Tonka Stewardship Contract, Petersburg Ranger District, Tongass National Forest

September 10, 2014

Summarized by Carol Seitz Warmuth

Background

An interdisciplinary group evaluated best management practices (BMPs) on the Petersburg Ranger District in September 2014. The intent of the BMP review was to provide quality control to the BMP implementation and effectiveness monitoring effort on the Forest. Participants on the interdisciplinary trip included Teresa Streuli, Petersburg Ranger District Timber Sale Administrator; Brett Uppencamp, Petersburg Ranger District Harvest Inspector; Dennis Landwehr, Tongass Soil Scientist Program Manager; Heidi Lombard, Petersburg Ranger District Fish Biologist; Jason Powell, Tongass Road Planner; and Carol Seitz Warmuth, Tongass Monitoring and Inventory Coordinator.

The interdisciplinary team (IDT) monitored two units, specified road 6341, the Tonka sort yard and LTF as part of the BMP implementation and effectiveness monitoring. The Tonka Timber Sale units included 609 and 610. The unit evaluation focused on the stream reaches that showed the highest potential for sediment transport to a significant drainage down slope, as well as soil disturbance within the unit. The road evaluation focused primarily on the road crossing. The IDT monitoring group selected the water crossing that showed the most potential for water quality impacts as the focal point of the road monitoring and monitored roughly 0.25 mile on both sides of the crossing.

The Tonka timber harvest is part of the Tonka Stewardship Contract, developed under the Tonka Timber Sale environmental impact statement (EIS). The record of decision (ROD) for the Tonka EIS was signed March 28, 2012 although planning occurred before the 2008 Forest Plan Amendment. Upon review and evaluation, the units were found consistent with the standards and guidelines of the 2008 Forest Plan Amendment. This EIS has incorporated direction from the 2008 Decision on the Tongass Land and Resource Management Plan (Forest Plan) responding to the Tongass Adaptive Management Strategy. These units were harvested under the 2008 Forest Plan ROD. The 2008 Standards and Guidelines apply to all units. The logging systems are shovel, skyline cable and helicopter systems although only shovel units were reviewed by the IDT. Erosion control plans were completed for this timber sale and signed by the operator. Spill prevention, control and countermeasure plans were developed for this timber sale and copies submitted for IDT monitoring review. The timber was hauled to the Tonka log transfer facility (LTF).

Change analyses were completed for the Tonka Timber Sale. The change analysis focused on changes relative to the environmental effects of key issues identified by the (IDT). Noted changes included modification to increase the number of eve- age harvest units and decrease the number of uneven-age treatments. Specific to the units monitored, the unit boundaries on most of the units were adjusted to conform to local terrain, adjacent stream buffer requirements and logical settings. During implementation of Tonka Timber Sale, minor changes were made on the stream mapping. Changes were documented relative to the temporary and specified road/stream crossings. The road locations were adjusted to minimize stream crossings. Some additional steep ground was added to the harvest units and a minimal increase of soil disturbance was anticipated. The amount of temporary road was decreased, thus, anticipated to contribute to less soil disturbance. The size of the sort yard was increased from five acres to eight acres to better accommodate log sorting, log storage and control surface water. The required clearing limits for the sort yard and the construction of access roads added additional area, so the disturbed area was increased to sixteen acres.

This monitoring utilized pilot National BMP monitoring forms. The national forms completed for this effort were the Best Management Practices Evaluation: Veg A Ground-based Skidding and Harvesting and Road B Completed Road and/or Water Body Crossing Construction or Reconstruction form.

The units and road monitored were located in T58S, 59, 60 R77E, 78, 79 Copper River Meridian on the Lindenburg Peninsula, Kupreanof Island. The project area is approximately 2 air miles west of Petersburg. These units and road are located in value comparison units (VCUs) 4370, 4390 and 4470. The road and units are in the Duncan Canal- Frontal watershed, HUC 19010210110 and Mitchell Slough, HUC 1901020101106.

Tonka Stewardship Photo 1. Central-west portion of Tonka harvest unit 610 showing stream buffers on east and west.

Monitoring Results

Unit 610

Unit 610 is a 6 acre unit comprised of three connected segments; two segments below the road and one segment above the road bound by stream channels. The unit was accessed by Forest Development Road (FDR) 6350. The unit has a low- mid gradient slope that averages 35 percent slope gradient. Originally the unit was 4 acres and included only the area below the road. The original configuration included the area adjacent to stream 1.8 in the Class IV and II reaches of the high gradient contained (HCO) channel. Due to the configuration of the streams and buffer requirements, and configuration of the terrain, the boundaries of the unit were changed during lay out.

Tonka Stewardship Photo 2. Lower-east portion of Tonka harvest unit 610 showing stream buffers on east and west.

