101.02 Delete in its entirety and substitute the following:

Pay Items & Pay Units

"& ..... And
AC ..... Acre
AL. ..... Aluminum
ASP ..... Asphalt
AVAIL ..... Available
BARR ..... Barrier
BKN ..... Broken
BST ..... Bituminous Surface Treatment
CATTLEGD ..... Cattleguard
CLEAR (CLG) ..... Clearing
CLEAR/GRUB ..... Clearing & Grubbing
CMP ..... Corrugated Metal Pipe
COMP ..... Compaction
CONC ..... Concrete
CONST ..... Construction (Construct)
CTD ..... Coated (Coating)
CUSH ..... Cushion
CY (CU YD) ..... Cubic Yard
CY MI (CYM) ..... Cubic Yard Mile
DIA ..... Diameter
DL ..... Double Lane
DWGS ..... Drawings
EA ..... Each
EMB ..... Embankment
EXC ..... Excavation
F&I ..... Furnish & Install
FDN ..... Foundation
FT ..... Foot (Feet)
FUNC ..... Function
GAL ..... Gallon
GR. ..... Grade
GRUB ..... Grubbing
HDPE ..... High Density Polyethylene
HOR ..... Horizontal
HR ..... Hour
HT ..... Height
I ..... Install
IN ..... Inches
INCL ..... Including (Includes)
IND ..... Individual
JCT ..... Junction
L ..... Logs
LBS ..... Pounds
LDG ..... Loading
LF (LIN FT ..... Linear (lineal) Foot
LS ..... Lump Sum
LT ..... Left
MAT'L ..... Material
M ..... Metal
MAX ..... Maximum
MBF ..... One Thousand Feet Board Measure
MGALS ..... One Thousand Gallons
MHD ..... Method
MI ..... Mile
MIN ..... Minimum
MISC ..... Miscellaneous
MP ..... Mile Post
MSF ..... One Thousand Square Feet
OTBC ..... Open Top Box Culvert
P M ..... Placement Method
PVC ..... Polyvinylchloride
RD ..... Road
RECOND ..... Reconditioning
RECONST ..... Reconstruction (Reconstruct)
REFL ..... Reflectorized
RT ..... Right
STMP (STP) ..... Stump(s)
SB ..... Self Balance
SEC ..... Section
SF ..... Square Foot (Feet)
SL ..... Single Lane
SLD ..... Solid
ST ..... Slash Treatment
STA ..... Station (100 Feet)
STA YD ..... Station Yard
STL ..... Steel
STR (STRUC) ..... Structural
SY (SQ YD) ..... Square Yard
SZ ..... Size
T&L ..... Tops & Limbs
TBR ..... Timber
TH ..... Thickness
TM ..... Ton Mile
TO ..... Turnout
TOL ..... Turnout Left
TOR ..... Turnout right
TRS ..... Trees
UOT ..... Utilization of timber
VERT ..... Vertical
W ..... Width
W/ ..... With
W/O ..... Without
X-SEC ..... Cross Section
YD ..... Yard

Section 102 - Definitions

Add the following:

"Noxious Weeds or Weeds. Any exotic plant species established or that may be introduced in the State which may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses and which is designated by the State's Department of Agriculture, or by the County's weed management district, or by other appropriate agencies having jurisdiction, or as listed on the current "All States Noxious Weed List."

Shop Drawings. Incidental design sheets and/or drawings which the Contractor is required to submit to the Forest Service. Shop drawings shall conform to the contract requirements, but they are not part of the contract drawings. They may be drawings, diagrams, schedules, performance charts, brochures, and similar data prepared by the Contractor, subcontractor, manufacturer, suppliers, or distributors that illustrate how specific portions of the work are to be fabricated or installed.

Weed Management District. A weed management district is any area of land identified for the purpose of weed management or control. Such an identified land area may be, but is not limited to one of the following: a project or job site, a County, two or more Counties, or a National Forest."

Full Bench. Construction or reconstruction consisting of an area where all material is excavated and removed, and where no material is embanked or side cast.

Section 104 - Maintenance for Traffic

104.01
Roads to be Constructed

Delete the second paragraph and replace with the following:

"All ungated roads shall remain open during reconstruction with a three hour maximum delay of traffic.

Prior to the Contractor shutting down any operations, the Contractor shall take such precautions as may be necessary to prevent damage to the project, such as approaches, crossings or intersections; and shall make provisions for normal drainage and minimization of erosion.

In order to reduce resource damage, traffic behind gate on roads 361C.3 and 765C shall be controlled as follows:

The Contractor and the Forest Service shall provide and maintain their own locks for each existing gate in order to limit vehicular use to construction and administrative related traffic only. The contractor shall provide a Multiple Locking Device for the gate of an acceptable design that meets the Contracting Officer's approval. The gates shall be closed and locked at all times except to allow passage of authorized traffic unless otherwise approved by the Contracting Officer."

