

## APPENDIX A

### TECHNICAL SPECIFICATIONS FOR SERVICE WORK ITEMS

#### **SECTION I – DESCRIPTION OF WORK:**

The objectives of these treatments are to increase forest health and vigor, reduce the threat of catastrophic wildfire and provide wood resources to forest product industry and local communities by executing projects (Call Orders) in priority areas on National Forest System lands within the boundaries of the Arapaho-Roosevelt, Black Hills, Pike-San Isabel, San Juan, White River, Grand Mesa, Uncompahgre, and Gunnison National Forests. Call orders will be issued for distinct projects and may include any combination of the following activities:

1. Hand cutting, piling and/or lopping non-included material
2. Mechanical cutting, piling, lopping, masticating, chipping, skidding, decking, and/or removing non-included or non-sawtimber material.
3. Road construction, maintenance, closure, and decommissioning.
4. Cutting, skidding, and removal of commercial wood products

#### **SECTION II – WORK ITEMS** (ScenarioPerformance Work Statement)

**The following work descriptions are to be used to provide pricing for Items 2-85 as described below. Pricing, based on these specifications, is to be completed for all work activities listed in the Schedule of Items, located on pages 3-5 of the solicitation for all National Forests of interest. These are descriptions only of representative treatment types and are not actual treatment areas on the ground. Those specific, on-the-ground activities will be issued in future Call Orders with project specific descriptions and units on the ground available for viewing.**

Description of Hypothetical Treatment Unit Conditions (for pricing purposes) -

##### ***Assumptions:***

- Commercial harvest of Ponderosa Pine sawtimber from stands with 15 CCF/acre and average sawtimber DBH of 14.5 inches using a partial cut treatment prescription. (Item 1)
- For purposes of fixed cost considerations, the total hypothetical volume should be assumed to be 8,333 (7,500 CCF sawtimber and 833 CCF non-sawtimber) of Ponderosa Pine.
- All harvest operations are ground based on slopes of less than 30% with all skidding on flat or downhill trails.
- Non-sawtimber removal of 85 trees per acre of Ponderosa Pine and Douglas-fir with an average DBH of 6 inches.
- Non-included material is live Ponderosa Pine and Douglas-fir with an average DBH of 4 inches at a density of 230 trees per acre. Quantity of treated material is 5 tons/acre.
- Removal of Piled material will occur on landings along open roadways. Assume 15 piles with an average of 2 piles per landing and dimensions of 20'(H) X 30'(L) X 20'(W).
- All roads needed for harvest are in place and no temporary roads are needed.
- Pre, during and post haul road maintenance shall be conducted according to the specifications listed in Appendix C for road maintenance requirements.
- Roads scheduled for closure have cross slopes of 10% or less, and material (trees, logs, and boulders) is readily available.
- Operations are permitted from May 31 to November 15.

**Item 1: Commercial Harvest and Removal of Included Timber:**  
**(500 Acres)**

Cut and remove from Contract Area sawtimber trees which meet the minimum tree specifications as identified in Appendix B.

**Specifications for Mechanical Treatment of Non-sawtimber material:****Items 2, 15, 30, 45, 60, 75: Cut, Skid, and Remove Non-Sawtimber (300 Acres)****Items 3, 16, 31, 46, 61, 76: Cut, Skid, and Deck Non-Sawtimber (300 Acres)**

1. Activities must comply with all applicable Appendix B clauses.
2. Mechanically cut and skid all designated live/dead non-sawtimber trees > 5.6 inches stump diameter.
3. Maximum stump height shall not exceed 12 inches on the uphill side.
4. Slash shall be treated as specified in Appendix B, Clause C6.7#
5. Decking Specification for Items 3, 16, 31, 46, 61, 76: All merchantable non-sawtimber material shall be skidded to a landing, de-limbed and stacked in orderly log decks.
6. Product Removal Specifications for Items 2, 15, 30, 45, 60, 75: All merchantable non-sawtimber shall be loaded on transport vehicles and removed from the Contract Area. Transport and disposal of this material is a Contractor responsibility, and the US Forest Service will not incur any liability for removal.

**Specifications for Mechanical Treatment of Biomass material:****Items 4, 17, 32, 47, 62, 77: Cut, Skid, and Remove Biomass (200 Acres)**

1. Activities must comply with all applicable Appendix B clauses.
2. Mechanically cut and skid all designated live/dead biomass material (woody material of any size, not designated as non-sawtimber or saw-timber, as defined in Appendix B).
3. Maximum stump height shall not exceed 6 inches on the uphill side.
4. All designated biomass shall be loaded on transport vehicles and removed from the Contract Area. Transport and disposal of this material is a contractor responsibility and the US Forest Service will not incur any liability for removal.

**Specifications for Mechanical Treatment of Non-included material:****Items 5, 18, 33, 48, 63, 78: Masticate/Chip Non-included Material (200 Acres)****Items 6, 19, 34, 49, 64, 79: Mechanical Cutting and Piling Non-included Material (200 Acres)****Items 7, 20, 35, 50, 65, 80: Mechanical Cutting and Lopping Non-included Material (200 Acres)**

1. Mechanically process (chip, masticate or cut) all designated live/dead conifer trees from 2 feet in height to < 5.6 inches stump diameter, unless otherwise designated to be left standing.
2. Maximum stump height shall not exceed 6 inches on the uphill side.
3. Specifications for Items 5, 18, 33, 48, 63, 78: chipped/masticated material must be distributed evenly within the treatment unit to a depth not to exceed 3 inches over 40% of the unit.
4. Specifications for Items 6, 19, 34, 49, 64, 79:
  - Piles shall be reasonably compact, free of soil, enough fines to consume heavies and facilitate burning.
  - Piles shall be a minimum of 25 feet from the crown or drip line of any tree or in the least impactful location among standing live trees.
  - Piling shall be constructed by grapple or brush rake only, unless otherwise approved by the Forest Service.
  - Piles will be constructed in a dome-like structure in order to maximize consumption when burned.
  - Minimum pile size shall be 10 feet in diameter by 8 feet in height but no greater than 30 feet in diameter by 15 feet in height, unless otherwise approved by the Forest Service. Pile width shall not be more than two times the overall pile height.
  - Piles shall be located at least 100 feet (horizontal distance) from utility lines or poles, and at least 50 feet from other structures, protected improvements, or fences.
5. Specifications for Items 7, 20, 35, 50, 65, 80: Cut material shall be lopped and scattered within the treatment unit to a depth not to exceed 24 inches.

**Specifications for Hand Treatment of Non-included material (lopping and/or piling):****Items 8, 21, 36, 51, 66, 81: Hand Cutting and Piling Non-included Material (200 Acres)****Items 9, 22, 37, 52, 67, 82: Hand Cutting and Lopping Non-included Material (200 Acres)**

1. Manually cut all live and dead conifer trees from 2 feet in height to < 5.6 inches stump diameter, unless otherwise designated to be left standing.
2. Maximum stump height shall not to exceed 6 inches on the uphill side.
3. Specifications for Item 8 (lopping): Cut material shall be lopped and scattered within the treatment unit to a depth not to exceed 24 inches, and not left in accumulations around the base of residual trees.
4. Specifications for Item 7 (piling): Cut material shall be piled as follows:

**Hand Piling:*****Location of Piles:***

- Piles shall be a minimum of 10 feet from the crown or drip line of any tree or in the least impactful location among standing live trees.
- Piles shall be placed so they are not on top of logs, stumps, fire lines, or channels.

***Construction and Size of Piles***

- Piles shall be constructed in a manner which provides for rapid ignition and complete consumption of all piled material.
- Each pile shall be constructed by stacking limbs, stems, cut boles and other slash on the pile in such a manner that they are stable and will not fall over. Piles shall be as compact as possible and all bole wood shall be stacked parallel on piles, unless otherwise directed by Forest Service. Avoid 'teepee' style piling.
- Minimum pile size shall be 8 feet in diameter by 8 feet in height but no greater than 12 feet in diameter by 12 feet in height, unless otherwise approved by the Forest Service. Pile width shall not be more than two times the overall pile height.
- Piles shall not have any material sticking out more than 4' from profile of the pile.

**Items 10, 23, 38, 53, 68, 83: Removal of Piled Material:**

Load and transport woody material from designated locations along accessible haul roads.

1. Material must be removed completely from National Forest System lands.
2. Designated location must be clear of all material except for occasional incidental amounts of residual woody material that is impractical to handle.

**Items 11, 24, 39, 54, 69, 84: Road Maintenance (Pre, During and Post haul):****(10 miles)**

Perform all pre, during and post haul road maintenance. See Appendix C for road maintenance requirements.

**Item 12, 25, 40, 55, 70, 85: Road Reconstruction and Construction**

Road reconstruction and construction specifications will be included in future Call Orders, if utilized.

**SECTION III – CONTROL OF WORK**

The Contractor agrees to conduct its operations under future awarded contracts or orders to this BPA and other related business activities in compliance with Federal, State, and local statutes, standards, orders, permits and other regulations.

The Contractor shall meet all State and local environmental quality laws applicable to National Forest System lands.

Work may be done any time during the term of the contract, except under the following conditions:

- (1) When conditions are such that operations shall be restricted or ceased due to increased fire risk.
- (2) All operating restrictions as shown on the Contract Area Map (CAM) and listed in the solicitation under Protection Measures needed for Plants, Animals, Cultural Resources, and Cave Resources would apply as indicated.
- (3) When soil moisture conditions create excessive risk of damage to the soil.
- (4) When snow depth creates a situation where requirements cannot be met and/or work cannot be inspected, as determined by the COR.
- (5) The government reserves the right to prioritize the order in which Units are treated.
- (6) If any cultural or archeological sites are discovered during operations of this contract, work will be suspended in the immediate vicinity of the site until a reconnaissance survey is completed by the Forest Archeologist. Areas excluded from treatment shall be deleted from the contract.

Control of Work specifications will be specific for each contract order to this BPA.

#### **SECTION IV – INSPECTION AND ACCEPTANCE**

##### **For All Work Items:**

At any point during the project, the Contractor and/or Project Manager may request (documented through email, text, or hand-written request) an in the field consultation with the Forest Service to inspect work progress, review contract specifications, or clarify issues. The Forest Service shall respond to Contractor's request within 5 working days, excluding weekends and federal holidays.

#### **GOVERNMENT QUALITY ASSURANCE SURVEILLANCE PLAN**

*Government Inspection Procedures* - The COR, or a designated inspector (GTM), will make periodic inspections while work is in progress, usually daily at first, as needed to assure work is proceeding satisfactorily. The Contractor shall notify the COR when units are started, when problems are encountered and when contract work needs government oversight.

1. Each unit will be inspected as a separate unit. Unit will not be averaged with other units for acceptance or payment.
2. When units are completed and ready for government inspection, Contractor's designated Project manager shall request unit inspection in writing, prior to moving out of the general area.
3. The COR, or designated inspector, will determine compliance with contract specifications through informal visual inspections (Items 1-12). In the event visual inspection indicates work to be in non-compliance with specifications, prompt corrective action and/or rework shall be required.