The final unit configuration shown in the contract dropped the area adjacent to the Class II reach of stream 1.8 and added an area roughly 2 acres above the road. Below the unit, a Class I stream flows westward in a moderate gradient mixed control (MMS) channel that has a 120-foot buffer requirement. Stream 1.7 is buffered from the unit on the west boundary and flows downslope. Stream 1.7 flows in a high gradient contained channel (HCO- HCL) and is a tributary to stream 1; the confluence lies roughly 700 feet below the unit. Stream 1.9 flows in a channel

Tonka Stewardship Photo 3. Lower-east portion of Tonka harvest unit 610 showing stream buffers on east and west.

buffered off the east boundary of the unit. This stream shows a lower gradient and flows in a moderate gradient mixed control (MMS) channel. The confluence to stream 1 lies roughly 250 feet below the unit. Stream 1.8 originates in the unit above the road then flows into the unit in a high gradient HC channel that is roughly 2 feet wide and shows stepped pools with minimal flow. Stream 1.8 transitions into a Class II stream that is roughly 2-3 feet wide and flows in a high gradient (HCO) channel for about 550 feet then the gradient decreases and the stream flows in a mixed gradient channel (MMO) that is roughly 3-5 feet wide for about 550 feet to the confluence with stream 1. The MMO reach of stream 1.8 is a Class I stream.

Stream 1.8 was walked and inspected during the monitoring trip since this stream originated in the unit and showed a Class IV reach that transitioned to a Class II reach to a Class I reach within 1000 feet. Stream protection measures were implemented on the reaches of the channel; buffers implemented on the Class II and I reaches and tree debris was removed from the Class IV stream channel. The buffer was implemented on this stream and effective in preventing sediment transport from the harvest activities. This stream was a relatively small 1- 5 feet bank full width channel and flowed in a moderate gradient meandering channel with gravel substrate to a shallow gradient stream with cobble to gravel substrate with fines. The Class II reach of the unit required 100 feet buffer and the buffers measured showed 102 feet, 106 feet, and 112 feet, exceeding the minimum requirement. The Class I stream reach showed buffers that exceeded 120 feet; the shortest buffer measured 124 feet. In the Class IV stream reach within the unit, stream 1.8 was well cleaned out and showed no disturbance in the channel. The banks were moss covered. The stream bedload was primarily gravel with cobbles and fines.

The timber was shovel yarded from this unit to road 6350. The shovel yarding was completed with minor impact to the soils. Tree debris was used under the shovel yarder as puncheon. Partial suspension was implemented to meet soil quality standards. The unit showed no erosion within the unit and erosion control measures were implemented on the road. No supplemental erosion control was needed in the unit or on the road. Minor areas of detrimental disturbance were noted in less than 1 percent of the unit and supplemental erosion control through slashing a small area and fluffing was

Tonka Stewardship Photo 4. Tonka harvest unit 610, stream 1.8; Class II stream reach showing stream channel

applied. The unit harvest and yarding completed meets the soil quality standards.

Unit 609

Tonka Stewardship Photo 5. Tonka harvest unit 609 showing stream buffers outside the north and south unit boundaries.

Unit 609 is a 9 acre unit bound by stream channels on the north and south sides of the unit. The unit was accessed by FDR 6350. The unit has a low gradient slope that averages 2-5 percent slope gradient. Originally the unit was 8 acres with an irregular configuration that included some relatively flat and higher slope gradient area and crossed stream 2 through Class I and II stream reaches of high gradient and mixed gradient channel. Due to the configuration of the streams and buffer requirements, and configuration of the terrain, the boundaries of the unit were changed during lay out. The final unit configuration shown in the contract dropped the area that crossed stream 2 and provided a buffer adjacent to the Class I and II reaches of stream 2 and added an area roughly 2 acres above the road.

North of the unit, stream 1 flows southwest along the border of the unit. This stream originates above the unit and flows in a high gradient contained (HCL) channel adjacent to the upper (eastern portion) of the unit and that transitions to a moderate gradient mixed control (MMS) channel roughly 500 feet from the road. This stream has a 100 feet buffer in the HCL reach and a 120 feet buffer requirement in the MMS reach. Stream 2 is a Class II stream that transitions to a Class I stream and borders the southern portion of the unit. This stream flows in a moderate to high gradient contained (HCO) channel in the upper Class II reach and a moderate gradient mixed control channel (MMO) in the lower Class I stream reach.

Stream 1 was walked and inspected during the monitoring trip since this stream is located in closest proximity to the unit and showed a Class II stream reach that transitioned to a Class I reach. Stream protection measures were implemented on the reaches of the channel; buffers implemented on the Class II and I reaches. The buffer was implemented on this stream and effective in preventing sediment transport from the harvest activities. This stream was a relatively small 2- 5 feet bank full wide channel and flowed in a moderate gradient meandering channel with gravel substrate to a shallow gradient stream with cobble to gravel substrate with fines. The Class II reach of the unit required a 100-foot buffer and the buffers measured showed 108 feet and 114 feet, exceeding the minimum requirement. The Class I stream reach showed buffers of 120 feet and 124 feet.

Tonka Stewardship Photo 6. Tonka harvest unit 609 showing stream buffers outside the north unit boundaries on stream 1.

The timber was shovel yarded from this unit to road 6350. At the southwest edge of this unit a helicopter landing area was developed. The shovel yarding was completed with minor impact to the soils. There had been more shovel ruts shown in the unit than anticipated on the relatively flat ground; however, the ruts were slash-covered to prevent erosion. The detrimental soil conditions were shown in 1- 2 percent of the unit. Partial suspension was implemented to meet soil quality standards. The unit showed minimal erosion within the unit and erosion control measures were implemented on the road. No supplemental erosion control was needed in the unit or on the road. Supplemental erosion control through slashing and fluffing was applied. The unit harvest and yarding completed meets the soil quality standards.

Tonka Stewardship Photo 7. Tonka harvest unit 609 showing stream 1; Class I stream reach.

Road 6351

Road 6351 is accessed off FDR 6350, roughly 9 miles west of the Tonka Marine Access Facility (MAF)/ Log Transfer Facility (LTF). This road accesses the Mitchell Creek fishway and was left open to provide recreational and administrative access to the fishway. Although at one time access was needed to yard the timber harvest units, this road was planned as a 0.352 mile long specified road due to the public use. Road 6351 was designed and constructed as a road with minimal construction controls and requirements of culverts at all live stream crossings. The culvert was removed from the live stream and a driveable water bar was installed. This stream is a Class IV stream that flows to Mitchell Creek. The stream transports water from a beaver pond across the road. The road was constructed roughly 200 feet upslope of Mitchell Creek. The road had roadway reconditioning completed for road maintenance that included installation of a one foot deep lift of shot rock and (8 inches loose then 6 inches compacted) aggregate. The reconstruction included surfacing a 30 x 45 feet parking lot at the end of the road for the Mitchell Creek fishway. The construction specified the aggregate placed on the slopes of the drivable ford in a compacted layer. This maintenance completed is covered in the categorical exclusion for road maintenance that does not require a decision memo as defined in 36 CFR 220.6(d).

Tonka Stewardship Photo 8. Tonka recreation road 6351; showing road corridor.

The road was constructed in 1982 with a road operational level of 2 for high clearance vehicle traffic with a Road Management Objective 2 (open- high clearance vehicles). The District had on file a hazardous communication/waste mitigation plan and the contract had a Spill Prevention Countermeasure and Control (SPCC) plan to address any petroleum spills. No spills were noted along the road or in the inspection file.

Tonka Stewardship Photo 9. Tonka recreation road 6351; showing drivable dip

The segment monitored through the national BMP protocol was focused on a drivable water bar provides a Class IV stream crossing located approximately at MP 015. The road segment evaluated in the monitoring was roughly 0.4 mile long. The length of connected road surface approaches are 52 feet on the left and 41 feet on the right and the length of road in the aquatic management zone is roughly 100 feet. The connected road ditches measured at 131 feet on the left and 146 feet on the right. The dominant road grade to the right was 5 percent slope gradient and 10 percent slope gradient to the left.

Implementation monitoring showed that the provisions to protect water, riparian, and aquatic resources were implemented in planning and contract development. The monitoring showed several provisions were implemented in road construction. Only reshaping of the drivable waterbar was needed to provide a more durable running surface. Corrective action noted as required to fully implement the BMPs include adding armor rock to the crossing and removal of the fines used to shape the surface contour of the drivable dip. To minimize further erosion of the running surface, the group recommends that the larger rock be added to the crossing to prevent ruts from vehicle traffic.

Effectiveness monitoring showed that the BMPs specific to the featured stream crossing were effective, overall. The lift of durable surface rock that included 6- 8 inches of loose rock and 6 inches of compacted surficial aggregate provided a hardened running surface on the road. There was one practice related to surface erosion that was not effective. Surface instability was indicated by ruts in the running surface of the drivable dip. There was traceable evidence in the water body and isolated turbidity and very minor changes in the substrate composition from the fines transported at the crossing. Minor bank cutting and puddling was noted on the road at the crossing. Sediment was transported less than 10 feet from the road surface to the stream at the crossing. The changes recommended by the group included adding armoring rock to the crossing and removing fines from the road surface in the dip. This minor modification should contribute to more effective implementation of the BMPs. No other erosion or sediment transport was noted on the road and the road surface was constructed to provide effective implementation of the BMPs.

Tonka Stewardship Photo 10. Tonka sort yard; showing back wall raveling

Tonka Stewardship Photo 11. Tonka sort yard drainage and settling pond.

BMP Implementation

The implementation questions evaluate practices used to minimize water quality impacts. All applicable BMPs were implemented on the units and road. A review of the maintenance project files documented aquatic specialist review and recommendations. The trail was in need of maintenance because of runoff and erosion in and around Carlanna Creek. This section of units and road is not on Forest land.

Corrective Actions to Improve Implementation

There were no corrective actions noted at the units and one minor corrective action recommended on road maintenance. The work was well implemented and well designed. The drivable dip on the road served to

drain water from the beaver pond and with minor modification will provide a hardened travel surface.

Adaptive Management Actions to Improve Implementation

No adaptive management actions were noted for the units and road.

BMP Effectiveness

The effectiveness questions evaluated evidence of potential or current impacts to water quality. No noted sediment transport or substantial erosion was noted in the units. Minor sediment transported was noted at the drivable water bar and will be remedied by minor road maintenance. Stream impacts were minimized by the changes in the unit configurations that included moving the boundaries outside of the stream buffers. Erosion and sediment transport was minimized through the implementation of buffers and applications of shovel logging. Soil disturbance was minimized through the use of puncheon and slash in the shovel units. The construction of the lift of durable rock on the running surface of the road minimized erosion potential.

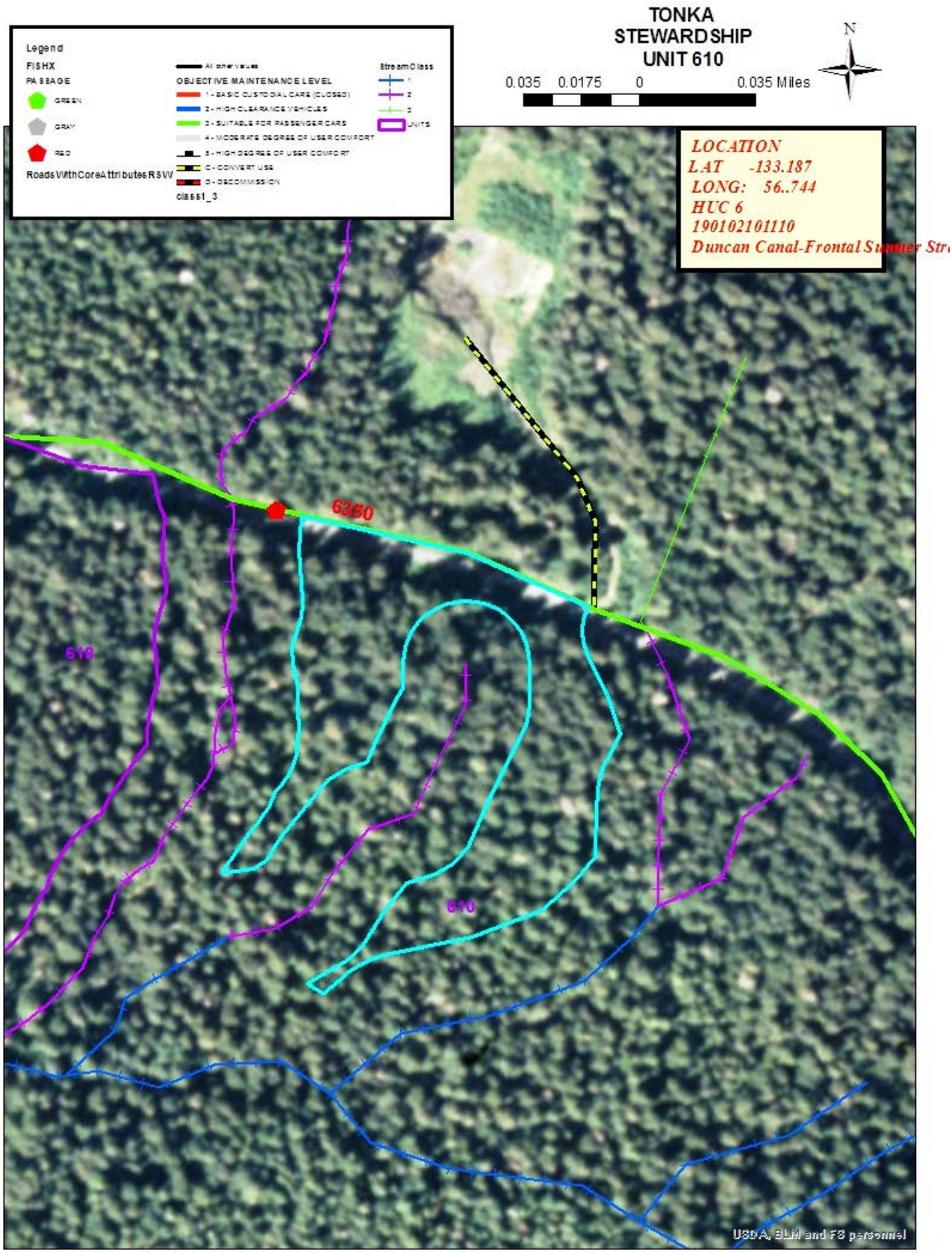
Tonka Stewardship Photo 12. Tonka sort yard; showing back wall in the distance

