ROAD MAINTENANCE, CONSTRUCTION, RENOVATION/RECONSTRUCTION, & DECOMMISSIONING

100 - OPERATIONAL MAINTENANCE – SEE ATTACHMENT A: SHASKET CREEK ROAD SYSTEM – MAINTENENANCE SPECIFICATIONS

101 - The Purchaser shall blade and shape the road surface and shoulders with a motor patrol grader. Banks shall not be undercut. Back blading with tractors or similar equipment will be allowed only around landings and other areas when approved by the Authorized Officer (AO).

102 - The Purchaser shall maintain established waterbars/dips and place additional waterbars using adjacent material where needed as directed by the AO.

103 - The Purchaser shall perform other road cleanup including removal of debris, fallen timber, bank slough, and slides which can practicable be accomplished by a motor patrol grader, rubber-tired front-end bucket loader, rubber-tired backhoe, or comparable equipment, and using hand tools.

103a - Removal of bank slough and slide material include placement of material at the nearest suitable turnout or disposal site where material cannot erode into streams, lakes, or reservoirs or cause undue damage to road fill slopes which have been planted or mulched to control soil erosion.

103b - The Purchaser shall remove ruts and/or introduce rock material to ensure road surfaces remain accessible to local vehicle traffic and to emergency response vehicles.

104 - The Purchaser shall be responsible for maintaining normal flow in drainage structures. This includes cleaning out drainage ditches, catch basins, clearing pipe inverts of sediment and other debris lodged in the barrel of the pipe, and maintaining water dips and waterbars using equipment specified in Subsection 103 and other culvert cleaning and flushing equipment.

105 - The Purchaser shall avoid fouling gravel or bituminous surfaces through covering with earth and debris from side ditches, slides, or other sources. The Purchaser shall also avoid blading surfacing material off the running surface of the roadway. Skidding of logs on the roadway in or outside designated logging units is not authorized without prior approval by the AO. Any damage caused by such unauthorized skidding activity is not considered maintenance and shall be repaired at the Purchaser's expense.

106 - The Purchaser shall perform preventive maintenance prior to, during, and at the end of each hauling season and during no hauling periods which occur between other operations on the contract area. This includes cross ditching, removing ruts or other surface irregularities and all other requirements specified in Section 100.

107 - The Purchaser shall repair any damage to all existing road surfaces being used and remain free of mud, ruts, and debris. This repair includes restoring the roadway to the designed standard and replacement of surfacing with approved surface material. All existing roads must always provide reliable tire traction and always remain passable for local vehicle traffic that would allow a standard SUV and pickups hauling full trailers through without slipping, rutting, or otherwise causing damage to the existing road surface. Roads must remain passable after operational use even during temporary shutdown periods. Repairs are not limited to use of equipment specified in Subsection 103 or to the actions described in its subparts.

108 - The Purchaser shall be permitted to remove ice and snow from roads authorized for use under this contract only when prior written approval has been secured from the AO. The Purchaser shall submit a written request for permission to remove ice and snow in advance of the date operations are to begin.

Upon receiving written authorization for ice and snow removal, the Purchaser will perform the work according to the conditions and equipment requirements set forth in the Authorization.

200 - TEMPORARY ROAD CONSTRUCTION SPECIFICATIONS

201 - This work shall consist of clearing, grubbing, removing, and disposing of vegetation, debris, surface objects, and protruding obstructions within the clearing limits in accordance with these specifications.

202 - Where clearing limits have not been staked, established by these specifications or shown on the plans, these limits shall extend 4 feet back of the top of the cut slope and 4 feet out from the toe of the fill slope.

203 - Grubbing shall consist of the removal and disposing of trees, logs, rotten material, brush, and all other vegetative materials and surface objects in accordance with these specifications and within the limits established for clearing as specified under Subsection 202.

204 - Grubbing shall consist of the removal and disposing of stumps, roots, and other wood material embedded in the ground, and protruding obstacles remaining as a result of the clearing operation in accordance with Subsection 204c.

204c - On excavation areas, all roots and embedded wood shall be removed to a depth not less than 6 inches below the subgrade to which excavation is constructed.

205 - Clearing and grubbing debris (stumps and cull logs) shall not be placed or permitted to remain in or under any road embankment sections.

