U.S. DEPT. OF THE INTERIOR
Bureau of Land Management
SALEM DISTRICT-OREGON

Road Specifications

Road Number (Name)	Class SN-	New Construction	Renovation	Decommissioning
P_1	14	0.30 mile (15+90)		0.30 mile (15+90)
P_2	14	0.16 mile (8+20)		0.16 mile (8+20)
P_3	14	0.12 mile (6+40)		0.12 mile (6+40)
P_5	14	0.39 mile (20+80)		0.39 mile (20+80)
P_6	14	0.16 mile (8+40)		0.16 mile (8+40)
P_7	14	0.24 mile (12+45)		0.24 mile (12+45)
P_8	14	0.18 mile (9+32)		0.18 mile (9+32)
P_9	14	0.20 mile (10+40)		0.20 mile (10+40)
14-6-6 (I-5 Loop)	14		3.56 mile (187+97)	
14-6-18 (Peak Creek)	16		0.01 miles (0+53)	
14-7-1.2	12		0.24 miles (12+45)	
14-7-5 (High Ridge)	14		0.38 mile (20+06)	
14-7-12.1	14		1.14 mile (60+19)	
14-7-12.2	14		0.23 mile (12+14)	
14-7-12.3`	14		0.42 mile (22+18)	
14-7-24 (Roberts)	16		3.30 mile (174+24)	

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GENERAL - 100

101 - Prework Conference:

A prework conference will be held prior to the start of new road and landing construction, road renovation, and decommissioning operations. The Purchaser shall request the conference at least one week prior to the time it is to be held. The conference will be attended by the Purchaser and/or his representative, subcontractor and/or his representative, and the Authorized Officer and/or his representative.

The purpose will be to review the required work, exhibits and specifications, and to establish a work schedule and a list of the Purchaser's representatives and subcontractors. The prework conference shall be conducted at the worksite unless otherwise agreed upon by the Authorized Officer.

102 - Definitions:

AASHTO - American Association of State Highway and Transportation Officials. Current editions of tests and specifications.

Aggregate Base Course - Surfacing structure consisting of crushed gravel or stone, crushed sandstone, pitrun rock, bank or river-run gravels, etc., to provide support and, in the event no surface course is placed, the running surface for traffic load.

ASTM - American Society for Testing and Materials.

BLM - Bureau of Land Management

Borrow - Excavated material required for embankments and other portions of the work.

Culvert - A pipe, pipe-arch, arch, or box structure constructed of metal, concrete, plastic or wood which provides an opening under the roadway primarily for the conveyance of liquids, pedestrians or livestock.

Curve Widening - Widening required on inside of curves to accommodate long log and equipment hauling trucks.

Embankment - A structure of soil, aggregate, or rock material placed on a prepared ground surface and constructed to subgrade.

End Haul - Excavated material moved, other than by dozer, to an embankment or waste area to prevent sidecasting material outside of the road prism.

Excess Excavation - Material from the roadway in excess of that needed for construction of the designed roadway (waste).

GENERAL - 100 - Cont'd

Fill – See "Embankment".

Grading - Leveling to grade, shaping and smoothing of the road subgrade and the roadside ditches to grade and contour. In some instances this includes smoothing of the cut bank.

Plans - The approved drawings which show the locations, character, dimensions, and details of the work to be done.

Purchaser - The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through their agents, employees, or contractors.

Roadbed - The graded portion of the road within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

Road Centerline - Longitudinal center of roadbed.

Road Improvement - Work done to an existing road which improves it over its original design standard.

Road Renovation - Work done to an existing road which restores it to its original design standard.

Roadway - The portion of a road within limits of construction. Usually from the toe of the fill slope to a point where the cut slope intersects natural ground line (top of cut). Synonym - road prism.

Scarification - The process of loosening or breaking up of the surface layer of soil or road, usually to a specified depth.

Separation - Function of geotextile material as a partition between adjacent materials to prevent mixing of those materials.

Shoulder - The portion of the roadbed contiguous with the traveled way designed for accommodation of stopped vehicles, safety, and lateral support of base and surface courses.

Specifications - A general term applied to all directions, provisions, and requirements pertaining to performance of the work.

Specific Gravity - The ratio of the density of a material to the density of water obtained by weighing known volumes of both items in air. A specific gravity less than one implies that the material will float.

GENERAL - 100 - Cont'd

Structures - Bridges, culverts, catch basins, retaining walls, underdrains, flumes, splash pads, downpipes, and other project features which may be involved in the work and not otherwise classified in these specifications.

Subbase - Reinforcement of the subgrade with large particles of pitrun or crushed stone. Usually confined to roads having wet subgrades or subgrades with weak support characteristics.

Surface Course - Top layer of a road structure consisting of finely crushed gravels or asphalt designed to provide a smooth running surface for traffic load.

Subgrade - The top surface of a roadbed upon which the traveled way and shoulders are constructed.

Traveled Way - The portion of the roadbed used for the movement of vehicles, exclusive of shoulders.

Typical Cross Sections - Cross-sectional plane of a typical roadway; showing natural ground line and designed roadway in relation to cut and fill, through cut, and through fill.

Turnout - Extra widening of the roadbed at appropriate intervals on single-lane roads for passing purposes.

102a - Tests Used in These Specifications:

AASHTO T 11	Quantity of rock finer than No. 200 sieve.
AASHTO T 27	Sieve analysis of fine and coarse aggregate using sieves with square openings; gradation.
AASHTO T 89	Liquid limit of material passing the No. 40 sieve. Water content at which the soil passes from a plastic to a liquid state.
AASHTO T 90	Plastic limits and plasticity index of soil. a. Plastic limit - lowest water content at which the soil remains plastic. b. Plasticity index - range of water content, within which the material is in a plastic state. Numerical difference between the liquid and plastic limits of the soil.
AASHTO T 96	Resistance to abrasion of small size coarse aggregate by use of the Los Angeles machine.

GENERAL - 100 - Cont'd

AASHTO T 99 Relationship between soil moisture and maximum density of soil.
Method A - 4" mold, soil passing a No. 4 Sieve.
25 blows/layer & 3 layers.
Method D - 6" mold, soil passing a 19.00mm (3/4 inches) sieve. 56 blows/layer and 5 layers.

AASHTO T 176 Shows relative portions of fine dust or claylike materials in soil or graded aggregate.

AASHTO T 210 Durability of aggregate based on resistance to produce fines.

103 - Compaction equipment shall meet the following requirements:

103f - Vibratory roller. The drum diameter shall be not less than 48 inches, the drum width not less than 58 inches, and have a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 vibrations per minute (VPM), corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 RPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled or drawn by a vehicle of sufficient horsepower to enable the unit to travel through a loose layer of material at a speed ranging from 0.9 mile to 1.8 miles per hour, as directed by the Authorized Officer.

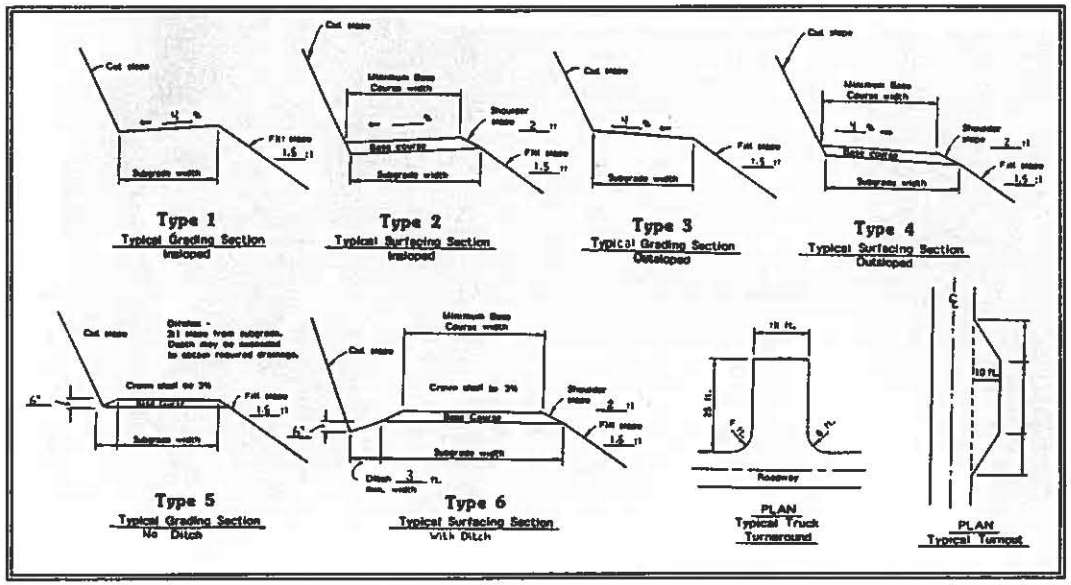
103i - Other. Compaction equipment approved by the Authorized Officer for use on compaction of subgrade, embankment, and base course aggregate.

105 - All equipment shall be cleaned prior to initially entering or operating on BLM lands. The equipment shall be free of noxious weed seed, external petroleum residue, caked on dirt or grime, and other contaminants. Any leakage or contamination risk shall be corrected prior to continuing operation.

150: ROAD PLAN AND DETAIL SHEET

Road Number	From: Mile Post	To: Mile Post	Length In Feet	Typical Section Type	Road Width		Clearing Width			Aggregate Base Course				Remarks
					Subgrade	Ditch Depth	Top Cut	Toe Fill	Edge Road	Minimum Width	Compact Depth	Grading Size	Number of Lifts	
P1	0.00	0.30	1,590	4	14'				5'	12'	8"	A	2	All new construction shall be decommissioned in the manner described in Section 2600 of Exhibit C.
P2	0.00	0.16	820	4	14'				5'	12"	6"	A	2	
P3	0.00	0.12	640	4	14'				5'	12'	8"	A	2	
P5	0.00	0.39	2,080	4	14'				5'	12'	8"	A	2	
P6	0.00	0.16	840	4	14'				5'	12'	6"	A	2	
P7	0.00	0.24	1,245	4	14'				5'	12'	8"	A	2	
P8	0.00	0.18	932	4	14'				5'	12'	6"	A	2	
P9	0.00	0.20	1,040	4	14'				5'	12'	6"	A	2	

Note: As described in Exhibit D, place 500 yd^3 of maintenance rock where needed within the sale area.



NOTES

1. Extra Subgrade Widths: Add one foot to each fill shoulder for fills of 1-6 feet and 2 feet for fills greater than 6 feet in height.

2. Surface Type:
   PRR - Pit run rock
   GRR - Grid rolled rock
   SRN - Screened rock
   JRR - Jaw run rock
   ABC - Aggregate Base
   ASC - Aggregate Surface

3. Grading Size:
   A – 3" (base course)

4. Turnouts: Width = 10 feet in addition to subgrade width, or as shown on the plans.

5. Surfacing: Turnouts, curve widening, and road approach aprons shall be surfaced.

6. Clearing Width: New construction shall be cleared to the limits established by the posted and painted Right-of-Way. Otherwise, 5' beyond road edge.

