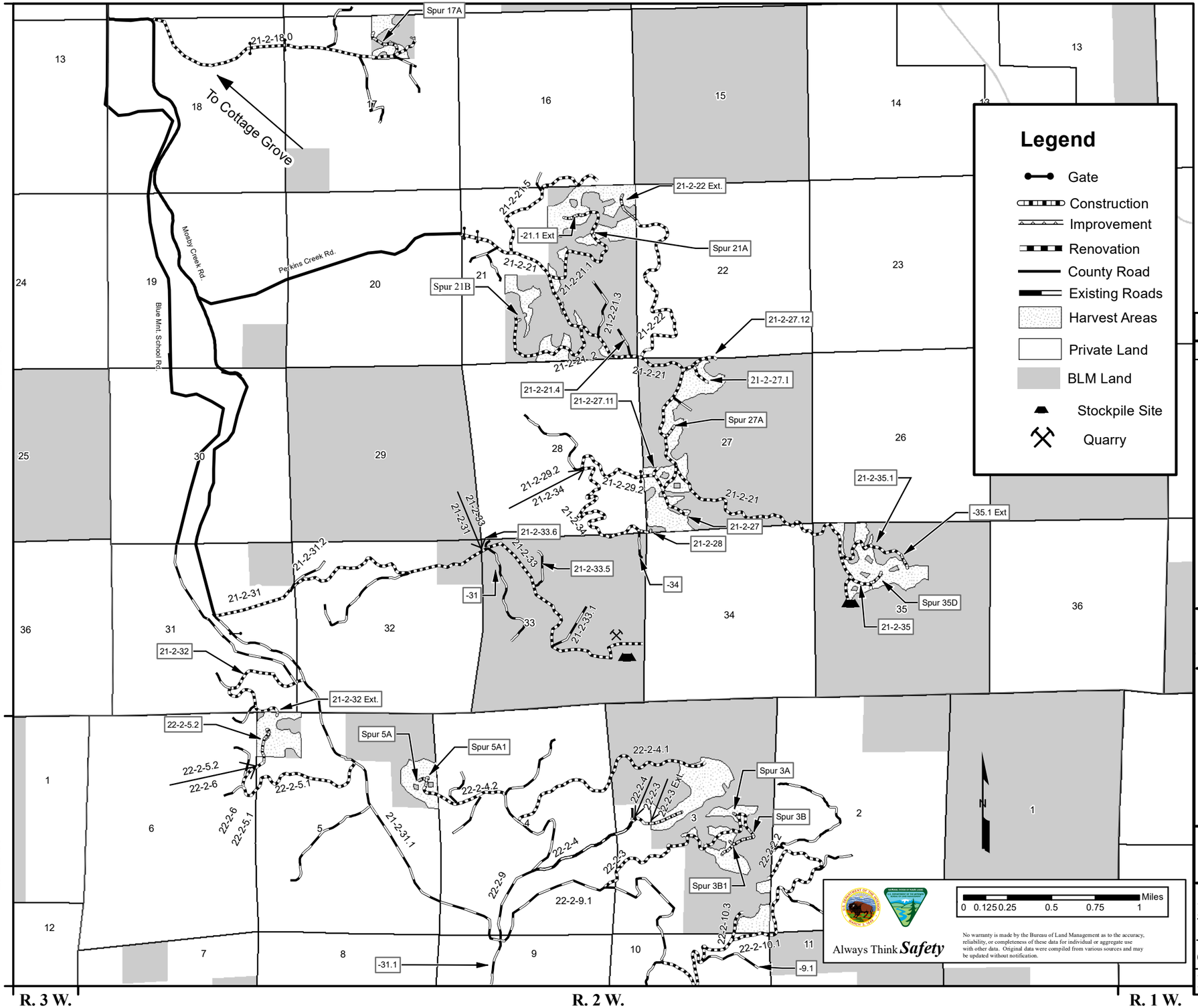
United States
Department Of The Interior
Bureau of Land Management, Northwest Oregon District
Short and Perky Timber Sale

Exhibit C



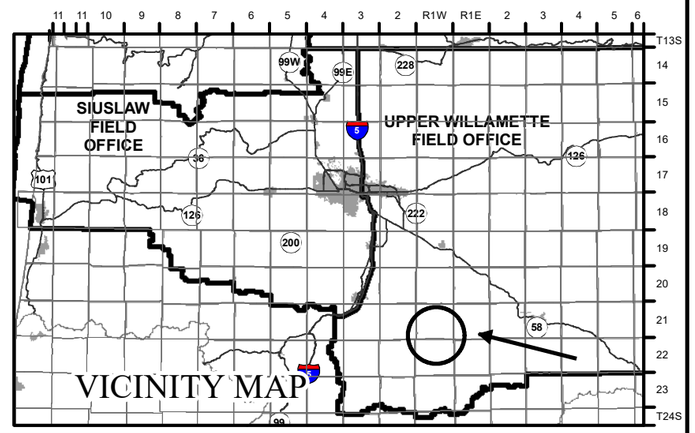
Legend

- Gate
- Construction
- Improvement
- Renovation
- County Road
- Existing Roads
- Harvest Areas
- Private Land
- BLM Land
- Stockpile Site
- Quarry

Miles 0 0.125 0.25 0.5 0.75 1

Always Think *Safety*

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



Index

Sale Name: Short and Perky
Contract No.: ORN05-TS20-524

Construction: Spurs 3A,3B, 3B1, 5A, 5A1, 17A, 21A, 21B, 27A, 35D and Road Nos. 21-2-21.1 Ext., -22 Ext., -28, -32 Ext., -35.1 Ext., 22-2-3.3 Ext., and 22-2-5.2

Renovation: Road Nos. 21-2-18, -21, -21.1, -21.2 -21.5, -22 (portion), -27, -27.1, -27.11, -27.12, -29.2, -31, -32 -33, -34, -35, -35.1, 22-2-2.2, -3, -3.3, -4, -4.1, -4.2, -5.1, -6 -10.1, and -10.3

Improvement: 21-2-22 (portion)

T. 21 S., R. 2 W., Secs. 17, 18, 21, 22, 27, 28, 31, 32, 33, 34, & 35 and T. 22 S., R. 2 W., Secs. 2, 3, 4, 5, 6, 10, 11 Willamette Meridian, Lane County, Oregon

Designed: C. Conklin — Recommended Civil Engineer Technician
Drawn: S. McCauley — Civil Engineer Technician
Checked: C. Conklin — Approved
Date: 7/21/2020 — Field Manager

SPECIAL PROVISIONS

1. The Purchaser shall clean road equipment to remove dirt and plant debris that may contain noxious weed seeds from the undercarriage, tracks, and tire treads prior to entry on BLM lands.

2. All road segments not completed during dry weather periods shall be winterized, by providing a well-drained roadway by water barring, maintaining drainage and any additional measures necessary to minimize erosion and other damage to the roadway, as directed by the Authorized Officer. Any portion of road not having surfacing rock in place will be waterbarred and blocked or barricaded to prevent vehicular traffic.

3. Before beginning road construction operations for the first time or after a shutdown of 7 or more days, the Purchaser shall notify the Authorized Officer of the date he plans to begin operations. The Purchaser shall also notify the Authorized Officer if he intends to cease operations for any period of 30 or more days.

4. Purchaser shall provide proof at the pre-work conference that operations permits with the Oregon Department of Forestry have been obtained for road work on private land.

5. The P-lines, as staked in the field and as shown on Exhibit C, are intended to be used as a control and should be considered as being in the area of the finished grade.

6. Required Rock Source: Section 33 Quarry, Located in T. 21 S., R. 2 W., Section 33, Will. Mer.

Quantities: Crushed Rock	**Gradation:**	**Truck Yards:**
Exhibit C: Surfacing/Base Rock	¾" Minus	209 CY
	1-1/2" Minus	1,060 CY
	3" Minus	7,135 CY
	6" Minus	5,049 CY
Culvert Bedding/Back Fill	¾" Minus	2,457 CY
Armoring	Jaw Run	247 CY
Exhibit D: Maintenance Rock	1-1/2" Minus	300 CY
	3" Minus	300 CY
	TOTAL:	16,757 **Truck Yards**

Note: Surfacing & bedding rock quantities shown above are estimates.

7. A quarry development plan must be reviewed on site with the contractor for the drilling and crushing of the rock for this timber sale before any drilling or blasting shall occur.

8. The Purchaser will be required to crush and stockpile 300 CY of 1-1/2" minus and 300 CY of 3" minus rock to be used for maintenance during hauling as well as final road maintenance. Additional road reinforcement (rocking) may be required for wet weather haul and will be at the Purchaser's expense.

9. The removal and installation of all culverts shall comply with the following requirements:
   (a) The Authorized Officer shall be given 2 business days' notice prior to the commencement of stream culvert installations.

(b) Road closed signs or traffic control flaggers shall be used above and below the culvert replacement site whenever the situation is unsafe for through traffic as determined by the Authorized Officer. Road closure plans shall be coordinated with other users.

(c) Culvert replacement/installation/removal on streams located in the Mosby Creek drainage (T. 21 S., R. 2 W., Sections 17 and 21, and T. 22 S., R. 2 W., Section 3), shall be completed between June 1 and October 31 (both days inclusive), and culvert replacement/installation/removal on streams located in the Dorena drainage (T. 21 S., R. 2 W., Sections 27 and 35) shall be completed between May 15 and November 30 (both days inclusive). Culvert work shall be completed prior to hauling and fall rains. During installation of the stream culverts, dewatering of the culvert bed, silt fences and/or straw bales may be required as directed by the Authorized Officer. All work shall be completed in accordance with the plans and specifications shown in Exhibit C.

(d) Dewatering of the culvert is required on all live streams and as directed by the Authorized Officer.

(e) No bedding shall be done on culvert installation of CMPs or CPPs 30” in diameter and greater unless the Authorized Officer is present. Backfill material shall not be placed prior to approval from the Authorized Officer.

(f) All culvert replacements on existing rocked roads shall be resurfaced in accordance with the Worklist Maps and surfacing detail sheets.

(g) All CMPs shall use an "O" ring neoprene gasket to insure a water-tight joint.

(h) All excess and unsuitable material from culvert removals shall be hauled to waste area locations approved by the Authorized Officer. All borrow site locations shall be approved by the Authorized Officer.

10. Seed and mulch will be required at all culvert installation/replacement sites, and designated cut banks, landings, and waste disposal sites in accordance with Section 1800 of this Exhibit.

11. Temporary stream pipe installation and removal on Spur 17A and Road No. 22-2-3.3 shall occur in the same season, and must occur before fall rains, and within the in-stream work window (June 1 – October 31).

12. Quarry operations which include drilling, blasting, crushing, loading, and hauling shall be completed at Section 33 Quarry in T. 21 S., R. 2 W, Section 33, by December 31, 2021. The Purchaser is required to build and use a stockpile site on the South side of Road No. 21-2-33 at MP 3.07 to stockpile crushed rock and equipment, place it at the designated stockpile site located T. 21 S., R. 2 W., Sec. 35**,** or place it in accordance with this Exhibit, prior to this date. This requirement may be negotiated with other Quarry users and subject to approval by the Authorized Officer.

TIMBER SALE ROAD SPECIFICATIONS

TABLE OF CONTENTS

GENERAL – 100

101 — Prework Conference:

A prework conference will be held prior to the start of new construction, improvement, renovation, quarry development, and surfacing operations. The Purchaser shall request the conference at least 48 hours prior to the time it is to be held. The conference will be attended by the Purchaser and/or his representative, subcontractors and/or his or their representatives and the Authorized Officer and/or his representatives.

The purpose of the prework conference 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. A prework conference shall be scheduled at the worksite for quarry development and large culvert installations.

102 — Definitions:

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

Apparent Opening Size (AOS) - Number of the U.S. Bureau of Standard sieve (or its opening size in millimeters or inches) having openings closest in size to the diameter of uniform particles which will allow 5 percent by weight to pass through the geotextile material when shaken in a prescribed manner. This is also referred to as Equivalent Opening Size (EOS).

ASTM - American Society for Testing and Materials.

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.

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).
Typically, grab strength is determined on a 12-inch-wide strip of geotextile material, with the tensile load applied at the midpoint of the geotextile material width through 1-inch-wide jaw faces.

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

Overhaul - Distance excavated material is transported in excess of the distance included in the cost for excavation.

Pioneer Road - Temporary construction access built along the route of the project.

Piping - The process by which soil particles are washed in or through pore spaces in drains and filters or poorly compacted fill/backfill material.

Plans - The approved drawings, or exact reproductions thereof 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, or its agents, employees, or contractors.

Reasonably Close Conformity - Compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified.

Reinforcement - Strengthening of concrete with iron bars or mesh: geotextile with geotextile material inclusion: subgrade with aggregate: etc.

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

Road Centerline - The longitudinal center of a 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.

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. Synonym - road prism.

Scale - In quarrying, consists of the removal of loose or overhanging rock adhering to the solid face after a shot or a round of shots has been fired.

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

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.

Slope ratio notation (horizontal:vertical) – Slope ratios for constructed cut and fill slopes are expressed as a ratio of horizontal units to vertical units.

Spalls - Flakes or chips of stone.

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.

Structures - Bridges, culverts, catch basins, retaining walls, underdrains, flumes, splash pads, downspouts, 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 rock 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.

Tensile Stress - Strain Modulus - A measure of the resistance to elongation under stress. The ratio of the change in tensile stress to the corresponding change in strain.

Timber - Standing trees, downed trees, or logs which can be measured in board feet.

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.
AASHTO T 99	Relationship between soil moisture and density of soil. Method A - 4" mold, soil passing a No. 4 sieve 25 blows/layer & 3 layers. Method C - 4" mold, soil passing a 3/4 inch sieve

25 blows/layer & 3 layers.
Method D - 6" mold, soil passing a 3/4 inch sieve. 56 blows/layer & 3 layers.

AASHTO T 119 Slump of hydraulic cement concrete.

AASHTO T 152 Air content of freshly mixed concrete.

AASHTO T 166 Specific Gravity of compacted Bituminous Mixtures.

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

AASHTO T 180 (OSHD 106-71) moisture density relationship of soil same as AASHTO T 99 proctor but uses a 10-lb rammer & 18-in drop height.

AASHTO T 191 Sand Cone. Density of soil in place: For subgrade use 6-inch or 12-inch cone. For rock surfacing for 1-1/2-inch minus to 3-inch minus use 12-inch cone.

AASHTO T 205 Rubber balloon. Density of soil in place. Use for compacted or firmly bonded soil.

AASHTO T 209 Maximum Specific Gravity of Bituminous Paving Mixtures.

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

AASHTO T 224 Correction for coarse particles in the soil.

AASHTO T 238 Density of Soil and Soil-Aggregate in place by nuclear methods.

AASHTO T 248 Reducing field samples of aggregate to testing size by mechanical splitter, quartering, or miniature stockpile sampling.

ASTM D 4564 Determination of relative density of cohensionless soils.

DMSO (dimethyl sulfide) Determines volume of expanding clays in aggregates. Usually associated with marine basalts.

103 — Compaction equipment shall meet the following requirements:

103a — Padded Drum (Tamping) Rollers. The unit shall consist of a drum with pads, be either self-propelled or towed by a tractor, and capable of operating at a speed of 6 mph. The drum shall be no less than 48 inches in diameter over the pads and not less than 60 inches in width. The pads shall have a minimum height of 3 inches, and a face area of not less than 14 square inches. The weight at drum shall be no less than 8000 lb.

103c — Smooth-wheel power rollers. Smooth-wheel power rollers shall either be of the 3-wheel type, weighing not less than 10 tons, or of the tandem type, 2-wheel or 3-wheel, weighing not less than 8 tons. Smooth-wheel roller shall provide compression of 325 pounds per linear inch of width of rear wheels or drum.

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.

The towing vehicle and roller or self-propelled unit meeting the above requirements shall be considered a vibratory roller unit.

103g — Vibratory compactor. Vibratory compactors shall consist of multiple or gang-type compacting units or pads with a minimum variable width of 2 feet. It shall be self-contained and capable of compacting material as required.

103i — Other. Compaction equipment approved by the Authorized Officer.

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 staked on the ground.

201a — This work shall consist of clearing, grubbing, removing and disposing of vegetation, debris, surface objects and protruding obstructions from borrow pits, quarries, channel changes, stockpile sites, etc., in accordance with these specifications and as staked on the ground.

202 — Where clearing limits have not been staked, established by these specifications or shown on the plans, the limits shall extend 10 feet back of the top of the cut slope and 5 feet out from the toe of the fill slope.

203 — Clearing shall consist of the removal and disposal of trees, logs, 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 Subsection 202 and as staked on the ground.

203a — Brush under 2 feet in height need not be cut within the limits established for clearing.

203b — Standing trees and snags to be cleared shall be felled within the limits established for clearing unless otherwise authorized.

204 — Grubbing shall consist of the removal and disposal 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 Subsections 204a, 204b, 204c, 204d, and 204e between the top of the cut slope and the toe of the fill slope. Undisturbed stumps, roots and other solid objects which will be a minimum of 3 feet below subgrades or slope surfaces or embankments are excluded.

204a — Stumps, including those overhanging cut banks, shall be removed within the required excavation limits.

204b — Stumps and other protruding objects shall be completely removed within the limits of required embankments having heights of less than 4 feet. 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 — On excavated areas, roots and embedded wood shall be removed to a depth not less than 6 inches below the subgrade.

204d — On areas to be occupied by embankments having heights greater than 4 feet, no stump or portion thereof shall remain within 3 feet of embankment subgrades or slope surfaces after grubbing is completed.

204e — Roots and embedded wood material shall be removed to a depth not less than 1 foot below embankment subgrades or slope surfaces.

205 — Clearing and grubbing debris shall not be placed or permitted to remain in or under road embankment sections. Such debris will, however, be permitted to remain under waste material from full-bench construction on steep side slopes.

206 — Clearing and grubbing debris shall be disposed of by scattering in accordance with Subsection 210.

206a — Notwithstanding Subsections 204, 204a, 204d, and 205, clearing and grubbing debris resulting from landing construction shall be placed at disposal sites and shall not be covered with excavated material. Location of disposal sites will be determined by the Authorized Officer.

210 — Disposal of clearing and grubbing debris, stumps, and cull logs shall be by scattering over government owned lands outside of established clearing limits in a manner acceptable to the Authorized Officer. The areas for such scattering shall have the prior approval of the Authorized Officer.

210a — Disposal of clearing and grubbing debris, stumps, and cull logs on non-government property by scattering this material outside of clearing limits will be permitted provided the Purchaser obtains a written permit from the property owner on whose property the disposal is to be made. The Purchaser shall furnish the Authorized Officer a certified copy of the permit and a written release from the property owner absolving the Government from responsibilities in connection with the disposal of debris on said property.

210b — Clearing and grubbing debris, stumps, and cull logs resulting from road construction on non-Government property shall be disposed of as stated in the terms and conditions of the license agreement between the Purchaser and non-Government land owner.

212 — No grading will be permitted prior to completion and approval by the Authorized Officer of the required clearing and grubbing work, except that stump grubbing may proceed with the excavation of the road prism.

213 — No clearing or grubbing debris shall be left lodged against standing trees.

EXCAVATION AND EMBANKMENT – 300

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 other earth-moving work in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

302 — Excavation shall also consist of the excavation of road and landing cut sections, borrow sites,

backfilling, leveling, ditching, grading, compaction, and other earth moving work necessary for the construction of the roadway in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and as marked on the ground.

303 — Suitable material removed from the excavation shall be used in the formation of embankment subgrade, shoulders, slopes, bedding, 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 selected by the Purchaser at his option and approved by the Authorized Officer.

305 — Embankment construction shall consist of the placement of excavated and borrowed materials, backfilling, leveling, grading, compaction, and other earth-moving work necessary for the construction of the roadway and landings in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and as marked on the ground.

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 materials shall be placed in successive parallel layers on areas cleared of stumps, cull logs, brush, sod, and other vegetative and deleterious materials, except as provided under Subsection 204. Roadway embankments of earth material shall be placed in horizontal layers not exceeding 6 inches in depth.

306 — Layers of embankment, selected borrow, final subgrade, and selected roadway excavation material as specified under Subsections 305a, 305b, 317, and 317a shall be moistened or dried to a uniform optimum moisture content suitable for maximum density and compacted to full width with compacting equipment conforming to requirements of Subsections 103a, 103c, 103f, 103g, and 103i.

306a — Minimum compaction for each layer of embankment, selected borrow, and selected roadway excavation material placed at optimum moisture shall be 1 hour of continuous compacting for each 4 stations of road or fraction thereof.

306d — Compacted materials within 3 feet of the established subgrade elevation shall have a density in place of not less than 95 percent of maximum density, and below the 3-foot limit, these materials shall have a density in place of not less than 90 percent of maximum density. Maximum density shall be determined by AASHTO T 99, Method A or Method D.

306e — The final subgrade including landings shall be compacted to full width with compacting equipment conforming to the requirements of Subsections 103a, 103c, 103f, 103g, and 103i. Minimum compaction shall be 1 hour of continuous compacting for each 4 stations of road or a fraction of as measured along the center line of the constructed road.

311 — In solid rock cuts where pockets that will not drain are formed by blasting below the subgrade elevation, drainage shall be provided by ditching to the edge of the subgrade, backfilling to grade, and compacting the pockets and the ditch with rock fragments, gravel, or other suitable porous material.

312 — When material, except solid rock, encountered in cuts at subgrade, is suitable for use in forming the finished roadbed, the top 6-inch layer of the subgrade shall be thoroughly scarified for the full width of the roadbed. Roots, sod, and other deleterious material or stones that will not pass a 6-inch square opening shall be removed. The scarified material shall be processed to the optimum moisture

content suitable for maximum density and compacted in accordance with Subsection 306.

313 — In cut areas where solid rock is encountered at, or near subgrade, the rock shall be excavated to a minimum depth of 6 inches below subgrade elevation and the excavated area backfilled with suitable material. The backfill material shall be processed to the optimum moisture content suitable for maximum density and compacted to full width in accordance with the requirements of Subsection 306.

314 — When heavy clays, muck, clay shale, or other deleterious material for forming the roadbed is encountered in cuts at subgrade, it shall be excavated to a minimum depth of 2 feet below the subgrade elevation and the excavated area backfilled with a selected 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 306. Unsuitable material shall be disposed of as directed by the Authorized Officer.

316 — Borrow material from sources selected at the Purchaser's option shall be inspected and approved in writing by the Authorized Officer prior to placement.

317 — Selected borrow shall consist of talus material, finely broken rock, gravel, or other material of granular or favorable characteristics from sources shown on the plans.

317a — Where indicated on the plans, the Purchaser shall conserve excavation material consisting of talus material, gravel, finely broken rock or other material of granular or favorable characteristics for placement on the top portions of the roadbed as shown on the plans and as directed by the Authorized Officer.

318 — Selected borrow or selected roadway excavation material shall be uniformly spread on the roadbed in lifts not to exceed 6 inches in depth until the required thickness shown on the plans is attained. Each layer shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width in accordance with the requirements of Subsection 306.

318a — Selected borrow or selected roadway excavation material shall be uniformly spread on the roadbed to a depth which, after compaction, will provide the depth shown on the plans. Compaction shall be accomplished by 1 hour of continuous compaction per 4 stations of road.

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

321 — Excess excavated, unsuitable, or slide materials shall not be disposed on areas where the material will encroach on a stream course or other body of water. Such materials shall be disposed of in accordance with Subsection 321c. Materials not disposed of in this manner shall be retrieved and disposed of at the Purchaser’s expense and at the direction of the Authorized Officer.

321c — 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. Watering, rolling, and placement in layers are not required. Materials placed shall be sloped, shaped, and otherwise brought to a visible condition acceptable to the Authorized Officer.

324 — Excavated material shall not be allowed to cover boles of standing trees to a depth in excess of 2 feet on the uphill side.

325 — Where shown on the plans, topsoil shall be conserved from areas of excavation or embankment.

Topsoil shall consist of friable earth material which may include the natural or native sod and be reasonably free of undesirable subsoil, large roots, wood refuse, and coarse gravel or stones which might interfere with the sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. The removed topsoil shall be transported and deposited in stockpiles at locations shown on the plans.

327 — The finished grading shall be approved in writing by the Authorized Officer in segments or for the total project. The Purchaser shall give the Authorized Officer 3 days' notice prior to final inspection of the grading operations and start of surfacing operations.

PIPE CULVERTS – 400

401 — This work shall consist of furnishing and installing pipe culverts, downspouts, 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 Authorized Officer upon completion of the roadbed. Additional pipe and erosion control devices 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.

402 — The pipe culverts located as shown on the plans and the Culvert Worklist, shall be installed in such a manner as not to impede fish passage. Installation shall conform to the lines, grades, dimensions, and typical cross sections shown on the plans or as directed by the Authorized Officer.

403 — Cross grade culverts shall have a gradient of from 1 percent to 4 percent greater than the adjacent road grade. Grade culverts shall be skewed down grade 20 degrees as measured from the perpendicular to the centerline unless otherwise specified on the plans.

404 — Damage to the spelter, or burn back in excess of 3/8 inch, shall be wire brushed and painted with two coats of zinc-rich paint on zinc-coated, steel pipe and aluminum-rich paint on aluminum or aluminum-coated pipe.

405 — Corrugated steel riveted and helical pipe culverts and pipe-arch culverts and special sections shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274 as specified on the plans.

405e — Corrugated-polyethylene pipe for culverts 12-inch through 36-inch diameter shall meet the requirements of AASHTO M 294.

Corrugated-polyethylene pipe for culverts 42-inch through 60-inch diameter shall meet the requirements of AASHTO M 294-03, Type D or Type S.

Corrugated-polyethylene pipe for culverts to be used for downspouts 12-inch through 60-inch diameter shall meet the requirements of AASHTO M 294-03, Type C.

Installation will be subject to the same specification as other pipe materials.

405f — Ring gaskets for rigid pipe shall meet the requirements of AASHTO M 198. Continuous flat gaskets for flexible metal pipe shall meet the requirements of ASTM D 1056, with grade RE 41 used for bands with projections or flat bands, and grade RE 43 used for corrugated bands. When used with metal

pipe with annular reformed ends, the ring gasket shall be one-fourth greater in diameter than the depth of the corrugation. Gasket thickness for bands with projections or flat bands shall be 1/2 inch greater than the nominal depth of the corrugation and shall be 3/8 inch for corrugated bands. For pipe with flanged ends, a butyl-rubber-strip gasket shall be placed inside the channel band.

408 — Pipe culverts and pipe-arch 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 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.

410 — Pipe shall be unloaded and handled with reasonable care. If the Authorized Officer 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.

411 — Trenches necessary for the installation of pipe culverts shall conform to the lines, grades, dimensions, and typical diagram included in the plans and the Culvert Installation Detail Sheet.

412 — 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 plus 2 feet on each side of the pipe and shall be backfilled with crushed rock material in accordance with Section 1200 gradation E.

413 — Pipe culverts shall be bedded on a crushed rock material in accordance with Section 1200 gradation E material having a depth of not less than 4 inches as shown on plans. Foundation material shall be of uniform density throughout the length of the structure and shall be shaped to fit the pipe.

414 — 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 Authorized Officer.

414a — 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.

415 — Inspection of pipe culverts having a diameter of 30 inches or larger shall be made before backfill is placed. Culverts found to be out of alignment or damaged shall be replaced, reinstalled or repaired as directed by the Authorized Officer at the Purchaser's expense.

416 — Back-fill material for all pipe culverts shall be placed at a minimum of 2 feet of the sides of the pipe barrel, and to 1 foot over the pipe with crushed rock material in accordance with Section 1200 gradation E or granular fill material that has been approved by the Authorized Officer and 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.

417 — Back-fill material for all pipe culverts shall conform to the requirements of Subsection 416 and 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 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 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.

418 — Side fills beyond the compaction limits specified under Subsection 417 shall be compacted as

specified under Section 300.

419 — The pipe culverts, after being bedded and backfilled as required by these specifications shall be protected by a 2-foot cover of fill before heavy equipment is permitted to cross the drainage structures. Removal of the protection fill shall be as directed by the Authorized Officer.

423 — Construction of catch basins and ditch dams conforming to lines, grades, dimensions and typical diagrams shown on the plans, shall be required as specified on the Worklist Maps.

424 — Construction of splash pads/energy dissipaters conforming to lines, grades, dimensions and typical diagram shown on the plans, shall be required as specified on the Worklist Maps and Culvert Worklist.

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 shown on the plans and as directed by the Authorized Officer.

427 — Record culvert sizes, lengths and location actually installed on a copy of the culvert list. This culvert list shall be furnished to the Authorized Officer.

428 — Remove and dispose of old culverts in a legal manner, and pay any fees required. The Purchaser shall remove the old culverts from the work site within three (3) working days of completion of the culvert replacement work for each road prior to road acceptance.

429 — Keep the excavation site dewatered so that the installation of culverts is completed under dry conditions. Dispose of excess water by using pumping or natural drainage ways near the site in a manner that will avoid damage to adjacent property. Provide for downstream waterflow with no more that 10% increase in natural stream turbidity due to transport of excavated material or sediment during construction. Diversion streams shall not be returned to the natural channel until all in-stream work has been completed.

RENOVATION AND IMPROVEMENT OF EXISTING ROADS – 500

501 — This work shall consist of reconditioning and preparing the roadbed and shoulders, minor excavation and/or embankment, cleaning and shaping drainage ditches, trimming vegetation from cut and embankment slopes, and cleaning and repairing drainage structures of existing roads in accordance with these specifications, and as shown on the plans.

501a — This work shall include the removal and disposal of slides in accordance with these specifications and as marked on the ground.

502 — The existing road surface shall be scarified to its full width and to a depth of 6 inches to eliminate surface irregularities and bladed and shaped to the lines, grades, dimensions, and typical cross sections shown on the plans and on the Worklist Maps.

502a — 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 sections shown on the plans.

503 — Debris from slides shall be disposed of as directed by the Authorized Officer.

504 — Scarified material shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width with equipment conforming to requirements of Subsections 103a, 103c, 103f, 103g, and 103i.

504a — Minimum compaction required shall be 1 hour of continuous rolling or tamping for each 4 stations of road, or fraction thereof, as measured along the centerline per layer of material.

504c — A uniform density of not less than 95 percent of the maximum density as determined by AASHTO T 99, Method A, C, or D.

506 — The inlet end of all existing drainage shall be cleared of vegetative debris and boulders that are of sufficient size to obstruct normal stream flow. Pipe inverts shall be cleared of sediment and other debris lodged in the barrel of the pipe. The outflow area of designated pipe structures shall be cleared of rock and vegetative obstructions which will impede the structure's designed outflow configuration. Catch basins shall conform to the lines, grade, dimensions, and typical diagram shown on the plans.

507 — Existing and new drainage structures shown on the Culvert Worklist sheet shall be replaced or installed with structures of the type, gauge, diameter, and length shown on the plans and in accordance with the placement requirements set forth under Section 400 of these specifications.

508 — Vegetation encroaching on the roadbed and the drainage ditches of existing roads shall be removed by cutting and disposed of in accordance with Subsection 2100 of these specifications.

509 — The finished grading shall be approved in writing by the Authorized Officer 1 day prior to surfacing operations. The Purchaser shall give the Authorized Officer 3 days notice prior to final inspection of the grading operations.

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, laying dust, or for other uses in accordance with these specifications.

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 Authorized Officer. Amounts of water to be provided will be the minimum needed to properly execute the compaction requirements in conformance with these specifications, and for laying dust during work periods where the road crosses private property.

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 road bed.

604 — Water required under these specifications shall be obtained at the location indicated below:

	Willamette Meridian		
Common Name	Section	T.	R.
Perkins Creek	21	21 S	2 W
Mosby Creek	4, 5	22 S	2W

Use of the water source is subject to applicable State water regulations. In the event that the required water is not available at the location specified, water shall be obtained from a source approved by the Authorized Officer. A reduction shall be made in the total purchase price to reflect additional hauling distance based on rental rates from current BLM Timber Appraisal Cost Schedules.

605 — The Purchaser shall secure the necessary water permits and pay all required water fees for use of the water source specified under Subsection 604 and for use of water sources selected by the Purchaser and approved by the Authorized Officer.

AGGREGATE BASE COURSE – 1000
CRUSHED ROCK MATERIAL

1001 — This work shall consist of furnishing, hauling, and placing one or more lifts of crushed rock material on roadbeds and landings approved for placing crushed rock material, in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the road at the Purchaser's expense.

1002 — Crushed rock materials used in this work shall consist of quarry rock, stone, gravel, or other approved materials obtained from the source shown on the plans. Development and mining of such source shall be in accordance with Subsections 1601 and 1602 of these specifications.

1002a — Crushed rock materials may be obtained from commercial sources selected by the Purchaser at his option and expense providing that the rock materials selected comply with the specifications in this section.

1003 — Crushed rock material produced from gravel shall have 2 manufactured fractured faces on 65 percent, by weight, of the material retained on the No. 4 sieve. If necessary, to meet the above requirement, or to eliminate an excess of filler, the gravel shall be screened before crushing.

1004 — Crushed rock materials shall consist of hard durable rock fragments conforming to the following gradation requirements:

TABLE 1004

AGGREGATE BASE COURSE
CRUSHED ROCK MATERIAL
Percentage by Weight Passing
Square Mesh Sieves
(AASHTO T 11 & T 27)

Sieve Designation	GRADATION	
	A	I
6-inch	-	100
3-inch	100	45-65
2-inch	90-95	-
1-1/2-inch	-	-
1-inch	45-75	-
3/4-inch	-	-
1/2-inch	-	-
3/8-inch	-	-
No. 4	15-45	0-10
No. 8	-	-
No. 10	-	-
No. 30	-	-
No. 40	5-25	-
No. 200	2-15	-

1004a — The Purchaser shall be required to take one (1) sample of each 2,000 cubic yards of crushed rock material produced, using approved AASHTO sampling procedures. The Purchaser shall submit samples to a certified lab or shall perform testing for gradation requirements using ASHTO T 11 and AASHTO T 27 testing procedures. Prior to testing, each sample shall be split, making one-half of the sample with proper identification available for testing by the Authorized Officer. Each sample and the results of Purchaser testing shall be made available to the Authorized Officer within twenty-four 24 hours of sampling. The Purchaser shall provide test results for the first five hundred 500 cubic yards produced prior to commencing production crushing and hauling.

1005 — Crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more than 35 at 500 revolutions, as determined by AASHTO T 96.

1006 — Crushed rock material shall show durability value of not less than 35, as determined by AASHTO T 210.

1007 — That portion of 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.

1007a — That portion of crushed rock material passing No. 4 sieve, including blending filler shall have a sand equivalent of not less than 35, as determined by AASHTO T 176, except where that portion exhibits a sand equivalent of less than 35, the aggregate will be accepted if it complies with the additional requirement as follows:

TABLE 1007a

Sand Equivalent	Percent Passing #200 Sieve AASHTO T 27
34	9
33	8
32	7
31	6
30	5
29 or less	4

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 the crushed rock material at the crushing and screening plant prior to placing on the road, unless otherwise agreed. The material for such purposes shall be obtained from sources approved by the Authorized Officer and shall be free from stones, vegetative matter, and other deleterious materials.

1008a — Each layer of crushed rock 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 full width. When completed, the spreading shall produce a surface which is smooth, presents uniform shoulder lines, and conforms to the specified cross section.

1009 — The roadbed, as shaped and compacted under Sections 300 and 500 of these specifications, shall be approved in writing by the Authorized Officer prior to placement of crushed rock materials. Notification for final inspection prior to rocking shall be 72 hours prior to that inspection and shall be 10 days prior to start of rocking operations.

1010 — Crushed rock 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 and as staked on the ground and compacted in layers not to exceed 6 inches in depth. When more than one layer is required, each shall be shaped, processed, compacted, and approved in writing 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 at these places and adding or removing crushed rock material until the surface is smooth and uniform.

1010a — 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 unless approved as such by the Authorized Officer prior to placement.

1011 — Crushed rock material shall be compacted by routing construction and hauling equipment over the full width of each layer placed.

1012 — Each layer of crushed rock material shall be placed, processed, shaped, moistened or dried to a uniform moisture content suitable for maximum compaction, and compacted to full width by compaction equipment conforming to the requirements of Subsections 103c and103h. Minimum compaction shall be one 1 hour of continuous compacting for each 150 cubic yards, or fraction thereof, of crushed rock material placed per layer, 6 passes over each full-width layer, and deemed adequate when the surface can withstand five passes of a truck with H-20 loading without appreciable deformation.

1013 — Each layer of crushed rock material for base placed, processed, and shaped as specified shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width until a uniform density of not less than 95 percent of the maximum density is attained as determined by AASHTO T 99, Method D.

1018 — The equipment and methods used for stockpiling crushed rock material and for removing material from the stockpiles shall be such that minimum degradation or segregation of the material will result and that minimal amounts of foreign material will be incorporated into the crushed base material. There will be no intermingling of stockpiled materials.

1020 — Crushed rock material required under Section 1000 of these specifications shall first be placed in stockpile after crushing. The Purchaser shall notify the Authorized Officer a minimum of 3 days in advance of the date he intends to commence the crushing and stock-piling operation so that progressive test samples can be taken as the crushed rock material is produced. Sample material shall remain in stockpile until such time the Authorized Officer receives test results which indicate compliance with Subsections 1003, 1004, 1005, 1006, 1007, 1007a, and 1008. Crushed rock material so tested shall be approved in writing by the Authorized Officer within 6 days from sampling date. Approved material may then be removed from stockpile for placement on the designated road. In no event shall the Purchaser place crushed rock materials on the road from sources other than the tested and approved stockpiles. Noncompliance with the requirements of this subsection shall constitute grounds for the rejection of crushed rock materials furnished under this contract.

AGGREGATE SURFACE COURSE – 1200
CRUSHED ROCK MATERIAL

1201 — This work shall consist of furnishing, hauling, and placing one or more layers of crushed rock material on roadbeds and base courses approved for placing crushed rock material in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the road at the purchaser's expense.

1202 — Crushed rock materials used in this work shall consist of quarry rock, stone, gravel, or other approved materials obtained from source shown on the plans. Development and mining of such sources shall be in accordance with Subsection 1601 and 1602 of these specifications.

1202a — Crushed rock materials used in this work may be obtained from commercial source selected by the Purchaser at his option and expense, providing laboratory tests performed by BLM of furnished rock samples in accordance with Subsection 1220 indicate compliance with the specifications in this section.

1203 — When crushed rock material is produced from gravel, not less than 65 percent by weight of the particles retained on the No. 4 sieve will have 2 manufactured fractured faces. If necessary, to meet the above requirements or to eliminate an excess of filler, the gravel shall be screened before crushing.

1204 — Crushed rock material shall consist of hard durable rock fragments conforming to the following gradation requirements:

Sieve Designation	GRADATION	
	C	E
1-1/2-inch	100	-
1-inch	-	-
3/4-inch	50-90	100
1/2-inch	-	-
No. 4	25-50	40-75
No. 8	-	-
No. 30	-	-
No. 40	5-25	5-35
No. 200	2-15	2-15

1204a — The Purchaser shall be required to take one sample for each 1,000 cubic yards of crushed rock material to be utilized or a minimum of 1 sample per day using AASHTO sampling procedures. The Purchaser shall submit samples to a certified lab or perform testing for gradation requirements using AASHTO T 11 and AASHTO T 27 testing procedures and also perform testing for sand equivalency requirements using AASHTO T 176 testing procedures. Prior to testing, each sample shall be split, making one half of the sample, with proper identification, available for testing by the Authorized Officer. Each sample and the results of Purchaser testing shall be made available to the Authorized Officer within 24 hours of sampling. The Purchaser shall provide test results for the first 500 cubic yards produced prior to commencing production crushing and hauling.

1205 — Crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more than 35 at 500 revolutions, as determined by AASHTO T 96.

1206 — Crushed rock material shall show a durability value of not less than 35 as determined by AASHTO T210 and will be accepted if it complies with the additional DMSO requirements as shown on Table 1206a.

1206a — The crushed rock material shall show a loss of not more than the percentage shown in Table 1206a, when submerged in DMSO, dimethyl sulfoxide, for five days, according to Federal Highway Administration Region 10 Accelerated Weathering Test Procedure.

TABLE 1206a

Durability	DMSO (% loss by wt.)
35	20
40	25
45	30
50	35
55	40
60	45

1207 — That portion of crushed rock material passing the No. 40 sieve, including blending filler, shall have a liquid limit of not more than 35 and a plasticity index not more than 12 as determined by AASHTO T 89 and AASHTO T 90.

1207a — That portion of crushed rock material passing No. 4 sieve, including blending filler, shall have a sand

equivalent of not less than 35, as determined by AASHTO T 176, except where that portion exhibits a sand equivalence of less than 35, the aggregate will be accepted if it complies with the additional requirement as follows:

TABLE 1207a

Sand Equivalent	Percent Passing #200 Sieve AASHTO T 27
34	9
33	8
32	7
31	6
30	5
29 or less	4

1208 — If additional binder or filler material is necessary to meet the grading or plasticity requirements or for satisfactory bonding of the material, it shall be uniformly blended with the crushed rock material at the crushing and screening plant prior to placing on the road, unless otherwise agreed. The material for such purposes shall be obtained from sources approved by the Authorized Officer and shall be free from stones, vegetative matter, and other deleterious materials.

1208a — Each layer of crushed rock 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 full width. When completed, the spreading shall produce a surface which is smooth, presents uniform shoulder lines, and conforms to the specified cross section.

1209 — Shaping and compacting of roadbed and base course shall be completed and approved in writing, prior to placing crushed rock material, in accordance to the requirements of Subsections 300 and 500 for placing on the roadbed and landings, and Subsection 1000 for placing on the base course. Notification for final inspection prior to rocking shall be 72 hours prior to the inspection and shall be 10 days prior to start of surfacing operations.

1210 — Crushed rock material conforming to the requirements of these specifications shall be placed on the approved roadbed, landings, and base course in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and staked on the ground. Compacted layers shall not exceed 4 inches in depth. When more than one layer is required, each shall be shaped, processed, compacted, and approved in writing 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 at these places and then adding or removing crushed rock material until the surface is smooth and uniform.

1210a — Crushed rock material used to repair or reinforce soft, muddy, frozen, yielding, or rutted roadbed shall not be construed as surfacing required by this specification unless approved by the Authorized Officer.

1212 — Each layer of crushed rock material placed, processed, and shaped as specified shall be moistened or dried to a uniform moisture content suitable for maximum compaction and compacted to full width by compacting equipment conforming to the requirements of Subsections 103a, 103c, 103f, 103g, and 103i. Minimum compaction shall be 1 hour of continuous compaction for each 4 stations, or fraction thereof.

1213 — Each layer of crushed rock material placed, uniformly processed, and shaped as specified shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width until a uniform density of not less than 95 percent of maximum density is attained as determined by AASHTO T 99, Method C or D.

1218 — The equipment and methods used for stockpiling crushed rock material and for removing material from the stockpiles shall be such that minimum degradation or segregation of the material will result and that minimal amounts of foreign material will be incorporated into the crushed base material and that there will be no intermingling of stockpiled materials.

1220 — Crushed rock material required under Section 1200 of these specifications shall first be placed in stockpile after crushing. The Purchaser shall notify the Authorized Officer a minimum of 3 days in advance of the date he intends to commence the crushing and stockpiling operations so that progressive test samples can be taken as the crushed rock material is produced. Sampled materials shall remain in stockpile until such time the Authorized Officer receives test results which indicate compliance with Subsections 1203, 1204, 1205, 1206, 1207, 1207a, and 1208. Crushed rock material so tested shall be approved in writing by the Authorized Officer within 6 days from sampling date. Approved material may then be removed from stockpile for placement on the designated road. In no event shall the Purchaser place crushed rock materials on the road from sources other than the tested and approved stockpiles. Noncompliance with the requirements of this subsection shall constitute grounds for the rejection of all crushed rock materials furnished under this contract.