104.02
Use of roads By Contractor

Add the following:

The Contractor shall maintain all unpaved Forest Service controlled roads used for hauling of materials under this contract. This work includes surface blading, dust abatement and ditch cleaning as directed by the Contracting Officer. No material shall be side cast onto slopes within 100 ft. slope distance of live streams, 100 ft. of stream channel crossings, or within 20 ft. of cross drain culverts.

104.03
Payment

Add the following:

"The cost of this work has been included in and shall be incidental to Pay Item 203(01)H, and 306(01), except dust abatement, which shall be paid for under Item 207(04)"

Section 106 - Measurement & Payment

106.03 Units of Measurement

Under "(a) Cubic Yard, " add the following:

"(4) Material, Compacted in Place. The measurement computed using measurements of length, depth, and width for computation of quantities shall be made along the project when Actual Quantities are shown on the SCHEDULE OF ITEMS."

106.04 Methods of Measurement

Add the following:

"The Variation of Quantity Clause does not apply to items paid for on a Designed Quantity (DQ) or Lump Sum Quantity (LSQ) basis."

Section 173 - Construction Staking, Location Line

DESCRIPTION

173.01 Work

Add the following to the second sentence of the first paragraph:

"and re-establishing missing preliminary survey points."

Add the following to the last paragraph:

"Construction staking shall be accomplished by personnel experienced in construction staking methods to the standards as SHOWN ON THE DRAWINGS and as listed in the SCHEDULE OF ITEMS. The party chief for construction staking shall be approved in writing by the Contracting Officer."

MATERIALS

173.02 Stakes

Add:

"The nominal dimension of the wooden stakes shall be:

3/8"X 1-3/4"X 18": For guard, reference, slope, and other stakes.
3/8"X 1-3/4"X 3' : For clearing limit lath.

Colors used for paint or flagging for marking the stakes,lath and clear limits shall be established by the Contracting Officer."

173.03 Survey Note Paper & Books

Add:

"When field notes are generated by the Contractor, bound field books shall be used."

173.04 Government Furnished Documents

Delete the first sentence and add:

"The Contractor will be furnished by the Government, drawings, P-line survey notes, slope stake notes, computer printouts, and other necessary information for construction staking the project."

STAKING
REQUIREMENTS

173.05 Precision

Add the following:

"The work shall meet the following precision: Slope distance accuracy for setting slope stakes shall be 0.5 foot, or 2.0 percent of the slope distance, from the control point to the slope stake, whichever is the larger value.

Slope Distance accuracy for reference stakes set from slope stakes shall be 0.5 foot, or 2.0 percent of the slope distance, measured from the slope stake to the reference, whichever is the larger value. Accuracy of horizontal measurement from the slope stake to the clearing limit shall be 1.0 foot."

173.06 Staking Notes

Delete in entirety and add the following:

"Staking notes shall be neatly kept in a standard format, approved by the Contracting Officer, in securely fastened field books with stiff covers. Lettering shall be at least 0.15 inch high and legible at a distance of 2.5 feet. Errors shall be deleted by lining out. Crew names, positions, and date shall be recorded in the stake notes at the beginning of each day's work. The Party Chief, or notekeeper, must sign or initial the beginning sheet of each day's work. All notes, including the originals, shall become the property of the Forest Service. All completed field books shall be reviewed, signed, and dated by the Purchaser prior to submittal to the Contracting Officer. All information recorded on the reference stake shall be recorded in the stake notes. In addition the horizontal distance from centerline to each clearing limit shall be recorded.

173.07 Location Survey Line

Delete in entirety and add the following:

"A preliminary line has been established on the ground for this project. Missing points shall be re-established and marked on the ground with a new stake containing the original information by the Contractor.

173.08 & 173.09 Clearing Limits, Slope Stakes & References

Delete in entirety and add the following:

"The contractor shall establish slope stakes, clearing limits and reference points by one of the following methods as shown in the SCHEDULE OF ITEMS:

173(01)A - Clearing Limit and Slope Stake Combined - Cutside(s) and Through Fills.

Clearing limits shall be established on each side of the designed centerline by using the slope distance information given in the staking notes and verify the minimum clearing limit distances shown on the typical section sheet of the drawings. This point shall be marked by firmly setting a lath in the ground for cutside and through fills. The clearing limit on the fill side in a cut/fill section shall be marked with a flag. The stakes/flag shall be set on lines at approximate right angles to tangents and normal to the central bearing of intersecting tangents. The clearing stake on the cut side or on both sides in through fill areas shall be marked as shown in figure 173-1 with the following information: The designed cut or fill to ditch grade at the slope stake point if there is a ditch or to shoulder grade if there is no ditch; the horizontal distance from the catch point to centerline; whether cut or fill is to ditch grade or shoulder grade; the slope ratio; the width "W" from inside shoulder to outside shoulder; the station; the diameter and length of culvert if section is a culvert section. Any clearing lath damaged or destroyed during clearing operations shall be replaced before starting excavation.

After each section has been slope staked, reference stakes shall be established for slope stake information a minimum of 10 feet slope distance outside the clearing limits, with the following information recorded on them as shown in figure 173-1: The slope distance from the reference stake to the clearing stake and the information shown on the slope stake.

173(01)B - Clearing Limit and Slope Stake Combined - Both Sides.

The requirements for this pay item shall be the same as 173(01)A except that slope stakes and reference stakes shall be established on both sides of the designed centerline at all sections.

173(01)C - Clearing Limit and Slope Stake Combined - Cutside(s) and Through Fills and Layer Place Fills.

Clearing limits shall be established on each side of the designed centerline by using the slope distance information given in the staking notes and verify the minimum clearing limit distances shown on the typical section sheet of the drawings. This point shall be marked by firmly setting a lath in the ground for cutside and through fills. The clearing limit on the fill side in a cut fill section shall be marked with a flag. The stakes/flag shall be set on lines at approximate right angles to tangents and normal to the central bearing of intersecting tangents. The clearing stake on the cut side(s) or on both sides in through fill areas shall be marked as shown in figure 173-1 with the following information: The designed cut or fill to ditch grade at the slope stake point if there is a ditch or to shoulder grade if there is no ditch; the horizontal distance from the catch point to centerline; whether cut or fill is to ditch grade or shoulder grade; the slope ratio; the width "W" from inside shoulder to outside shoulder; the station; the diameter and length of culvert if section is a culvert section. Any clearing lath damaged or destroyed during clearing operations shall be replaced before starting excavation.

In layer place areas, a fill stake shall be marked as shown in figure 173-1 with the following information: The designed fill to shoulder grade, the horizontal distance from the catch point to centerline, the slope ratio, the station, and the slope distance from the reference stake to the designed toe of fill. The fill stake shall be placed alongside the reference stake(s).

After each section has been slope staked, reference stakes shall be established a minimum of 10 fee slope distance outside the clearing limits, with the following information recorded on them as shown in figure 173-1: The slope distance from the reference stake to the clearing stake and the information shown on the slope stake.

173(01)D - Establishment of Fill Stakes in Layer Place Fill Areas.

Toe of fill(s) shall be marked by firmly setting the fill stake in the ground using slope distance information as marked on the fill stake and measured from the reference point. The fill stakes shall be established after clearing has been completed and prior to embankment placement.

173(02)A - Clearing Limit and Slope Stake Separate - Cut Side(s) and Through Fills.

The requirements for this pay item shall be the same as 173(01)A except that the slope stake shall be placed at the slope stake point and shall have the slope stake information recorded on it. The Contractor may elect to mark the slope stake point with a "dummy " stake meeting the requirement of 173.02 and set the slope stake back with the reference stake until after clearing operations. In all cases the slope stake shall be reset to the slope stake point prior to starting excavation. The slope distance marked on the reference stake shall be from the reference stake to the slope stake.

173(02)B - Clearing Limit and Slope Stake Separate - Both Sides.

The requirements for this pay item shall be the same as 173(02)A except that slope stakes and reference stakes shall be established on both sides of the designed centerline at all sections."

173.11 Staking Culverts

Delete in entirety and substitute the following:

"All 36" and larger (or 24" and larger in a live stream) culverts shall be staked by hand level method, or equivalent, with stakes driven on the centerline of the culvert at each end of the culvert. In addition, reference stakes and pipe lath shall be a minimum of 10 feet beyond the anticipated construction limits. Stakes shall be marked with the following:

(a) Pipe Lath:. . . Station, diameter, length, and type of culvert (such as 18"X 36' CMP).
(b) Reference Stake: The vertical and horizontal distances from the stake to the invert at the end of the pipe and the station.
(c) End-of-Pipe Stake:Vertical distance to flowline."

173.14 Marking Stakes

Delete and substitute with the following:

"All stakes shall be marked with a stake pencil that leaves an imprint in the stake. The imprint is required on all marked stakes and all markings shall be legible. Other methods of permanent marking may be approved in writing by the Contracting Officer. Stakes shall be marked as shown in Figure 173-1."

173.15 Approval and Maintenance

After the first paragraph add the following:

"Stake notes shall be returned by the contractor to the Contracting Officer for approval and shall be in the original binder and contain the original number of pages as when furnished to the contractor. The Contracting Officer shall have 15 days from the date the notes are turned in to inspect the work and notify the contractor as to whether the work is acceptable."

MEASUREMENT

173.16 Method

Add the following:

"Construction staking includes re-establishing missing portions of the location line, setting reference stakes, slope stakes, culvert stakes, and clearing limits. The quantity shall be the number of miles, measured to the nearest 0.01 mile, of centerline completed and accepted."

PAYMENT

173.17 Basis

Delete Pay Items and add the following:

Pay Item		Pay Unit
173(01)A -	Establishing Slope Stakes, Cut Side(s) and Through-Fills, Clearing Limit and Slope Stake Combined.	Mi.
173(01)B -	Establishing Slope Stakes, Both Sides, Clearing Limit and Slope Stake Combined.	Mi.
173(01)C -	Establishing Slope Stakes, Cut Side(s) and Through-Fills, