 14.24).
3. Purchaser shall repair all damage to a stream course caused by Purchaser's operations, including damage to banks and channel, as designated by the Forest Service. Revegetation may be required on disturbed stream banks, V-notch sideslopes, and adjacent floodplains (BMP 12.17).
4. Water bars, windrowed slash, and other erosion control structures will be properly located to prevent water and sediment from being channeled into stream courses, and to dissipate concentrated flows.
5. Wheeled or track-laying equipment will not be operated in stream courses unless approved by Forest Service except at crossing designated by Forest Service, or as essential to construction or removal of culverts and bridges (BMP 14.14).

Soil and Water Applicable Best Management Practices (BMPs)

BMPs apply to all units and all road segments. In the unit cards, BMPs were highlighted that were specific to unit concerns. However, all of the following should be implemented through layout and project implementation

The following BMPs for road development apply to temporary roads as well as to National Forest System Roads.

Soil/Water Protection during Timber Sale Planning

Incorporate soil and water resource considerations into timber sale planning. Include site-specific considerations, site preparation, designating water quality protection needs on sale area maps, locating and designing landings for good drainage and dispersion of water, incorporating erosion control and timing responsibilities into the Operating Schedule, scheduling and enforcement of erosion control during and at completion of the timber sale, including non-recurring "C" provisions to protect soil and water resources in timber sale contracts, and seeking an environmental modification of the contract if new circumstances or conditions indicate that soil, water, or watershed damage may occur. (BMPs 13.1, 13.2, 13.3, 13.4, 13.9, 13.10, 13.11, 13.12, 13.14, 13.17, and 13.18)

Soil/Water Protection during Road Development

Implement measures to reduce surface erosion and drainage interruption related to transportation. This includes water barring and cross-draining roads using ditches and culverts to prevent water running long distances over roads, closure, and seeding and fertilizing cut-and-fill slopes. (BMPs 14.1, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.19)

Soil/Water Protection during Road Management

Conduct road maintenance and snow removal operations to minimize disruption of road surfaces, embankments, ditches, and drainage facilities, and use road closures or other measures to keep road surface and road site erosion at low or background levels. (BMPs 14.20 and 14.23)

Management of Road Use to Reduce Erosion and Sedimentation

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 14.22)

Temporary Road Decommissioning

Decommission temporary roads after use, remove or bypass drainage structures and install waterbars in appropriate places. (RIP2-II and BMPs 12.17 and 14.24)

Soil/Water Protection during Development of Rock Sources, LTFs, & Other Facilities

Implement measures to reduce surface erosion and other impacts on soils and water from gravel sources and quarries, LTFs/MAFs, sortyards, and other facilities. (BMPs 14.18, 14.19, 14.25, 14.26, and 14.27)

Accidental Spills

Implement measures and plans to prevent the contamination of soil and water from accidental spills of petroleum products and hazardous substances. (BMPs 12.8 and 12.9)

Wildlife

The following are to be implemented in units with known wildlife species habitat features (see individual unit cards) or where those resources are discovered during layout and implementation:

For bear: A 200-foot no harvest buffer will be implemented around den sites documented or observed to occur within units proposed for harvest, where feasible. Recommend that harvest activities occur in these units after June 1 (Flynn 2007, pers. com.). Human/bear interactions will be immediately reported to the biologist to assess the action required. Forest Plan standards and guidelines will be applied.

For goshawk: Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. This applies to active nest sites and the Iyouktug nest has been active every year since 2002. If a goshawk nest is identified in or adjacent to the unit,

contact the project biologist; follow Forest Plan direction for the development of the nest buffer. Forest Plan standards and guidelines will be applied. Although not required, consider harvesting Units 103, 105, 108, 174, 175, 176, 820, 1031, 1051, and 1081 before March 15 or after August 15 yearly.

For raptor and heron nests: Maintain a 600-foot windfirm no-harvest buffer around active raptor (excluding goshawk but including hawks and owls) and heron nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer. Forest Plan standards and guidelines will be applied.

For bald eagle nests: Documented nests occur within the 1000-foot beach fringe buffer that is protected from harvest by Forest Plan standards and guidelines to maintain beach and estuary habitats. If a bald eagle nest is identified in or adjacent to a proposed unit or road, contact the project biologist. Activities will adhere to the MOU between the Forest Service and FWS regarding eagle nests (USDI 2002c). Activities that are inconsistent with current bald eagle use will be restricted from a 330-foot radius from active bald eagle nest trees between March 1 and August 31. This agreement also places seasonal timing and activity restrictions for repeated helicopter flights within a quarter mile of active nests and for road blasting activities within half a mile of active nests.

For marbled murrelet nests: If a marbled murrelet nest is identified in or adjacent to a unit or proposed road, contact the project biologist. Maintain a 600-foot windfirm no-harvest buffer around nest sites and restrict harvest and road building activities from May 1 – August 15 within the buffer. Activities will adhere to Forest Plan standards and guidelines will be applied.

For marine mammals: Activities will not intentionally approach within 100 yards or otherwise intentionally disturb or displace any hauled-out marine mammal. Forest Plan standards and guidelines will be applied.

For seabird rookeries: If seabird rookeries are identified in or adjacent to proposed activities, contact the project biologist. Forest Plan standards and guidelines will be applied.

For waterfowl and shorebirds: If significant use areas are identified in or adjacent to proposed activities, contact the project biologist. Forest Plan standards and guidelines will be applied.

Invasive Species

The following will be implemented for temporary roads as well as NFS roads (see also Road cards).

On October 19, 2007, the Tongass National Forest implemented a supplement to the Forest Service Manual concerning invasive plant species (Supplement No.: R10 TNF – 2000-2007-1). The following design elements will be used to address invasive species in the Iyouktug project area.

- For oxeye daisy, creeping buttercup, and anise, which have very limited distribution, instigate control measures (manual control measures such as pulling, or burning, see Sitka and Hoonah Ranger Districts Weed Eradication Decision Memo) in rock quarries, or anywhere infested rock or substrate might be re-used, prior to new road construction.
- Inspect rock quarries for reed canary grass infestation prior to use and designate preferred clean areas for rock extraction. Paint or otherwise designate portions of quarries that are heavily infested with reed canary grass. Where possible, do not use infested rock for road work. If uninfested rock is limited and must be utilized, use infested rock for road re-construction and not for building new roads.
- Where feasible and where safety will not be compromised for new road construction, limit the clearing of road-side trees in a 100-yard long (or longer) forested buffer to maintain forest canopy cover over the road and road cutbanks. The purpose of limited clearing is to create a shaded corridor that will suppress weed species. Sufficient shade over a road effectively serves as a barrier to the spread of some weed species.
- Eradicate or control all newly introduced high priority weed populations (through manual control measures), as possible, during and after the project completion, and prior to closing all roads, including temporary roads. If disposal of weed contaminated rock or soil is necessary, the substrate could be brought to a rock pit, piled and covered with an impermeable geotextile cloth to isolate weeds and prevent them from spreading.

Heritage

If heritage resources or items protected by the Native American Graves Protection and Repatriation Act are discovered during implementation, work should cease in the immediate vicinity. The sales administrator should be contacted, who will contact the appropriate archaeologist. Hoonah Ranger District in consultation with the appropriate Native organization and the State Historic Preservation Office will determine a course of action.

Unit Card Key

Harvest System:

SH = Shovel yarding

C = Cable yarding

H = Helicopter yarding

Prescription/Percent Retention:

ST50 = Single tree selection harvesting up to 50% of the basal area in the stand

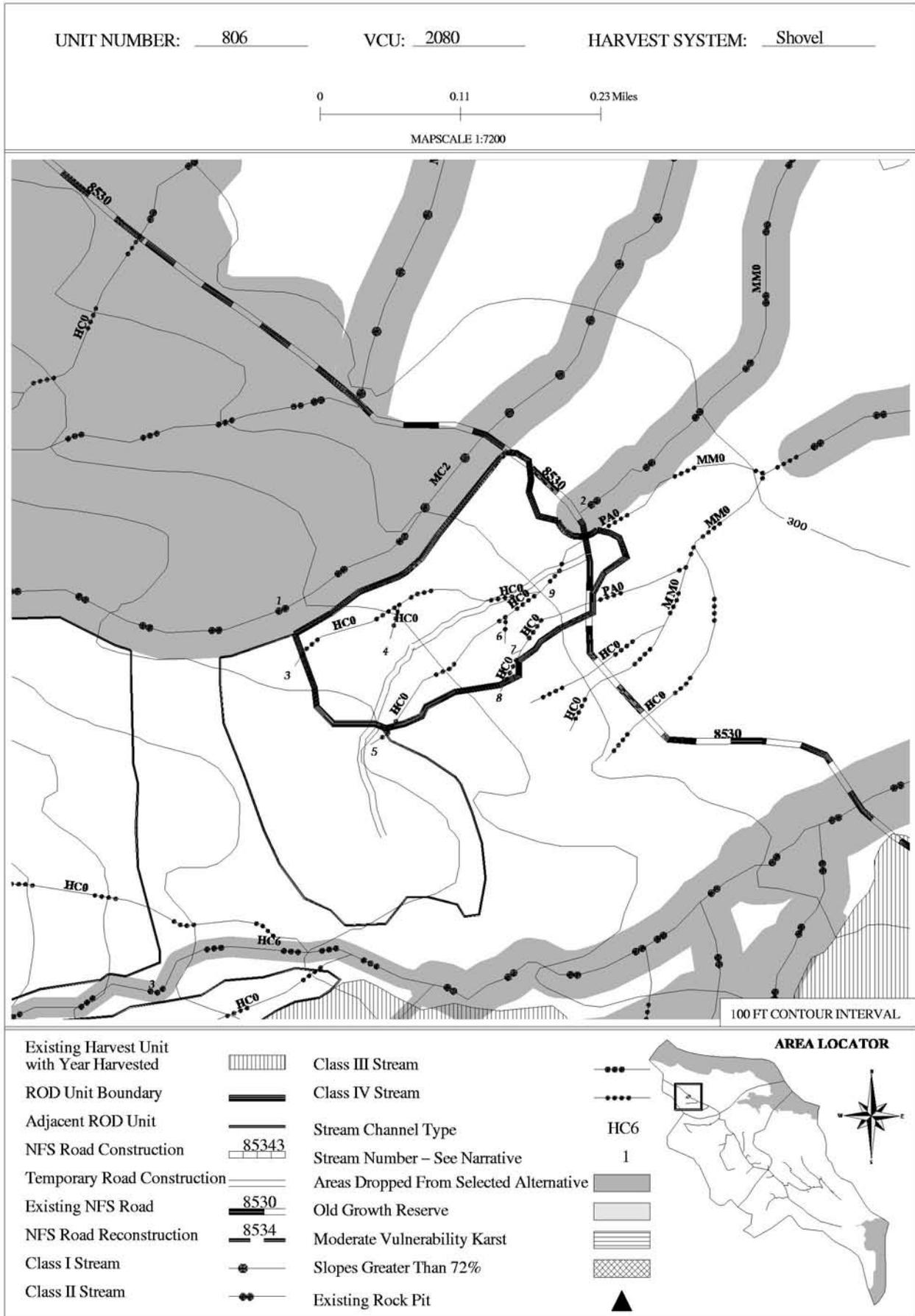
ST40 = Single tree selection harvesting up to 40% of the basal area in the stand

ST25 = Single tree selection harvesting up to 25% of the basal area in the stand

CC = Clearcut

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IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative

Unit Number:	806	Selected Alternative		Total Unit Acres:	18.0	Vol Strata Acres:	High: 0 Med: 6.3 Low: 11.7
VCU Number:	2080	Harvest System:	SH	Net Estimated Harvest Volume (MBF):	195	Prescription /Percent Retention:	ST50

Summary of Concerns, Responses, BMPs and Mitigation							
SILVICULTURE:							
Existing Stand Condition/Vegetation: Stand is comprised of predominately of 12-20" DBH western and mountain hemlock, with some larger diameter spruce. The western portion of the unit is more productive. Wind risk is low.							
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.							
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.							
TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.							
ENGINEERING/ROADS: Temporary road 8006 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.							
BOTANY RESOURCES: No concerns							
FISH/WATERSHED: Concern: Streams 1 and 2 are Class IV PA channels at the bottom of the unit that become Class IV HC channels and diverge higher in the unit. Response: Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). Concern: Stream 3 is a Class I and II MC channel along north boundary of unit. Response: Category A protection. Locate unit boundary south of slope break. Maintain a no-harvest buffer of the greater of 100 horizontal feet from the stream channel (BMP 12.6) or within the side-slope break of the stream channel (RIPII). Concern: Temporary road – stream crossings Response: crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)							
GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.							
HERITAGE RESOURCES: No concerns							
SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. Response: Design shovel corridors to meet Modification, obtain landscape architect review during layout.							

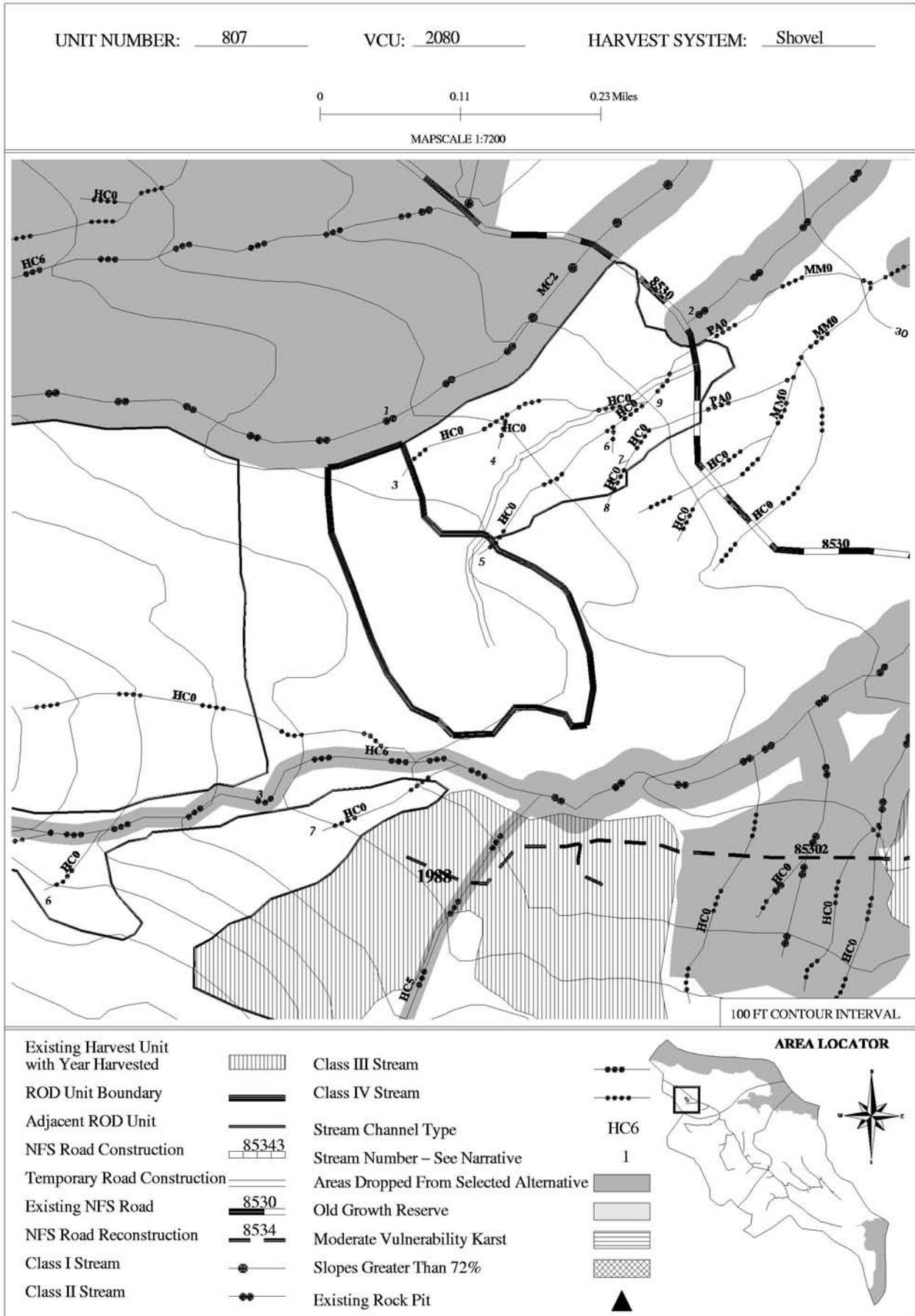
Summary of Concerns, Responses, BMPs and Mitigation

SOILS/WETLANDS: Slopes range from 2-40% in Unit 806. Soils range from poorly drained, deep organics on the gentle slopes to well drained deep mineral soils on slopes greater than 25%. The northeastern half of the unit is forested wetland (BMP 12.5). **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 806. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Avoid equipment operation on topographically low areas of the unit. Directional falling of trees may be required on low areas so that equipment may reach the felled trees without traversing low areas of the unit. (BMP 13.2 and 13.9) **Concern:** Shovel yarding may cause rutting due to slopes greater than 25%. **Response:** Do not operate shovel on slopes greater than 25%. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees instead. **Concern:** Half the proposed temporary road is located on forested wetland but no alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

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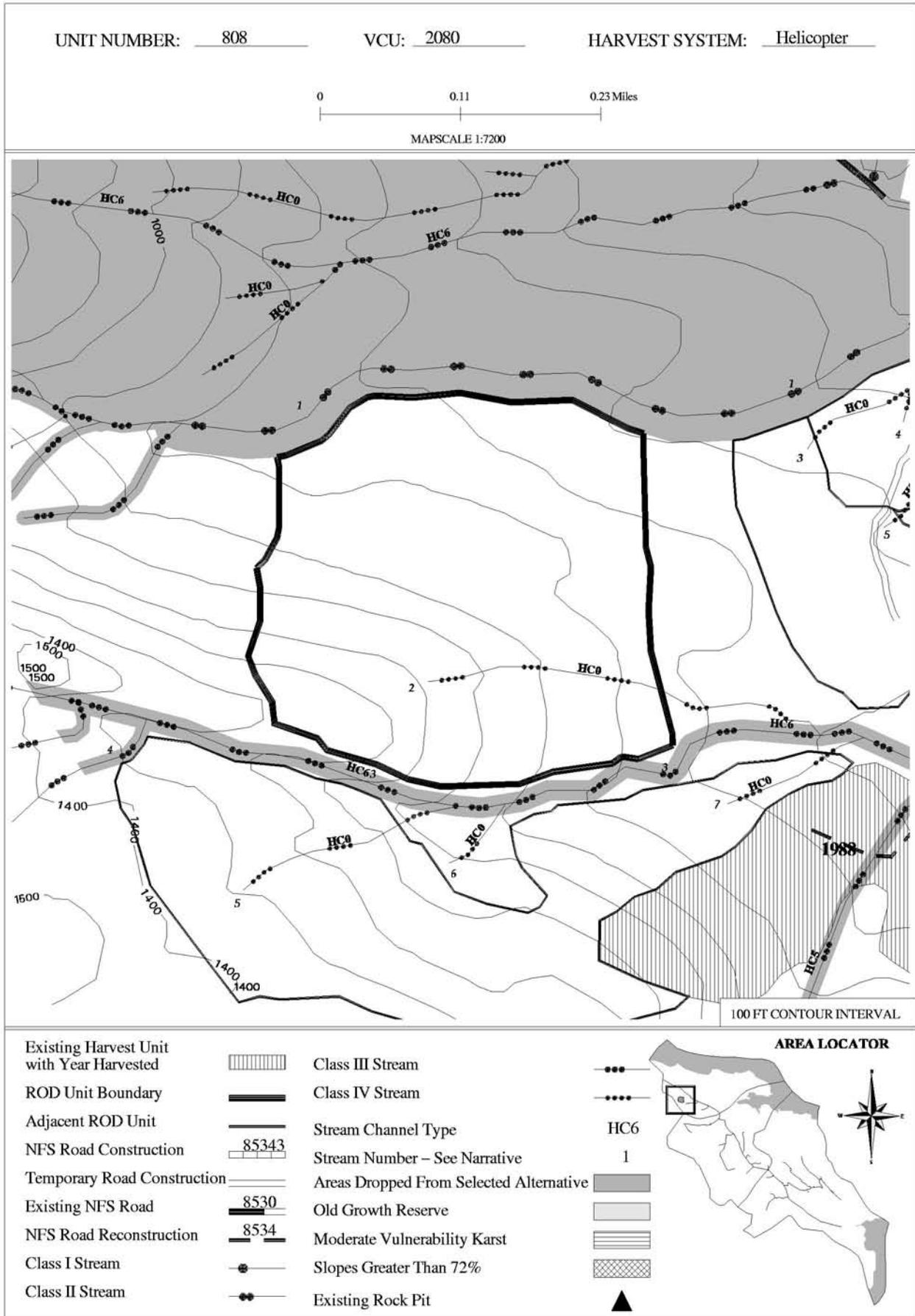
IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative					
Unit Number:	807	Selected Alternative	Total Unit Acres:	18.2	Vol Strata Acres: High: 0 Med: 18.2 Low: 0
VCU Number:	2080	Harvest System:	SH	Net Estimated Harvest Volume (MBF):	268 Prescription /Percent Retention: ST50

Summary of Concerns, Responses, BMPs and Mitigation	
<p>SILVICULTURE: Existing Stand Condition/Vegetation: Stand consists primarily 12-24" DBH western and mountain hemlock, with some 24-28" DBH spruce and 12-16" DBH yellow-cedar. The western portion of the unit is more productive. Wind risk is low. Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements. Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.</p>	
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<p>ENGINEERING/ROADS: Temporary road 8006 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.</p>	
<p>BOTANY RESOURCES: No concerns</p>	
<p>FISH/WATERSHED: Concern: Streams 1 and 2 are Class IV HC0 channels. Response: Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). Concern: Temporary road – stream crossings Response: Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)</p>	
<p>GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.</p>	
<p>HERITAGE RESOURCES: No concerns</p>	
<p>SCENERY/RECREATION: No concerns</p>	
<p>SOILS/WETLANDS: Slopes range from 10-35% in Unit 807. Concern: Operation of shovel yard equipment on slopes greater than 25% may cause rutting of soils. Response: Operate equipment on the contour of the slope, support the machine with puncheon and a slash mattress. (BMP 13.2 and 13.9)</p>	
<p>WILDLIFE: No concerns</p>	

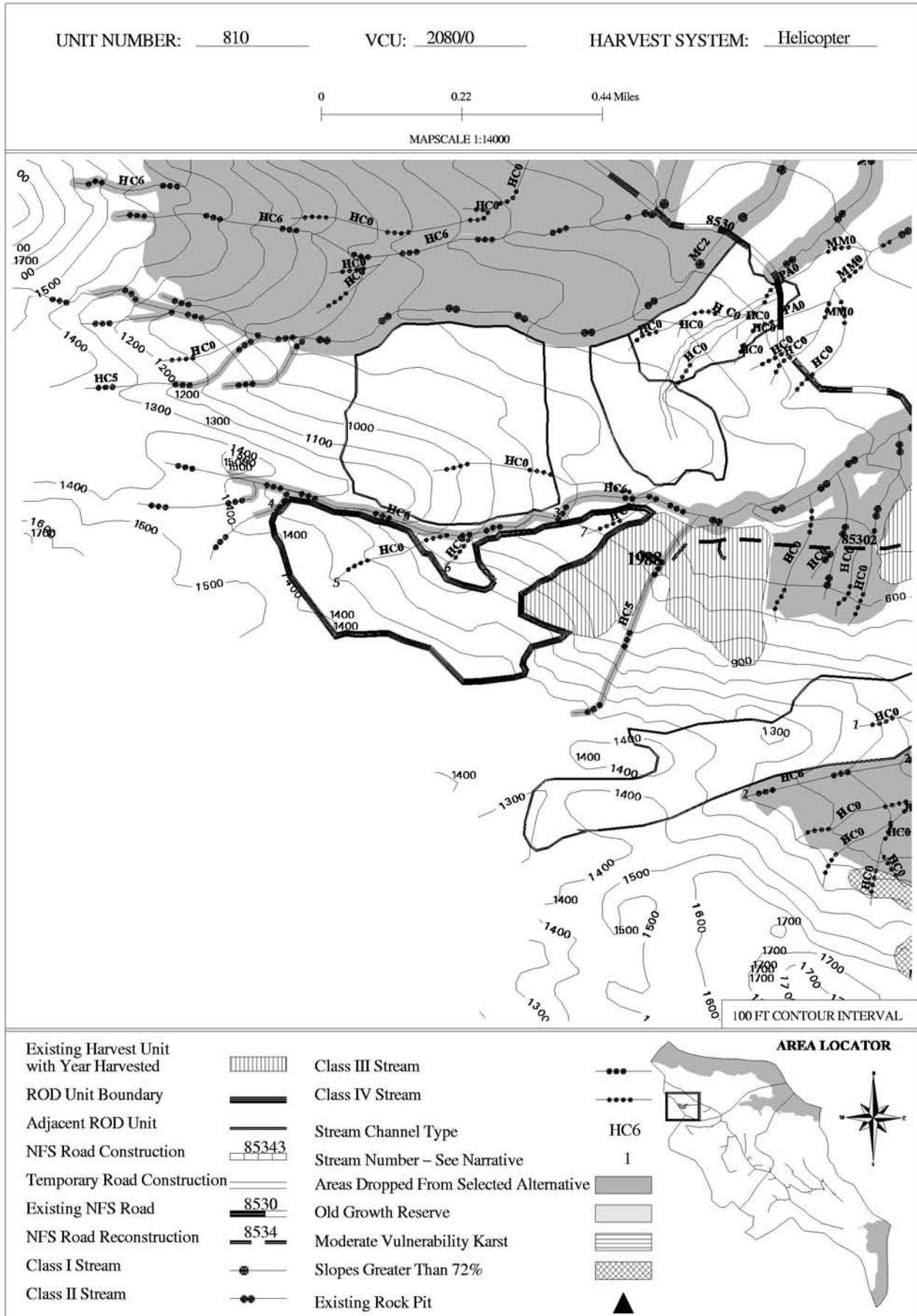
IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative					
Unit Number:	808	Selected Alternative	Total Unit Acres:	56.5	Vol Strata Acres: High: 0 Med: 56.3 Low: 0.2
VCU Number:	2080	Harvest System:	HE	Net Estimated Harvest Volume (MBF):	682 Prescription /Percent Retention: ST40

Summary of Concerns, Responses, BMPs and Mitigation	
<p>SILVICULTURE: Existing Stand Condition/Vegetation: Stand consists primarily of 12-20" DBH western and mountain hemlock, with some scattered larger spruce and western hemlock. The more productive areas are scattered in pockets primarily in the central and northern portion of the unit. Wind risk is low. Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements. Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.</p>	
<p>TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.</p>	
<p>ENGINEERING/ROADS: N/A</p>	
<p>BOTANY RESOURCES: No concerns</p>	
<p>FISH/WATERSHED: Concern: GIS mapped Stream 1 is a Class II HC channel on the northern boundary of the unit. Response: Category A protection (BMP 12.6, 13.14). Locate unit boundary south of side-slope break and 100-foot no-cut buffer (RIP III). Concern: Stream 3 is a Class III HC channel along southern portion of unit. Response: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Concern: Stream 2 is a Class IV HC channel in the unit. Response: Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).</p>	
<p>GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.</p>	
<p>HERITAGE RESOURCES: No concerns</p>	
<p>SCENERY/RECREATION: No concerns</p>	
<p>SOILS/WETLANDS: Slopes range from 20-60% in Unit 808. Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). Response: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the west of Unit 808 dropped for stability concerns (BMP 13.5)</p>	
<p>WILDLIFE: No concerns</p>	

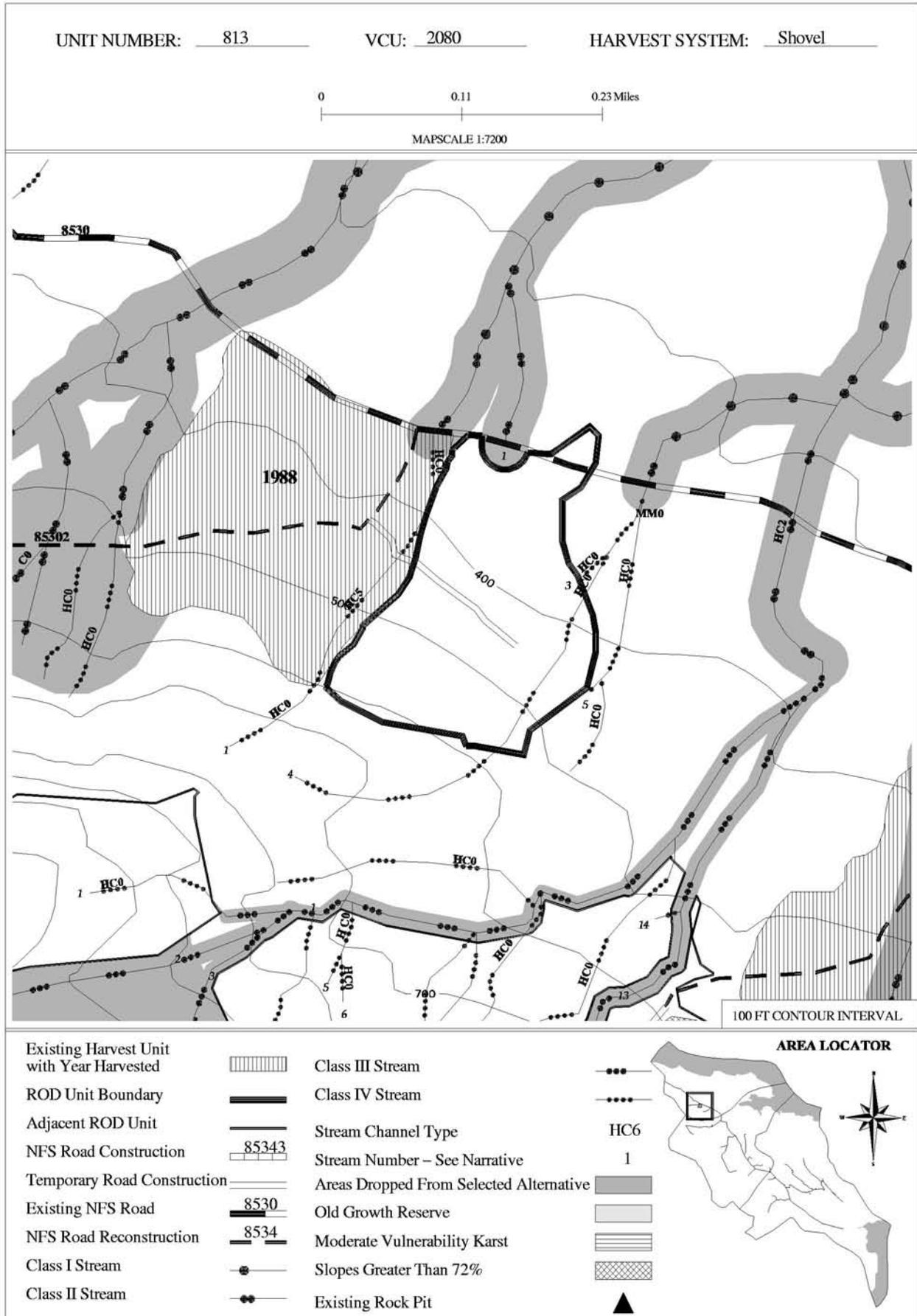
IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative							
Unit Number:	810	Selected Alternative		Total Unit Acres:	49.8	Vol Strata Acres:	High: 1.2 Med: 43.2 Low: 5.4
VCU Number:	2080	Harvest System:	HE	Net Estimated Harvest Volume (MBF):	583	Prescription /Percent Retention:	ST40

Summary of Concerns, Responses, BMPs and Mitigation	
SILVICULTURE:	
Existing Stand Condition/Vegetation: Stand consists primarily of patches of 12-24" DBH western and mountain hemlock, with some larger spruce up to 40" DBH spruce. Stand contains many open non-forested areas. Wind risk is low.	
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.	
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.	
TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.	
ENGINEERING/ROADS: N/A	
BOTANY RESOURCES: No concerns	
FISH/WATERSHED: Concern: GIS Mapped Stream 5,6,7: Class IV HC streams. Response: Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). Concern: Stream 3: Class III HC stream. Response: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).	
GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.	
HERITAGE RESOURCES: No concerns	
SCENERY/RECREATION: No concerns	
SOILS/WETLANDS: Slopes range from 10-60% in Unit 810. Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). Response: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the southeast of Unit 810 dropped for stability concerns (BMP 13.5)	
WILDLIFE: No concerns	

IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative

Unit Number:	813	Selected Alternative		Total Unit Acres:	22.1	Vol Strata Acres:	High: 0 Med: 1.1 Low: 21.0
VCU Number:	2080	Harvest System:	SH	Net Estimated Harvest Volume (MBF):	213	Prescription /Percent Retention:	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand is comprised of predominately 16-28" DBH western and mountain hemlock with scattered 24-40" DBH spruce. There is an older area of windthrow on the western edge of this unit associated with adjacent past harvest. Wind risk is low to moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEERING/ROADS: Temporary road 8013 accesses unit from existing Road 85302. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 1,3,4,5 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Lower part of Stream 1 is Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 2 is Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

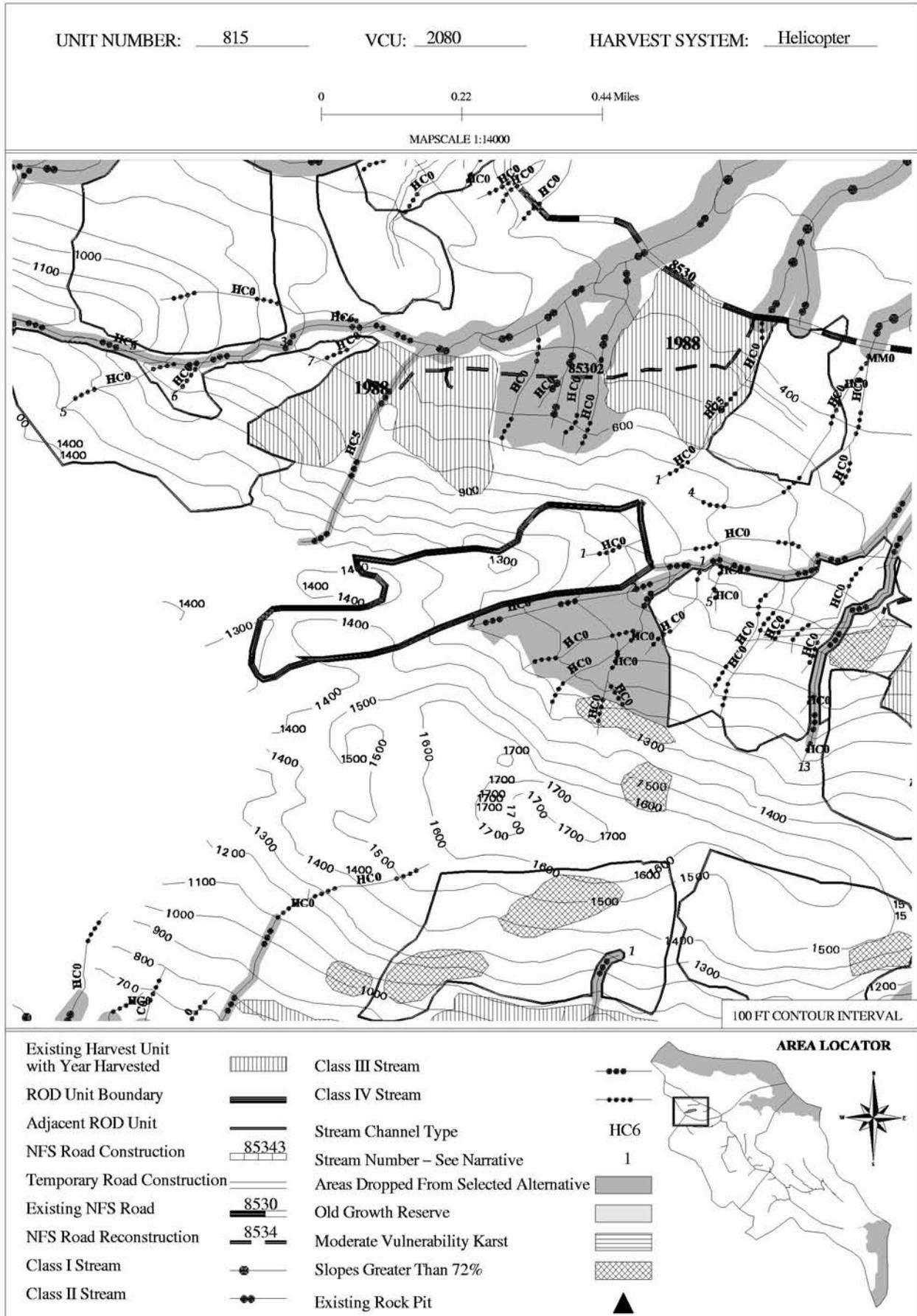
HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. **Response:** Design shovel corridors to meet Modification, obtain landscape architect review during layout.

SOILS/WETLANDS: Slopes range from 10-45% in Unit 813 with slopes greater than 30% in the southern third of the unit. **Concern:** Shovel yarding may cause rutting when operating on slopes greater than 25% or on low-bearing strength soils. **Response:** Operate the shovel on the contour of slopes greater than 25% and support the shovel with puncheon or a slash mattress throughout the unit. Use the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees toward the more gentle ground. Operate the shovel on puncheon or a slash mattress in the forested wetland to provide adequate bearing strength. The northern half of the unit is forested wetland. (BMP 12.5, 13.2 and 13.9). **Concern:** The proposed temporary road is located on forested wetland but no alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

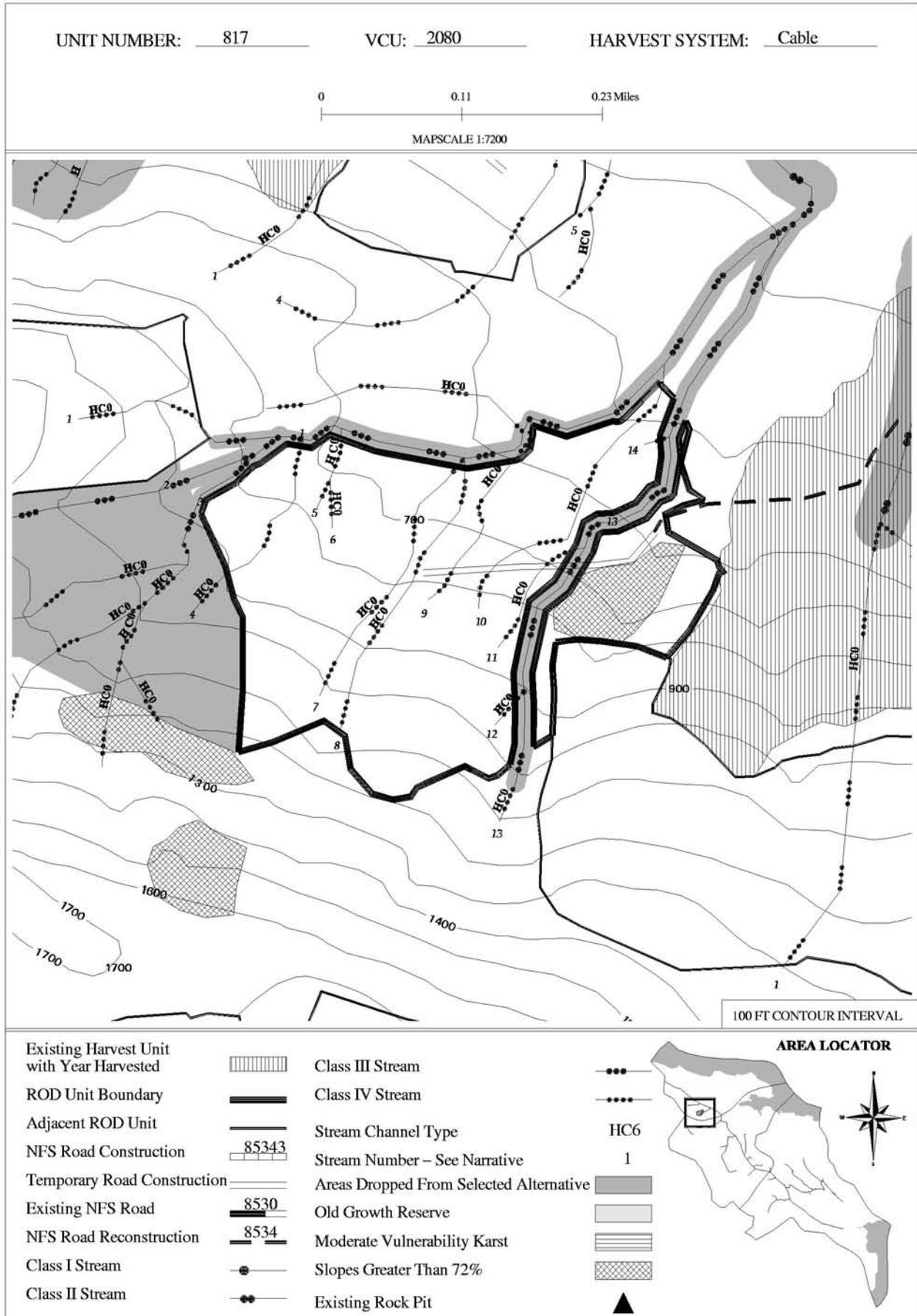
IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative					
Unit Number:	815	Selected Alternative	Total Unit Acres:	43.2	Vol Strata Acres: High:10.8 Med: 31.2 Low: 1.2
VCU Number:	2080	Harvest System:	HE	Net Estimated Harvest Volume (MBF):	562 Prescription /Percent Retention: ST40

Summary of Concerns, Responses, BMPs and Mitigation
<p>SILVICULTURE: Existing Stand Condition/Vegetation: Stand primarily consists of a mix of 12-20" DBH western and mountain hemlock and spruce with scattered trees up to 40" DBH. The western portion of the unit is more productive. Wind risk is moderate. Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements. Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.</p>
<p>TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.</p>
<p>ENGINEERING/ROADS: N/A</p>
<p>BOTANY RESOURCES: No concerns</p>
<p>FISH/WATERSHED: Concern: Stream 1 is a Class IV HC channel. Response: Category C protection (BMP 12.6, 13.14). Concern: Stream 2 is a Class III HC channel. Response: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).</p>
<p>GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.</p>
<p>HERITAGE RESOURCES: No concerns</p>
<p>SCENERY/RECREATION: No concerns</p>
<p>SOILS/WETLANDS: Slopes range from 30-90%. Concern: Areas greater than 72% slope are along the northern boundary. Response: Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. Concern: The eastern quarter of the unit is subalpine forest and muskeg. Response: Helicopter logging will protect wetlands and meet resource objectives (BMP 12.5 and 13.5). Area to the north of Unit 815 dropped for stability concerns (BMP 13.5). Concern: A minimum of partial suspension is required to meet soil quality standards in the rest of unit 815 (BMP 13.9). Response: Unit is proposed as full suspension, which exceeds partial suspension requirements.</p>
<p>WILDLIFE: No concerns</p>

IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative

Unit Number:	817	Selected Alternative	Total Unit Acres:	50.7	Vol Strata Acres:	High: 16.4 Med: 28.9 Low: 5.4
VCU Number:	2080	Harvest System:	Net Estimated Harvest Volume (MBF):	1,135	Prescription /Percent Retention:	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists primarily of western and mountain hemlock 12-20" DBH with some larger spruce and western hemlock 28-48" DBH. Wind risk is moderate. Mistletoe infection is moderate to heavy.

Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.

Silvicultural Prescription: Even-aged management – clearcut: Evaluate scenery/recreation concerns during layout (see scenery/recreation section).

TIMBER/LOGGING: This unit is comprised of two cable settings. The western-most setting accesses the area west of stream #13, a Class III stream that requires split yarding. The eastern-most setting accesses the area east of stream #13.

ENGINEERING/ROADS: Temporary road 8017 accesses unit from existing Road 85301. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 1, 13 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 2,3,4,5,6,7,8,9, 11,12,14 are Class IV HC channels. **Response:** Category C protection; BMP 12.6. Split yard and fall away from channel where practicable. Remove logging debris from channels. **Concern:** Stream 10 is a Class IV HC 'sensitive' channel. **Response:** Category B protection with split yard to protect side slopes in v-notch. **Concern:** Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

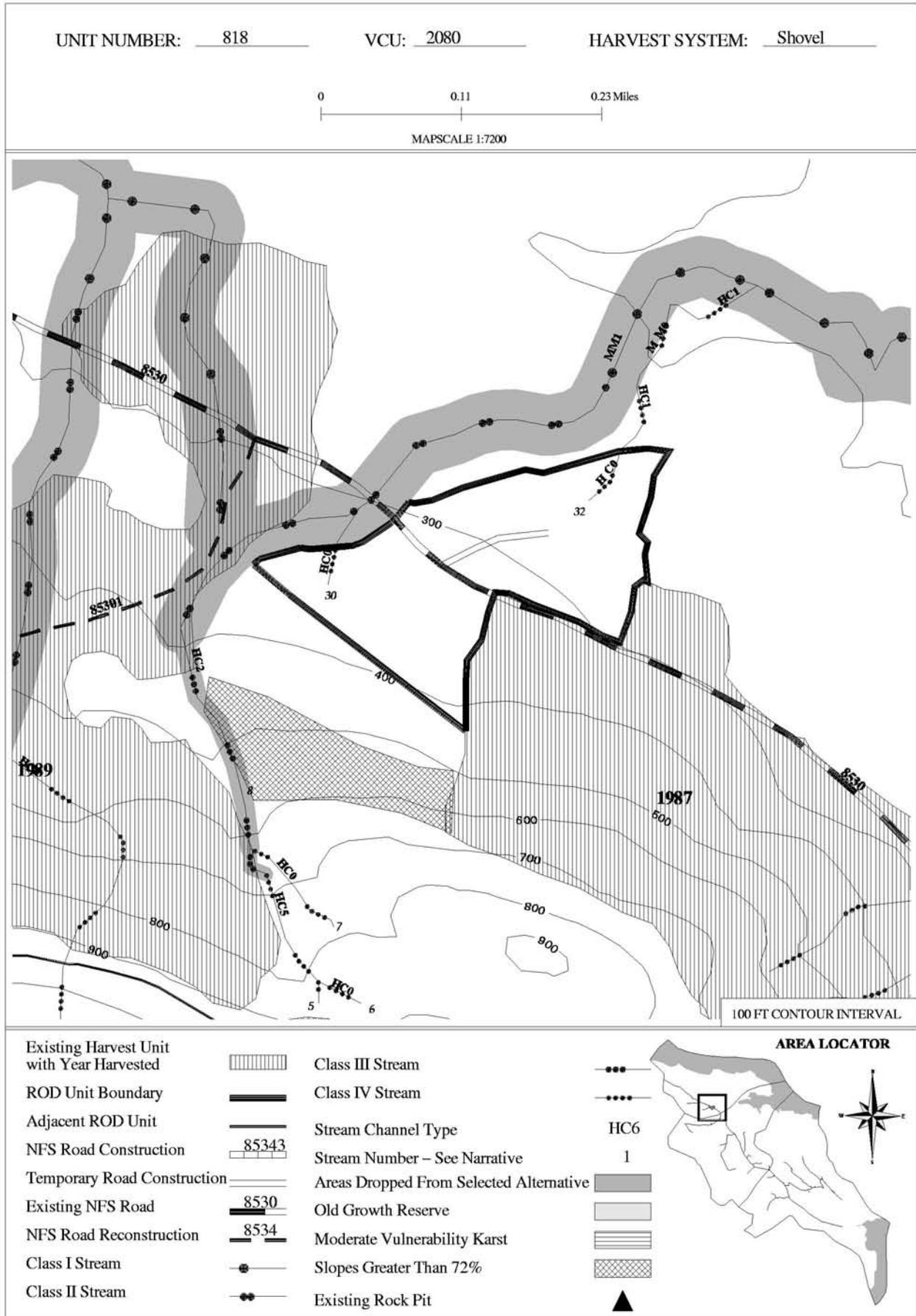
HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit is visible from Whitestone Harbor, a VPR. Design this unit to mitigate the existing impact and minimize additional impact. **Response:** Involve Landscape during layout of unit to meet VQO of Maximum Modification and to blend with adjacent harvest. Design road to minimize visible full bench cut and to minimize sidecast slash in visible portions.

SOILS/WETLANDS: The slopes range from 25-85%. **Concern:** There are approximately 3 acres of slopes greater than 72% in the eastern portion, just east of the class III v-notch. This portion of the unit has a history of landslides. There are about 2 acres of forested wetland in this unit. **Response:** Avoid this portion of Unit 817 as any landslides would enter a live stream (BMP 13.5 and 13.9). **Concern:** There are about 2 acres of forested wetland in this unit. **Response:** Partial suspension will protect wetlands and meet resource objectives (BMP 12.5). The rest of 817 is suitable for the proposed cable harvest with partial suspension. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: No concerns

IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative					
Unit Number:	818	Selected Alternative	Total Unit Acres:	21.8	Vol Strata Acres: High: 0 Med: 15.2 Low: 6.6
VCU Number:	2080	Harvest System:	SH	Net Estimated Harvest Volume (MBF):	287 Prescription /Percent Retention: ST50

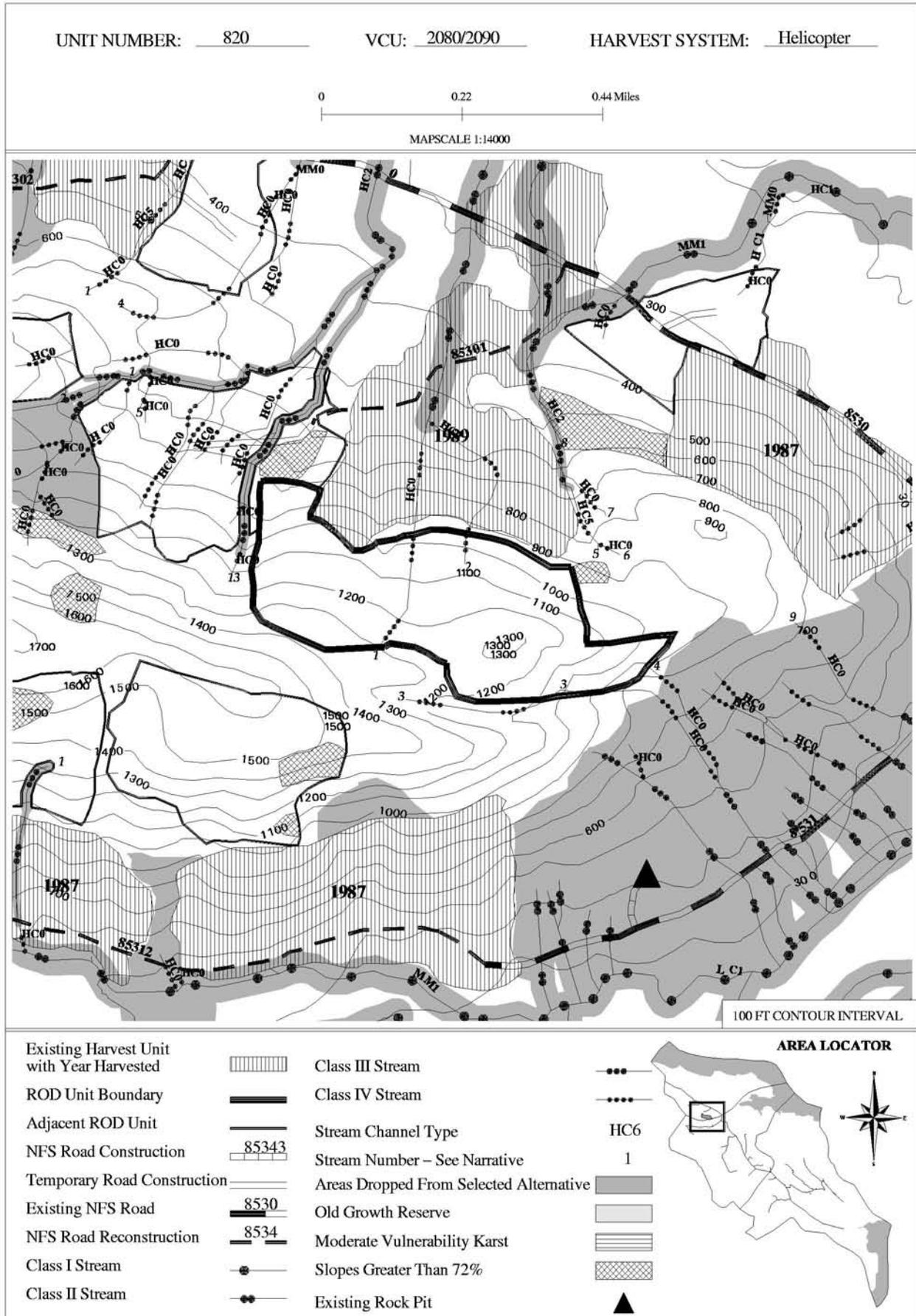
Summary of Concerns, Responses, BMPs and Mitigation	
<p>SILVICULTURE: Existing Stand Condition/Vegetation: Stand is comprised of predominately of smaller western hemlock 12-16" DBH with some larger spruce 28-40" DBH. Wind risk is moderate. Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements. Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.</p>	
<p>TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.</p>	
<p>ENGINEERING/ROADS: Temporary road 18A accesses unit from existing Road 8530. Road location will be flagged by USFS prior to harvest.</p>	
<p>BOTANY RESOURCES: No concerns</p>	
<p>FISH/WATERSHED: Concern: Stream 1 is a Class II HC/MM channel on the northern unit boundary. Response: Category A protection; no harvest within the greater of 100 feet or v-notch side slopes for HC segment, no harvest within 120 feet for MM segment (BMP 12.6, 13.14, RIP III). Concern: Streams 30 and 32 are Class IV HC0 channels. Response: Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16).</p>	
<p>GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.</p>	
<p>HERITAGE RESOURCES: No concerns</p>	
<p>SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. Response: Design shovel corridors to meet Modification, obtain landscape architect review during layout. Top portion of unit dropped due to intensity of adjacent harvest.</p>	
<p>SOILS/WETLANDS: Slopes in Unit 818 range from 5-35%. The soil in the northeastern portion, north of the road, is forested wetland. Concern: Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils. Response: Operate shovel on a puncheon or a slash mattress to provide adequate bearing strength on the higher areas of the unit [this means areas with less skunk cabbage and more tree roots]. Southwest of the road, the slopes reach 35% with better drained soils. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees toward the more gentle ground (BMP 12.5, 13.2 and 13.9). Concern: Half the proposed temporary road is located on forested wetland but not alternative route exists. Response: Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)</p>	

Summary of Concerns, Responses, BMPs and Mitigation

WILDLIFE: Concern: Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. High deer and bear use was observed in the southwest portion of the unit. **Response:** Proposed harvest system will retain 50% of the basal area. Retention will help to maintain connectivity and deer and bear habitat. Recommend that retention be maintained adjacent to the stream buffer along the west side of the unit to maintain a wider corridor and wind firmness. **Concern:** Goshawk observed in the unit. Surveys did not identify a nest site. Plucking post found in unit. **Response:** Goshawk was likely associated with an identified nest site. If a goshawk nest is identified, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

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IYOUKTUG TIMBER SALES RECORD OF DECISION
HARVEST UNIT MAP



Unit Data Card – Iyouktug Timber Sales ROD - Selected Alternative					
Unit Number:	820	Selected Alternative	Total Unit Acres:	73.5	Vol Strata Acres: High: 52.6 Med: 20.9 Low: 0
VCU Number:	2080	Harvest System:	HE	Net Estimated Harvest Volume (MBF):	1,034 Prescription /Percent Retention: ST40

Summary of Concerns, Responses, BMPs and Mitigation
<p>SILVICULTURE: Existing Stand Condition/Vegetation: Stand consists of 12-39" DBH spruce (39%BA), 12-38" DBH western hemlock (36% BA), and 12-30" DBH mountain hemlock (26% BA). The eastern side of the unit is more productive. The western portion of the unit has areas of blowdown. Hemlock and spruce advanced regeneration is present but not abundant. Wind risk is moderate to high. Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements. Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps to facilitate helicopter yarding. To offset the wind risk in the eastern portion of the unit adjacent to proposed clearcut Unit 819, decrease the basal area removed to 25% and target the tallest trees for removal. Refer to intro to unit cards, marking guidelines and detailed RX for more information</p>
<p>TIMBER/LOGGING: Single tree selection to be marked mostly in small clumps to facilitate helicopter yarding.</p>
<p>ENGINEERING/ROADS: N/A</p>
<p>BOTANY RESOURCES: No concerns</p>
<p>FISH/WATERSHED: Concern: Streams 1, 2 are Class IV HCO channels. Response: Category C protection (BMP 12.6, 13.14). Concern: Stream 3 is a Class IV HCO channel with increased incision depth. Response: Category B protection per BMP 12.6. Fall away from channel to protect v-notch side slopes and split yard.</p>
<p>GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.</p>
<p>HERITAGE RESOURCES: No concerns</p>
<p>SCENERY/RECREATION: No concerns</p>
<p>SOILS/WETLANDS: Slopes range from 5-65% in Unit 820. Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). Response: Unit is proposed as full suspension, which exceeds partial suspension requirements.</p>
<p>WILDLIFE: Concern: Red-tailed hawk was observed in unit. Response: Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.</p>