SLOPE PROTECTION – 1400

1401 — This work shall consist of furnishing, hauling, and placing stone materials for slope protection structures in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross-sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the slope protection structure at the Purchaser's expense and as directed by the Authorized Officer.

1402 — Stone material shall consist of hard angular quarry rock, blasted rock, and coarse stone from roadway excavation of such quality that it will not disintegrate on exposure to water or weathering and shall be graded in accordance with these specifications.

1403 — No more than 10% of the stones by total weight shall weigh more than 50 pounds per piece, and no more than 50% of the stones by total weight shall weigh less than 25 pounds per piece.

1404 — The material shall be well graded from the smallest to the maximum size specified. Stones smaller than the specified 10 percent size shall consist of spalls and fine rock fragments so distributed as to provide a stable compact mass.

1405 — Rip rap shall conform to the following gradations:

TABLE 1405[1]

Class	Range of Intermediate Dimensions[2] (inches)	Range of Rock Mass[3] (pounds)	% of Rock Equal or Smaller by Count
0	6-8	18-42	100
	5-6	10-18	85
	2-5	1-10	50
	0-2	0-1	15
1	9-15	59-270	100
	7-11	28-110	85
	5-8	10-42	50
	3-6	2-18	15
2	15-21	270-750	100
	11-15	110-270	85
	8-11	42-110	50
	6-8	10-42	15
3	21-27	750-1600	100
	15-19	270-560	85
	11-14	110-220	50
	8-10	42-81	15
4	27-33	1600-2900	100
	19-23	560-990	85
	14-17	220-400	50
	9-12	59-140	15

[1] Gradation includes spalls and rock fragments to provide a stable, dense mass.
[2] The intermediate dimension is the longest straight-line distance across the rock that is perpendicular to the rock's longest axis on the rock face with the largest projection plane.
[3] Rock mass is based on a specific gravity of 2.65 (165#/cu.ft.) and 85 percent of the cubic volume as calculated using the intermediate dimension.

1405a — Stone materials shall show a durability value of not less than 50 as determined by AASHTO T 210.

1405b — Stone materials shall conform to a minimum apparent specific gravity of 2.50 and a maximum absorption of 4.2 percent as determined by AASHTO T 85.

1406 — The placement of slope protection stones by the end dumping method shall be conducted to prevent the stones from escaping beyond the embankment toe.

1406a — The embankment shall be placed in successive horizontal layers of sufficient depth to contain the maximum size rock present in the material. Spalls and finer fragments of stone other than specified

in Subsection 1405 shall be used to chock the larger stones solidly in position and to fill voids between the major stones as laid in the embankment. The exposed face of the embankment shall be reasonably smooth and uniform; material shall be prevented from escaping beyond the toe of the structure.

1406b — Spaces in back of hand-laid embankment shall be filled with hand-tamped or rammed rock-spall material.

1407 — Determination of the acceptability of the slope protection material gradation will be through visual inspection and physical measurements by the Authorized Officer.

1408 — Trenches for slope protection structures shall be excavated to the lines, elevations, and typical diagram shown on the plans. They shall be of sufficient size to permit the placing of structure footing of the full widths and length shown. Trenches shall be approved by the Authorized Officer prior to placement of slope protection material.

1408a — Foundation trenches and other required excavation as shown on the plans shall be approved prior to placing the slope protection material.

1409 — Slope protection material shall be placed so as to form the cross sections shown on the plans. The face of the slope protection structure above the low-water line shall be uniform, free from humps, depressions, or large cavities.

QUARRY AND BORROW PIT DEVELOPMENT - 1600

1601 — This work shall consist of quarry development in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

1602 — The designated rock quarry site (Section 33 Quarry) is located at the following location:

Willamette Meridian			
Subdivision	**Sec.**	**T.**	**R.**
SE1/4NE1/4	33	21 S.	2 W.

shall be developed and mined in strict accordance with these specifications and the mining and reclamation plan shown on the plans. The Purchaser shall perform reclamation work in accordance with the requirements of Subsection 1617, as shown on the plans, and as directed by the Authorized Officer.

1603 — If the Purchaser elects to use a rock source other than the designated source, the rock material produced shall comply with applicable sections of these specifications. If the alternate source is located on BLM ownership and a current BLM plan is not available, a development, mining, and reclamation plan shall be prepared by the Purchaser, and submitted for approval by the Authorized Officer. Development, mining and reclamation work shall be in accordance with the approved plan and 1600 specifications.

1604 — If the designated source proves insufficient as to quantity and quality of the required rock material, the Purchaser shall, when ordered in writing by the Authorized Officer, move his operation to an alternate materials source selected by the Authorized Officer. Development and extraction work on the alternate source shall be in accordance with the mining plan. An equitable adjustment will be made in the contract price.

1605c — The operation of equipment related to the production of rock aggregate and quarry operations shall be confined to the quarry operations area and to the designated tractor trails as shown on the plans.

1606 — Prior to removal of overburden from the quarry site, topsoil shall be removed and stockpiled. Stockpiles shall not be covered by overburden or waste materials and will be readily accessible for final backfilling and grading. The location of stockpile sites shall be shown on the mining and reclamation plans. Topsoil stockpiles shall be seeded to minimize erosion.

1608 — Overburden or reject material which does not conform to the requirements of Subsections 1005,1006, 1205, and 1206 shall be wasted as shown on the plans or shall be stockpiled and used for reclamation backfill.

1609a — Overburden and/or reject material shall be removed back from the upper edge of the quarry for a distance equal to one-half of the working face or a minimum of 15 feet whichever is greater. Overburden shall be sloped no steeper than 1 to 1.

1609c — Overburden and reject material shall be placed at the disposal sites shown on the plans, or as directed by the Authorized Officer.

1610 — Waste disposal sites shall be selected and prepared to minimize erosion and establish conditions conducive to vegetative growth. Disposal areas shall be seeded and mulched in accordance with the requirements set forth in Section 1800 of these specifications.

1611 — The Purchaser shall notify the Authorized Officer, in writing, at least 3 days prior to commencing quarry operations.

1611a — The Purchaser shall not commence production drilling or crushing until the Authorized Officer has reviewed and accepted the site development in writing.

1612 — The Purchaser shall notify MSHA (Mining Safety and Health Administration) by standard form or telephone, and in accordance with part 56, Chapter 1 of Title 30 Code of Federal Regulations (CFR), of what date he intends to commence, terminate, and/or temporarily close down operations of the quarry. Notice shall be submitted a minimum of 10 days prior to the proposed date of the action to be taken. Notification shall be submitted to:

Mining Safety and Health Administration
Attn: Supervisor
P.O. Box 70
Albany, OR 97321
Commercial Phone No. (503)967-5825

Or

Mining Safety and Health Administration
117 107th Ave. N.E.
Bellevue, WA 98004
Commercial Phone No. (206)442-7037

The Purchaser shall also prepare and submit to MSHA at the above address the quarterly Employment Report and Injury and Illness Report for the mining operation.

1613 — The Purchaser shall comply with local and State Safety Codes covering quarrying operations, warning signs, seismic monitoring, and traffic control. All quarrying operations will be conducted by appropriately licensed personnel; i.e. blasting and powder handler's license, etc.

1613a — The Purchaser shall submit a written blasting plan or modification of the plan to the Authorized Officer for the Section 33 Quarry, 3 working days prior to the start of drilling. The plan shall include: a) plan view of delay pattern; b) cross section of a typical loaded hole; c) types of explosives; d) powder factor; e) burden spacing, hole diameter, depth of holes, and depth of subdrill; and f) number of lifts. Acceptance of the blasting plan does not relieve the Purchaser of the liability or responsibility for the results of the blasting.

1613b — Controlled blasting techniques shall be employed during production blasting to contain blasted rock.

1613c — The Purchaser shall submit to the Authorized Officer a blasting log showing "as built" data and a brief summary of the blasting results, within 10 days after blasting.

1614 — Rock materials extracted from the quarry walls shall be utilized or disposed of as shown on the plans. Secondary blasting or other methods shall be employed to reduce the quarried rock to a maximum 24 inches in any dimension.

1614a — Oversized boulders shall not be wasted but shall be broken and utilized concurrent with acceptable material, or set aside as directed by the Authorized Officer.

1615 — Operations on the quarry site shall be so conducted that, both during and after completion of work, erosion will be minimized and sediment will not enter streams or other bodies of water. Waste or disposal areas and quarry access roads shall be located, constructed, and maintained in a manner that will prevent sediment from entering live streams or other bodies of water. Noncombustible debris and silt-laden water material resulting from the quarry operations shall be placed in such waste or disposal areas as shown on the plans and as directed by the Authorized Officer.

1616 — Upon completion of quarrying operations, overburden and waste materials shall be disposed of in accordance with requirements of the approved reclamation plan or in a manner approved in writing by the Authorized Officer.

1617 — Upon completion of quarrying operations, required site reclamation measures shall be performed to the satisfaction of the Authorized Officer, including but not limited to the following:

(a) Permanently seal or fill unused drill holes as directed by the Authorized Officer.
(b) Backfill pits and excavations with overburden and waste as directed by the Authorized Officer.
(c) Grade backfill material to the natural contour or desired landforms as directed by the Authorized Officer.
(d) Clear quarry benches and scale wall of loose or dislodged shot material and move to a designated location within the quarry.

EROSION CONTROL – 1700

1701 — This work shall consist of measures to control soil erosion or water pollution during the construction operation through the use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods in accordance with these specifications and conforming to the lines, grades, dimensions and typical cross sections shown on the plans.

1702 — The Purchaser shall construct dikes, dams, diversion channels, settling basins, other erosion control structures located outside of the road right-of-way in accordance with the requirements and details as directed by the Authorized Officer.

1703 — This work shall consist of furnishing and installing brush barriers or sediment fences in accordance with these specifications as directed by the Authorized Officer.

1704 — The erosion control provisions specified under this Subsection shall be coordinated with the Soil Stabilization requirements of Section 1800.

1708 — Newly constructed or graded roads to be carried over the winter period, shall be blocked to vehicular traffic as directed by the Authorized Officer.

1708a — Road segments not completed during dry weather periods shall be winterized, by providing a well-drained roadway using water bars, maintaining drainage, and performing additional measures necessary to minimize erosion and other damage to the roadway, as directed by the Authorized Officer. Portions of roads not having surface rock in place will be blocked or barricaded to prevent vehicular traffic.

1711 — The Purchaser shall construct sedimentation pools, temporary berms, brush barriers, sediment and check dams, energy dissipators for pipe culverts, and diversion channels conforming to the requirements and details shown on the respective exhibits.

1712 — Where shown on the plans, the Purchaser shall provide erosion control measures for newly constructed ditches on steep grades which include but are not limited to, dumped stone, jute mesh, sod, check dams consisting of hay bales, and earth or stone. Width of protective lining or dam should extend far enough up the ditch slopes to effectively contain the runoff and prevent erosion and washout at the edges and prevent sediment from reaching live water.

SOIL STABILIZATION – 1800

1801 — This work shall consist of seeding and mulching on designated cut, fill, borrow, disposal, and special areas in accordance with these specifications and as shown on the plans. This work is not required for road acceptance under Section 18 of this contract.

1802 — Soil stabilization work consisting of seeding and mulching shall be performed at new culverts and designated locations in accordance with these specifications and as shown on the plans.

1803 — Soil stabilization work as specified under Subsection 1802 shall be performed during the following seasonal periods:

From:	May 15	to	November 30	(Dorena drainage)
	June 1	to	October 31	(Mosby Creek drainage)

Or as permitted by the Authorized Officer.

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

1803a — The Purchaser shall begin soil stabilization work promptly after machine operations.

1804 — The BLM shall provide native grass/forb seed for this project. If BLM is unable to provide native seed

or other plant materials, the contract may be modified to delete the requirement to complete soil stabilization work and to increase the Total Purchase Price by the cost of this work as appraised at the time of sale.

1809 — After seed and mulch material are furnished to the Purchaser, it shall be maintained in a dry state. Materials to be used in the mulching operation may be stockpiled along the road designated for treatment provided that it is maintained in a dry state and has the approval of the Authorized Officer.

1812 — The Purchaser shall apply to the area designated for treatment as shown on the plans and as specified under Subsection 1802, a mixture of grass seed and mulch material at the application rate to be determined by the Authorized Officer based on visual observation of trial applications.

Mulches shall be spread/placed in treatment areas to a depth of 2 inches to allow seed germination or as directed by the Authorized Officer. Treatment area will be covered evenly and completely. Mulch can be broadcast onto the soil surface by hand or with hand/mechanical operated spreaders.

1814 — The Purchaser may reduce the application rate on partially covered slopes and refrain from application on areas already well stocked with grass or on rock surfaces as determined by the Authorized Officer.

1824 — 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.

ROADSIDE BRUSHING – 2100

2101 — This work shall consist of the removal of vegetation from the road prism - variable distance, and inside curves in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the Roadside Brushing Detail Sheet of this exhibit, at designated locations as shown in the plans.

2102 — Roadside brushing shall be performed mechanically with self-powered, self-propelled equipment and/or manually with hand tools, including chain saws.

2103 — Vegetation cut manually or mechanically less than 6 inches in diameter when measured 6 inches above the ground, shall be cut to a maximum height of 2 inches above the ground surface or above obstructions such as rocks or stumps on cut and fill slopes and all limbs below the 2-inch area will be severed from the trunk.

2103a — Vegetation shall be cut and removed from the road bed between the outside shoulders and the ditch centerline and such vegetation shall be cut to a maximum height of 2 inches above the ground and running surface. Limbs below the 2-inch area will be severed from the trunk. Sharp pointed ends will not be permitted. Cuts shall be parallel to the ground line or running surface.

2104 — Trees in excess of 6 inches in diameter when measured 6 inches above the ground line shall be limbed, so that no limbs extend into the treated area or over the roadbed to a height of 15 feet above the running surface of the roadway on cut and fill slopes, within the road prism-variable distance. Limbs shall be cut to within 1 inch of the trunk to produce a smooth vertical face. Removal of trees larger than 6 inches in diameter for sight distance or safety may be directed by the Authorized Officer.

2105 — Vegetation that is outside of the road prism-variable distance that protrudes into the road prism and within 15 feet in elevation above the running surface shall be cut to within 1 inch of the trunk to

produce a smooth vertical face.

2106 — Vegetative growth capable of growing 1 foot in height or higher shall be cut within the road prism-variable distance or as directed by the Authorized Officer.

2107 — Inside curves shall be brushed out for a sight distance of 200 feet chord distance, or a middle ordinate distance of 25 feet whichever is achieved first. Overhanging limbs and vegetation in excess of 1 foot in height, shall be cut within these areas.

2108 — Self-propelled equipment shall not be permitted on cut and fill slopes or in ditches.

2109 — Debris resulting from this operation shall be scattered downslope from the roadway. Debris shall not be allowed to accumulate in concentrations. Debris in excess of 1 foot in length and 2 inches in diameter shall not be allowed to remain on cut slopes, ditches, roadways or water courses, or as directed by the Authorized Officer.

2116 — Traffic warning signs shall be required at each end of the work area. Signs shall meet the requirements of the Manual on Uniform Traffic Control Devices.

Exhibit C

21-2-31 & 21-2-33 – Renovation

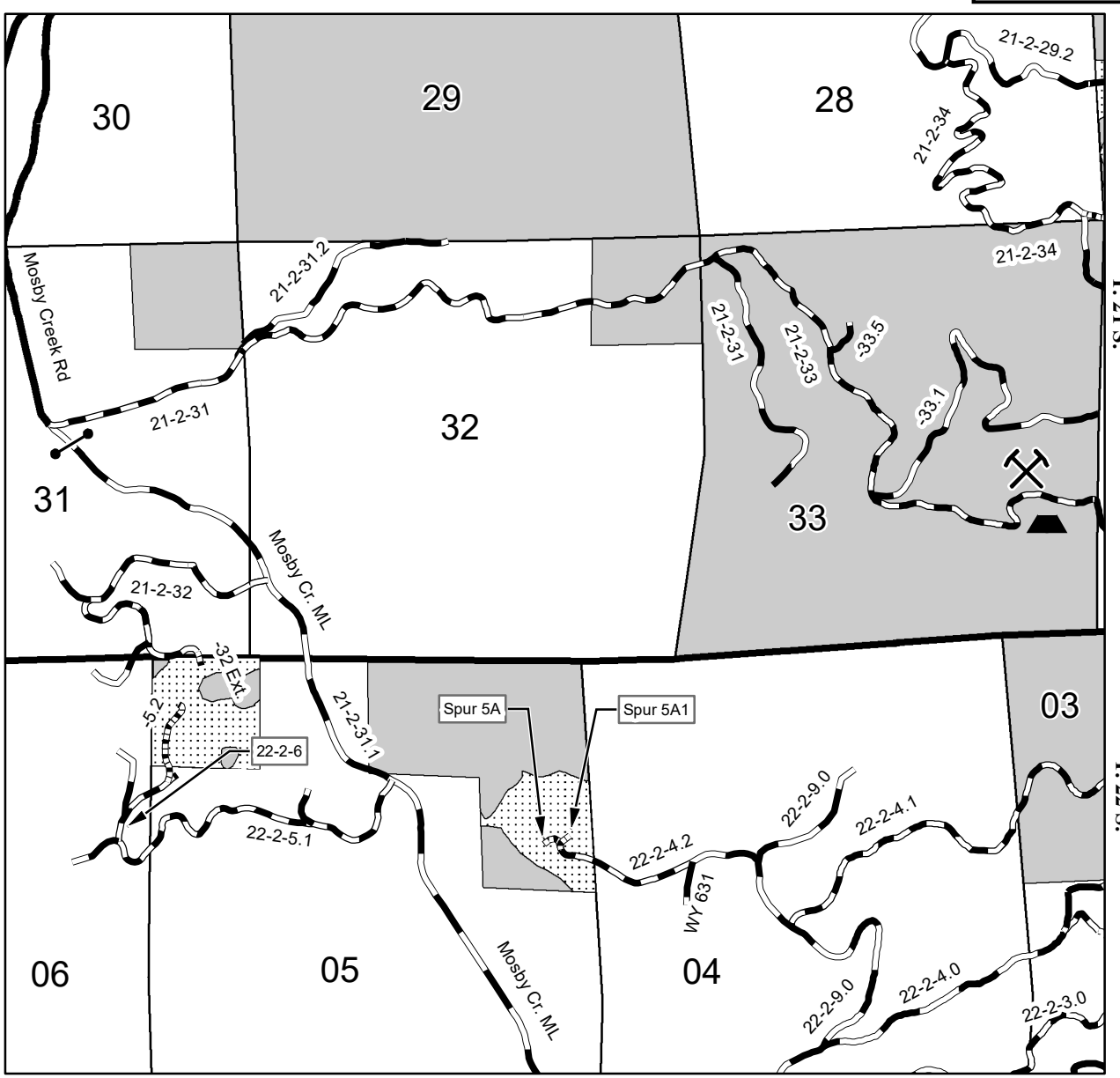
0.00 – Jct. with Mosby Cr. County Road; Begin Renovation on -31:
Blade, clean ditches and culverts, and rock –
Spot Rock – 200 CY of 1.5" minus
0.48 – Jct. Left – 21-2-31.2
1.83 – Jct. Left – 21-2-33. Continue renovation on to 21-2-33
2.69 – Jct. Left – 21-2-33.1, stay right on -33
3.07 – Clear stockpile area right
3.14 – Begin quarry area
3.31 – End quarry area. End Renovation.