206 - Clearing and grubbing debris shall be disposed of by machine piling and burning or be used for decommissioning new road construction.

207 - Stumps and cull logs shall be scattered over government-owned land outside of established clearing limits in a manner acceptable to the AO. The areas for such scattering shall have the prior approval of the AO.

208 - No clearing or grubbing debris shall be left lodged against standing trees.

209 - All side berms shall be smoothed and reduced to ground level.

300 - EXCAVATION AND EMBANKMENT

301 - This work shall consist of excavating, overhaul, placement of embankments, backfilling, borrowing, leveling, ditching, grading, insloping, outsloping, crowning, and scarification of the subgrade, compaction, disposal of excess and unsuitable materials, and all other earthmoving work required in the construction of the road project. All side berms created shall be smoothed and reduced to ground level.

302 - Excavation shall consist of the excavation of road cut sections and borrow sites, backfilling, leveling, ditching, grading, compaction, and all other earthmoving work necessary for the construction of the roadway in accordance with these specifications and in reasonably close conformity to the lines, grades, dimensions, typical cross-section, and locations shown on the plans.

NOTE - The term "grading" as used in Subsections 301 and 302 includes the leveling to grade, shaping, and smoothing of the road's subgrade, and the shaping of roadside ditches as to grade and contour. In some instances, also includes the smoothing of cutbanks.

303 - All suitable material removed from the excavation shall be used in the formation of embankment subgrade, shoulders, slopes, bedding, and backfill for structures, and for other purposes as shown on the plans.

304 - Borrow shall consist of suitable material required for the construction of embankments or for other portions of the work; such material shall be obtained from sources shown on the plans, as indicated in these specifications, or from sources selected by the Purchaser at his option and approved by the AO.

305 - Embankment construction shall consist of the placement of excavated and borrowed materials, backfilling, leveling, grading, compaction, and all other earthmoving work necessary for the construction of the roadway in accordance with these specifications and in reasonably close conformity to the lines, grades, dimensions, typical cross-section, and locations shown on the plans.

305a - All materials used in the construction of embankment sections shall be free of stumps, cull logs, brush, muck, sod, roots, frozen material, and other deleterious materials.

306 - Compaction of embankment layers placed as specified under Subsection 305a above, shall be accomplished by routing construction equipment over full width of embankment structures.

307 - When heavy clays, muck, clay shale or other unsuitable material for forming the roadbed is encountered in cuts at subgrade, it shall be excavated to a minimum depth of 2 feet below subgrade elevation and the excavated area backfilled with a selected borrow material approved by the AO. The backfill material shall be processed to a uniform moisture content suitable for maximum compaction.

307a - Unsuitable material excavated in accordance with Subsection 307 shall be disposed of as directed by the AO.

308 - Borrow material required for the construction of embankment or for other portions of the work shall be obtained from a source approved by the AO.

309 - Borrow material from sources selected at the Purchaser's option shall be inspected and approved by the AO prior to placement.

310 - Borrow pits shall be subject to the development, operation, and reclamation requirements set forth under Section 600 of these specifications.

311 - Ditches shall conform to the slope, grade, dimensions, and shape of the required cross-section shown on the plans. All roots, stumps, rocks, and other projections shall be removed to form smooth, even slopes.

312 - Excess excavated, unsuitable, or slide materials shall not be disposed of on areas where the materials will encroach on a stream course or other body of water. Such materials shall be disposed of in accordance with Subsection 312a.

312a - Excess construction materials specified under Subsection 311 shall be loaded, hauled, and placed as additional embankment to widen the roadbed as shown on the plans.

313 - Excavated material shall not be allowed to cover boles of standing trees to a depth more than 1-foot on the uphill side.

314 - The finished grading shall be approved by the AO.

400 - PIPE CULVERTS

401 - If identified on Exhibit A maps, this work shall consist of furnishing and permanently installing / replacing pipe culverts and other erosion control devices in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross-sections shown on the plans. Individual lengths and locations are approximate; final lengths and locations will be determined by the AO upon completion of the roadbed.

402 - Corrugated steel-riveted and steel-welded pipe culverts shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274.

402a - The minimum culvert diameter is eighteen (18) inches for additional culverts, as needed.