##### **Government Inspection Procedures – Formal (Plots); Items 2-9, 15-22, 30-37, 45-52, 60-67, 75-82**

1. In the event visual inspection indicates work and / or rework to be in non-compliance with contract specifications, a series of verification plots shall be installed by the Government (where applicable) to determine compliance with specifications and percent of satisfactory work for treatment of each unit not meeting specification as observed with visual inspection.
2. Government verification plots will consist of a series of fixed area plots and variable radius plots along transects to record whether density, basal area, best tree selection, and other requirements are being met and to what extent.
3. Plots and grid will be distributed so that a representative sample is obtained.
4. Each Call Order to this BPA will have specific formal plot inspections. The following is an example of possible formal plot procedures:

- a. The COR or designated inspector will mark the center of each plot on the ground using flagging, stakes, or pin flags. Additional flagging will be hung near the plot center so that it may be seen from a distance. The inspector will include the plot number, their initials and date on the flagging.
- b. Plots will be numbered to correlate with the inspection form and transects on a unit map.
- c. The minimum number of verification plots, per treatment unit, shall be as follows:

Unit Acreage	Minimum No. of Plots
1 – 9	1 plot per 2 acres
10 – 29	10 plots
30 – 59	1 plot per 4 acres
60 – 99	20 plots
100	1 plot per 5 acres

- d. Determination of acceptability of the work performed will be based on Government verification inspections and will be considered conclusive.
- e. Work Quality Percentages - Each inspection plot will be subdivided into four (4) quadrants based on cardinal directions. Each quadrant will be evaluated for compliance with all applicable BPA order specifications. The total number of satisfactory quadrants divided by the total number of quadrants (number of plots multiplied by four) inspected determines the quality rate. This rate is multiplied by 100 to provide the work quality percentage.

$$\left[ \frac{\text{No. of satisfactory quadrants}}{\text{No. of inspected plots} \times 4} \right] \times 100 = \% \text{ Quality}$$

### Unsatisfactory Cutting

1. If the work quality falls below 90 percent, the COR will immediately notify the Contractor, in writing, and order to improve the quality.
2. When the work quality falls below 90 percent, the Government may elect to do one of the following:
  - (a) Order rework to be performed and withhold payment until the results of a post-rework Government inspection show work quality to be at least 90 percent or more. No rework shall be performed unless ordered or authorized by the COR.
  - (b) Order that no rework be performed and payment will either be made at a reduced rate, or not at all.
3. Repeated failure to produce work quality at or above the 90 percent minimum acceptable standard will be considered reason for contract termination and default action.

### Re-Inspection Upon Contractor Request

1. If Government inspection results are unacceptable to the Contractor, a reinspection may be requested, in writing, within 5 business days after receipt of notice of said inspection results. The same inspection procedure will be used; however, the inspection pattern will be shifted so that new inspection plots will not overlap previously inspected plots.
2. If reinspection results – rounded up to the nearest whole percent – indicate a variance of more than 5 percent from the first inspection, the results of the second inspection will be used to calculate work quality and payment, and the Government will bear the cost of re-inspection.
3. If reinspection results – rounded up to the nearest whole percent – are within 5 percent of the first inspection, plots from the initial inspection and the reinspection will be combined and used to calculate work quality and payment, and the Contractor shall bear the cost of re-inspection.

**Table 1 – Minimum Acceptable Quality Levels (AQL) of Work**

ITEM	DESCRIPTION	UNIT	MIN AQL
1	Commercial Harvest and Removal of Included Timber	ACRE	NA
2, 15, 30, 45, 60, 75	Cut, Skid, and Remove Non-sawtimber	ACRE	90%
3, 16, 31, 46, 61, 76	Cut, Skid and Deck Non-sawtimber	ACRE	90%
4, 17, 32, 47, 62, 77	Cut, Skid and Remove Biomass	ACRE	90%
5, 18, 33, 48, 63, 78	Masticate/Chip Non-included Material	ACRE	90%
6, 19, 34, 49, 64, 79	Mechanical Cutting and Piling Non-included Material	ACRE	90%
7, 20, 35, 50, 65, 80	Mechanical Cutting and Lopping Non-included Material	ACRE	90%
8, 21, 36, 51, 66, 81	Hand Cutting and Piling Non-included Material	ACRE	90%
9, 22, 37, 52, 67, 82	Hand Cutting and Lopping Non-included Material	ACRE	90%
10, 23, 38, 53, 68, 83	Removal of Piled Material	EACH	100%
11, 24, 39, 54, 69, 84	Road Maintenance (Pre, During, Post)	MILE	100%
12, 25, 40, 55, 70, 85	Road Reconstruction and Construction per Call Order Specifications	MILE	100%

**SECTION V – PAYMENT METHODS****Method of Measurement for Acreages**

Acreages will be determined by using Global Positioning Systems (GPS). The acreage for each work item will be rounded to the nearest acre and is final unless:

- a. The contract is modified or,
- b. The Government makes a determination to remeasure or,
- c. The Contractor exercises his/her option under the following Remeasurement provisions:

**Re-Measurement**

1. The Contractor may request, in writing, remeasurement of any units under this contract if he/she feels that acreage stated on the project maps is incorrect. The remeasurement must be within the existing perimeter of the respective unit. No variance of the unit perimeters as laid out on the ground for this contract will be allowed. All requests for remeasurement must be made prior to payment for each completed unit. Remeasurement will be performed by the Government.
2. If remeasurement indicates that a variance of ten percent or less exists on units of 1 to 5 acres, five percent or less exists on units of more than five but less than 20 acres, or if three percent or less exists on units of 20 acres or larger, the Contractor shall pay for the actual costs of the remeasurement. Under this condition, payment will be made on the acreage stated on the project maps. If the remeasurement indicates the actual acreage varies by more than the above factors from that stated on the project maps, the payment will be made on the remeasured acreage and the Forest Service will pay for the cost of the remeasurement.

**Payment – Items 2-9, 15-22, 30-37, 45-52, 60-67, 75-82**

1. If informal visual inspection indicates acceptable work quality, the Contractor will be paid 100 percent of their bid rate.
2. If formal inspections are used, the rate of payment to the Contractor will be calculated as follows:
  - (a) For work quality of 90 percent or greater, Contractor will be paid 100 percent of their bid rate.
  - (b) For work quality from 85 to 89 percent after rework has been performed and remeasured, Contractor will be paid the total quality multiplied by the bid rate.
  - (c) For work quality 84 percent and less after rework has been performed and remeasured, no payment will be made to the Contractor.

**Payment – Items 10, 23, 38, 53, 68, 83**

1. If informal visual inspection indicates acceptable work quality, the Contractor will be paid 100 percent of their bid rate.

**Payment – Items 11, 24, 39, 54, 69, 84**

1. If informal visual inspection indicates acceptable work quality, the Contractor will be paid 100 percent of their bid rate.
2. Only one re-work opportunity will be allowed for this item.

**Payment – Items 12, 25, 40, 55, 70, 85**

Full payment will be made when visual and/or measurement inspection indicates specifications have been met.

**\*\*Stewardship Credits will be earned first, whenever practical. Forest Service Funds will be used if the availability of Stewardship Credits is exhausted or if appropriated dollars are obligated to a specific item.**

## **SECTION VI – DEFINITIONS**

**ACCEPTABLE QUALITY LEVEL (AQL):** Acceptance of work will be based on compliance with all specifications corresponding to the appropriate task(s); refer to the Performance Requirements Summary in Section E.4 of the contract. A minimum AQL is required for all service work – hand or mechanical. The minimum AQL will receive a satisfactory performance rating.

**BIOMASS TREES:** Any conifer material 2 feet in height to 4.9 inches DBH.

**BOLE SPACING:** The horizontal distance in feet from the edge of one leave tree bole to another leave tree bole, measured from the outside bark of each tree.

**BOLE WOOD:** (refers to hand piling specs) Logs and segments of logs that are 5 inches in diameter at the large end and 4 feet or greater in length.

**CIRCULAR PLOT:** A sample plot within a thinning unit that is used to determine the number of desirable trees and other contract specifications.

**COARSE WOODY DEBRIS:** Woody material left on the ground to meet wildlife habitat requirements.

**CROWN RATIO:** The ratio of live crown length (tip of leader to base of the crown) to total tree length/height.

**CROWN SPACING:** The horizontal distance in feet between the dripline of a live crown to another live crown.

**CLEARCUT:** A cutting prescription in which all trees within a boundary are designated to be cut.

**CROWN RATIO:** The ratio of live crown length (tip of leader to base of the crown) to total tree length/height.

**CROWN SPACING:** The horizontal distance in feet between the dripline of a live crown to another live crown.

**CUT TREES:** Trees that do not possess the characteristics of desirable leave trees and are required to be cut. As described by the contract or otherwise marked to be cut.

**CUTTING UNIT:** See Treatment Unit definition

**DAMAGED TREES:** Trees damaged beyond recovery. A tree that is larger than 2 feet in height, and has the top knocked out, is leaning more than 10 degrees, has less than one half of its original limbs, or has approximately 50% of bark removed from the circumference of the bole.

**DBH:** Diameter at breast height, measured at a point of 4.5 feet above the ground level on the uphill side of the tree.

**DECKING:** Stockpiling of trees in a designated area.

**DEAD/DYING TREES:** Trees with the crown foliage changing from green to red, yellow, or needleless. Any tree that has pitch tubes indicating Mountain Pine Beetle infestation.

**DESIGNATION BY SPECIES AND DIAMETER (DXSD):** A cutting prescription in which species and diameter are used to determine which trees will be left and which will be cut.

**DIB:** Diameter inside bark.

**HANG-UP TREE:** Any cut tree suspended above ground level.

**HEALTHY REGENERATION:** Young, healthy, dwarf mistletoe free conifers, less than 4.9 inches in diameter, free of defect or characteristics listed in Section II, 2.2.2.

**LEAVE TREE:** Trees that possess desirable characteristics and that serve to create the basis for designated spacing requirements or are otherwise designated to be left.



**NON-INCLUDED MATERIAL:** Woody material (of any size) that is not included as merchantable products under the Schedule of Items in the contract and Appendix B, Division A (scaled) or Division AT (tree measurement).

**NON-SAWTIMBER TREE:** For all conifer species, minimum diameter of 5 inches DBH to minimum diameter by species identified in Appendix B, Division A or AT.

**OVERSTORY REMOVAL:** A cutting prescription where all trees greater than a specified size are cut. Trees less than the specified size are protected.

**PAYMENT UNIT:** See Treatment Unit.

**PERFORMANCE REQUIREMENTS SUMMARY (PRS):** Identifies the key service outputs of the contract that will be evaluated by the Government to assure contract performance standards are met by the Contractor.

**PILING:** Material moved to an agreed upon location shall be piled for future treatment by Forest Service.

**PROGRESSION OF WORK:** Work conducted in a progressive, workmanlike and orderly manner by the Contractor.

**RESERVE CLUMPS:** Groups of trees within a treatment area that are protected from cutting, may also include Individual Reserve trees.

**SAWTIMBER TREE:** Included timber meeting sawlog size specifications as defined in Appendix B, Division A.2.

**SLASH:** Woody material existing or created that has accumulated on the forest floor. Woody material includes logs, pieces of logs, tops, and branches.

**UNIT:** See Treatment Unit.

**TEMPORARY ROADS:** Non-permanent roads that are constructed by Contractor for the purpose of treatment unit access.

**TREATMENT UNIT:** An individual area on the ground in which activities will be performed and which may appear as a separate pay item in the Schedule of Items.

**UNSATISFACTORY WORK:** If work quality falls below the AQL, the COR will issue a work order or notice of noncompliance to the Contractor in writing. Untreated or unsatisfactory treated areas shall be reworked to obtain satisfactory work quality.

**WHOLE TREE YARDING:** Whole tree logging includes cutting tree and removing the entire tree, including tops and branches, to the landing.

**WILDLIFE TREE:** Standing tree marked to be reserved as a wildlife tree. Used by birds and small mammals for shelter, nesting, perching, etc.