21-2-32 – Renovation

0.00– Jct. with 21-2-31.1 (Mosby Cr. ML); Seg. A. Begin Renovation: Blade, brush, clean ditches and culverts, and rock –
Spot Rock – MP 0.53-0.79 – 30 CY of 1.5" minus
0.53 – Jct. Right, Begin Seg. B
0.79 – Jct. Right, Begin Seg. C. Begin rock –
6" lift of 3" minus
0.86 – Add splashpad to existing stream culvert. Place rock over slumping subgrade –
20 CY of 6" minus
0.90 – Install new crossdrain and add splash pad
0.91 – Rock turnout left
6" lift of 3" minus
0.93 – Junction Right - 21-2-32 Ext. new construction. End Renovation

21-2-32 Ext. – Construction

0+00 – Jct. with 21-2-32; Begin Construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
9" lift of 6" minus base
6" lift of 3" minus surface
0+71 – Property line - Private/BLM
1+45 – Construct 40'x40' landing. Rock –
14" lift of 6" minus
1+85 – End Construction



Legend

- Existing Road
- Renovation
- Construction
- County Road
- Gate
- Quarry
- Stockpile Site
- Proposed Harvest Unit
- Bureau of Land Management
- Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST
SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Sections 31, 32, 33
T. 22 S., R. 2 W., Section 5

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 31 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 1.mxd - Jul 22, 2020 - 1:59:48 PM

Exhibit C

22-2-5.1 – Renovation
0.00– Jct. with 21-2-31.1 (Mosby Cr. ML); Begin Renovation:
Blade, brush, clean ditches and culverts
0.31 – Jct. Right
0.94 – Jct. Right – 22-2-6.0. End Renovation

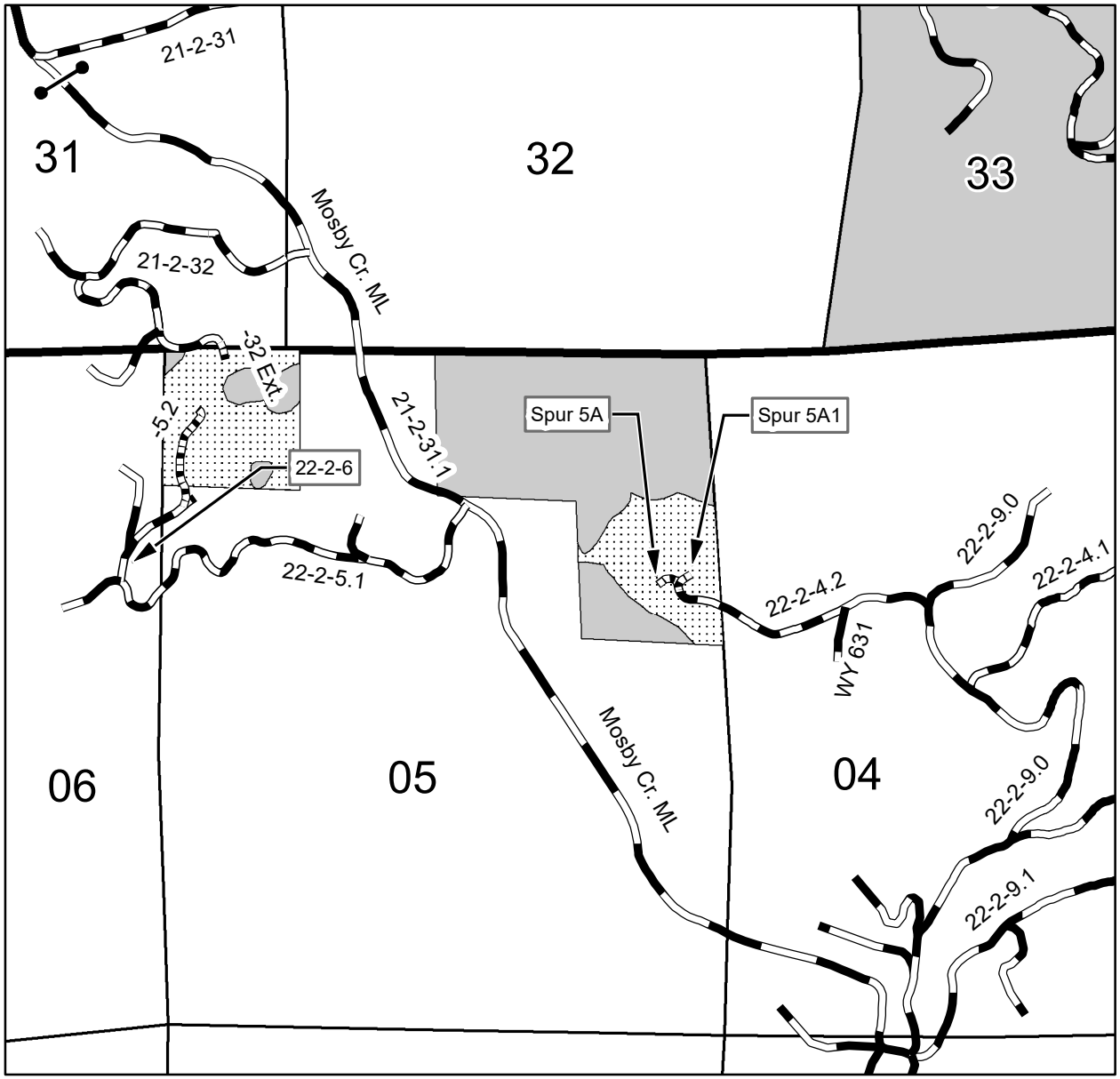
22-2-6.0 – Renovation
0.00– Jct. with 22-2-5.1; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
6" lift of 3" minus
0.03 – Jct. Left
0.20 – Jct. Left – 22-2-5.2 new construction. **End rocking.** Continue clearing ditch past junction to drain around existing landing
0.22 – End Renovation.

22-2-5.2 – Construction
0+00 – Jct. with 22-2-6.0; Begin Construction just past existing culvert on -6.0:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
9" lift of 6" minus base
6" lift of 3" minus surface
1+68 – Property line - Private/BLM
6+50 – Install new crossdrain and add splash pad
6+60 – Construct roadside landing left. Rock –
9" lift of 6" minus base
6" lift of 3" minus surface
9+10 – Install new crossdrain and add splash pad
9+71 – Construct 60'x40' landing. Rock –
14" lift of 6" minus
10+31 – End Construction

22-2-4.2 – Renovation
0.00 – Jct. with 22-2-9;
0.15 – Jct. Left – WY 631; Begin Seg. B. Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock – 100 CY of 1.5" minus
0.28 – Jct. Right – WY 632. Begin Seg. C.
0.43 – Property Line – Private/BLM
0.54 – Jct. with Spur 5A new construction. End Renovation.

Spur 5A – Construction
0+00 – Junction with 22-2-4.2; Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1+65 – Jct. Right – Spur 5A1; Widen and rock junction to allow trucks to turn around
3+00 – Install crossdrain and add splashpad
3+80 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
4+20 – End Construction

Spur 5A1 – Construction
0+00 – Junction with Spur 5A; Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1+00 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
1+40 – End Construction



Legend

Existing Road	Gate	Proposed Harvest Unit
Renovation	Quarry	Bureau of Land Management
Construction		
County Road	Stockpile Site	Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 22 S., R. 2 W., Sections 4, 5, & 6

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 32 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 2.mxd - Jul 22, 2020 - 2:06:24 PM

Exhibit C

R. 2 W.

22-2-4.1 – Renovation

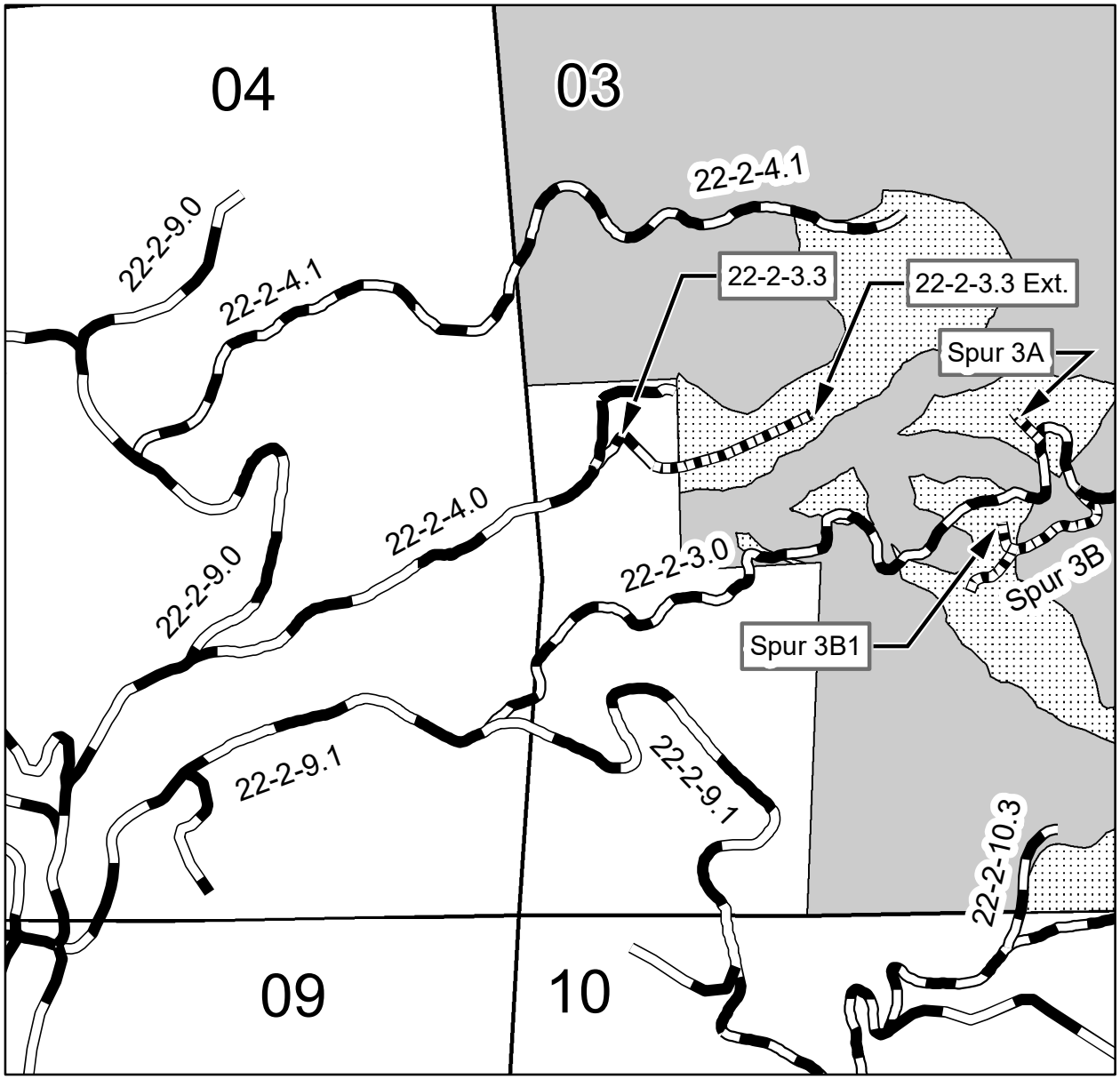
0.00 – Jct. with 22-2-9; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock to MP 0.55 – 20 CY of 1.5" minus
0.55 – Seg. B. Change in rocking –
Spot Rock – 300 CY of 3" minus
0.65 – Rock turnout left –
6" lift of 3" minus
0.73 – Property Line – Private/BLM.
0.84 – Replace stream culvert and add splash pad
0.86 – Install new crossdrain at seep and add splashpad
1.00 – Rock turnout right –
6" lift of 3" minus
1.07 – Replace crossdrain and add splashpad
1.21 – Replace crossdrain and add splashpad
1.28 – Install new crossdrain and add splashpad
1.42 – Rock 40'x40' landing -
9" lift of 6" minus
End Renovation

22-2-3.3 – Renovation

0.00 – Jct. with 22-2-4; Begin Renovation:
Blade, compact, brush, clean ditches and culverts
0.05 – Install temporary stream culvert and add splashpad
0.13 – Jct. with 22-2-3.3 Ext. new construction.
End renovation

22-2-3.3 Ext. – Construction

0+00 – Junction with 22-2-3.3; Begin construction:
14' subgrade, outsloped, natural surfaced, with 40'x40' landing at end.
1+73 – Property line – Private/BLM
2+20 – Construct rolling drain dip
6+23 – Construct rolling drain dip
8+45 – Construct truck turnaround left
9+60 – Construct rolling drain dip
11+28 – Construct 40'x40' landing
11+68 – End Construction



Legend

- Existing Road
- Renovation
- Construction
- Gate
- Quarry
- Stockpile Site
- Proposed Harvest Unit
- Bureau of Land Management
- Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 22 S., R. 2 W., Sections 3 & 4

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 33 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 3.mxd - Jul 22, 2020 - 2:13:33 PM

Exhibit C

22-2-3 – Renovation

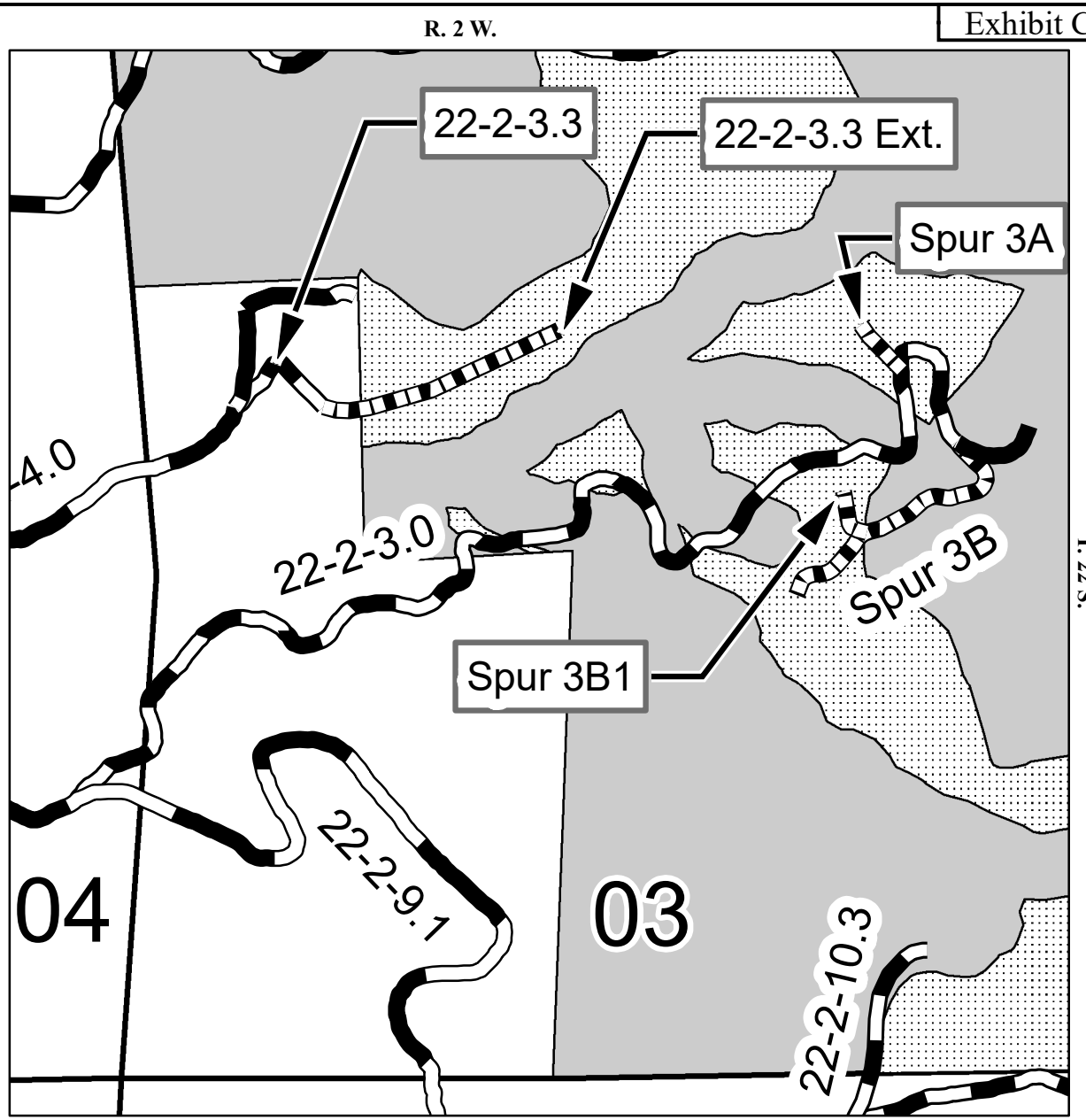
0.00 – Jct. with 22-2-9.1; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock to MP 0.51 – 60 CY of 1.5" minus
0.37 – Begin Seg. B
0.51 – End spot rock at stream culvert. Begin lift of rock –
6" lift of 3" minus
0.53 – Property Line – Private/BLM.
Replace existing crossdrain and add splashpad
0.54 – Begin rutted subgrade repair – Remove saturated subgrade material.
Re-shape and compact subgrade. Subgrade spot rock –
60 CY of Jaw Run
Rock turnout left –
6" lift of 3" minus
0.67 – End Subgrade repair. Replace plugged stream culvert and add splash pad
End 6" rock lift. Rock –
Spot Rock – 300 CY of 3" minus
0.71 – Rock turnout left –
6" lift of 3" minus
0.73 – Replace crossdrain and add splash pad
0.79 – Construct leadout ditch left
0.82 – Replace crossdrain and add splash pad
0.89 – Rock turnout left –
6" lift of 3" minus
1.01 – Rock turnout left –
6" lift of 3" minus
1.12 – Replace stream culvert and add splash pad
1.19 – Jct. Left - Spur 3A new construction
1.34 – Jct. Right - Spur 3B new construction. End Renovation.

Spur 3B – Construction

0+00 – Junction with 22-2-3 Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
2+55 – Install stream culvert and add splash pad
3+65 – Begin full bench construction
4+40 – Install crossdrain and add splash pad
5+05 – End full bench construction
9+00 – Install crossdrain and add splash pad
9+15 – Jct. Right – Spur 3B1 new construction
11+65 – Install crossdrain and add splash pad
13+20 – Install crossdrain and add splash pad
13+56 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
13+96 – End Construction

Spur 3B1 – Construction

0+00 – Junction with Spur 3B Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
Widen and rock junction to allow it to be used as turnout and truck turnaround
1+30 – Construct 40'x40' landing, Rock –
12" lift of 6" minus
1+70 – End Construction



Legend

Existing Road
Renovation
Construction
Gate
Quarry
Stockpile Site
Proposed Harvest Unit
Bureau of Land Management
Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 22 S., R. 2 W., Sections 3 & 4

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 34 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 4.mxd - Jul 22, 2020 - 2:20:42 PM

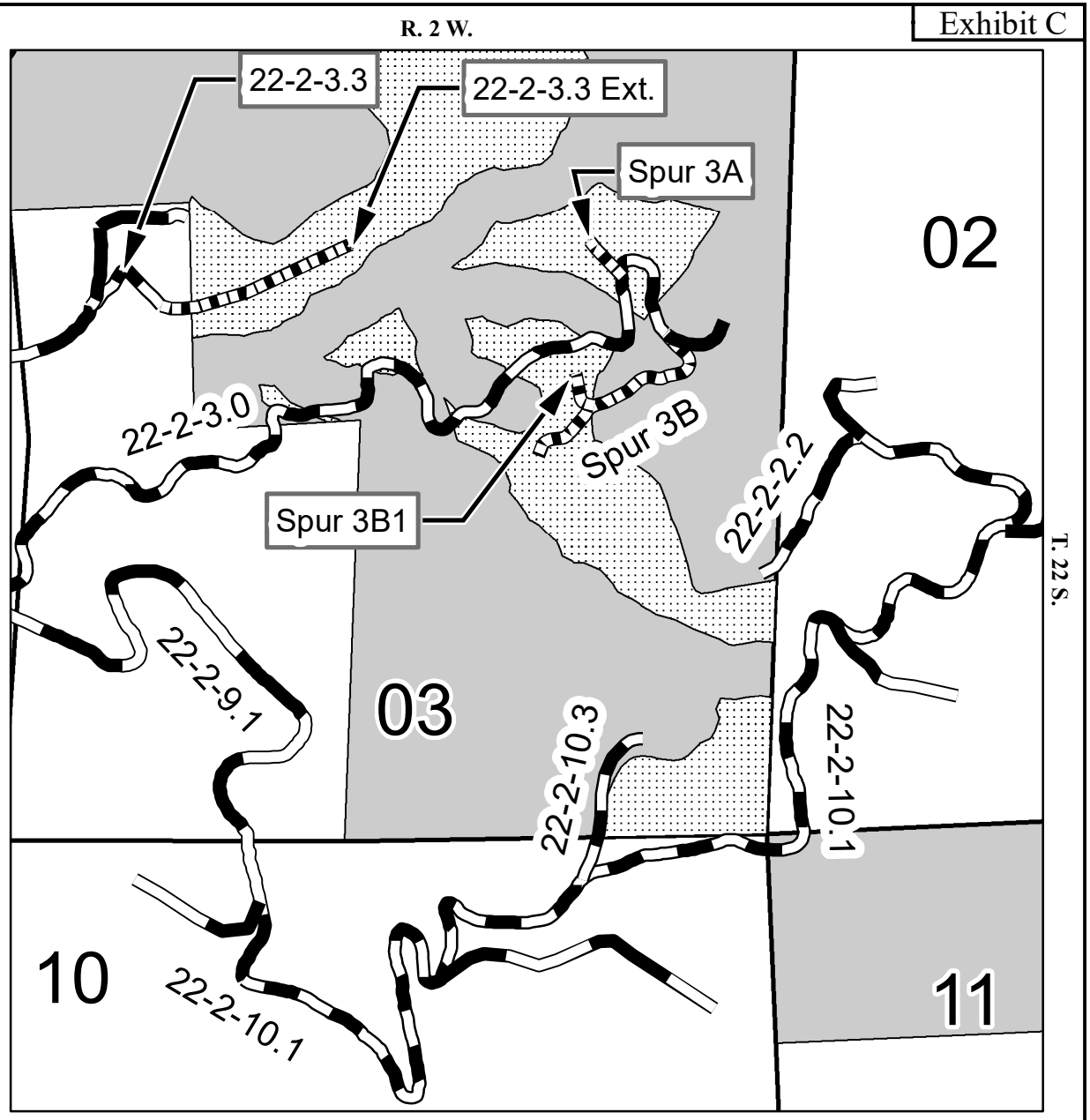
Exhibit C

Spur 3A – Construction
0+00 – Junction with 22-2-3; Begin construction:
14’ subgrade, crowned, with 40’x40’ landing at end. Rock –
9” lift of 3” minus
2+10 – Construct 40’x40’ landing
9” lift of 6” minus
2+50 – End Construction

22-2-10.1 – Renovation
0.00 – Jct. with 22-2-9.1;
0.53 – Road shoulder failed, excavate cutbank and shift road 4 feet into bank. Replace surfacing –
40 CY of 3” minus
0.93 – Jct. Left – 22-2-10.3
1.18 – Property line – Private/BLM. Begin Seg. B.
1.24 – Property line – BLM/Private.
1.54 – Jct. Right – WY Road. Begin Seg. C.
1.80 – Jct. Right – WY Road. Begin Seg. D.
2.03 – Jct. Left – 22-2-2.2

22-2-10.3 – Renovation
0.00 – Jct. with 22-2-10.1; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
4” lift of ¾” minus
0.11 – Install crossdrain and add splash pad
0.17 – Install crossdrain and add splash pad
0.18 – Rock 40’x40’ landing
6” lift of 3” minus
End Renovation

22-2-2.2 – Renovation
0.00 – Jct. with 22-2-10.1. Begin Seg. A
0.15 – TOR. Begin Seg. B; Begin Renovation - Blade, brush, clean ditches and culverts, and rock –
6” lift of 3” minus
0.19 – Replace existing crossdrain and add splashpad
0.24 – Replace existing crossdrain and add splashpad
0.25 – Property line – Private/BLM.
0.26 – Construct 40’x60’ landing to the left (South) of the existing landing. This landing is meant to provide logging access to the Southwest and therefore must be heavily cut into the Southern bank to function properly. Approximately 350 CY of soil shall be excavated. Waste material is to be placed and compacted onto the existing landing to provide a large drivable surface. Rock –
14” lift of 6” minus
End Renovation



Legend
Existing Road
Renovation
Construction
Gate
Quarry
Stockpile Site
Proposed Harvest Unit
Bureau of Land Management
Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 22 S., R. 2 W., Sections 2, 3, 10, & 11

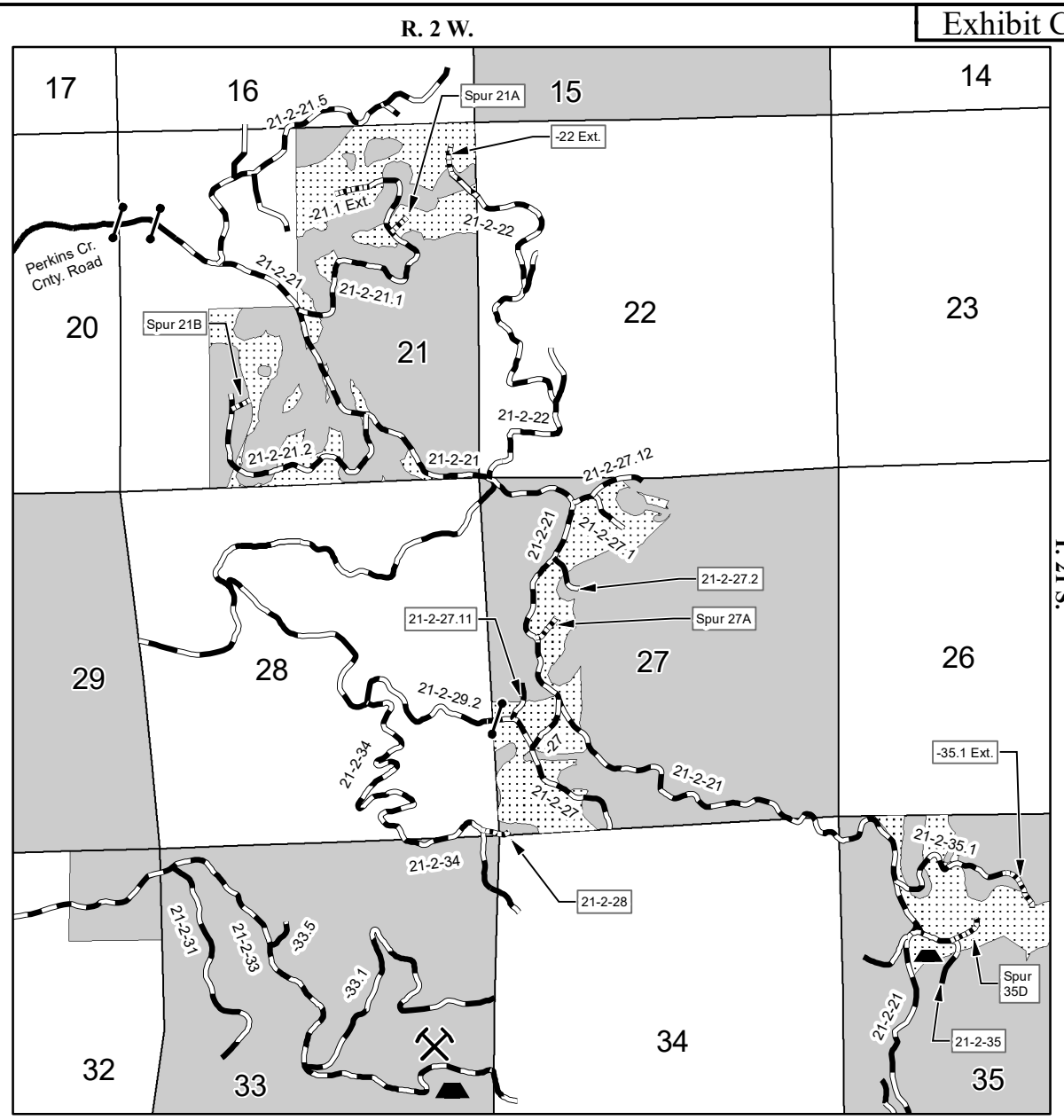
DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 35 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 5.mxd - Jul 22, 2020 - 2:31:48 PM

Exhibit C

21-2-21 – Renovation

0.00 – End County Rd. at gate
0.08 – Gate
0.15 – End Pavement; Begin Renovation:
Blade, brush, compact, clean ditches and culverts, and rock –
Spot Rock - 100 CY of 1.5" minus
0.29 – Jct. Left - 21-2-21.5
0.46 – Jct. Left - 21-2-21.1
0.60 – Replace stream culvert and add splash pad
0.78 – Replace stream culvert and add splash pad
0.83 – Jct. Right – 21-2-21.2
0.92 – Replace stream culvert and add splash pad
0.94 – Install new crossdrain and add splash pad
0.95 – Jct. Left – 21-2-21.3
1.22 – Jct. Left – 21-2-21.4
1.25 – Property line - BLM/Private
1.27 – Jct. Left – 21-2-22. Property line – Private/BLM
1.30 – Jct. Right – Weyco Road
1.36 – Install new crossdrain and add splash pad
1.41 – Replace crossdrain and add splash pad
1.45 – Replace crossdrain and add splash pad
1.56 – Jct. Left – 21-2-27.1
1.73 – Jct. Left – 21-2-27.2
1.82 – Leadout ditch right across old road junction
1.96 – Leadout ditch right
2.00 – Jct. Left – Spur 27A
2.14 – Install new crossdrain and add splash pad
2.20 – Jct. Right – 21-2-27
Install new crossdrain and add splash pad
Rock turnout left –
6" lift of 3" minus
2.44 – Replace stream culvert and add splash pad
2.57 – Rock turnout left –
6" lift of 3" minus
2.75 – Rock turnout left –
6" lift of 3" minus
3.01 – Rock turnout left –
6" lift of 3" minus
3.07 – Property line - BLM/Private
3.12 – Property line – Private/BLM
3.16 – Property line - BLM/Private
3.22 – Jct. Left/ Right – Weyco Roads
3.26 – Property line – Private/BLM
3.28 – Replace stream culvert and add splash pad
3.34 – Clear sloughed bank material
3.37 – Jct. Left – Weyco Road
3.40 – Replace crossdrain and add splash pad
3.47 – Rock turnout left –
6" lift of 3" minus
3.55 – Replace crossdrain and add splash pad
3.59 – Jct. Left – 21-2-35.1
Remove ditch relief culvert on opposite side of road and restore ditchline
3.61 – Replace crossdrain and add splash pad
3.74 – Jct. Left – 21-2-35
3.91 – Jct. Left – Stockpile/waste area
Harvest boundary. End Renovation.



Legend

- Existing Road
- Renovation
- Construction
- County Road
- Improvement
- Gate
- Quarry
- Stockpile Site
- Proposed Harvest Unit
- Bureau of Land Management
- Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Sections 21, 22, 27, 28, 33, 34, & 35

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 36 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 6.mxd - Jul 22, 2020 - 2:37:31 PM

Exhibit C

21-2-21.5 – Renovation

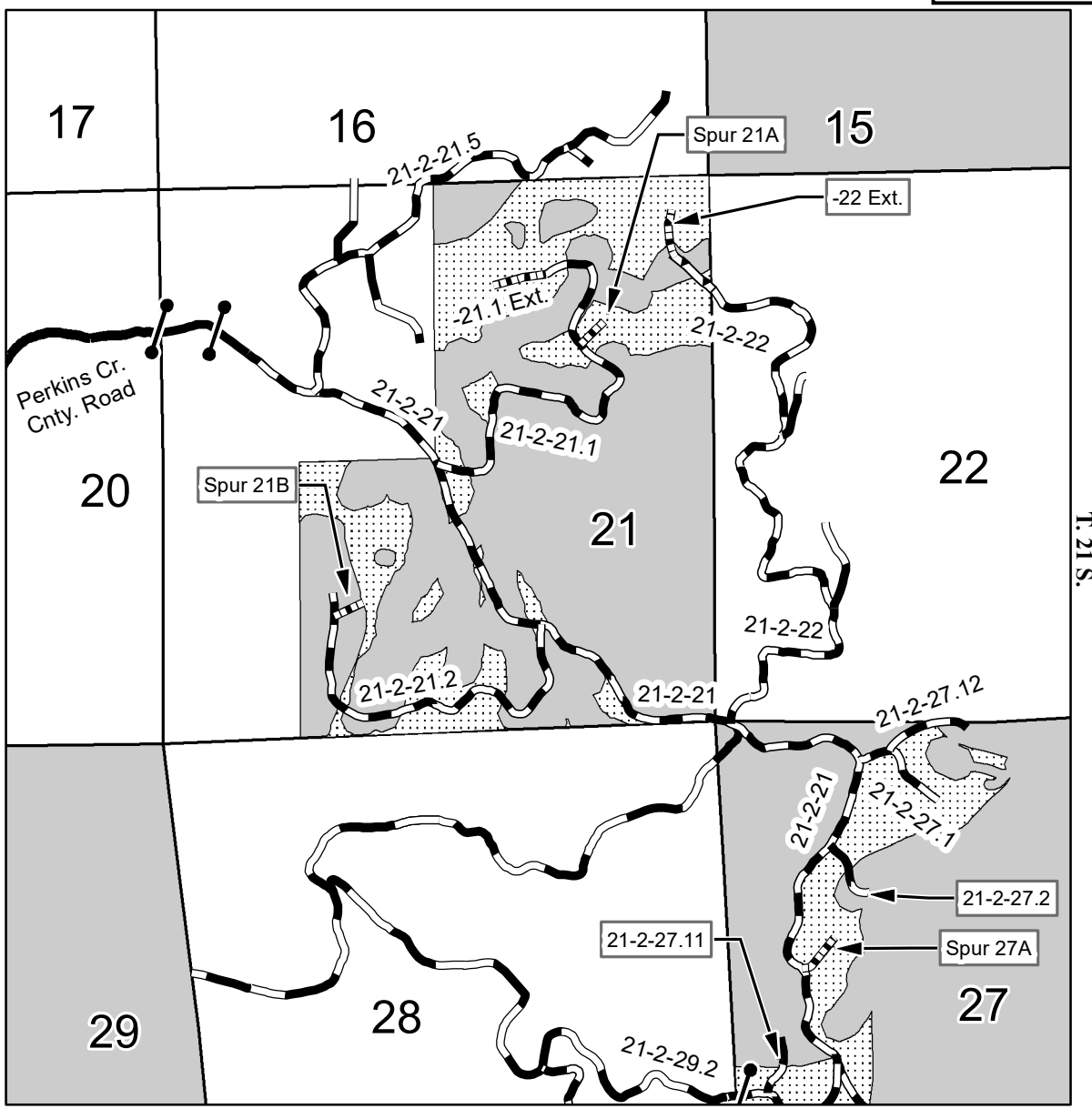
0.00– Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock - 140 CY of 1.5" minus
0.31 – Jct. Left
0.37 – Jct. Left
0.78 –Rock turnout right –
6" lift of 3" minus
0.86 – Jct. Left, stay right
0.93 – Rock 40'x40' landing
6" lift of 6" minus
End Renovation

21-2-21.2 – Renovation

0.00– Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock - 100 CY of 1.5" minus
0.06 – Replace stream culvert and add splash pad
0.11 – Rock turnout left –
6" lift of 3" minus
0.13 – Replace stream culvert and add splash pad
0.16 – Replace crossdrain and add splash pad
0.29 – Rock turnout right –
9" lift of 3" minus
0.40 – Rock roadside landing right –
9" lift of 6" minus
0.48 – Replace stream culvert and add splash pad
0.52 – Replace stream culvert and add splash pad
0.58 – Leadout ditch left. Rock turnout left –
6" lift of 3" minus
0.60 – Replace crossdrain and add splash pad
0.65 – Replace crossdrain and add splash pad
0.73 – Jct. Right – Spur 21B new construction
0.77 – Rock 40'x40' landing
6" lift of 6" minus
End Renovation

Spur 21B – Construction

0+00 – Jct. with 21-2-21.2; Begin Construction -
14' subgrade, crowned, with 40'x40' landing at end. Install new ditch relief culvert at junction. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1+00 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
1+40 – End Construction



Legend

- Existing Road
- Renovation
- Construction
- County Road
- Improvement
- Gate
- Quarry
- Stockpile Site
- Proposed Harvest Unit
- Bureau of Land Management
- Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Sections 16 & 21

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 37 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 7.mxd - Jul 22, 2020 - 2:41:23 PM

Exhibit C

21-2-21.1 – Renovation

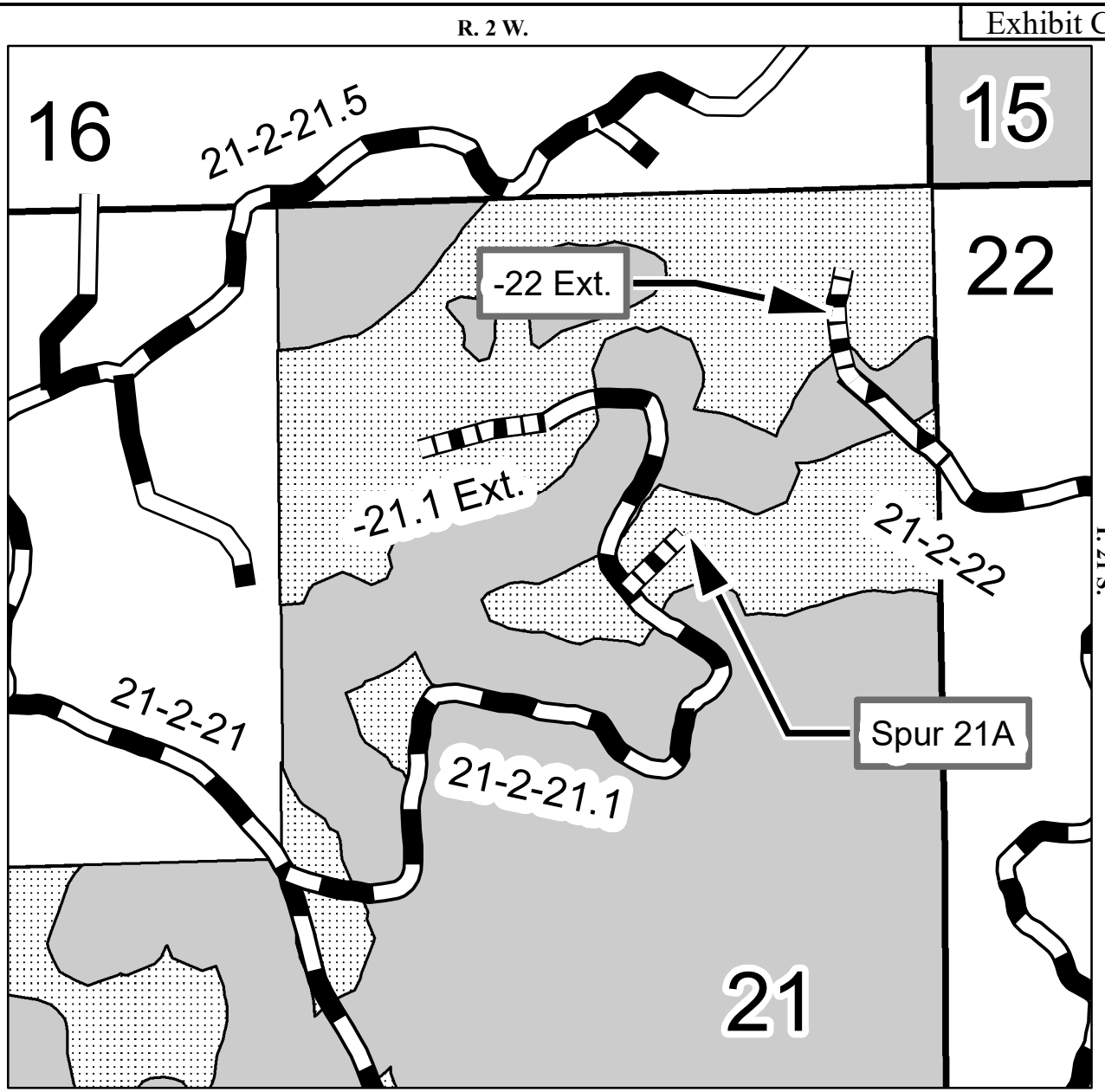
0+00 – Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches, and rock –
5" lift of 3" minus
Install new crossdrain at junction
2+54 – Install new crossdrain at waterbar and add splashpad
4+93 – Install new stream culvert and add splash pad
5+86 – Repair waterbar
Place 15 CY of 6" minus base rock
6+26 – Install new crossdrain and add splashpad
11+03 – Install new stream culvert and add splash pad
11+90 – Install new crossdrain and add splashpad
11+97 – Rock turnout left –
5" lift of 3" minus
15+60 – Remove slide material
20+90 – Install new crossdrain and add splashpad
22+20 – Repair waterbar
Place 15 CY of 6" minus base rock
22+85 – Install new stream culvert and add splash pad
23+12 – Install new crossdrain and add splashpad
25+12 – Repair waterbar
Place 15 CY of 6" minus base rock
26+12 – Install new stream culvert and add splash pad
28+00 – Install new stream culvert and add splash pad
29+45 – Install new stream culvert and add splash pad
32+40 – Install new crossdrain and add splashpad
34+21 – Jct. Right – Spur 21A
Construct 50'x20' roadside landing left. Rock –
12" lift of 6" minus
35+00 – Install new crossdrain and add splashpad
37+74 – Repair waterbar
Place 15 CY of 6" minus base rock
39+85 – Install new stream culvert and add splash pad
41+01 – Install new stream culvert and add splash pad
41+61 – Install new stream culvert and add splash pad
42+34 – Install new crossdrain and add splashpad
44+30 – Repair waterbar
Place 15 CY of 6" minus base rock
45+96 – Jct. with 21-2-21.1 Ext. new construction. End Renovation

21-2-21.1 Ext. – Construction

0+00 – Jct. with 21-2-21.1; Begin Construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1+30 – Construct roadside landing left. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
5+03 – Install new crossdrain and add splash pad
6+00 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
6+40 – End Construction

Spur 21A – Construction

0+00 – Jct. with 21-2-21.1; Begin Construction -
14' subgrade, natural surfaced, crowned, with 40'x40' landing at end.
Construct drain dip at junction
1+02 – Construct 40'x40' landing.
1+42 – End Construction



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Section 21

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 38 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 8.mxd - Jul 22, 2020 - 2:46:05 PM

Exhibit C

21-2-22 – Renovation

0.00 – Jct. with 21-2-21; Begin Renovation:
Blade, clean ditches and culverts
1.40 – Property line Private/BLM
Jct. with 21-2-22 Improvement. End Renovation

21-2-22 – Improvement

0+00 – Property Line Private/BLM; Begin Improvement:
14' subgrade, crowned. Brush, widen and compact subgrade, cut ditches. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
3+50 – Construct roadside landing left. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
4+50 – Install new crossdrain and add splash pad
4+55 – Jct. with 21-2-22 Ext., End Improvement

21-2-22 Ext. – Construction

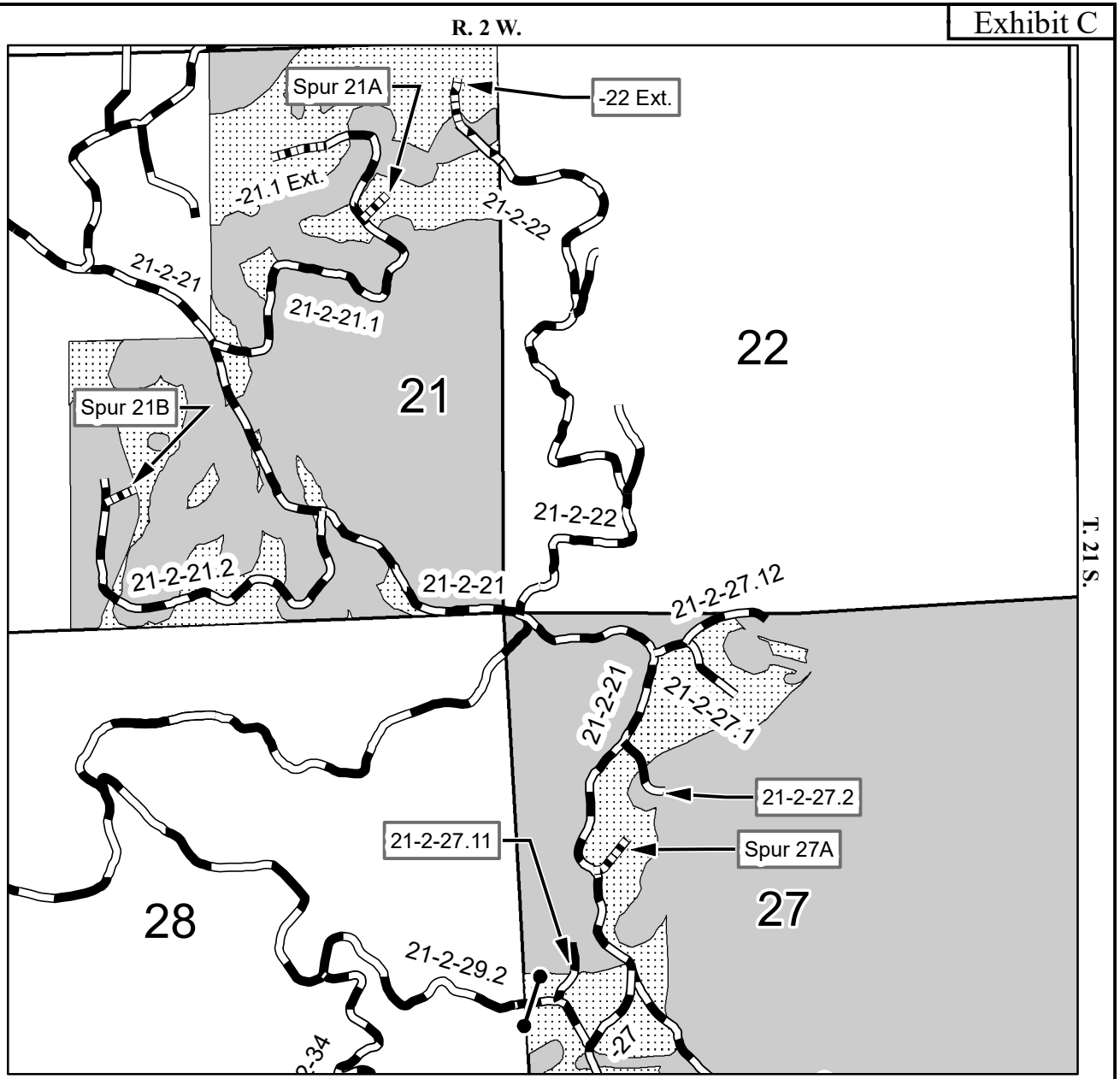
0+00 – Junction with -22 Improvement; Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1+75 – Install new crossdrain and add splash pad
4+37– Construct 40'x40' landing. Rock –
12" lift of 6" minus
4+77 – End Construction

21-2-27.1 – Renovation

0.00 – Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches and culverts and rock –
5" lift of 3" minus
0.06 – Jct. Left – 21-2-27.12
Install new crossdrain at junction and add splash pad
0.10 – Add 5 CY splashpad to existing culvert
0.19 – Rock 40'x40' landing
6" lift of 6" minus
End Renovation

21-2-27.12 – Renovation

0.00 – Jct. with 21-2-27.1; Begin Renovation:
Blade, brush, clean ditches and culverts and rock –
Spot Rock – 80 CY of 3" minus
0.12 – Rock 40'x40' landing
6" lift of 6" minus
End Renovation



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Sections 21, 22, & 27

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 39 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 9.mxd - Jul 22, 2020 - 2:52:24 PM

Exhibit C

21-2-27– Renovation
0.00 – Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock - 50 CY of 3" minus
0.08 – Replace crossdrain and add splash pad
0.12 – Replace crossdrain and add splash pad
0.16 – Jct. Right – 21-2-29.2
0.22 – Rock turnout left –
9" lift of 3" minus
0.38 – Rock turnout left –
9" lift of 3" minus
0.40 – Harvest boundary. End Renovation

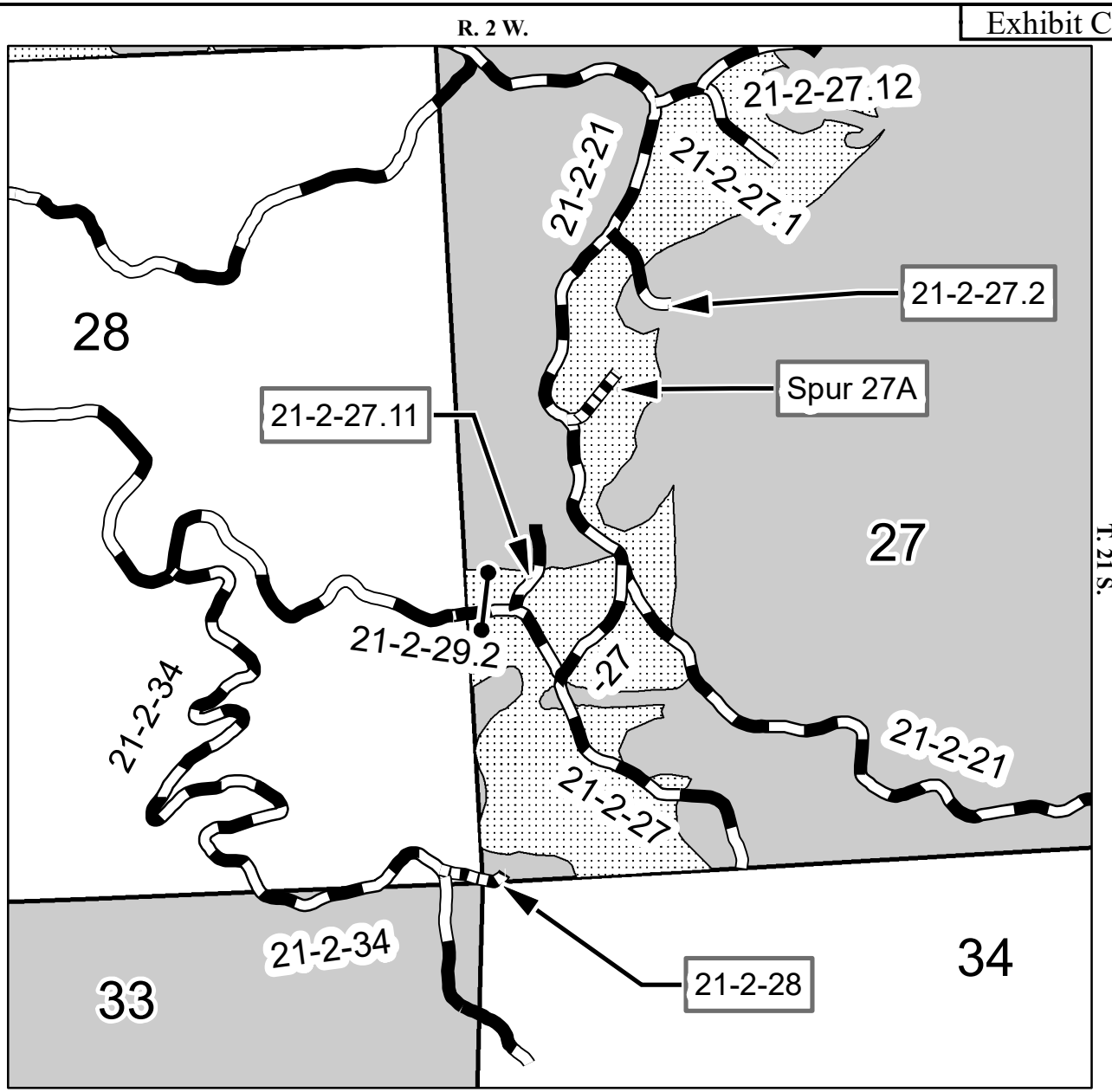
21-2-29.2– Renovation
0.00 – Jct. with 21-2-27; Begin Seg. C. Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock - 20 CY of 3" minus
0.09 – Jct. Right – 21-2-27.11
0.12 – Gate
0.16 – Property Line – BLM/Private. Begin Seg. B. End Renovation.
0.66 – Jct. Left – 21-2-34

21-2-34– Renovation
0.00 – Jct. with 21-2-29.2; Begin Renovation:
Blade and brush
1.22 – Jct. left – 21-2-28 new construction
End Renovation

21-2-28 – Construction
0+00 – Junction with 21-2-34; Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1+42 – Construct leadout ditch left and right
2+55 – Property line – Private/BLM
3+82 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
4+22 – End Construction

21-2-27.11– Renovation
0.00– Jct. with 21-2-29.2; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock – 40 CY of 3" minus
0.06 – Harvest Boundary. End Renovation

Spur 27A – Construction
0+00 – Junction with 21-2-21; Begin construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
4+15– Construct 40'x40' landing. Rock –
12" lift of 6" minus
4+55 – End Construction



Legend

Existing Road	Gate	Proposed Harvest Unit
Renovation	Quarry	Bureau of Land Management
Construction	Stockpile Site	Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Sections 27, 28, & 33

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 40 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 10.mxd - Jul 22, 2020 - 2:58:38 PM

Exhibit C

21-2-35.1 – Renovation

0+00 – Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
Spot Rock – 300 CY of 3" minus
3+90 – Install new stream culvert and add splashpad
Repair slumping road with 30 CY of 6" minus base rock
4+90 – Add splashpad to existing crossdrain
10+01 – Add splashpad to existing crossdrain
10+50 – Rock roadside landing left. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
13+15 – Replace crossdrain and add splashpad
20+20 – Add splashpad to existing stream culvert
23+40 – Rock turnout left -
6" lift of 3" minus
24+10 – Jct. with -35.1 Ext. new construction. End renovation.

21-2-35.1 Ext. – Construction

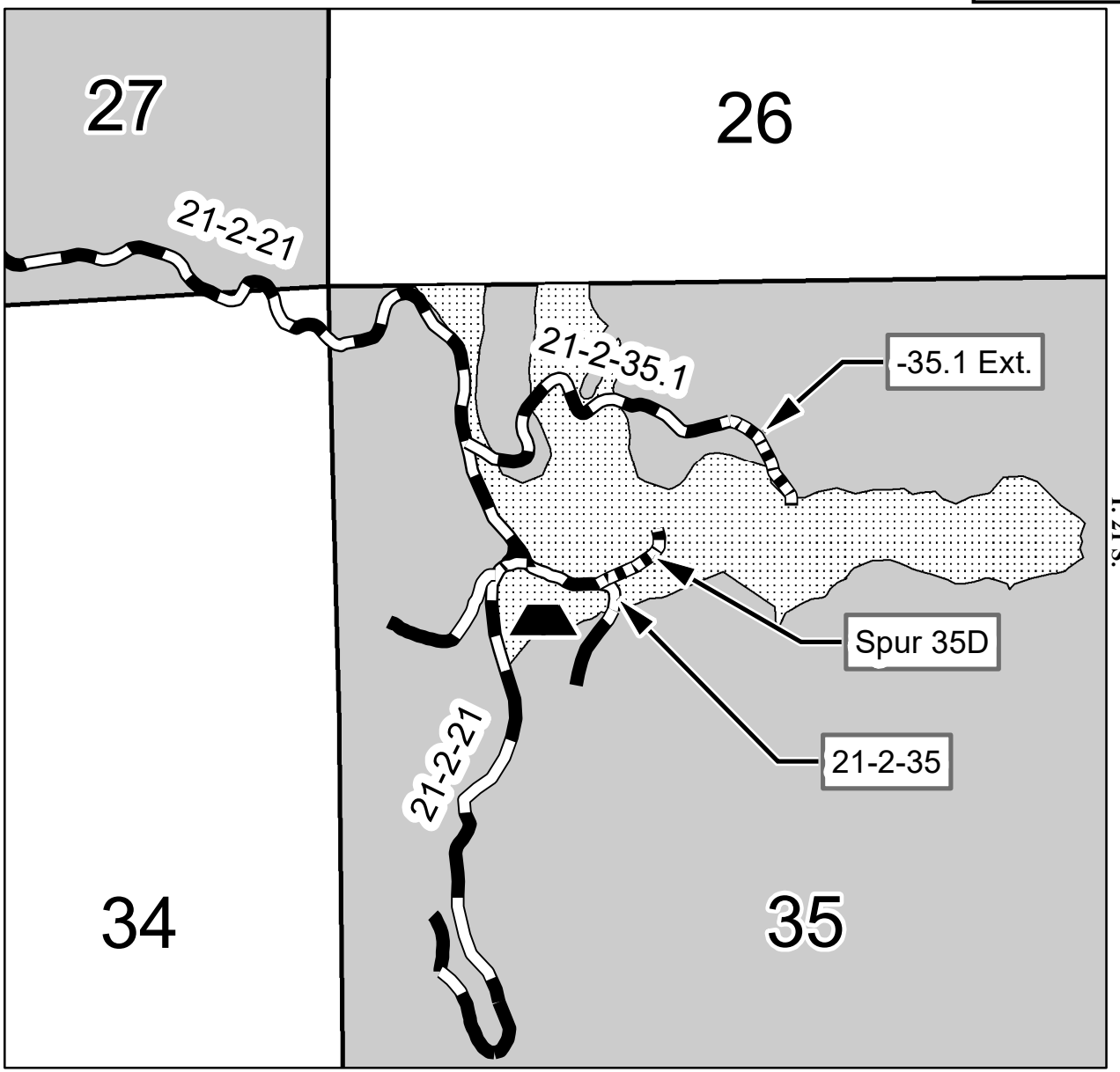
0+00 – Jct. with 21-2-35; Begin Construction:
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
2+40 – Rock turnout left -
6" lift of 6" minus base
6" lift of 3" minus surface
4+20 – Install new crossdrain and add splashpad
6+50– Construct 40'x40' landing. Rock –
14" lift of 6" minus
6+90 – End Construction

21-2-35 – Renovation

0.00– Jct. with 21-2-21; Begin Renovation:
Blade, brush, clean ditches and culverts, and rock –
5" lift of 3" minus
0.03 – Jct. Right – 21-2-21
0.04 – Replace crossdrain and add splash pad
0.06 – Rock turnout left –
12" lift of 3" minus
0.08 – Replace crossdrain and add splash pad at low point
0.11 – Jct. Left Spur 35D
0.16 – Harvest Boundary. End Renovation.

Spur 35D – Construction

0+00 – Jct. with 21-2-35; Begin Construction -
14' subgrade, crowned, with 40'x40' landing at end. Rock –
6" lift of 6" minus base
6" lift of 3" minus surface
2+20 – Construct leadout ditch left and right
4+95 – Construct 40'x40' landing. Rock –
12" lift of 6" minus
5+35 – End Construction



Legend

- Existing Road
- Renovation
- Construction
- County Road
- Gate
- Quarry
- Stockpile Site
- Proposed Harvest Unit
- Bureau of Land Management
- Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Section 35

DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 41 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 11.mxd - Jul 22, 2020 - 3:05:57 PM

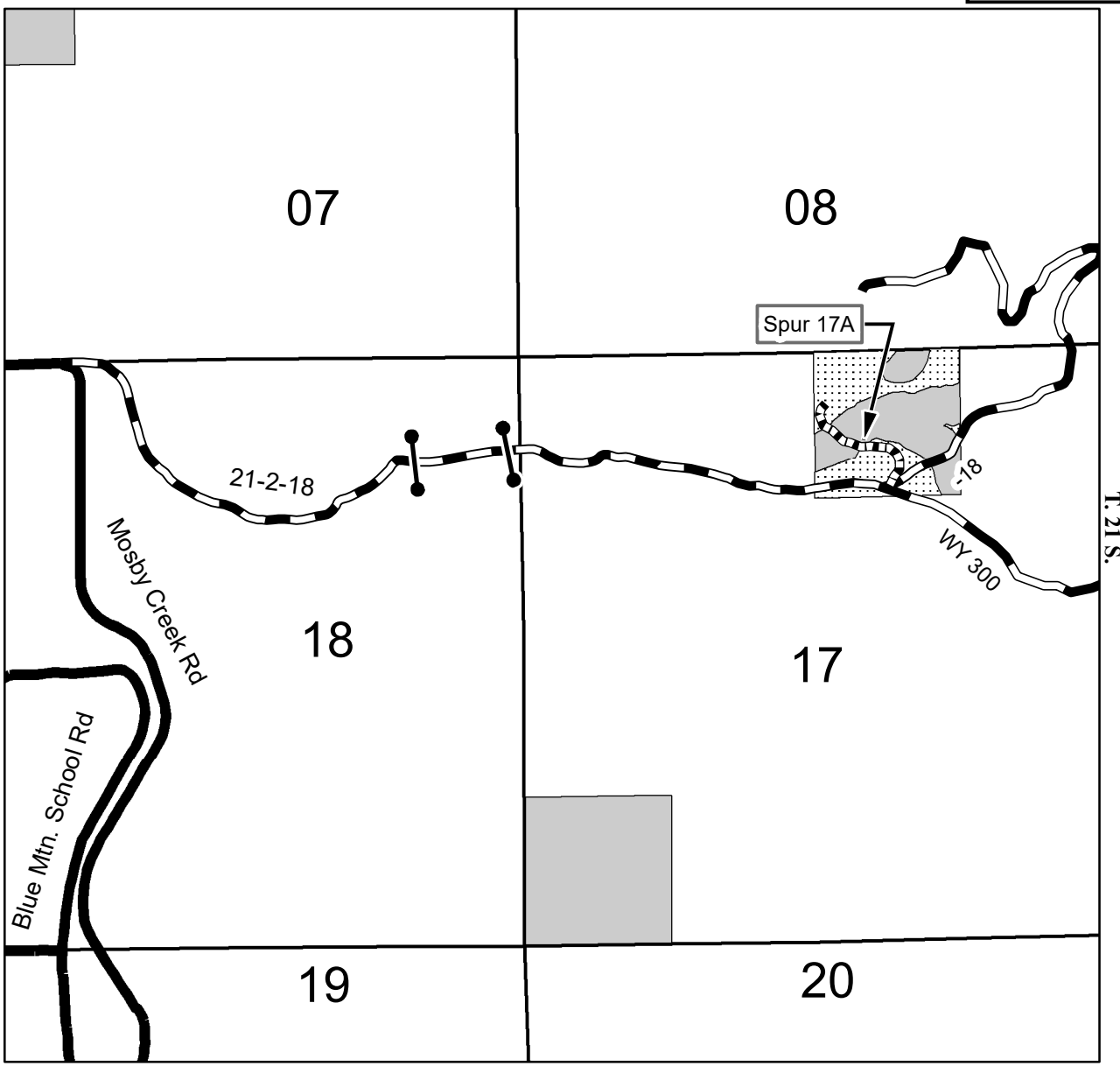
Exhibit C

21-2-18 – Renovation

0.00 – Seg. A. Jct. with Mosby Cr. County Road; Begin Renovation: Blade, clean ditches and culverts, and rock –
Spot Rock – 50 CY of 1.5" minus
0.75 – Gate
0.98 – Gate
1.50 – Property line – Private/BLM; Begin Seg. B, continue renovation, begin brushing and compaction, Change in rocking –
3" lift of 1.5" minus
1.62 – Jct. Right – WY 300
1.64 – Jct. Left – Spur 17A new construction
1.70 – Replace crossdrain and add splash pad
1.74 – Add splashpad to existing stream culvert and place rock on road surface above culvert -
20 CY of 3" minus
1.78 – Construct turnout left, rock –
6" lift of 6" minus base
6" lift of 3" minus surface
1.79 – Property line – BLM/Private. End Renovation

Spur 17A – Construction

0+00 – Junction with 21-2-18; Begin construction: 14' subgrade, outsloped, natural surfaced, with 60'x40' landing at end.
3+20 – Construct leadout ditch right
7+76 – Install temporary stream culvert. Place **10 CY jaw run** slope protection at base of fill and culvert inlet
8+43 – Construct leadout ditch left and right
10+82 – Construct leadout ditch left and right
11+86 – Construct 60'x40' landing.
12+46 – End Construction



Legend

- Existing Road
- Renovation
- Construction
- County Road
- Gate
- Quarry
- Stockpile Site
- Proposed Harvest Unit
- Bureau of Land Management
- Private

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

SECTION MAP & WORKLIST

SHORT AND PERKY TIMBER SALE
T. 21 S., R. 2 W., Sections 17 & 18

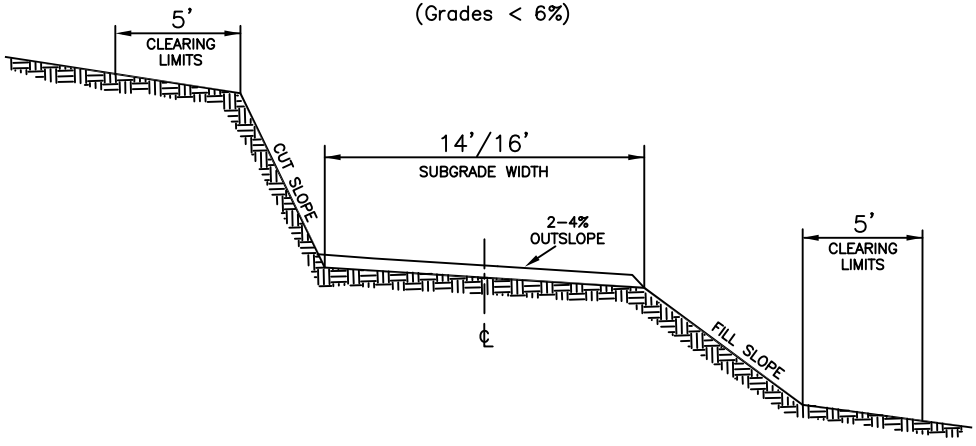
DRAWN: C. CONKLIN	NO SCALE
DATE: JUNE 2020	SHEET: 42 OF 50

P:\nwo\UpperWillamette\Workgroups\Engineering\P-Chad Conklin\TIMBER SALES\Short And Perky\worklist maps\S&P worklist 12.mxd - Jul 22, 2020 - 3:07:59 PM

EXHIBIT C

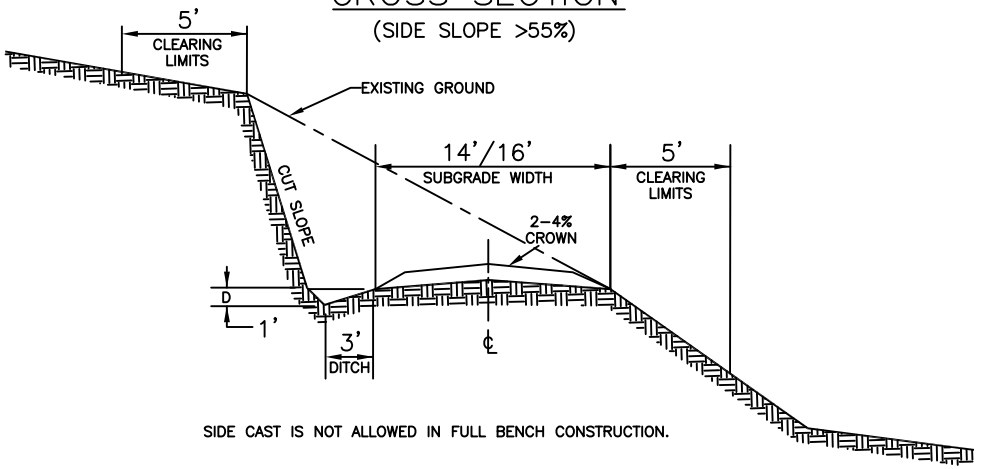
TYPICAL OUTSLOPED CROSS SECTION

(Grades < 6%)



TYPICAL FULL BENCH CROSS SECTION

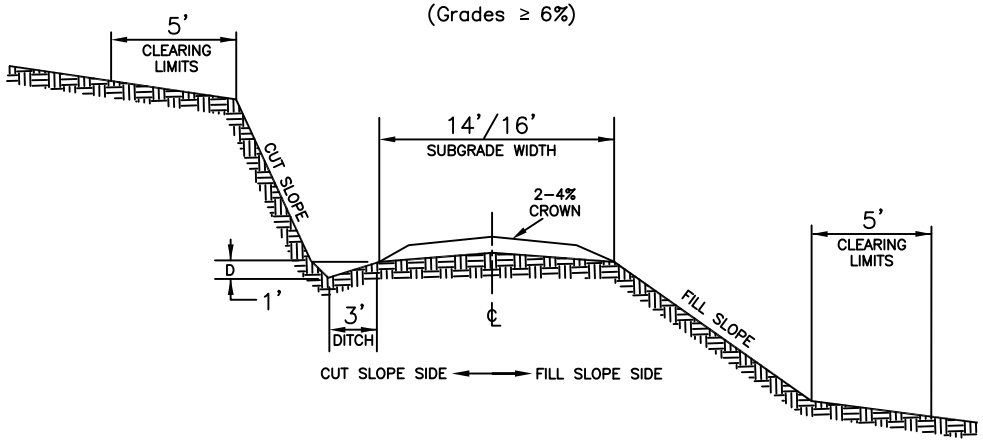
(SIDE SLOPE >55%)



SIDE CAST IS NOT ALLOWED IN FULL BENCH CONSTRUCTION.

TYPICAL CROWNED CROSS SECTION

(Grades ≥ 6%)



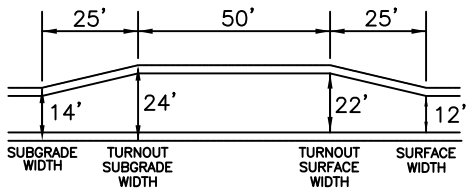
CUT SLOPE RATIO

1:1	COMMON, CUTS TO 6 FT.
1/2:1	COMMON, CUTS > 6 FT.
1/4:1	SOLID ROCK
1/4:1	SOFT ROCK OR HARDPAN

FILL SLOPE RATIO

1 1/2:1	COMMON
1 1/4:1	ROCK

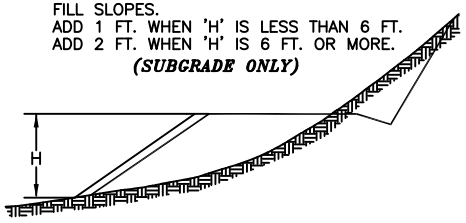
TURNOUTS RIGHT OR LEFT



NOTE: TURNOUT WIDTHS CAN VARY. STANDARD IS 10 FEET ADDITIONAL WIDTH. WIDTHS SHOWN ARE FOR A 14' SUBGRADE. SEE WORKLIST FOR VARIED WIDTHS.

FILL WIDENING

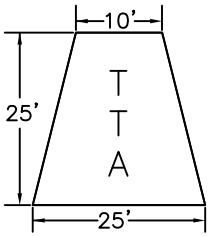
EXTRA WIDENING REQUIRED ON ALL FILL SLOPES.
ADD 1 FT. WHEN 'H' IS LESS THAN 6 FT.
ADD 2 FT. WHEN 'H' IS 6 FT. OR MORE.
(SUBGRADE ONLY)



CURVE WIDENING

CW = 400/R
R = CURVE RADIUS (FT)
CW = CURVE WIDENING (FT)

TRUCK TURNAROUND



NOTES:
1) THROUGH CUTS SHALL CONFORM TO CUT SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.
2) THROUGH FILLS SHALL CONFORM TO FILL SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.
3) CURVE WIDENING SHALL BE APPLIED TO THE INSIDE OF ALL CURVES UNLESS OTHERWISE SPECIFIED.

ALWAYS THINK ***SAFETY***

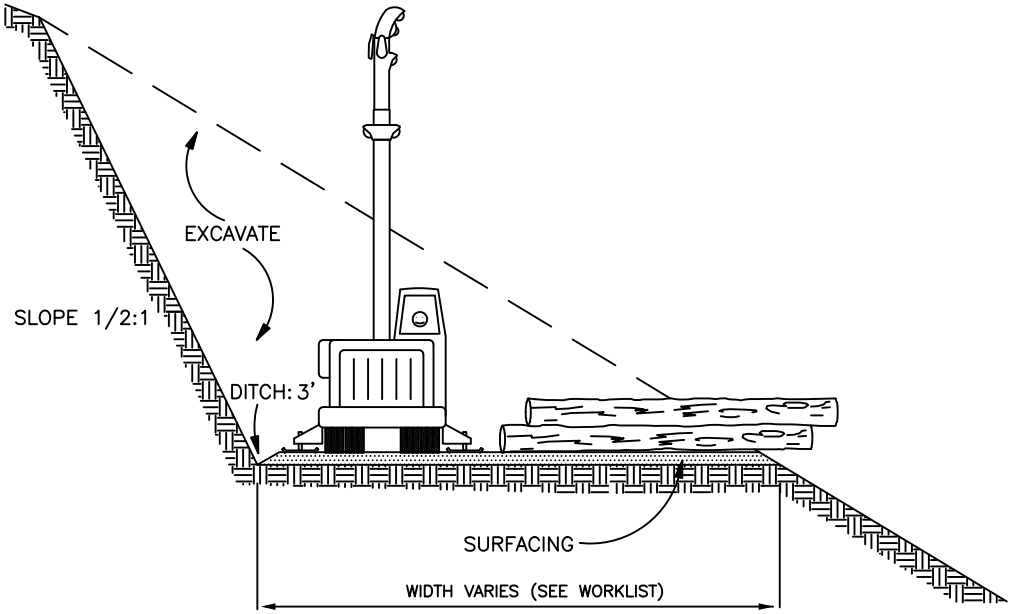
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

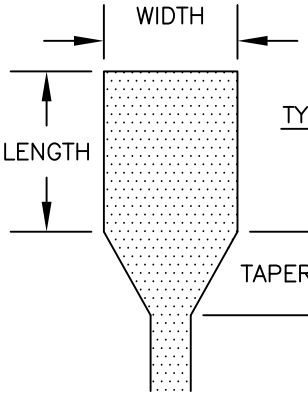
TYPICAL SUBGRADE CROSS SECTIONS, TURNOUTS, TRUCK TURNAROUNDS, AND FILL WIDENING

DRAWN: C. CONKLIN	SCALE: NOT TO SCALE
DATE: JUNE 2020	SHEET: 43 OF 50

EXHIBIT C

TYPICAL FULL BENCH LANDING CONSTRUCTION CROSS SECTION

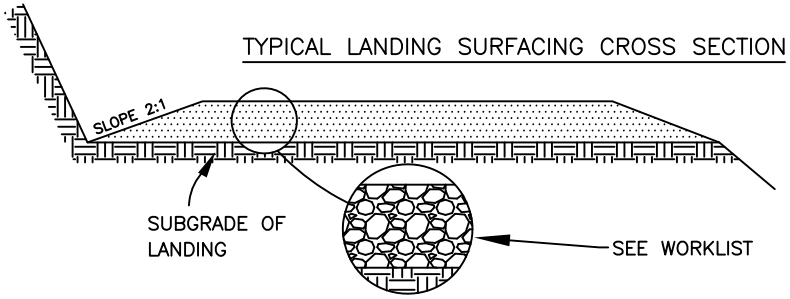




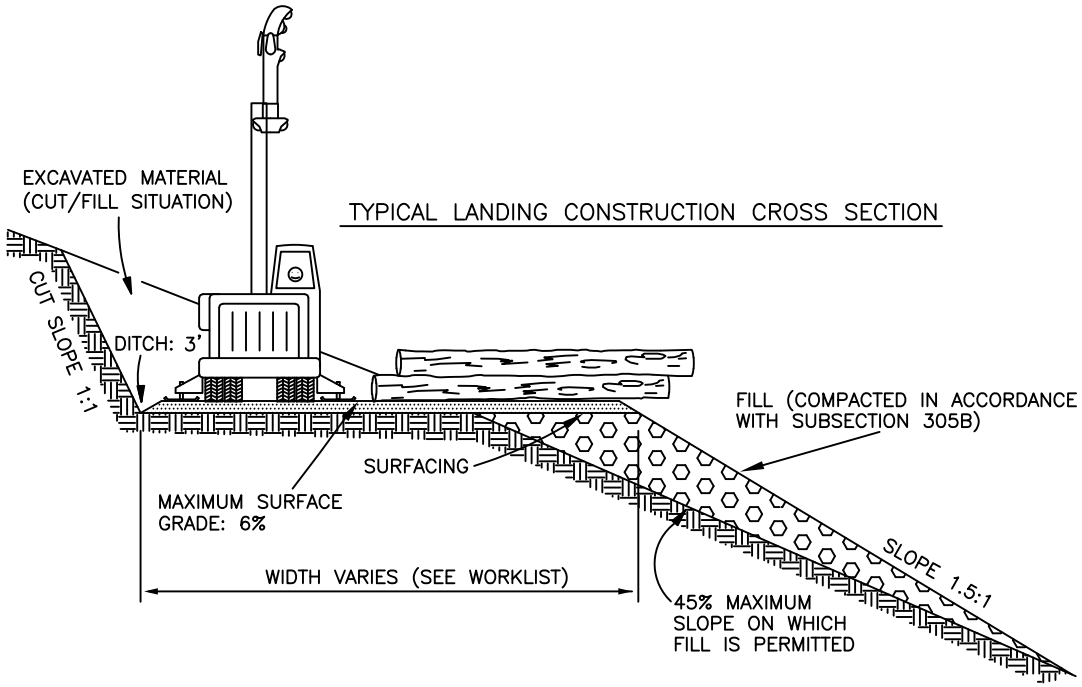
TYPICAL LANDING CONSTRUCTION PLAN VIEW

TAPER = 25'

TYPICAL LANDING SURFACING CROSS SECTION



TYPICAL LANDING CONSTRUCTION CROSS SECTION



LANDING SPECIFICATIONS

1. ALL EXCAVATED MATERIAL SHALL BE END–HAULED TO DISPOSAL AREAS AS SPECIFIED BY THE AUTHORIZED OFFICER.
2. THE LANDING LENGTH IS MEASURED PARALLEL THE ROAD WHILE THE WIDTH IS MEASURED PERPENDICULAR
3. DITCH LINES SHALL BE LEAD–OFF WHERE APPROPRIATE
4. 25' TAPER LENGTH IS INCLUDED IN THESE SPECIFICATIONS.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

LANDING CONSTRUCTION & SURFACING DETAILS

DRAWN: C. CONKLIN	SCALE: NOT TO SCALE
DATE: JUNE 2020	SHEET 44 OF 50

EXHIBIT C

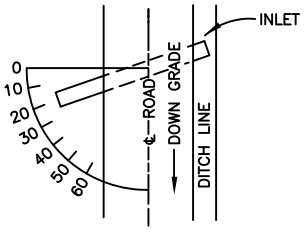
CULVERT LIST

CULVERT REPLACEMENTS/ADDITIONS						ENERGY DISSIPATER		REMARKS
ROAD NO. STATION OR M.P.	SIZE	LENGTH	GAGE	SKEW ANGLE	INSTALLATION TYPE	INLET (CY)	OUTLET (CY)	
Spur 17A								
7+76	36"	45'	14	Align to Channel	1			Temporary Installation
Spur 21B								
0+00	18"	40'	CPP	0 Degrees	3			Installation
Spur 3B								
2+55	30"	50'	14	Align to Channel	1		2	Installation
4+40	18"	35'	CPP	20 Degrees	3		2	Installation
9+00	18"	35'	CPP	20 Degrees	3		2	Installation
11+65	18"	35'	CPP	20 Degrees	3		2	Installation
13+20	18"	30'	CPP	20 Degrees	3		2	Installation
Spur 5A								
3+00	18"	30'	CPP	20 Degrees	3		2	Installation
21-2-18								
1.70	18"	30'	CPP	20 Degrees	3		2	Installation
1.74							2	Install Splash Pad
21-2-21								
0.60	30"	50'	14	Align to Channel	1		2	Replacement
0.78	24"	50'	CPP	Align to Channel	1		2	Replacement
0.92	24"	40'	CPP	Align to Channel	1		2	Replacement
0.94	18"	40'	CPP	20 Degrees	3		2	Installation
1.36	18"	30'	CPP	20 Degrees	3		2	Installation
1.41	18"	30'	CPP	20 Degrees	3		2	Replacement
1.45	18"	30'	CPP	20 Degrees	3		2	Replacement
2.14	18"	40'	CPP	20 Degrees	3		2	Installation
2.20	18"	40'	CPP	20 Degrees	3		2	Installation
2.44	24"	40'	CPP	Align to Channel	1		2	Replacement
3.28	30"	50'	14	Align to Channel	1		2	Replacement
3.40	18"	35'	CPP	20 Degrees	3		2	Replacement
3.55	18"	40'	CPP	20 Degrees	3		2	Replacement
3.61	18"	40'	CPP	20 Degrees	3		2	Replacement
21-2-21.1								
0+00	18"	50'	CPP	0 Degrees	3			Installation
2+54	18"	30'	CPP	20 Degrees	1		2	Installation
4+93	72"	60'	12	Align to Channel	1		10	Installation
6+26	18"	40'	CPP	20 Degrees	3		2	Installation
11+03	24"	50'	CPP	Align to Channel	1		2	Installation
11+90	18"	30'	CPP	20 Degrees	3		2	Installation
20+90	18"	30'	CPP	20 Degrees	3		2	Installation
22+85	42"	55'	12	Align to Channel	1		5	Installation
23+12	18"	30'	CPP	20 Degrees	3		2	Installation
26+12	24"	40'	CPP	Align to Channel	1		2	Installation
28+00	36"	50'	14	Align to Channel	1		5	Installation
29+45	24"	40'	CPP	Align to Channel	1		2	Installation
32+40	18"	30'	CPP	20 Degrees	3		2	Installation
35+00	18"	35'	CPP	20 Degrees	3		2	Installation
39+85	24"	50'	CPP	Align to Channel	1		2	Installation
41+01	24"	60'	CPP	Align to Channel	1		2	Installation
41+61	24"	50'	CPP	Align to Channel	1		2	Installation
42+34	18"	40'	CPP	20 Degrees	3		2	Installation
21-2-21.1 Ext.								
5+03	18"	30'	CPP	20 Degrees	3		2	Installation

NOTES:

1. ALL CULVERTS SHALL BE CORRUGATED POLYETHYLENE PIPE (CPP) CONFORMING TO SPECIFICATION 405e UNLESS NOTED OTHERWISE.
2. ALL CORRUGATED METAL PIPE (CMP) CULVERTS SHALL CONFORM TO SPECIFICATION 405a.
3. SEE CULVERT INSTALLATION DETAIL.
4. DESIGNED CULVERT LENGTHS AND LOCATIONS ARE APPROXIMATE.
5. ALL CULVERTS SHALL HAVE A MINIMUM 6" BEDDING OF 3/4" MINUS CRUSHED ROCK MATERIAL CONFORMING TO SEC. 1200 UNLESS NOTED OTHERWISE.
6. EXCESS EXCAVATED MATERIAL SHALL BE PLACED AT WASTE SITES AS DIRECTED BY THE AUTHORIZED OFFICER'S REPRESENTATIVE. END DUMPING SHALL BE PERMITTED FOR PLACEMENT OF MATERIAL. WASTE PILES SHALL BE SLOPED, SHAPED, AND OTHERWISE BROUGHT TO A NEAT AND SIGHTLY CONDITION, AS DIRECTED BY THE AUTHORIZED OFFICER'S REPRESENTATIVE. WASTE MATERIAL SHALL NOT BE PLACED ON AREAS WHERE THE MATERIAL WILL ENCROACH ON A STREAM COURSE OR OTHER BODY OF WATER.
7. ENERGY DISSIPATORS = 2 LCY JAW RUN
8. SEED AND MULCH CULVERT SITES AS DESCRIBED IN THE 1800 SPECIFICATIONS.
9. TRENCHES 5' DEEP OR GREATER REQUIRE A PROTECTIVE SYSTEM

SKEW DIAGRAM



ALWAYS THINK *SAFETY*

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

CULVERT SUMMARY

DRAWN: C.CONKLIN	SCALE: N/A
DATE: JUNE 2020	SHEET 45 OF 50

EXHIBIT C

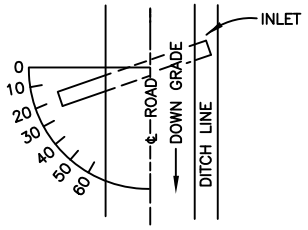
CULVERT LIST

CULVERT REPLACEMENTS/ADDITIONS						ENERGY DISSIPATER		REMARKS
ROAD NO. STATION OR M.P.	SIZE	LENGTH	GAGE	SKEW ANGLE	INSTALLATION TYPE	INLET (CY)	OUTLET (CY)	
21-2-21.2								
0.06	24"	35'	CPP	Align to Channel	1		2	Replacement
0.13	24"	40'	CPP	Align to Channel	1		2	Replacement
0.16	24"	35'	CPP	20 Degrees	3		2	Replacement
0.48	24"	40'	CPP	Align to Channel	1		2	Replacement
0.52	24"	50'	CPP	Align to Channel	1		2	Replacement
0.60	18"	30'	CPP	20 Degrees	3		2	Replacement
0.65	18"	30'	CPP	20 Degrees	3		2	Replacement
21-2-22 Ext.								
1+75	18"	30'	CPP	20 Degrees	3		2	Installation
21-2-22 Improvement								
4+50	18"	30'	CPP	20 Degrees	3		2	Installation
21-2-27								
0.08	18"	30'	CPP	20 Degrees	3		2	Replacement
0.12	18"	40'	CPP	20 Degrees	3		2	Replacement
21-2-27.1								
0.06	18"	30'	CPP	20 Degrees	3		2	Installation
0.10							5	Install Splash Pad
21-2-32								
0.86							2	Install Splash Pad
0.90	18"	40'	CPP	20 Degrees	3		2	Installation
21-2-35								
0.04	18"	30'	CPP	20 Degrees	3		2	Replacement
0.08	18"	30'	CPP	20 Degrees	3		2	Replacement
21-2-35.1								
3+90	24"	40'	CPP	Align to Channel	3		2	Installation
4+90							2	Install Splash Pad
10+01							2	Install Splash Pad
13+15	24"	40'	CPP	20 Degrees	3		2	Replacement
20+20							2	Install Splash Pad
21-2-35.1 Ext.								
4+20	18"	40'	CPP	20 Degrees	3		2	Installation
22-2-2.2								
0.19	18"	30'	CPP	20 Degrees	3		2	Replacement
0.24	18"	30'	CPP	20 Degrees	3		2	Replacement
22-2-3								
0.53	18"	40'	CPP	20 Degrees	3		2	Replacement
0.67	30"	35'	14	Align to Channel	1		2	Replacement
0.73	18"	35'	CPP	20 Degrees	3		2	Replacement
0.82	18"	30'	CPP	20 Degrees	3		2	Replacement
1.12	30"	40'	14	Align to Channel	1		2	Replacement
22-2-3.3								
0.05	24"	50'	CPP	Align to Channel	1		2	Temporary Installation
22-2-4.1								
0.84	24"	40'	CPP	Align to Channel	1		2	Replacement
0.86	18"	30'	CPP	20 Degrees	3		2	Installation
1.07	18"	30'	CPP	20 Degrees	3		2	Replacement
1.21	18"	30'	CPP	20 Degrees	3		2	Replacement
1.28	18"	30'	CPP	20 Degrees	3		2	Installation
22-2-5.2								
6+50	18"	30'	CPP	20 Degrees	3		2	Installation
9+10	18"	30'	CPP	20 Degrees	3		2	Installation
22-2-10.3								
0.11	18"	30'	CPP	20 Degrees	3		2	Installation
0.17	18"	30'	CPP	20 Degrees	3		2	Installation

NOTES:

1. ALL CULVERTS SHALL BE CORRUGATED POLYETHYLENE PIPE (CPP) CONFORMING TO SPECIFICATION 405e UNLESS NOTED OTHERWISE.
2. ALL CORRUGATED METAL PIPE (CMP) CULVERTS SHALL CONFORM TO SPECIFICATION 405a.
3. SEE CULVERT INSTALLATION DETAIL.
4. DESIGNED CULVERT LENGTHS AND LOCATIONS ARE APPROXIMATE.
5. ALL CULVERTS SHALL HAVE A MINIMUM 6" BEDDING OF 3/4" MINUS CRUSHED ROCK MATERIAL CONFORMING TO SEC. 1200 UNLESS NOTED OTHERWISE.
6. EXCESS EXCAVATED MATERIAL SHALL BE PLACED AT WASTE SITES AS DIRECTED BY THE AUTHORIZED OFFICER'S REPRESENTATIVE. END DUMPING SHALL BE PERMITTED FOR PLACEMENT OF MATERIAL. WASTE PILES SHALL BE SLOPED, SHAPED, AND OTHERWISE BROUGHT TO A NEAT AND SIGHTLY CONDITION, AS DIRECTED BY THE AUTHORIZED OFFICER'S REPRESENTATIVE. WASTE MATERIAL SHALL NOT BE PLACED ON AREAS WHERE THE MATERIAL WILL ENCROACH ON A STREAM COURSE OR OTHER BODY OF WATER.
7. ENERGY DISSIPATORS = 2 LCY JAW RUN
8. SEED AND MULCH CULVERT SITES AS DESCRIBED IN THE 1800 SPECIFICATIONS.
9. TRENCHES 5' DEEP OR GREATER REQUIRE A PROTECTIVE SYSTEM

SKEW DIAGRAM



SUMMARY	TOTAL (FT)
18" CORRUGATED POLY PIPE	1670
24" CORRUGATED POLY PIPE	790
30" CMP	225
36" CMP	95
42" CMP	55
72" CMP	60

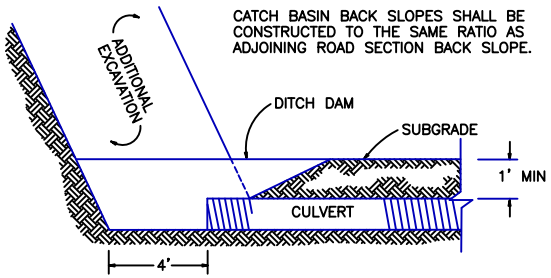
ALWAYS THINK *SAFETY*

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

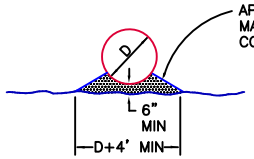
CULVERT SUMMARY

DRAWN: C.CONKLIN	SCALE: N/A
DATE: JUNE 2020	SHEET 46 OF 50

EXHIBIT C

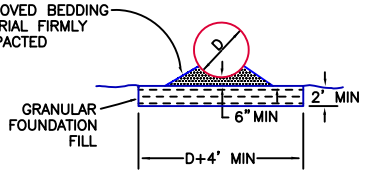


CROSS SECTION AT CATCH BASIN



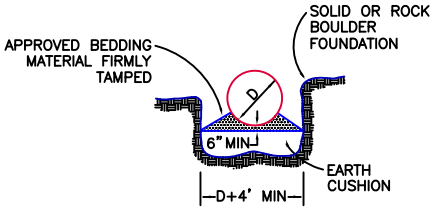
BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT.