Corrective Actions to Improve Effectiveness

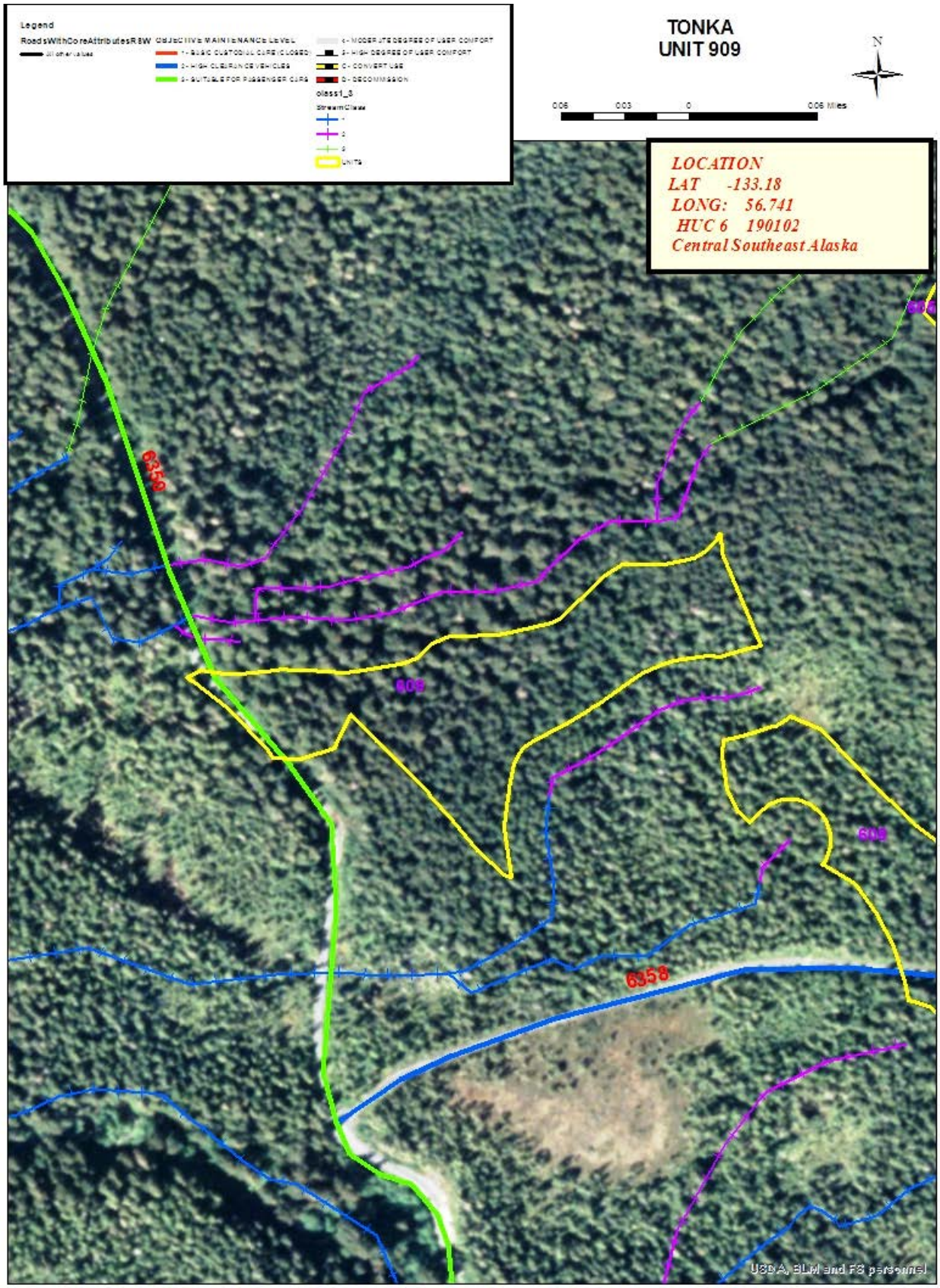
No corrective actions were noted for the units. Using larger rock material in drivable dips through water crossings, as well as standard ford construction drawings was recommended on the road monitored.

Adaptive Management Actions to Improve Effectiveness

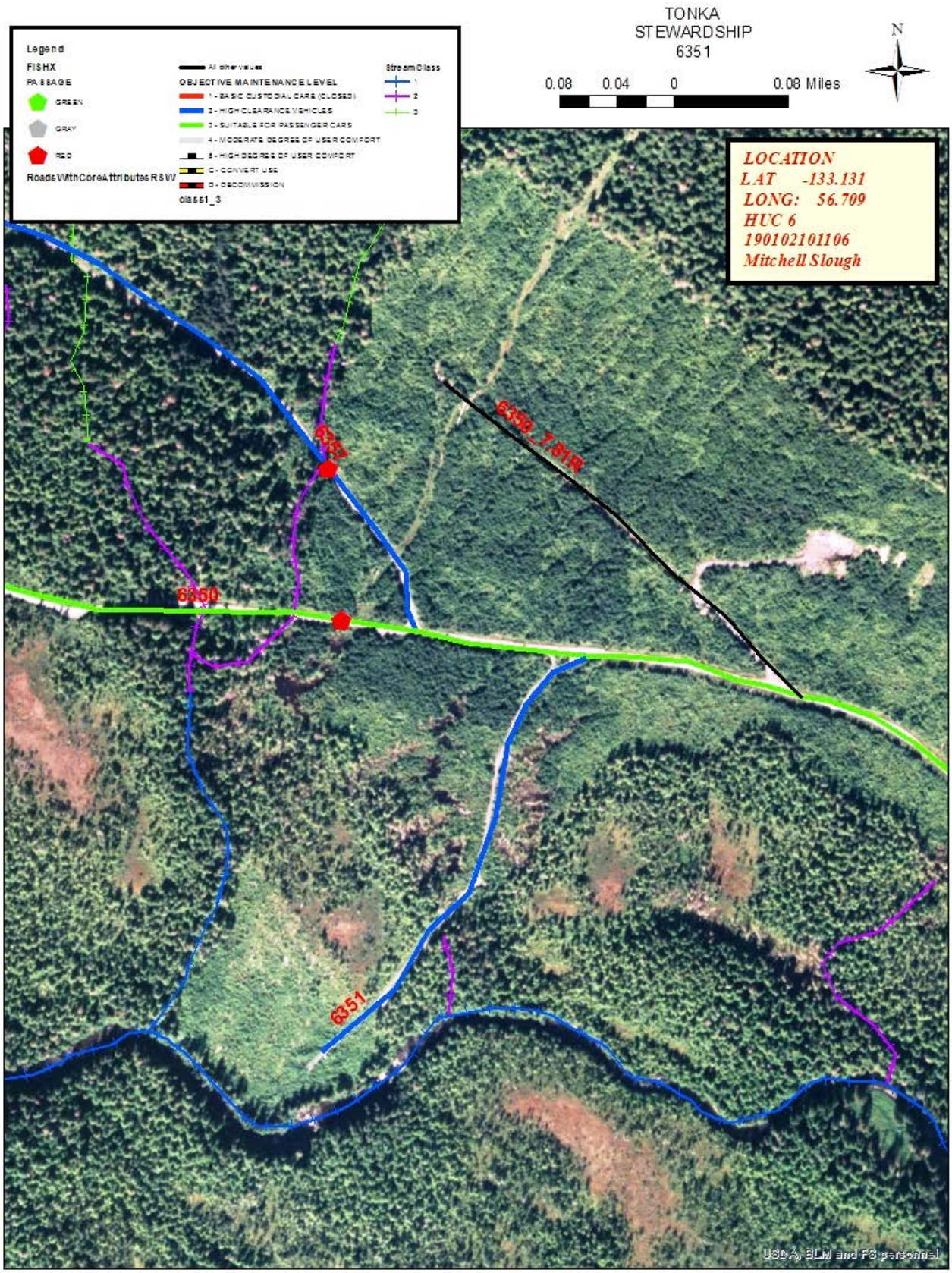
No adaptive management actions were noted for the units and road.



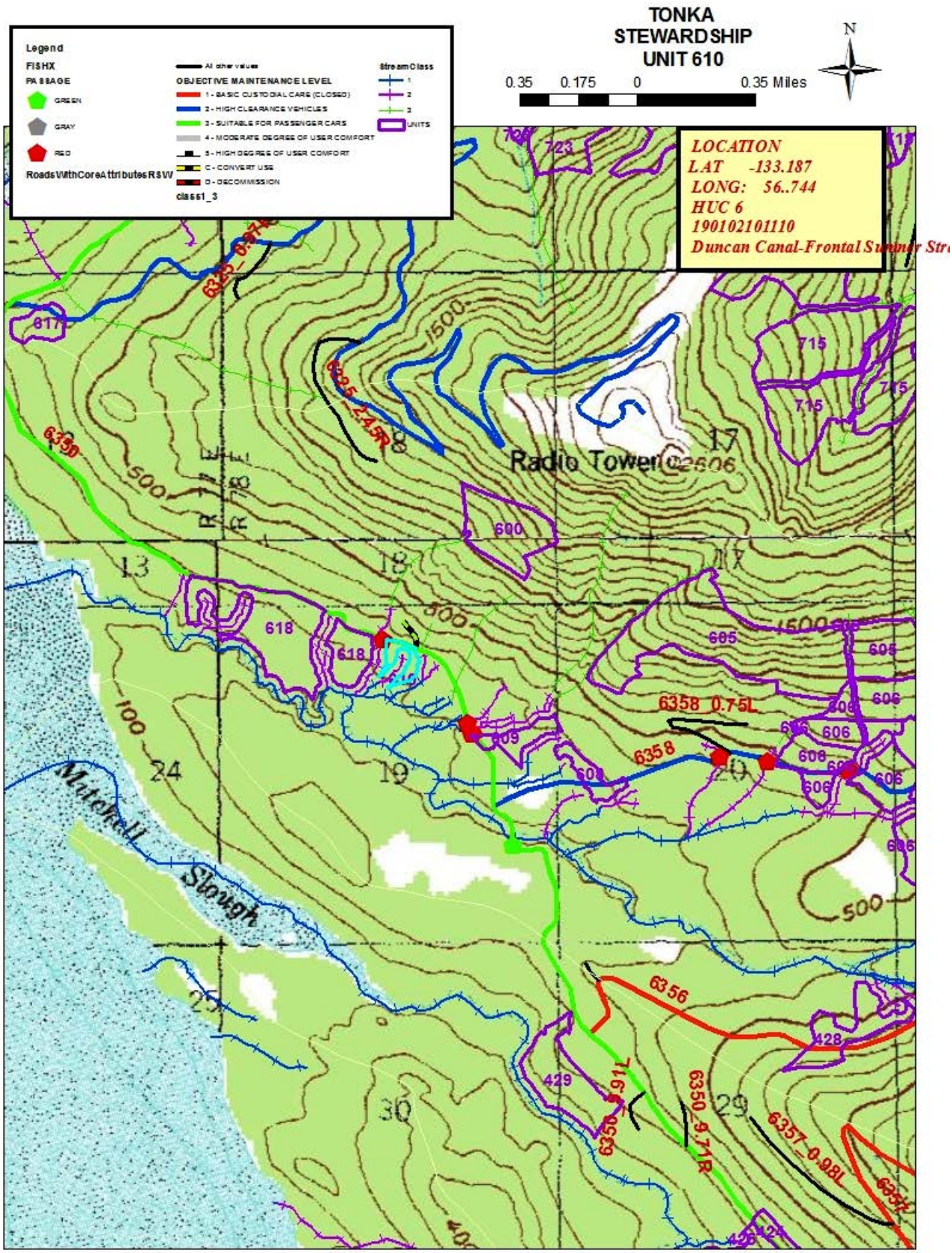
Tonka unit 610 Ortho photo



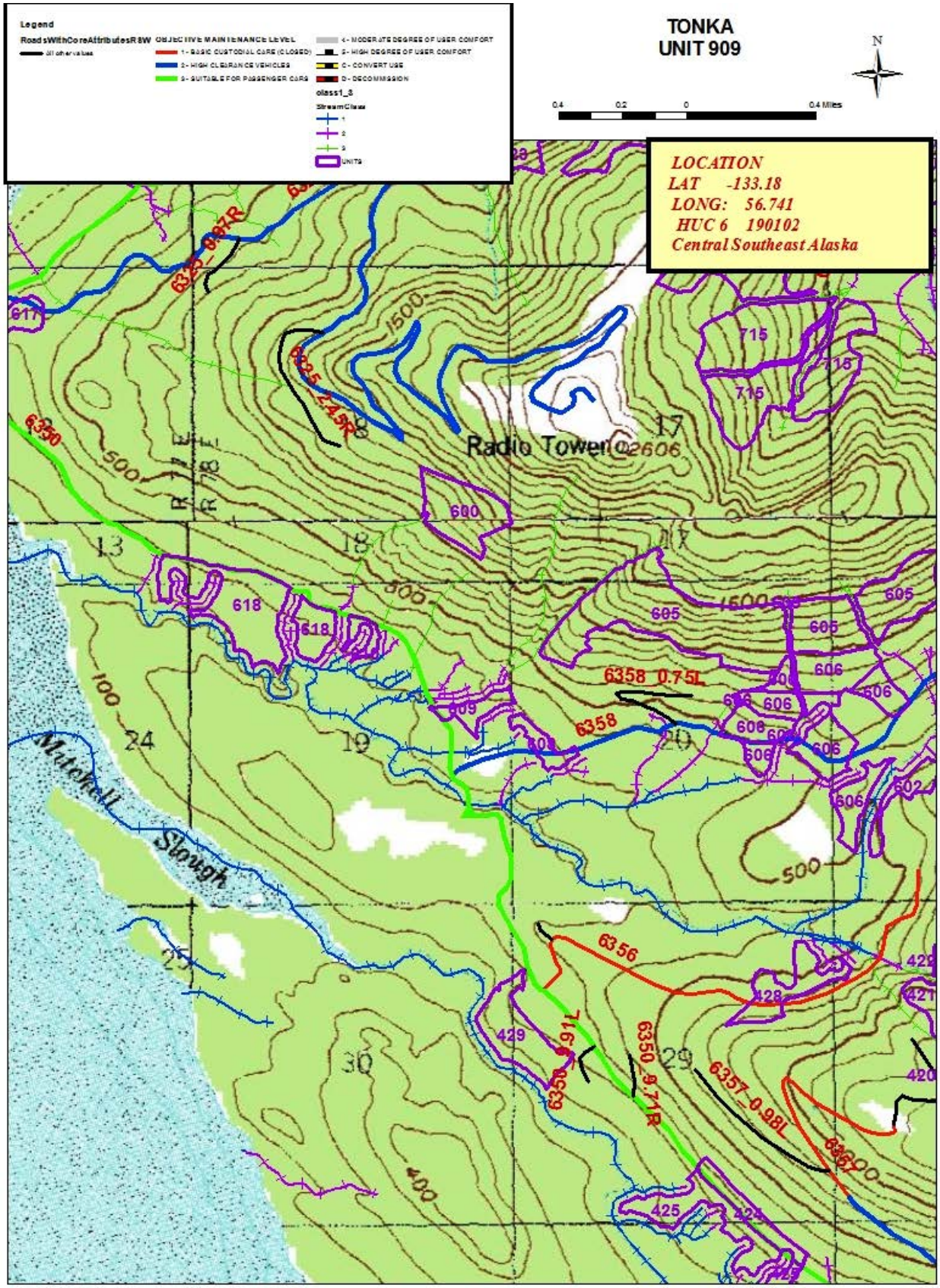
Tonka Unit 909 Ortho photo



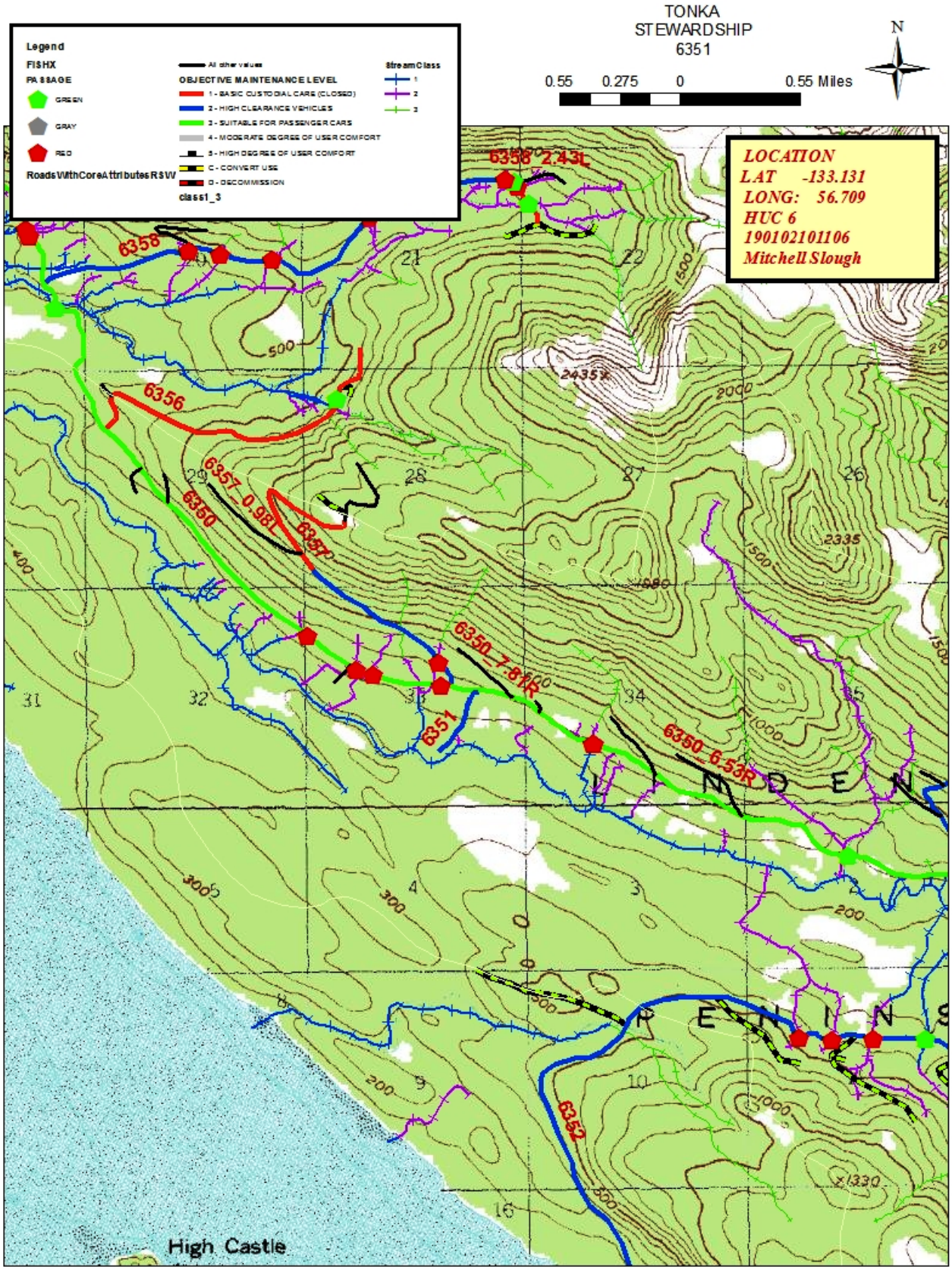
Map showing Tonka road 6351 Ortho photo



Map showing Tonka Unit 610



Map showing Tonka Unit 909



Map showing Tonka Unit 6351