150: ROAD PLAN AND DETAIL SHEET

Road Number	From: Mile Post	To: Mile Post	Length In Feet	Typical Section Type	Road Width		Clearing Width			Aggregate Base Course				Remarks
					Subgrade	Ditch Depth	Top Cut	Toe Fill	Edge Road	Minimum Width	Compact Depth	Grading Size	Number of Lifts	
1-5 Loop 14-6-6	0.00	1.27	6,710	6	16'					14'		A		Spot rock in accordance with Subsections 509 and 1004.
	1.27	3.56	12,090	6	16'					14'	4"	A	1	
Peak Creek 14-6-18	2.50	2.50	20							14'		A		Match existing template. Spot rock in accordance with Subsection 509 and 1004.
14-7-1.2	0.00	0.24	1,245	4	14'					12'				Construct draindips following use.
High Ridge 14-7-5	0.00	0.38	2,006	4	14'					12'	6"	A	2	
14-7-12.1	0.00	1.14	6,019	6	14'	1½'				14'				
14-7-12.2	0.00	0.23	1,214	4	14'					12'				
14-7-12.3	0.00	0.42	2,218	6	16'	1½'				14'				Spot rock in accordance with Subsections 509 and 1004.
Roberts 14-7-24	0.00	2.63	13,886	6	16'					14'				Spot rock in accordance with Subsections 509 and 1004.
	2.63	3.30	3,538	6	16'	1½'				14'	4"	A	1	

CLEARING AND GRUBBING - 200

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 and conforming to the lines, grades, dimensions and typical cross sections shown on the plans and as posted on the ground.

201a - This work shall consist of cutting trees and removing other vegetation located within posted Right-of-Way clearing limits -- as well as roadside trees marked with blue paint. Blue painted merchantable trees sold under this contract shall be removed by the Purchaser prior to beginning any renovation work. Any generated slash shall be scattered in accordance with Subsections 210, 210a and 210b.

202 - Where clearing limits have not been posted, established by these specifications or shown on the plans, the limits shall extend 3 feet back from the top of the cut slope and 0 feet out from the toe of the fill slope. Embankment material is permitted to cover the bole of reserve trees to a depth of up to 3 feet without cutting.

202a - Any clearing on private land that hasn't been previously designated, must be approved by the land owner prior to beginning associated operations.

203 - Clearing shall consist of the removal and disposal of trees, logs, grubbed stumps, rotten material, brush, and other vegetative materials and surface objects in accordance with these specifications and within the limits established for clearing as specified under Subsections 201, 202 and 202a, or as posted.

203a - Brush less than 2 feet in height and growing within the bounds established for clearing, need not be cut when located beyond the limits of the excavation and embankment.

203b - Standing trees and snags which need to be cleared, shall be felled within the limits established for clearing unless otherwise approved by the Authorized Officer.

203c Any trees cut on private land shall be limbed, bucked to lengths designated by the land owner, and decked at sites approved by the Authorized Officer.

203d - The landowner shall be notified by the Purchaser prior to cutting and landowner shall approve of the cutting prior to felling any trees outside of the clearing limits on private land.

203e - Logs shall not be decked against reserve trees without prior approval of the Authorized Officer.

CLEARING AND GRUBBING - 200 - Cont'd

204 - Grubbing shall consist of the removal and disposal of stumps, roots, and other wood material embedded in the ground, as well as protruding obstacles remaining as a result of the clearing operation, in accordance with Subsections 204a, 204b, and 204c. Undisturbed stumps, roots and other solid objects shall be grubbed to a minimum of 3 feet below subgrade. Slope surfaces and embankments are excepted.

204a - Stumps, including those overhanging cutbanks, as well as windfall trees overhanging the cutslopes, shall be removed within the required excavation limits.

204b - Stumps and other protruding objects shall be completely removed within the limits of the required embankments. When authorized, stumps and other nonperishable objects may be left provided they do not extend more than 6 inches above the existing ground line.

204c - Roots and imbedded wood shall be removed to a depth of not less than 1 foot below the subgrade surface or sloped surface.

204d - On areas to be occupied by embankment material, no portion of any stump shall remain within 3 feet of the constructed subgrade surface or sloped surface.

205 - Clearing and grubbing debris shall not be placed or permitted to remain in or under road embankment sections.

210 - Clearing and grubbing debris shall be scattered over government owned lands outside of established clearing limits in accordance with Subsections 210b, and 213, and in a manner acceptable to the Authorized Officer.

210a - Disposal of any clearing and grubbing debris generated on non-government property, shall be scattered outside clearing limits in a manner acceptable to the Authorized Officer.

210b - Scattering of debris shall be accomplished in a manner that doesn't create safety hazards or negatively impact the felling, bucking, yarding, decking, or loading operations.

211 - Several rootwads grubbed from within the clearing limits of the new construction and road renovation work, shall be reserved for use in blocking the entrances to the P_1, P_5, P_6, P_8, and P_9 roads following their decommissionings. See Subsection 2601a for details.

213 - Clearing and grubbing debris shall be carefully scattered so that no material remains lodged against, or causes damage to reserve trees.

EXCAVATION AND EMBANKMENT - 300

301 - This work shall consist of excavating; placement of embankment material, backfilling, borrowing, ditching, grading, outsloping, crowning, compaction, disposal of excess and unsuitable materials, placement of riprap at culvert installation sites, and other earth-moving work in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on Section 150: Road Plan and Detail Sheet.

303 - Suitable material obtained during excavation shall be used in the formation of the embankment, which includes the subgrade, shoulders, and fill slopes associated with road and landing construction and renovation, as well as culvert replacement backfill.

304 - Borrow, if needed, shall consist of suitable material required for the construction of embankments, restoring the roads running surface, or for other required work. Such material shall be obtained from sources selected by the Purchaser at his option, and approved by the Authorized Officer.

305 - Embankment construction shall consist of the placement of excavated material, backfilling, leveling, grading, compaction, and other earthmoving work necessary for the construction of roadways and landings, as well as of culvert and draindip installation, in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

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

305b - Embankment and borrow material shall be placed in successive parallel layers on areas cleared of stumps, roots, cull logs, brush, sod, and other vegetative and deleterious materials, except as provided under Subsection 204. Roadway embankment of earth material shall be placed in horizontal layers not exceeding 8 inches in depth, and the final subgrade shall be moistened or dried to a uniform optimum moisture content suitable for maximum density, and compacted to it's full width with compacting equipment conforming to requirements of Subsections 103f and 103i. Compaction shall continue until visible displacement ceases.

306 - Embankment and borrow placement at all culvert installation sites shall be placed in conformance with Subsection 305b.

EXCAVATION AND EMBANKMENT - 300 - Cont'd

313 - Where boulders or solid rock are encountered at or near subgrade, the rock shall be excavated to a minimum depth of six (6) inches below subgrade elevation, and the excavated area backfilled with suitable material, and compacted to match surrounding materials.

314 - When heavy clays, muck, clay shale, or other deleterious materials are encountered in cuts at subgrade elevation, it shall be excavated to a minimum depth of 2 feet below the subgrade and backfilled with a select borrow material approved by the Authorized Officer. The backfill material shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density in accordance with the requirements of Subsection 305b. Unsuitable material shall be disposed of in the manner described in Subsections 321 and 321a.

320 - Ditches shall conform to the slope, grade, dimensions, and shape of the required cross section shown on the Section 150 Sheet and meeting the requirements of Subsections 505 and 505a.

321 - Excess excavated, unsuitable, or slide materials shall not be disposed of on areas where the material will encroach on a stream course or other body of water and must be placed a minimum 100 feet from any flood plain, or on steep or unstable slopes. Such materials shall be disposed of in accordance with Subsection 321a.

321a - End-dumping will be permitted for the placement of excess materials under Subsection 321 in designated disposal areas or within areas approved by the Authorized Officer. Disposed materials shall be sloped to drain, shaped, and compacted in a neat and sightly condition acceptable to the Authorized Officer. Grass seed meeting the standards stated in Subsection 1804 shall be applied by the Purchaser.

324 - Embankment material shall not be allowed to cover boles of standing trees to a depth exceeding 3 feet on the uphill side of the tree.

327 - The finished grading and compaction shall be approved by the Authorized Officer prior to beginning aggregate placement. The Purchaser shall give the Authorized Officer a minimum 3 day notice prior to final inspection of the grading and compaction operations.

330 - Class 3 Riprap shall be placed at the culvert installation sites and in the quantities shown on the table in Subsections 401 and 506a.

330a - At culvert installation sites where riprap exists, conserve the material for reuse as slope armor.

DRAINAGE STRUCTURES – 400

401 - This work shall consist of furnishing and installing aluminized corrugated metal pipe culverts, downpipes with field cut Turner elbows, and draindips in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans. Additional drainage structures may be required at the option of the Authorized Officer, in which case a reduction in the total purchase price shall be made to offset the cost of furnishing and installing such items. Costs will be based upon the unit prices set forth in the current BLM Timber Appraisal Production Cost Schedule. Pipe culvert and draindip work shall be accomplished at the following locations:

Road No.	Mile Post	Diameter (inch)	Length (feet)	Gage	Culvert Removal	Grading B Aggregate (cubic yard)	Remarks
I-5 Loop Road #14-6-6	0.25	24	30	16	18"x26'	10	Steepen pipe grade.
	0.32	24	40	16		10	
	0.36	24	30	16	18"x25'	10	
	0.81	24	72	16	18"x62'	10	Extra length is to compensate for existing flume. Steepen pipe grade enough so new culvert rests on bed over it's full length.
	0.93	30	66	16	24"x62'	10	Beveled inlet. Steepen pipe gradient.
	1.02	42	92	14	42"x92'	20	Beveled inlet.
	1.08	24	42	16	18"x42'	10	
	1.84	30	84	16	18"x70'	20	Beveled inlet. Add length upstream and reduce fill slope gradient.
	1.88	42	100	14	36"x96'	30	Beveled inlet.
	1.99	24	44	16	18"x32'	10	Steepen pipe gradient
	2.71	30	46	16	30"x36'	10	Beveled inlet. Extra length is to compensate for existing flume. Steepen pipe grade enough so new culvert rests on bed over it's full length.
	2.75	54	120	10	54"x110'	30	Beveled inlet.
	2.98	30	50	16	24"x40'	10	Beveled inlet. Extra length is to compensate for existing flume. Steepen pipe grade enough so new culvert rests on bed over it's full length.
	3.03	24	36	16	18"x36'	10	

DRAINAGE STRUCTURES – 400 - Cont'd

Road Number	Mile Post	Diameter (inch)	Length (feet)	Gage	Culvert Removal	Grading B Aggregate (cubic yard)	Remarks
Peak Creek Road #14-6-18	2.50	24	30	16	18"x28' and associated flumes	10	Beveled inlet. Install 16' outlet downpipe and 30' extender pipe (see drawings)

Road Number	Mile Post	Diameter (inch)	Length (feet)	Gage	Culvert Removal	Grading B Aggregate (cubic yard)	Remarks
Road #14-7-12.3	0.26	24	36	16	18"x36'	10	Install 15' outlet downpipe.

Road No.	Mile Post	Diameter (inch)	Length (feet)	Gage	Culvert Removal	Grading B Aggregate (cubic yard)	Remarks
Roberts Road #14-7-24	0.20	30	36	16	24"x30'	10	Beveled inlet.
	0.48	24	50	16	18"x50'	10	
	0.53	24	36	16	18"x34'	10	
	0.67	24	34	16	18"x24'	10	
	1.01	30	42	16	24"x42'	10	Beveled inlet. Install 15' outlet downpipe.
	1.15	24	30	16	18"x30'	10	Install 20' outlet downpipe.
	1.24	36	60	14	24"x40'	15	Beveled inlet. Lower pipe elevation 4' to capture entire stream flow.
	1.39	42	50	14	24"x48'	15	Beveled inlet. Place 20 yd^3 riprap in outlet scour.
	2.22	24	32	16	18"x28'	10	Deepen and steepen outlet channel.

401a - At culvert installation sites where riprap and surface aggregate currently exist, those materials shall be conserved for reuse as slope armor, culvert bedding (where needed), and surface base rock in the upper limits of the trench backfill.

401b - The aggregate quantity listed on the above table, shall be evenly distributed within the upper limits of the excavated area at culvert installation sites. For those segments of road which will also receive a lift of aggregate, the combined depth will be required.

DRAINAGE STRUCTURES – 400 - Cont'd

401c - Any culvert installation site with the existence of stream flow shall be dewatered prior to beginning operations, in a manner approved by the Authorized Officer.

401d - Prior to beginning operations on any culvert installation where water is present, a dewatering plan shall be prepared by the Purchaser, and approved by the Authorized Officer.

403 - As a minimum, culverts shall be installed at gradients no less than the inflowing stream, ditch, the pipe being replaced, or 10%, whichever is greatest. Replacement culverts shall be skewed to match those being removed. On roads with grades exceeding 5%, new culvert installations shall be skewed down grade at 30^{0} as measured from perpendicular to the centerline on ditch relief culverts, skewed to the angle of the channel on intermittent or perennial stream crossings, or as otherwise determined by the Authorized Officer.

404 - Damage to the spelter, or burn back in excess of ⅜ inch, shall be wire brushed and painted with two coats of aluminum-rich paint on aluminum or aluminum-coated pipe.

405 - Corrugated-aluminum-alloy pipe culverts shall conform to the requirements of AASHTO M 196.

406a - If available, aluminized hat bands may be used on round pipe with reformed rolled ends and flanged specifically to receive these bands, on all pipes under 30" in diameter.

406b - Aluminized annular ("Hugger"-type) coupling bands shall only be used with annular corrugated pipe or helically corrugated pipe having annular reformed ends. Annular reformed ends shall consist of a minimum 2 annular corrugations per pipe end.

406c - Turner Type elbow sections shall be used in conjunction with full-round pipe culvert downpipes and shall conform to the Exhibit C drawings. Alternative elbows shall be approved by the Authorized Officer prior to installation.

407 - Special sections, such as Turner Elbows and downpipes, shall be constructed of minimum 16 gage aluminized full round corrugated culvert material, matching the size and thickness of the culvert to which they are joined.

408 - 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 type required in Subsections 406a and 406b, shall be installed so as 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.

DRAINAGE STRUCTURES – 400 - Cont'd

410 - All pipes shall be unloaded and handled with reasonable care. If the Authorized Officer determines any structure is damaged excessively, it shall be replaced at the Purchaser's expense.

411 - Trenches necessary for the installation of pipe culverts shall conform to the lines, grades, and dimensions described in Subsections 401 and 403. Follow OSHA safety regulations for sloping, shielding, or shoring the sides of culvert excavations.

412 - Where ledge rock, boulders, soft, or spongy soils are encountered, they shall be excavated a minimum 12-inches below the invert grade for a width of at least one pipe diameter on each side of the pipe, and shall be backfilled with foundation fill rock, selected granular or fine readily compactable soil material.

413 - Pipe culverts shall be bedded on a select granular or fine readily compactable and stable soil material having a depth of not less than 3 inches. Foundation material shall be of uniform density throughout the length of the structure and shall be shaped to fit the pipe.

413a - No stones with any single dimension exceeding 4-inches, shall be located within six inches of the pipe culvert barrel during compaction.

414 - The invert grade of the bedding shall be cambered at the middle ordinate a minimum of 1 percent of the total length of the drainage structure. Camber shall be developed on a parabolic curve. Avoid installing culverts with a sag or sideways bend.

423 - Culvert catch basins shall be excavated to a depth equal to the bottom of the culvert inlet with a minimum 3 foot bottom width.

424 - Riprap material shall meet the size requirements shown in Subsections 506. Riprap shall be placed at the locations and in the quantities shown on the table in Subsections 401 and 506a.

424a - Borrow material, if needed, shall be placed in the manner described in Subsection 305b and 306.

425 - Where pervious materials are used for backfill and bedding, collars consisting of selected impervious material shall be placed at the inlet and at various intervals along the pipe barrel as agreed to by the Authorized Officer.

RENOVATION OF EXISTING ROADS - 500

501 - This work shall consist of reconditioning and preparation of the roadbed for placement of aggregate, restoring the ditchline, and shaping and sloping the roadbed and associated shoulders for proper drainage. Where they currently exist, the drainage ditches shall be restored to a functional depth, sloped to avoid pooling, and cleared of obstacles to flow. The vegetation shall be trimmed from cut and fill slopes where clearance and visibility are limited, and where it encroaches on the running surface.

502 - Vegetation encroaching on the roadbed and drainage ditches on the following existing roads, shall be removed by cutting and disposed of in accordance with Exhibit C, Roadside Brushing Detail Sheet:

Road Number	From Mile Post	To Mile Post
14-6-6	3.23	3.56
14-7-1.2	0.00	0.24
14-7-5	0.00	0.38
14-7-12.1	0.00	1.14
14-7-12.2	0.00	0.23
14-7-12.3	0.00	0.42

502a - Accumulated brush shall be scattered beyond the clearing limits and away from ditches, pipe culvert inlets and outlets

503a - Any tree cut as a result of renovation work shall be disposed of in the manner described in Subsections 203b, 203c, and 203e.

503b - All trees and other required vegetation located within the posted Right-or-Way clearing limits, as well as blue painted roadside trees, shall be removed in conjunction with road renovation work. Blue painted trees shall be cut and removed prior to completing roadbed, cutslope, fillslope, ditchline, drainage structure, or aggregate placement work. Blue painted merchantable trees shall become the property of the Purchaser, non-merchantable trees and generated slash shall be scattered in accordance with Subsections 210, 210a, and 210b.

503c - The Purchaser shall remove any slash and debris accumulated on the roadbed, shoulder, or ditchline during the harvest of blue painted trees.

503d - Stumps remaining after cutting blue painted trees, shall be cut to a maximium 4-inch height, at an angle matching the cut/fill slopes. This is meant to facilitate future brush cutting operations.

RENOVATION OF EXISTING ROADS - 500 - Cont'd

503e - Any trees which need to be removed as a result of renovation which aren't located within posted clearing limits, shall be approved by the Authorized Officer prior to cutting. The trees shall be felled, limbed, bucked, and decked in the manner described in Subsections 203b, 203c, 203d, and 203e.

503f - Remove stumps or other vegetation which overhang the existing cutbanks, unless otherwise approved by the Authorized Officer. Accumulated non-merchantable logs, stumps, and slash shall be scattered beyond the clearing limits and away from ditches, pipe culvert inlets and outlets.

504 - The existing road surface shall be scarified to its full width and to a depth of any surface irregularities (potholes, wheel rutting, boulder or rock removal, etc.) without contaminating the aggregate with subgrade material -- bladed, shaped, and compacted to the lines, grades, dimensions, and typical cross sections shown in Section 150: Road Plan and Detail Sheet. The Authorized Officer shall approve the completed aforementioned work prior to beginning aggregate placement.

504a - In areas of roadbed scarification, the road surface shall be uniformly moistened or dried to the optimum moisture content, and compacted with equipment meeting the requirements of Subsections 103f and 103i.

504b - Culvert installation work shall be approved by the Authorized Officer prior to beginning placement of the Grading A aggregate base course, unless otherwise approved by the Authorized Officer.

505 - Drainage ditches shall be restored to a minimum 18-inch depth, with no slopes steeper than 2:1, with roots, stumps, rocks, and other projections removed to allow free flow without obstruction on the 14-7-12.1, 14-7-12.3, and 14-7-24 roads.

505a - Drainage ditches shall be restored with a gradient which promotes water flow toward the appropriate drainage structure, in a manner that avoids pooling, and shall be cleared of obstacles to flow.

505b - Material accumulated during ditch renovation shall not be drifted or dragged across the roadbed -- rather an excavator shall be utilized to lift, transport, and spread over stable ground away from stream channels.

RENOVATION OF EXISTING ROADS - 500 - Cont'd

506 - Class 3 Riprap material shall originate from a commercial source unless otherwise approved by the Authorized Officer. The material shall meet or exceed the dimensional size requirements shown on the following table:

Percent of Rock by Mass	Mass (pounds)	Approximate Cubic Dimension (inches)
20	110 to 220	18 to 20
30	55 to 110	14 to 18
40	11 to 55	6 to 14
10[(1)]	0 to 11	0 to 6

(1) Furnish spalls and rock fragments graded to provide a stable and dense mass.

506a - Riprap material shall be placed at the locations, and in the quantities shown on the following table:

Road Number	Mile Post	Quantity (cubic yard)	Type	Remarks
14-7-24	1.39	20	Class 3	Prevent outlet scour

507 - In areas of roadbed scarification, the road surface shall be uniformly moistened or dried to the optimum moisture content, and compacted to the lines, grades, dimensions, and typical cross sections shown on the Section 150: Road Plan and Detail Sheet. Compaction shall be accomplished with equipment meeting the requirements of Subsections 103f and 103i. The roadbed shall be approved by the Authorized Officer prior to placing aggregate surfacing.

509 - Renovation work shall be completed on the following roads:

I-5 Loop Road #14-6-6 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at the junction with Peak Creek Road #14-6-18.
0.25	Replace the existing 18"x26' culvert with a 24"x30' aluminized corrugated metal pipe. Steepen the pipe gradient. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.32	Install 24"x40' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.36	Replace existing 18"x25' culvert with a 24"x30' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.