BEDDING OF CULVERTS ON STABLE NATURAL GROUND FOUNDATION OR COMPACTED EMBANKMENT



BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT.

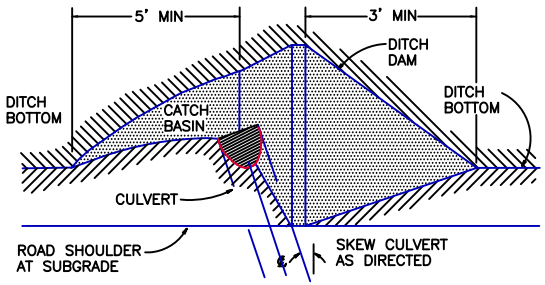
BEDDING OF CULVERTS ON SOFT SPONGY OR UNSTABLE SOIL FOUNDATION



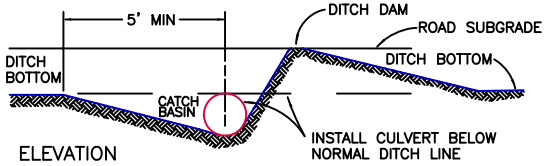
BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT. EARTH CUSHIONING OF SILTY CLAY LOAM OR SAND MAY BE USED IF MATERIAL CAN BE PLACED IN THE DRY CONDITION. IF THE EXCAVATION IS WET, USE GRANULAR FOUNDATION FILL MATERIAL. MAINTAIN 8" MIN. DEPTH BETWEEN HIGH POINTS OF ROCKS AND/OR BOULDERS AND THE BOTTOM OF THE CULVERT.

BEDDING OF CULVERT IN SOLID ROCK OR BOULDER FOUNDATION

CULVERT BEDDING DETAILS

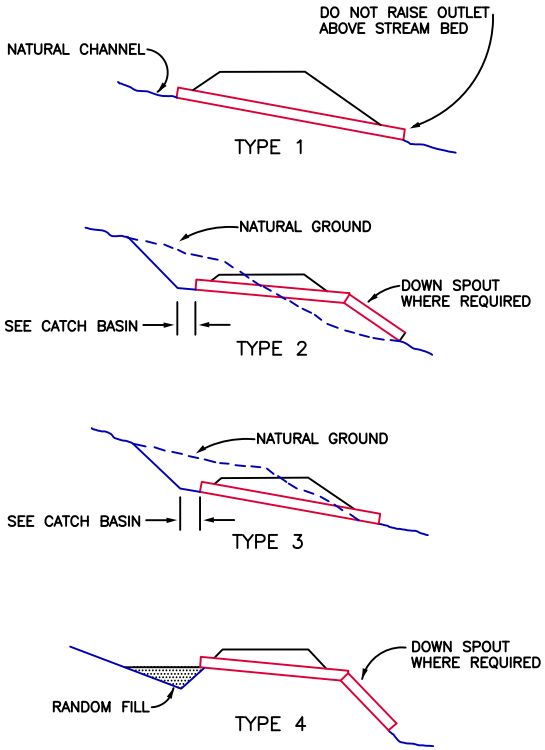


PLAN VIEW

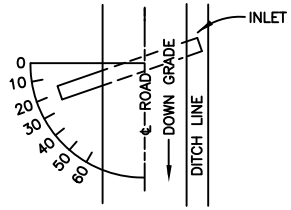


ELEVATION

CATCH BASIN DETAIL



CULVERT INSTALLATION TYPES



THE GRADE OF CROSSDRAINS SHALL BE AT LEAST 2% GREATER THAN THE GRADE OF THE DITCH.

SKEW DIAGRAM

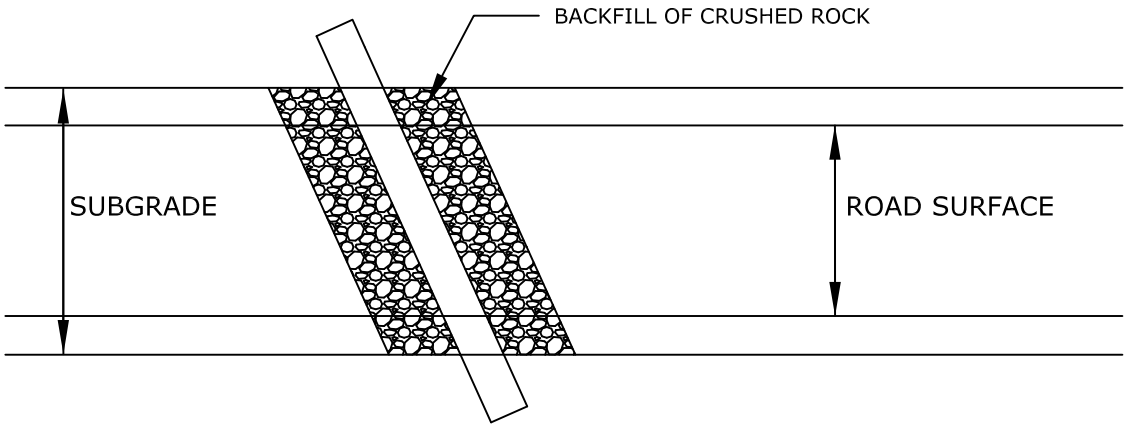
ALWAYS THINK SAFETY

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

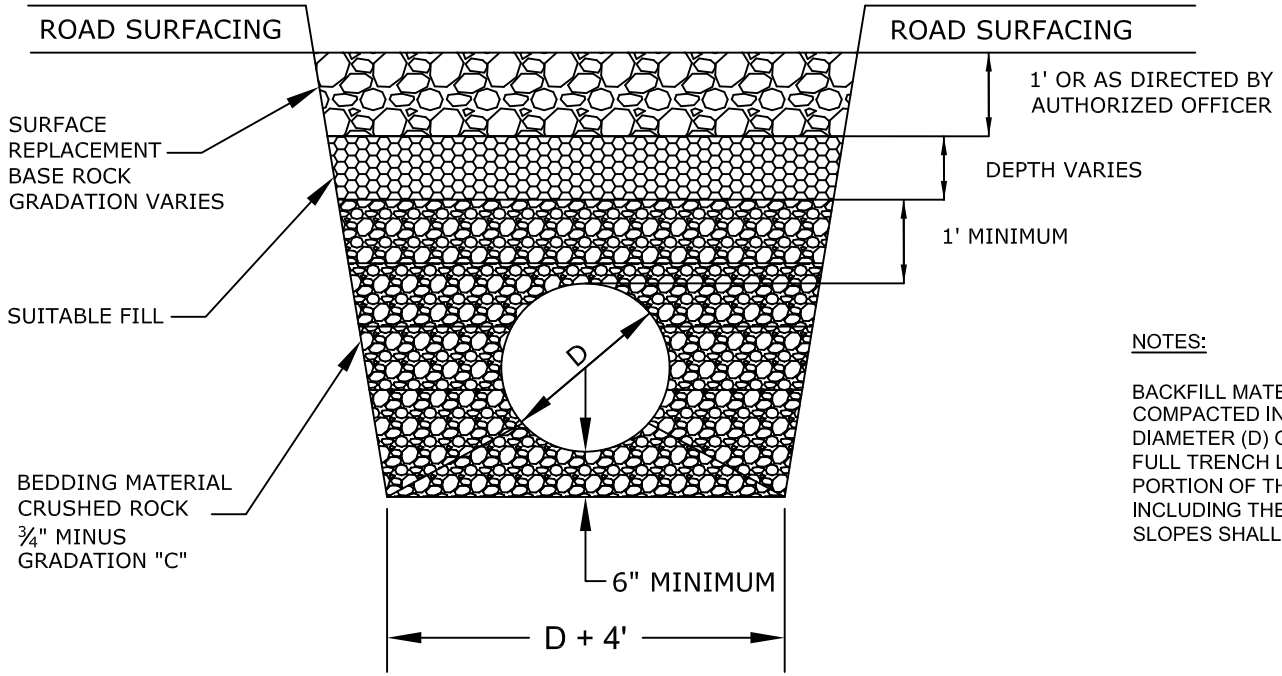
CULVERT INSTALLATION DETAILS

DRAWN: C. CONKLIN	SCALE: NOT TO SCALE
DATE: JUNE 2020	SHEET: 47 OF 50

EXHIBIT 'C'



PLAN VIEW



PROFILE VIEW

NOTES:

BACKFILL MATERIAL SHALL BE ¾" MINUS CRUSHED ROCK COMPACTED IN LAYERS OF 6" MAXIMUM DEPTH, ONE PIPE DIAMETER (D) OR MINIMUM OF 2' WIDTH ON EACH SIDE, FOR THE FULL TRENCH LENGTH. THE MINIMUM DEPTH OVER ANY PORTION OF THE PIPE SHALL BE 1' OF CRUSHED ROCK, NOT INCLUDING THE CRUSHED ROCK FOR THE ROAD. ALL SIDE SLOPES SHALL CONFORM TO OSHA REGULATIONS.

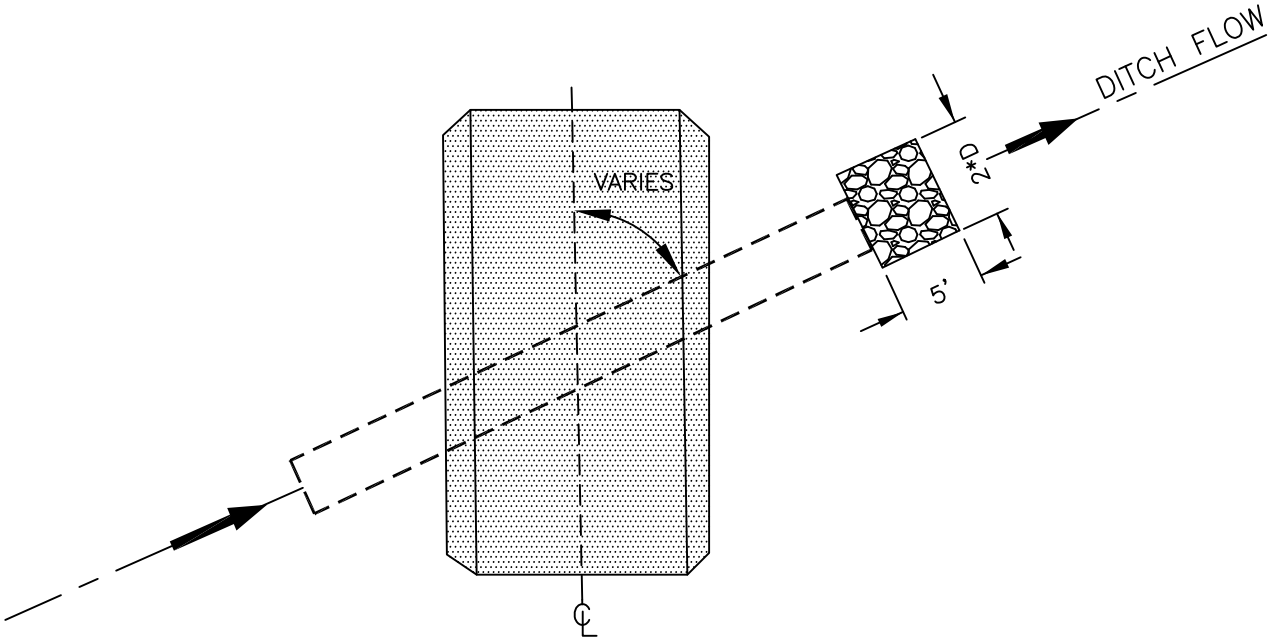
ALWAYS THINK SAFETY

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

CULVERT BEDDING & BACKFILL DETAILS

DRAWN: C. CONKLIN	SCALE: NOT TO SCALE
DATE: JUNE 2020	SHEET: 48 OF 50

EXHIBIT C

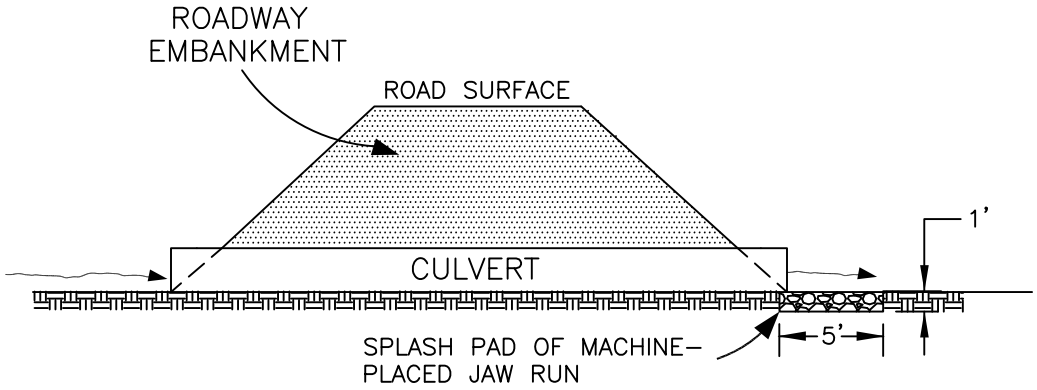


NOTES:

1 - SKEW ANGLES ARE MEASURED FROM THE CENTERLINE OF THE ROAD.

2 - APPROXIMATELY 2 CY OF JAW RUN IS NEEDED TO CREATE THE APPROPRIATE SIZED SPLASH PAD FOR A CROSS DRAIN.

CROSS DRAIN SLOPE PROTECTION PLAN VIEW



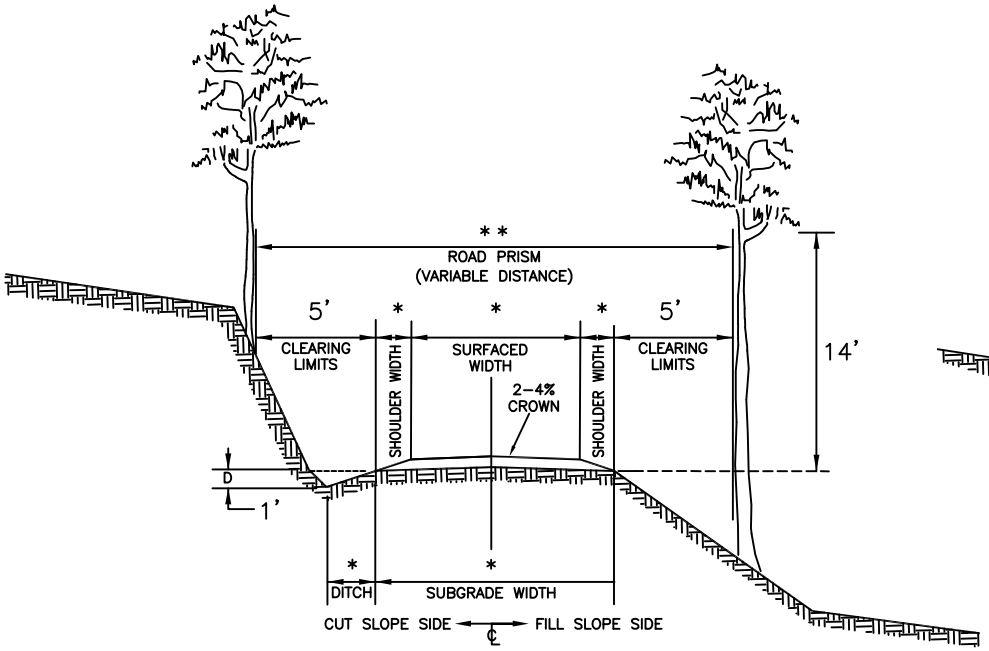
CROSS DRAIN SLOPE PROTECTION PROFILE VIEW

ALWAYS THINK SAFETY

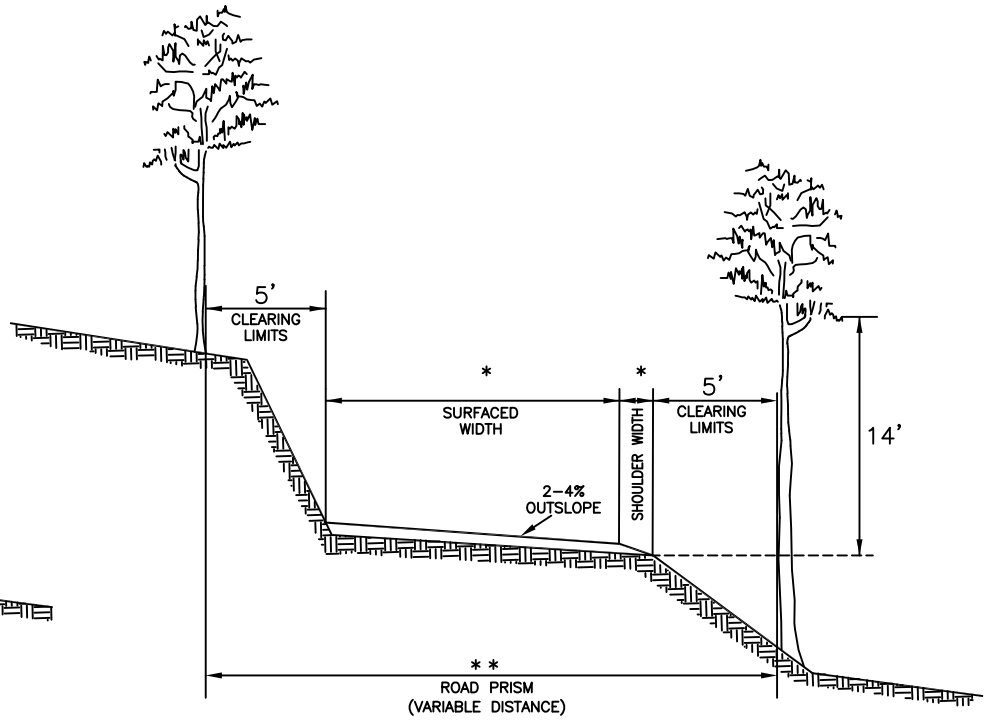
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT	
NORTHWEST OREGON DISTRICT	SPRINGFIELD, OREGON
CROSS DRAIN SLOPE PROTECTION DETAILS	
DRAWN: C.CONKLIN	SCALE: NOT TO SCALE
DATE: JUNE 2020	SHEET: 49 OF 50

EXHIBIT C

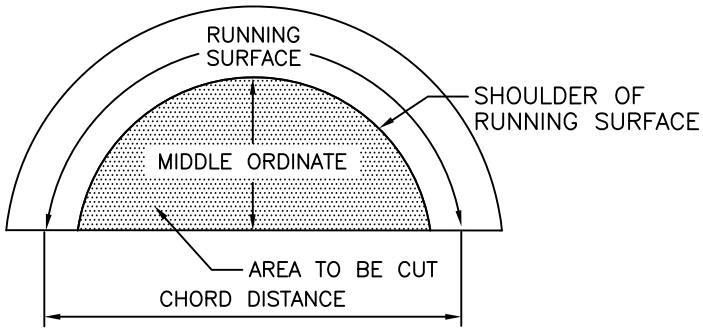
BRUSHING
TYPICAL CROWNED CROSS SECTION



BRUSHING
TYPICAL OUTSLOPED CROSS SECTION



SIGHT DISTANCE
DIAGRAM



* VARIABLE DISTANCE BETWEEN RUNNING SURFACE AND START OF FILL AND CUT SLOPE

** ALL AREAS WITHIN THE VARIABLE DISTANCE SHALL BE FREE OF ALL VEGETATION CAPABLE OF GROWING 1 FOOT IN HEIGHT OR HIGHER AND ALL OVERHANGING LIMBS AND BRANCHES 14 FEET IN ELEVATION ABOVE THE SUBGRADE.

NOTES:
1) BRUSHING OF THROUGH CUTS SHALL CONFORM TO CUT SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.
2) BRUSHING OF THROUGH FILLS SHALL CONFORM TO FILL SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.

ALWAYS THINK *SAFETY*

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT	
NORTHWEST OREGON DISTRICT	SPRINGFIELD, OREGON
ROADSIDE BRUSHING DETAIL	
DRAWN: C. CONKLIN	SCALE: NOT TO SCALE
DATE: JUNE 2020	SHEET: 50 OF 50