403 - Pipe culverts shall be placed on the bed starting at the downstream end with the inside circumferential laps pointing downstream and with the longitudinal laps at the side or quarter points. Coupling bands of the types required under these specifications shall be installed to provide the circumferential and longitudinal strength necessary to preserve the pipe alignment, prevent separation of the pipe sections, and minimize infiltration of fill material.

404 - Pipe shall be unloaded and handled with reasonable care. If the AO determines any structure is damaged to the extent that it is unsuitable for use in the road construction, it shall be replaced at the Purchaser's expense.

405 - Trenches necessary for the installation of pipe culverts shall conform to the lines, grades, dimensions, and typical diagram shown in Exhibit D - Road Summary (the Culvert Installation Detail Sheet).

406 - Where ledge rock, boulders, soft, or spongy soils are encountered, they shall be excavated a minimum of 24 inches below the invert grade for a width of at least one pipe diameter or span on each side of the pipe and shall be backfilled with selected granular or fine readily compactable soil material.

407 - Pipe culverts shall be bedded on a selected granular or fine readily compactable soil material having a depth of not less than 10 percent of the diameter or height of the drainage structure concerned or a minimum depth of:

Pipe Corrugation Depth	Minimum Bedding Depth
2-inch	1-inch
1-inch	2 inches
2 inches	3 inches

Foundation material shall be of uniform density throughout the length of the structure and shall be shaped to fit the pipe.

408 - The invert grade of the bedding shall be cambered in accordance with the requirements and details shown on the plans and as directed by the AO.

409 - Side-fill material for pipe culverts shall be placed within 1 pipe diameter, or a minimum of 2 feet, of the sides of the pipe barrel, and to 1-foot over the pipe with fine, readily compactable soil or granular fill material free of excess moisture, muck, frozen material, roots, sod, or other deleterious or caustic material and devoid of rocks or stones of sizes which may impinge upon and damage the pipe or otherwise interfere with proper compaction.

Granular fill material shall be well graded with 100% passing the 3/8-inch sieve.

410 - Side-fill material conforming to the requirements of Subsection 409 shall be placed and compacted under the haunches of the pipe, and shall be brought up evenly and simultaneously on both sides of the pipe to 1-foot above the pipe, in layers not exceeding 6 inches in depth and 1 pipe diameter/span, or a minimum of 2 feet in width each side of, and adjacent to, the full length of the pipe barrel. Each layer shall be moistened or dried to a uniform moisture content suitable for maximum compaction and immediately compacted by approved hand or pneumatic tampers until a uniform density of 85 percent of the maximum density, is attained as determined by AASHTO T 99, Method C.

411 - Where pervious materials are used for backfilling and bedding, collars consisting of selected impervious material shall be placed at the inlet as shown on the plans, and as directed by the AO.

500 - <u>RECONSTRUCTION/RENOVATION OF EXISTING ROADS</u>

501 - Consists of road work to be performed on the road prior to its use. The work includes, but not limited to blading the road surface, maintaining/re-constructing water bars after use, and re-constructing barricades after use. Remove all down trees from roadways.

501a - Includes reconditioning and preparing the roadbed and shoulders, cleaning and shaping drainage ditches, trimming vegetation from cut and embankment slopes, and clearing and repairing drainage structures of existing roads in accordance with these specifications, as shown on the plans.

502 - The existing road surface shall be scarified to its full width and to a depth to eliminate surface irregularities and bladed and shaped to the lines, grades, dimensions, and typical cross-sections shown on the plans.

502a - All rocks larger than 4 inches in maximum dimension shall be removed from the scarified layers of the roadbed. Material so removed will not be permitted to remain on road shoulders or in ditches.

502b - Drainage ditches shall be bladed and shaped in accordance with the lines, grades, dimensions, and typical cross-section shown on the plans (Exhibit D).

503 - The finished grading shall be approved by the AO. The Purchaser shall give the AO 3 days' notice prior to final inspection of the grading operations. All side berms created by grading shall be smoothed and reduced to ground level.

504 - Roadside clearing of vegetation, limbs, and trees shall occur prior to road use. Material ≤ 6 inches DBH shall be cut and severed 6 inches from the uphill side of the stem and lopped and scattered. Clearing distance for roadside brushing shall equal 4 horizontal feet from the centerline of the ditch and 4 horizontal feet from the outside shoulder of the road prism.