RENOVATION OF EXISTING ROADS - 500 - Cont'd

I-5 Loop Road #14-6-6 Renovation Notes (Continued)

Mile Post	Remarks
0.81	Replace existing 18"x62' culvert (with 15' outlet flume) with a 24"x72' aluminized corrugated metal pipe. The extra length is meant to replace the existing flume. Steepen pipe gradient enough so the new culvert rests on the prepared bed over it's full length. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.93	Replace existing 24"x62' culvert with a 30"x66' aluminized corrugated metal pipe with beveled inlet. Steepen pipe gradient. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
1.02	Replace existing 42"x92' culvert with a 42"x92' aluminized corrugated metal pipe with beveled inlet. Place 20 yd^3 Grading A aggregate base course over the backfilled trench.
1.08	Replace existing 18"x42' culvert with a 24"x42' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
1.27	Junction with Road #14-7-1 to right.
1.27-3.56	Place a minimum 4-inch lift compacted depth of Grading A aggregate base course over the full width of the running surface and curve widening (Section 1000).
1.84	Replace existing 18"x70' culvert with a 30"x84' aluminized corrugated metal pipe with beveled inlet. Add length upstream and reduce fillslope gradient. Place 20 yd^3 Grading A aggregate base course over the backfilled trench.
1.88	Replace existing 36"x96' culvert with a 42"x100' aluminized corrugated metal pipe with beveled inlet. Place 30 yd^3 Grading A aggregate base course over the backfilled trench.
1.99	Replace existing 18"x32' culvert with a 24"x44' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
2.71	Replace existing 30"x36' culvert (with 20' flume) with a 30"x46' aluminized corrugated metal pipe with beveled inlet. The extra length is meant to replace the existing flume. Steepen pipe gradient enough so the new culvert rests on the prepared bed over it's full length. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
2.75	Replace existing 54"x110' culvert with a 54"x120' aluminized corrugated metal pipe with beveled inlet. Place 30 yd^3 Grading A aggregate base course over the backfilled trench.
2.98	Replace existing 24"x40' culvert (with 20' flume) with a 30"x50' aluminized corrugated metal pipe with beveled inlet. The extra length is meant to replace the existing flume. Steepen pipe gradient enough so the new culvert rests on the prepared bed over it's full length. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
3.03	Replace existing 18"x36' culvert with a 24"x36' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
3.06	Junction with P8 construction to left.
3.23	Junction with High Ridge Road #14-7-5 to right.
3.23-3.56	Complete roadside brushing (Subsection 502 and 502a)
3.36	Junction with Road #14-7-1.2 to left.
3.56	End renovation at beginning of P9 construction.

RENOVATION OF EXISTING ROADS - 500 - Cont'd

Peak Creek Road #14-6-18 Renovation Notes

Mile Post	Remarks
2.50	Replace 18"x28' culvert (with 16' downpipe and 30' extender flume) with a 24"x30' aluminized corrugated metal pipe with beveled inlet and 16' outlet downpipe and 30' extender pipe (See drawings). Place 10 yd^3 Grading A aggregate base course over the backfilled trench.

Road #14-7-1.2 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at junction with I-5 Loop Road #14-6-6. Begin clearing roadbed of windfall, slash, and debris. Begin roadside brushing (Subsection 502 and 502a).
0.24	End renovation at unit boundary.

High Ridge Road #14-7-5 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at junction with I-5 Loop Road #14-6-6. Begin roadside brushing (Subsection 502 and 502a), and preparing the roadbed for aggregate placement (Subsection 504 and 504a).
0.00-0.38	Place a minimum 6-inch compacted depth of Grading A (3"-minus) aggregate base course over the full width of the running surface (Section 1000).
0.38	End renovation.

Road #14-7-12.1 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at the junction with Roberts Road #14-7-24. Begin roadside brushing (Subsections 502 and 502a). Begin restoration of existing ditchline (Subsection 505). Begin surface grading (Subsections 504 and 504a)
1.14	End renovation.

Road #14-7-12.2 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at the junction with Road #14-7-12.1. Begin roadside brushing (Subsections 502 and 502a). Begin surface grading (Subsections 504 and 504a)
0.23	End renovation.

RENOVATION OF EXISTING ROADS - 500 - Cont'd

Road #14-7-12.3 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at the junction with Road #14-7-12.1. Begin roadside brushing (Subsections 502 and 502a). Begin restoration of existing ditchline (Subsection 505). Begin surface grading (Subsections 504 and 504a)
0.26	Replace existing 18"x36' culvert (with 15' flume) with a 24"x36' aluminized corrugated metal pipe and 15' outlet downpipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.42	End renovation.

Roberts Road #14-7-24 Renovation Notes

Mile Post	Remarks
0.00	Begin renovation at the junction with Road #14-6-17. Begin roadside brushing (Subsections 502, and 502a). Begin restoration of existing ditchline (Subsection 505). Begin surface grading (Subsections 504 and 504a)
0.20	Replace existing 24"x30' culvert with a 30"x36' aluminized corrugated metal pipe and beveled inlet. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.48	Replace existing 18"x50' culvert with a 24"x50' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.53	Replace existing 18"x34' culvert with a 24"x36' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.67	Replace existing 18"x24' culvert with a 24"x34' aluminized corrugated metal pipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
0.71	Peak Creek Bridge #1. Place a total 20 yd^3 Grading A aggregate base course (10 yd^3 on each of the two bridge approaches) to improve transition onto the concrete deck.
1.01	Replace existing 24"x42' culvert (with 15' flume) with a 30"x42' aluminized corrugated metal pipe with beveled inlet and 15' outlet downpipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
1.15	Replace existing 18"x30' culvert (with 20' flume) with a 24"x30' aluminized corrugated metal pipe and 20' outlet downpipe. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
1.24	Replace existing 24"x40' culvert with a 36"x60' aluminized corrugated metal pipe with beveled inlet. Lower elevation of pipe by 4' to capture entire stream flow. Place 15 yd^3 Grading A aggregate base course over the backfilled trench.
1.39	Replace existing 24"x48' culvert with a 42"x50' aluminized corrugated metal pipe with beveled inlet. Machine place 20 yd^3 of Class 3 riprap in outlet scour. Place 15 yd^3 Grading A aggregate base course over the backfilled trench.
1.45	Peak Creek Bridge #2. Place a total 20 yd^3 Grading A aggregate base course (10 yd^3 on each of the two bridge approaches) to improve transition onto the concrete deck.

RENOVATION OF EXISTING ROADS - 500 - Cont'd

Roberts Road #14-7-24 Renovation Notes (Continued)

Mile Post	Remarks
1.50	Junction with Road #14-7-13 to left.
1.59	Junction with Road #14-7-12.1 to right.
2.22	Replace existing 18"x28' culvert with a 24"x32' aluminized corrugated metal pipe. Deepen and steepen outlet channel. Place 10 yd^3 Grading A aggregate base course over the backfilled trench.
2.55	Junction with Road #14-7-11 to right.
2.63	Junction with Road #14-7-11.2 to right.
2.63-3.30	Prepare roadbed for aggregate placement (Subsection 504 and 504a). Place a minimum 4-inch lift compacted depth of Grading A aggregate base course over the full width of the running surface (Section 1000).
2.94	Junction with P1 construction to left.
3.17	Junction with P6 construction to left.
3.30	End Renovation at unit boundary.

WATERING - 600

601 - This work 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, or for other uses in accordance with these specifications.

602 - Water shall be applied at the rate needed to properly execute the compaction requirements in conformance with these specifications.

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

604 - Water sources located on lands other than Federal lands, are subject to applicable State water regulations. Water sources on Federal lands shall be approved by the Authorized Officer prior to constructing containment pools or beginning pumping. Instream work and pumping may be restricted or not allowed on certain streams, depending on fisheries or other resource concerns.

605 - The Purchaser shall secure the necessary water permits and pay all required fees for use of the water sources selected by the Purchaser and approved by the Authorized Officer.

AGGREGATE BASE COURSE - 1000

1001 - This work shall consist of furnishing, hauling, and placing two or more lifts of aggregate base course material on renovated roadbed surfaces, constructed subgrade surfaces, and drainage structure work sites as described in Subsection 509 and approved by the Authorized Officer. The aggregate shall be placed in accordance with these specifications and conform to the dimensions and typical cross sections described in Section 150: Road Plan and Detail Sheet. Material. Aggregate not conforming to these specifications will be rejected and shall be removed from the road and replaced with suitable material.

1003 - The aggregate source (whether commercial or otherwise) shall be approved by the Authorized Officer prior to its use. The Purchaser shall provide the Authorized Officer with required test results from Section 1003a, b, c, d, and e when requested.

1003a - Crushed rock material shall consist of hard durable rock fragments conforming to the following AASHTO T-11 and T-27 gradation requirements:

Sieve Designation	Percent by Weight Passing Designated Sieve (AASHTO T11 and T27)
	Grade Designation A (3" minus)
3-inch	100
2-inch	60-80
1½-inch	75-90
¾-inch	40-70
No. 4	22-45
No. 8	16-34
No. 30	10-22
No. 200	5-12

1003b - Any variations to the gradation requirements in Subsection 1003a shall be approved by the Authorized Officer prior to use.

1003c - Commercial crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more that 35 at 500 revolutions, as determined by AASHTO T-96.

1003d - Commercial crushed rock material shall show durability values of not less than 35, as determined by AASHTO T-210.

AGGREGATE BASE COURSE - 1000 - Cont'd

1003e - That portion of commercial crushed rock material passing the No. 40 sieve, including blending filler, shall have liquid limits of not more than 35, and a plasticity index of not less than 4 and not more than 12 as determined by AASHTO T-89 and AASHTO T-90.

1004 Grading A Aggregate Base Course shall be placed at the following locations, in the manner and to the depth described on the Section 150: Road Plan and Detail Sheet:

AGGREGATE PLACEMENT TABLE

Road No.	Grading	From MP (station)	To MP (station)	Depth (inch)	Quantity (Yd^3)	Remarks
I-5 Loop 14-6-6	A	0.25	--	--	10	Culvert site
	A	0.32	--	--	10	Culvert site
	A	0.36	--	--	10	Culvert site
	A	0.81	--	--	10	Culvert site
	A	0.93	--	--	10	Culvert site
	A	1.02	--	--	20	Culvert site
	A	1.08	--	--	10	Culvert site
	A	1.27	3.56	4	--	Surface lift -- includes curves and 3 turnouts
	A	1.84	--	--	20	Culvert site
	A	1.88	--	--	30	Culvert site
	A	1.99	--	--	10	Culvert site
	A	2.71	--	--	10	Culvert site
	A	2.75	--	--	30	Culvert site
	A	2.98	--	--	10	Culvert site
	A	3.03	--	--	10	Culvert site
14-6-18	A	2.50	--	--	10	Culvert site

AGGREGATE BASE COURSE - 1000 - Cont'd

Road No.	Grading	From MP (station)	To MP (station)	Depth (inch)	Quantity (Yd^3)	Remarks
14-7-5	A	0.00	0.38	6	--	Surface lift
14-7-12.3	A	0.26	--	--	10	Culvert site
14-7-24	A	0.20	--	--	10	Culvert site
	A	0.48	--	--	10	Culvert site
	A	0.53	--	--	10	Culvert site
	A	0.67	--	--	10	Culvert site
	A	0.71	--	--	20	Bridge approaches
	A	1.01	--	--	10	Culvert site
	A	1.15	--	--	10	Culvert site
	A	1.24	--	--	15	Culvert site
	A	1.39	--	--	15	Culvert site
	A	1.45	--	--	20	Bridge approaches
	A	2.22	--	--	10	Culvert site
	A	2.63	3.30	4	--	Surface lift -- includes curves and 3 turnouts
P_1	A	(0+00)	(15+90)	8	--	Surface lift
P_2	A	(0+00)	(8+20)	6		Surface lift
P_3	A	(0+00)	(6+40)	8		Surface lift
P_5	A	(0+00)	(20+80)	8		Surface lift
P_6	A	(0+00)	(8+40)	6		Surface lift
P_7	A	(0+00)	(12+45)	8		Surface lift
P_8	A	(0+00)	(9+32)	6		Surface lift
P_9	A	(0+00)	(10+40)	6		Surface lift

1004a - With approval of the Authorized Officer, the Purchaser may, at his own expense, place additional aggregate depth on the roads listed above, or on other sale area roads, landings, or truck turnarounds to help facilitate operations.

AGGREGATE BASE COURSE - 1000 - Cont'd

1004b - Roadbeds, as shaped and compacted under Sections 300 and 500 of these specifications, shall be approved by the Authorized Officer prior to placement of aggregate base course material.

1008 - If additional binder or filler is necessary in order to meet the grading or plasticity requirements, or for satisfactory bonding of the material. It shall be uniformly blended with material at the quarry prior to placement on the road, unless otherwise agreed to by the Authorized Officer. The material for such purposes shall be free of vegetative matter, and other deleterious materials.

1008a - Each layer of aggregate material shall be thoroughly mixed on the roadbed by alternately blading, to full depth, until a uniform mixture has been obtained. The mixture shall then be spread to the required width of the road surface. When completed, the spreading shall produce a smooth surface with a well blended (non-segregated) gradation, present uniform shoulder lines, and conform to the specified cross section. (see Section 150, Road Plan and Detail Sheet)

1009 - Aggregate haul may not occur between November 1 and April 30 on I-5 Loop Road #14-6-6 unless otherwise approved by the Authorized Officer. Also, aggregate haul is not permitted at any time when water is flowing over the surface of the same road.

1009a - Aggregate haul may be restricted on any sale area access road during periods of heavy precipitation, or when damage is occurring to the haul route. Any damage that occurs as a result of hauling during wet periods shall be repaired by the Purchaser, at the Purchasers expense.

1010 - Aggregate base course materials shall be placed and processed on the approved roadbed in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans, compacted in layers not to exceed 4 inches in depth. Each layer shall be shaped, processed, compacted, and approved by the Authorized Officer before the succeeding layer is placed. Irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material and adding or removing crushed rock material until the surface is smooth and uniform.

1010a - Aggregate shall be placed at the widths required on the Section 150 Road Plan and Detail Sheet -- and shall also include the rocking of existing areas of curve widening.

1010b - Three turnouts shall be rocked in conjunction with placing the aggregate lift on each of the 14-6-6 and 14-7-24 roads (see Subsection 1004).

AGGREGATE BASE COURSE - 1000 - Cont'd

1010c - Each layer of aggregate shall be moistened or dried to a uniform moisture content suitable for maximum compaction, and compacted to the full width of the road by compaction equipment conforming to the requirements of Subsection 103f or 103i. Minimum compaction shall be until visible displacement ceases.

1012 - Crushed rock material used to repair or reinforce a soft, muddy, frozen, yielding, or rutted roadbed shall not be construed as surfacing under this specification.

SOIL STABILIZATION - 1800

1801 - This work shall consist of sowing seed on ground disturbed by road and landing construction, renovation, and road decommissioning operations in accordance with these specifications. This work is not required for road acceptance under Section 18 of this contract.

1803 - Soil stabilization work shall be performed during the following seasonal periods:

From: April 15 To: May 15
From: September 30 To: October 31

The Authorized Officer may modify the above seasonal dates to conform to existing weather conditions and changes in the construction schedule.

1804 - The Purchaser shall furnish the following species of grass seed meeting corresponding germination, purity, and weed-content requirements:

Species	Germination Min. %	Purity Min. %	Weed Content Max. %
Red Fescue (Festuca Rubra)	85%	95%	0%

The furnished grass seed shall meet the minimum requirement for Blue Tag Seed as set forth in the latest edition of Oregon Certification Standards published by Oregon State University.

Upon request, the Purchaser shall furnish the Authorized Officer with the Blue Tags from the seed bags, as well as provide the following information: date of test; lot number of each kind of seed; and results of tests as to name, percentages of purity and of germination, and percentage of weed content.

SOIL STABILIZATION - 1800 - Cont'd

1805 - The Purchaser shall apply the grass seed specified below at the following rate:

Species	% of Total by Weight	Lbs. per Acre
Red Fescue (Festuca Rubra)	100	40

1806 - The Purchaser shall apply the seed specified under Subsection 1805 at locations shown on the plans and listed below:

Name of Project	Acreage	Seed Mixture	Application Method
Buck Roberts T.S.	3.0	Red Fescue	1816a

1806a - Additional soil stabilization work may be required at the discretion of the Authorized Officer. Providing the additional stabilization is not due to Purchaser negligence as specified in Sec. 12 of the contract, a reduction in the total purchased price shall be made to offset the cost of furnishing and applying such additional stabilization material. Cost shall be based upon the unit price set forth in the current BLM Timber Appraisal Production Cost Schedule.

1816 - The grass seed shall be placed by the dry method in accordance with the requirements set forth in Subsection 1816a.

1816a - Dry Method - Hand sowing or mechanical seeders and blowers may be used when seed is applied in dry form.

1820 - The Purchaser shall notify the Authorized Officer at least one day in advance of the date he intends to commence with the specified soil stabilization work.

1826 - Twine, rope, sacks, and other debris resulting from the soil-stabilization operation shall be picked up and disposed of to the satisfaction of the Authorized Officer.

ROAD DECOMMISSIONING – 2600

2601 - This work consists of decommissioning the following roads:

Road Number	Length in Miles (Stations)
P_1	(15+90)
P_2	(8+20)
P_3	(6+40)
P_5	(20+80)
P_6	(8+40)
P_7	(12+45)
P_8	(9+32)
P_9	(10+40)

2601a - The P_1, P_5, P_6, P_8, and P_9 roads shall be blocked to motor vehicle passage near their beginning, at locations approved by the Authorized Officer. Slash of varying diameter's and lengths made available from road construction, road renovation, and logging activities, shall be piled a minimum four feet high at each site. The piles shall be wide, thick, and dense enough to be free standing and stable.

2602a - The decommissioning work shall be accomplished with a tracked excavator, unless otherwise approved by the Authorized Officer.

2602b - All decommissioned roadbeds shall be visibly outsloped unless otherwise approved by the Authorized Officer.

2602c - Where windrows, berms, or vegetation exist along the outside shoulder of the decommissioned roadbed, outlet channels shall be constructed at as frequent of locations as possible without damaging roadside trees or their roots.

2604a - A minimum 1 draindip shall be installed on each road listed in Subsection 2601, and additional dips installed at the following intervals:

Road Gradient	Draindip Spacing Distance
0 - 5%	400 feet
6 - 12%	300 feet
13% and greater	200 feet

ROAD DECOMMISSIONING – 2600 - Cont'd

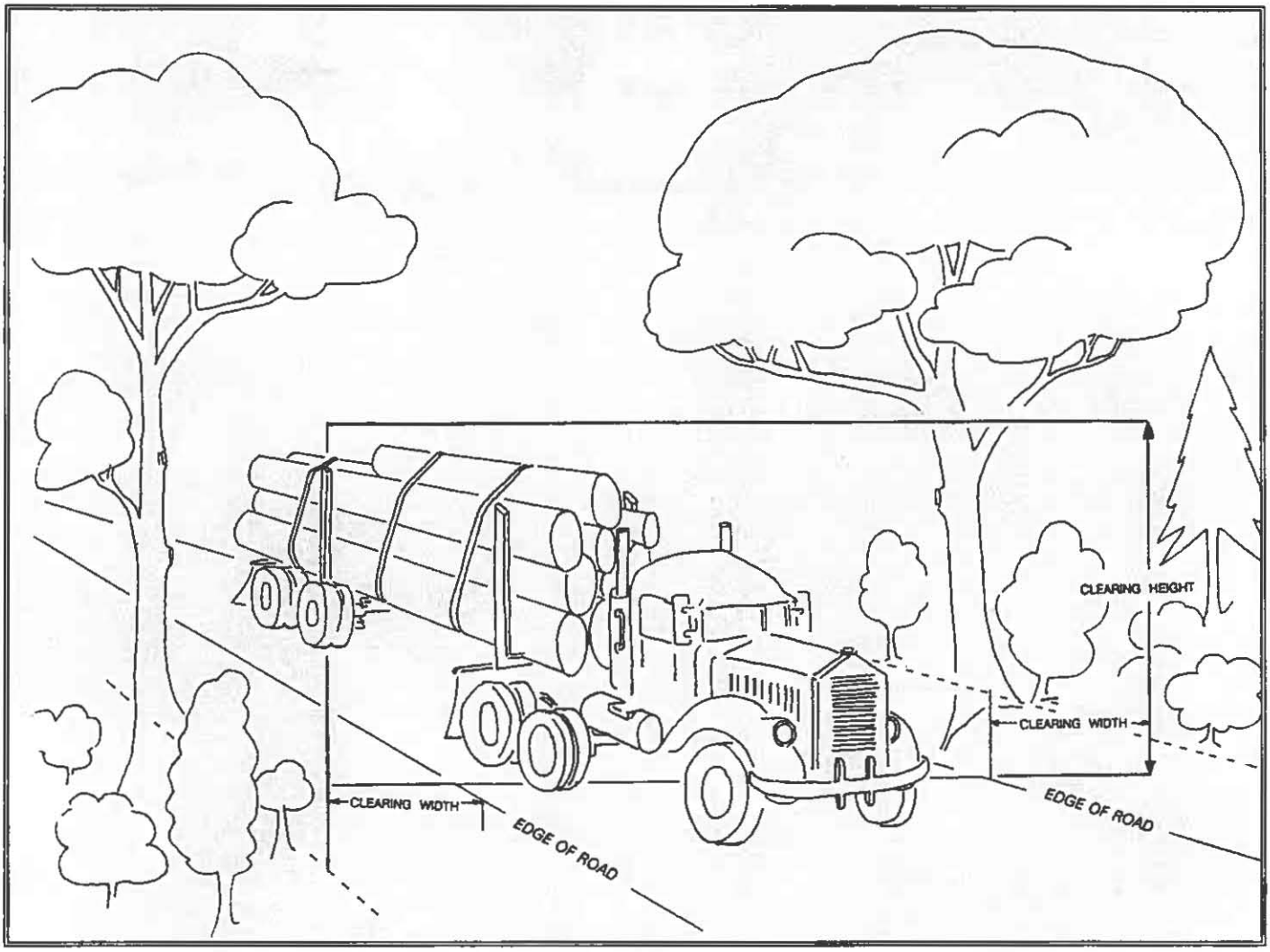
2604b - Draindips and blockages shall be installed at locations approved by the Authorized Officer.

2604c - Minimum draindip depth shall exceed 2 feet and have a bottom width of no less than 3 feet, have a minimum 20% gradient sloping toward the outlet, with approaching grades no steeper than 3:1, and be constructed in a manner that promotes free drainage and allows emergency access to high clearance vehicles.

2604d - At draindip installation sites where surface aggregate currently exists, that material shall be removed prior to excavating the dip. Following dip excavation and compaction, the aggregate will be placed and compacted to stabilize the running surface through the dip.

2608 - Applying certified grass seed at the rates and during the seasons described in Section 1800, is required in areas disturbed by decommissioning operations. Generally this includes areas disturbed during draindip installation, stream channel restoration, closure device construction. Dirt surfaced roadbeds and landings shall also be seeded.

ROADSIDE BRUSHING DETAIL



ROADSIDE BRUSHING DETAIL SHEET

Road Number	M.P to M.P	Clearing Height	Clearing Width
14-6-6	3.23 - 3.56	16'	12'
14-7-1.2	0.00 - 0.24	16'	12'
14-7-5	0.00 - 0.38	16'	12'
14-7-12.1	0.00 - 1.14	16'	12'
14-7-12.2	0.00 - 0.23	16'	12'
14-7-12.3	0.00 - 0.42	16'	12'

Clearing width is the horizontal distance as measured outward from the edge of the road. Conifer trees larger than 4-inch diameter and located within the clearing limits shall be limbed rather than removed, unless otherwise specified by the Authorized Officer.

Clearing height is the elevation as measured from the highest point of the road surface, over the full width of the road prism. Tree limbs removed to provide the required clearance shall be cut to within 1-inch of the trunk to produce a smooth vertical face.

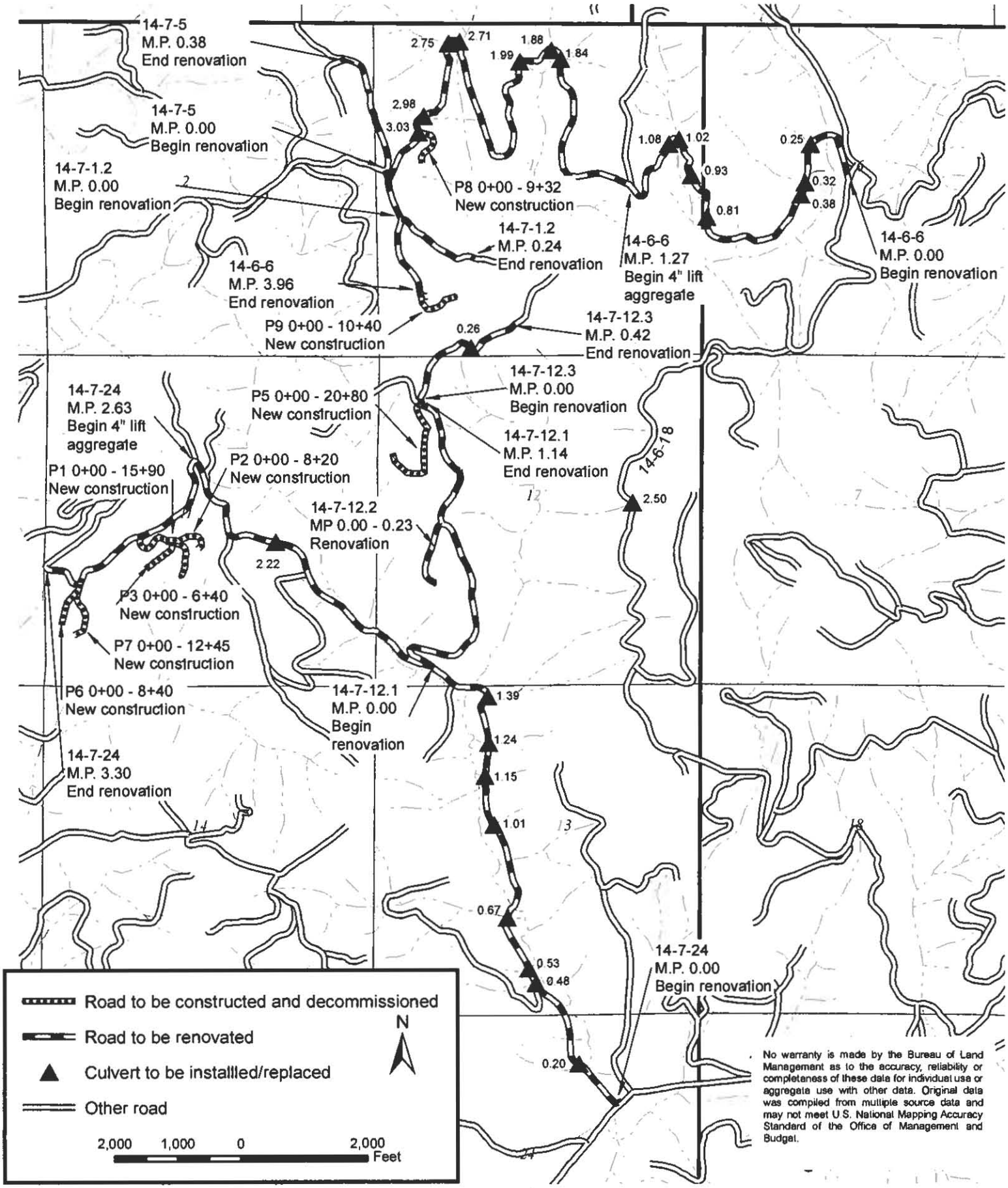
March 3, 2011

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Salem District - Oregon

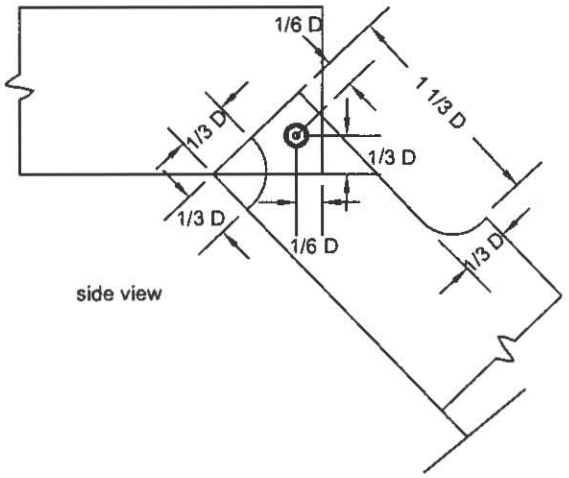
Buck Roberts T.S.
ORS000-TS11-302
EXHIBIT C
Sheet of

ROAD PLAN MAP

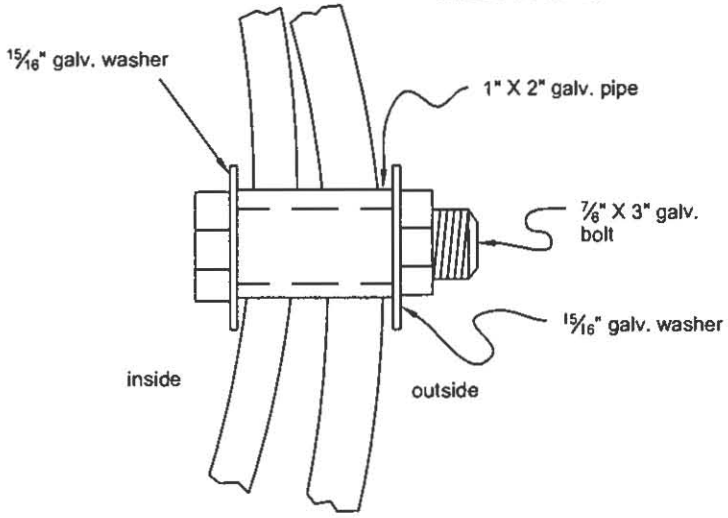
T. 14 S., R. 6 W., Section 6, and T. 14 S., R. 7 W., Sections 1, 11, 12, 13 and 24, W. M. - SALEM DISTRICT - OREGON



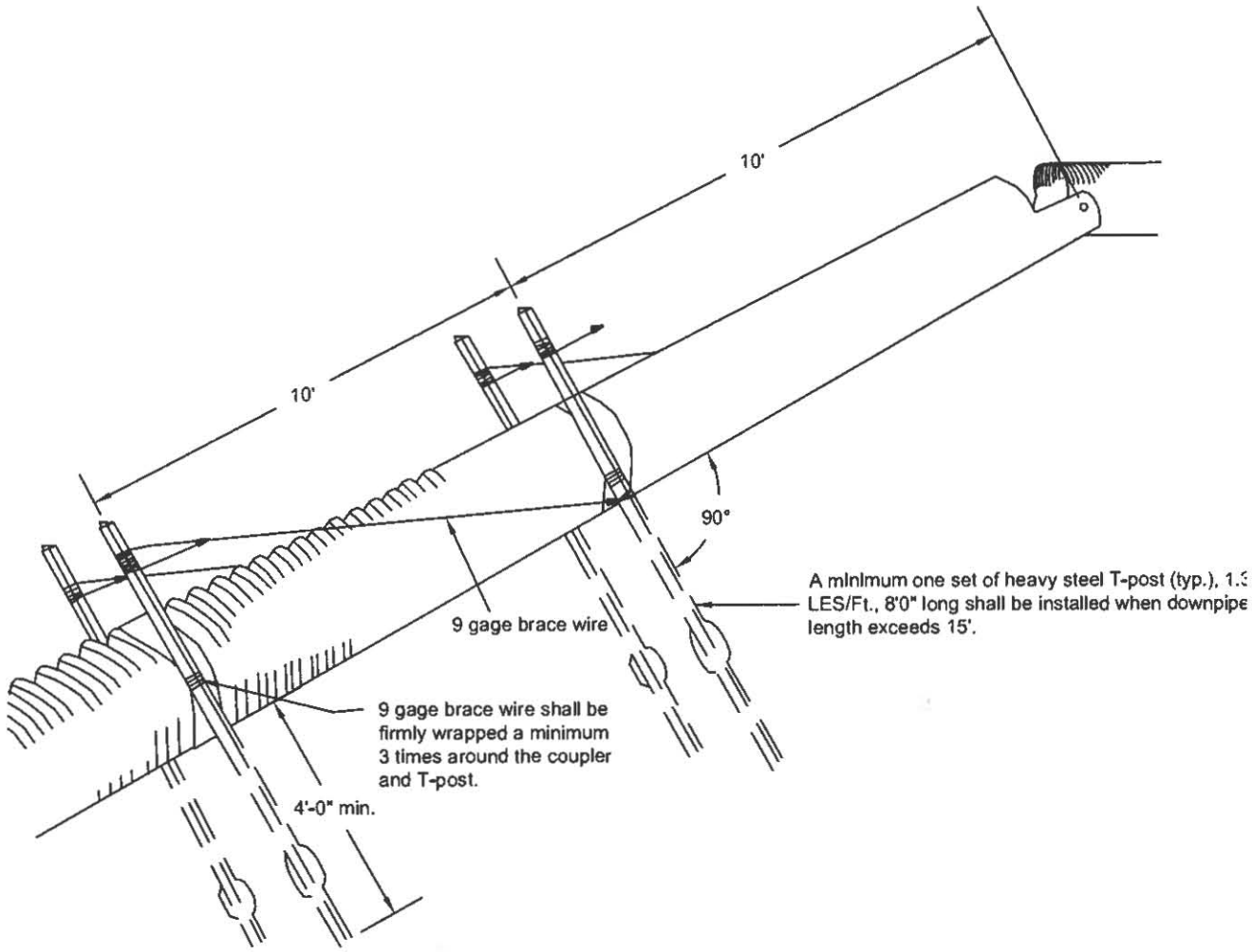
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data. Original data was compiled from multiple source data and may not meet U.S. National Mapping Accuracy Standard of the Office of Management and Budget.



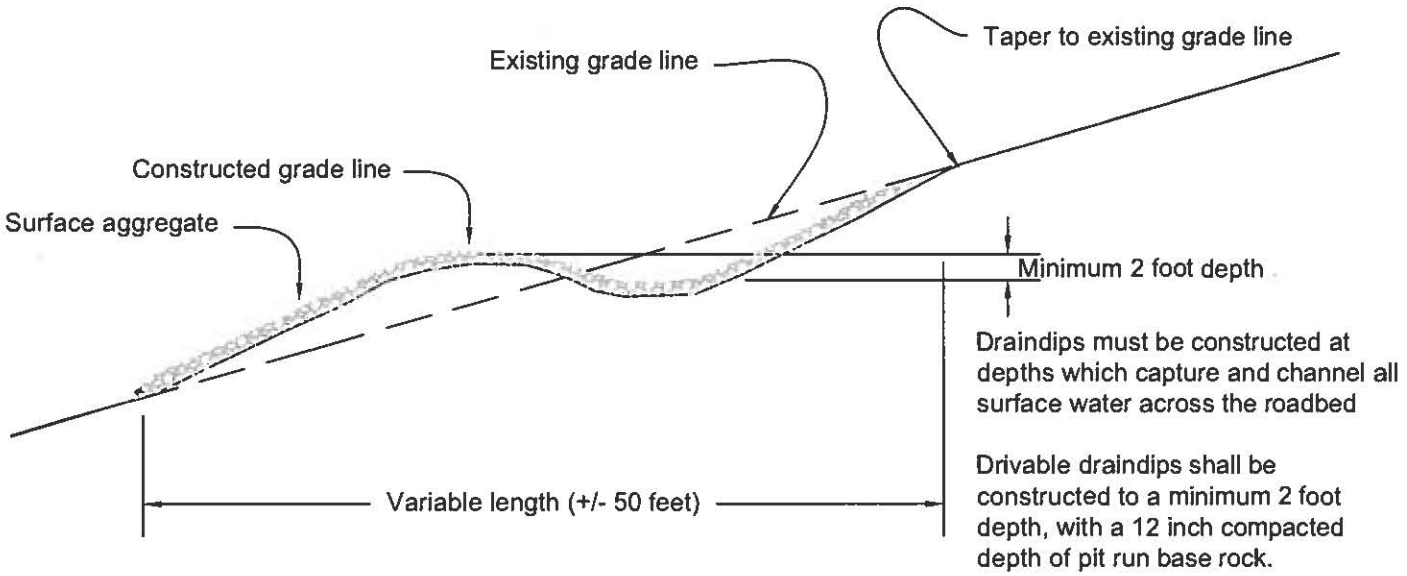
Turner Type Elbow
not to scale



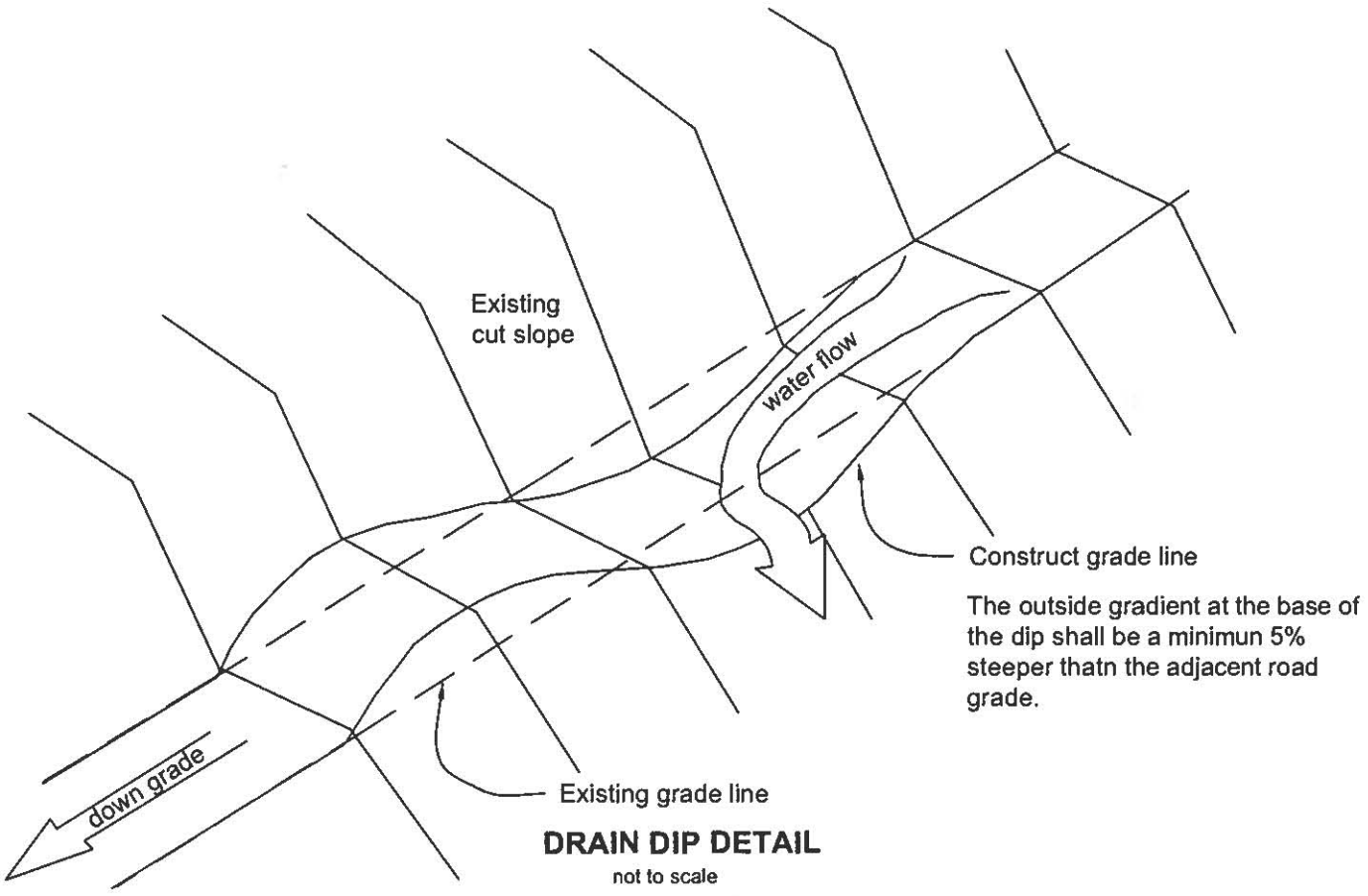
Bolt Detail
not to scale



Downpipe Detail
not to scale



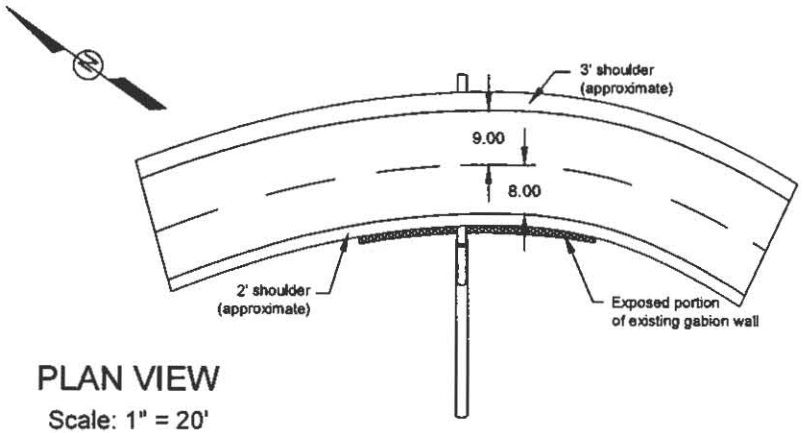
DRAIN DIP PROFILE
not to scale



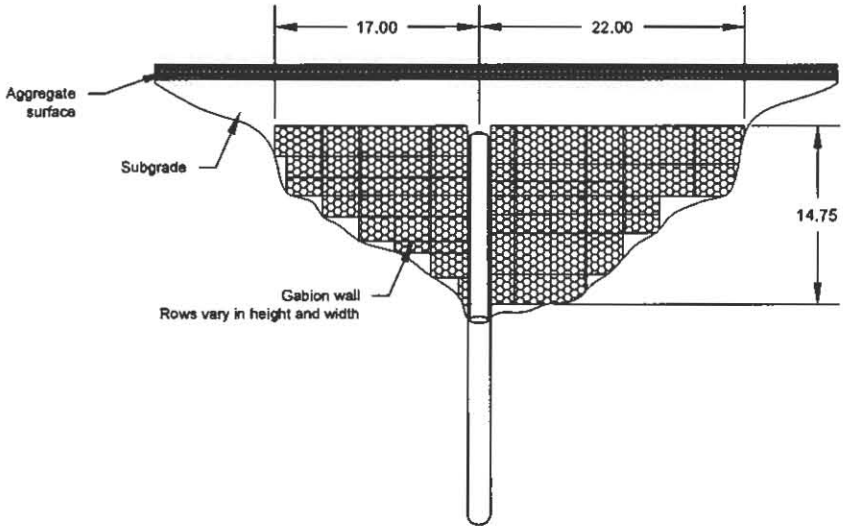
DRAIN DIP DETAIL
not to scale

OR000-TS11-302
EXHIBIT C
SHEET OF

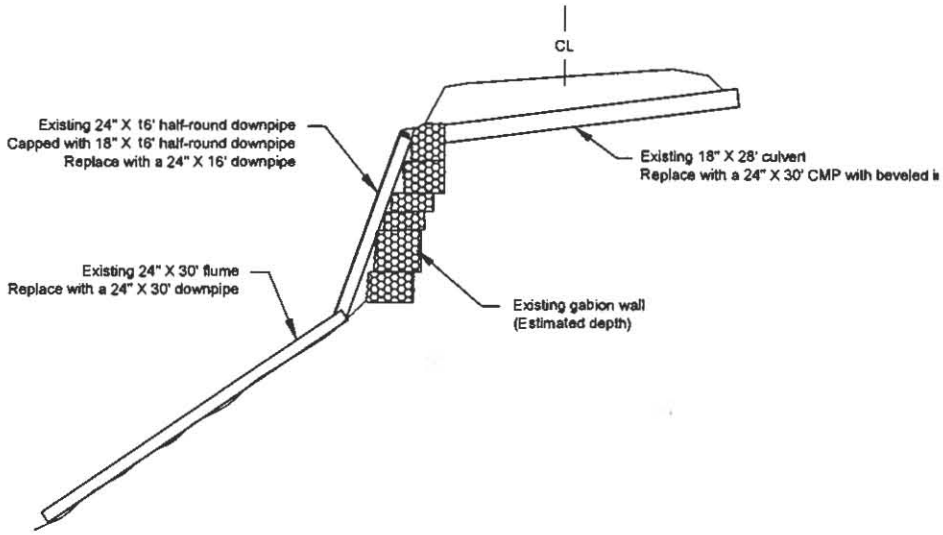
Peak Creek Road #14-6-18
Mile Post 2.50



PLAN VIEW
Scale: 1" = 20'



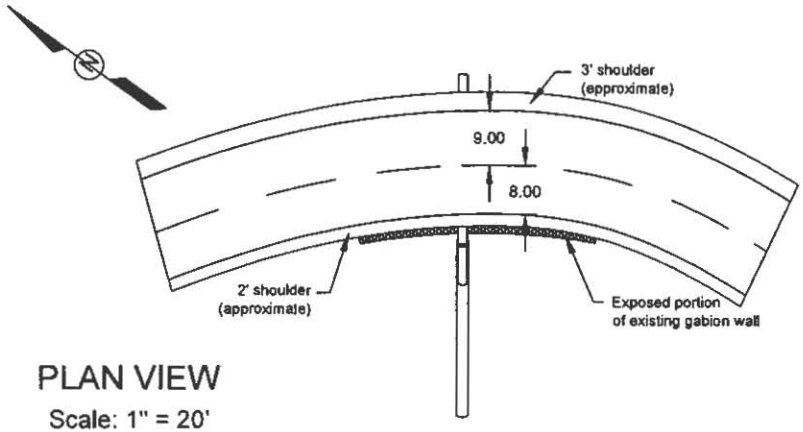
FACE OF EXISTING GABION WALL
Scale: 1" = 10'



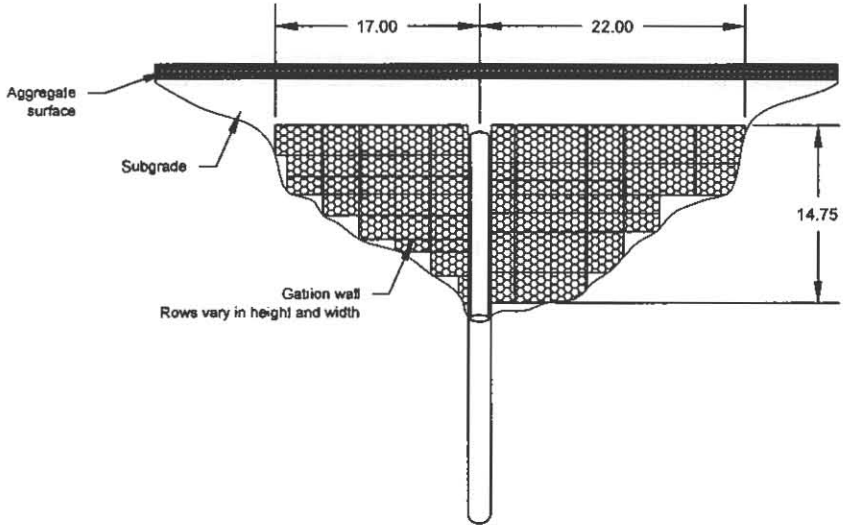
PROFILE VIEW
Scale: 1" = 10'

OR000-TS11-302
EXHIBIT C
SHEET OF

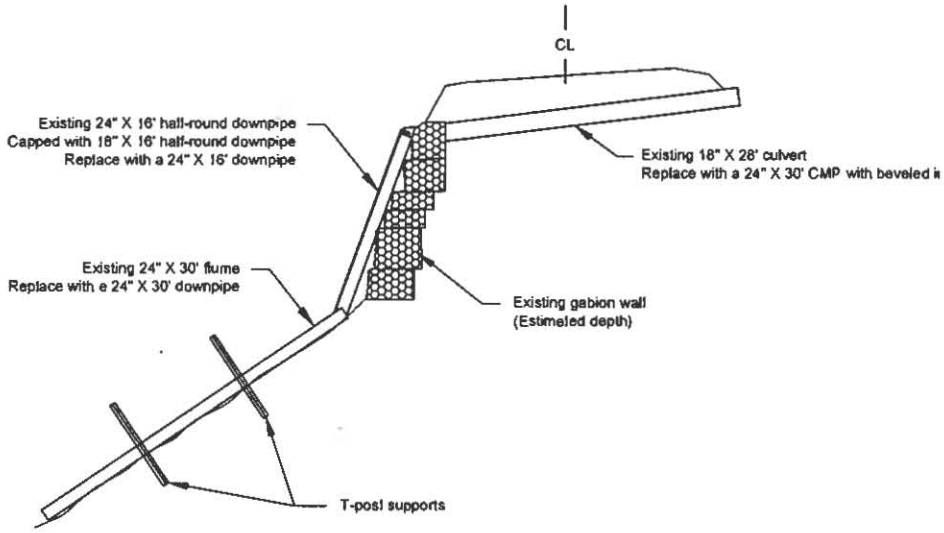
Peak Creek Road #14-6-18
Mile Post 2.50



PLAN VIEW
Scale: 1" = 20'



FACE OF EXISTING GABION WALL
Scale: 1" = 10'



PROFILE VIEW
Scale: 1" = 10'

Department of the Interior
Bureau of Land Management
Salem District

Timber Sale Contract
Purchaser Road Maintenance Specifications

General road maintenance specifications are designated by numeric symbols according to the type of work performed as follows:

Section	Sheet	Description
	1	Table of Contents
3000	2	General
3100	2 - 3	Operational Maintenance
3200	4	Seasonal Maintenance
3300	4 - 5	Final Maintenance
3400	5	Other Maintenance

ROAD MAINTENANCE SPECIFICATIONS

GENERAL - 3000

3001 - The Purchaser shall be required to maintain the Klickitat High Ridge #14-7-5 F-G, I-5 Loop #14-6-6 B4-B5, #14-7-12.2, , #14-7-12.3, P_1, P_2, P_3, P_5, P_6, P_7, P_8, and P_9 roads in the Section 41 Provisions, as shown on the Exhibit E map of this contract, and in accordance with Sections 3000, 3100, 3200, 3300, and 3400 of this Exhibit.

3002 - The Purchaser shall maintain the cross section of existing graveled roads to a geometric standard which promotes proper surface drainage. Any roads required to be constructed or renovated under terms of this contract, shall be maintained to the standards required in Exhibit C of this contract.

3003 The minimum required maintenance on any road shall include the provisions specified in Subsections 3101, 3104, and 3105.

3004 The Purchaser shall be responsible for providing timely maintenance and cleanup on any road with logging units substantially completed prior to moving operations to other roads, unless otherwise permitted by the Authorized Officer. Release of maintenance requirements may be granted when the conditions specified in Sections 3301 and 3401 are met satisfactorily.

OPERATIONAL MAINTENANCE - 3100

3101 The Purchaser shall blade and shape the road surface and shoulders with a grader. Cutbanks 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.

3102 - The Purchaser shall furnish and place a minimum 500 yds^3 of aggregate, conforming to Grading B in Section 1000 of Exhibit C of this contract, on the roadway. The aggregate shall be placed in the amounts and at the locations designated by the Authorized Officer. This aggregate is not designated for use in road construction or renovation work, on landing construction, or where logging debris or equipment operation has contaminated the road surface – but is reserved to repair areas of depleted surface depth on log haul routes. A coarser material may be required in areas where a soft subgrade exists. Any excess material shall be stockpiled at a location approved by the Authorized Officer.

OPERATIONAL MAINTENANCE - 3100 - cont'd

3104 The Purchaser shall perform other road cleanup including removal of debris, fallen timber, bank slough, and slides which can practicably be accomplished by a grader, rubber tired front end loader, rubber tired backhoe, tracked excavator, or comparable equipment, and by the use of hand tools. Removal of bank slough and slide material includes transport and placement of material at a stable site approved by the Authorized Officer.

3105 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.

3107 When directed by the Authorized Officer, the Purchaser shall cut or trim trees and brush which obstruct vision or prevents the safe passage of traffic along the traveled way.

The Purchaser shall also cut trees or brush encroaching on the road prism that are a result of his activities or winter damage during the contract period. Disposal of such vegetative material shall be by scattering below the road in accordance with Subsections 210, 210a, 210b, and 213 of Exhibit C.

3108 The Purchaser's operations shall avoid contaminating gravel surfaces with earth and debris from side ditches, slides, logging activities, or other sources. While maintaining the road surface, the Purchaser shall also avoid blading the aggregate surfacing material off the roadbed. Skidding of logs on the roadway within or outside of the designated logging units is not authorized without prior approval of the Authorized Officer. Necessary repair to haul routes resulting from logging equipment being operated on the existing roadbed, is not considered maintenance and shall be repaired at the Purchaser's expense.

SEASONAL MAINTENANCE - 3200

3201 The Purchaser shall perform preventive maintenance at the end of Purchaser's hauling each season. This includes constructing cross ditches (waterbars) at locations approved by the Authorized Officer, removing ruts or other surface irregularities, and all other requirements specified in Section 3100.

3201a Any road that the Purchaser has maintenance responsibility on, that isn't in use, and that will over-winter, shall be stored in a manner that will promote drainage and minimize sedimentation.

3202 The Purchaser shall perform and complete maintenance specified in Sections 3000, 3100, and 3200 on all roads maintained by him that aren't in use, prior to October 1 of each year, and after initial commencement of construction or loggi ıg operations unless otherwise approved by the Authorized Officer. Thereafter all roads shall have continuous preventive maintenance and road cleanup until suspension of seasonal operations. This includes all roads, whether used or not used during the proceeding operating seasons, displayed as Purchaser Maintenance on the Exhibit E map.

3204 The Purchaser shall be responsible for performing post storm inspections and maintenance during the winter season to minimize erosion and potential road or watershed damage.

FINAL MAINTENANCE - 3300

3301 The Purchaser shall complete final maintenance and/or damage repairs on all roads used under terms of their contract within thirty (30) calendar days following the completion of hauling and in accordance with Sec. 16(b) of this contract. 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.

The Authorized Officer may 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 Sec. 16(b), Special Provisions Sections 3000, 3100, 3200 and 3300 of the maintenance specifications have been completed by the Purchaser. Partial acceptance must be requested by the Purchaser and approved by the Authorized Officer.

FINAL MAINTENANCE - 3300 - cont'd

3302 The Purchaser shall perform final road maintenance only when weather or ground moisture conditions are suitable for normal operations, as determined by the Authorized Officer.

If, due to unsuitable conditions, the final maintenance is delayed after the date required in Subsection 3301, the Purchaser will be notified by the Authorized Officer when conditions improve enough to resume maintenance operations. The Purchaser shall then be required to complete final maintenance within 15 days.

3310 The Purchaser shall decommission and block the P_1, P_2, P_3, P_5, P_6, P_7, P_8, and P_9 roads in the manner described in Section 2600 of Exhibit C.

OTHER MAINTENANCE - 3400

3401 The Purchaser shall, at his expense, repair any damage to road surfaces, regardless of who is designated the maintenance responsibility on the Exhibit E - Road Use and Maintenance Map, resulting from contamination caused by logging operations, log hauling during excessively wet periods, improper or lack of preparation for winter wet season, or other operations that cause damage beyond what is considered normal. In those situations, the aggregate shall be restored to its original standard, as a minimum.