600 - WATERING

601 - Watering shall consist of furnishing and applying water required for the compaction of embankments, roadbeds, backfills, base courses, surface courses, finishing, and reconditioning of existing roadbeds and for laying dust or for other uses in accordance with these specifications, as shown on the plans and as directed by the AO.

602 - Water, when needed for compaction or laying dust, shall be applied at the locations, in the amounts and during the hours as directed by the AO. Amounts of water to be provided will be the minimum needed to properly execute the compaction requirements of these specifications, and for laying dust during work periods.

603 - Water trucks used in this work shall be equipped with a distributing device of ample capacity and of such design as to ensure uniform application of water on the roadbed.

604 - The Purchaser shall secure the necessary water permits for use of water sources.

700 - SEASONAL MAINTENANCE

701 - The Purchaser shall perform preventive maintenance at the end of Purchaser's hauling each season and during no haul periods which occur between other operations on the contract area. This includes snow plowing, cross ditching, removing ruts or other surface irregularities and all other requirements specified in Section 100.

800 - FINAL MAINTENANCE

The Purchaser shall complete final maintenance and/or damage repairs on all roads used under terms of their contract within 30 calendar days of the date shown under Section 4 and in accordance with Section 16 (b) of the Standard Provisions

(Form 5450-3, July 1990). This work shall include any maintenance and/or damage repairs specified in Sections 3000, 3100, and 3200 necessary to meet the conditions specified in Subsection 3002 and shall be executed in accordance with Subsection 3302 of the Special Provisions covered under Section 41 of the Standard Provisions.

801 - The AO will grant acceptance of Purchaser's maintenance responsibility in part where certain individual roads or road segments are no longer of any use to the Purchaser's remaining removal operations, providing that all contract requirements as specified under Sections 100, 700, and 800 of this Exhibit and Attachment A have been completed and approved by the AO.

802 - The Purchaser shall perform final road maintenance only when weather or soil moisture conditions are suitable for normal maintenance equipment operations as determined by the AO.

If final maintenance is delayed after the date required in Subsection 801 and Section 4 of this contract by adverse soil moisture or unsuitable equipment operating conditions, the Purchaser will be notified by the AO when soil moisture and equipment operating conditions are suitable. The Purchaser shall then be required to complete final maintenance within 30 days.

900 - ROAD DECOMMISSIONING

901 - Decommission ALL constructed landings and skid roads.
Decommission ALL newly constructed roads and the reconstructed road leading into Unit 7-1.

902 - Upon completion of current harvest and slash disposal treatments, temporary routes constructed, all skid trails, and all landings:
1. Shall be discontinuously sub-soiled with winged ripper.
2. Shall be water-barred at the appropriate intervals along the entire road.

902a - If work completion becomes delayed, all newly constructed and reopened roads shall be mulched and blocked during dry soil conditions.

903 - Decompact temporary road construction surfaces, swing trails, and landings. Rip to an approximate 10-18" depth and place woody debris on deconstructed surfaces.

904 - Scarifying, ripping, and subsoiling shall be accomplished with a crawler tractor equipped with a clearing or brush blade and/or winged rippers.

1. During the scarification process, all grass, brush, and debris shall be up-rooted on the entire area, where feasible, to expose mineral soil. Solid stumps may be worked around.

2. Clearing and grubbing debris (stumps and cull logs) shall be used for decommissioning new road construction.

DEFINITIONS

cull - A tree or log of marketable size that is useless for all but firewood or pulpwood because of crookedness, rot, injuries, or damage from disease or insects.

infiltration - The passage of water through the soil surface into the soil.

landing - Any place where logs are assembled, sorted, processed, for further transport, commonly with a change in the transportation method, such as from tractor to truck.

reconstruction - Any modification, improvement, or renovation of an existing facility.

skid trail - Routes along which logs are dragged by a tractor or rubber-tired skidder from the stump to a landing point where they are loaded onto a truck.

water bar - An erosion control structure used as a cross drain to divert water from road or skid trail surfaces, or an inside ditch to prevent gullying on the road surface.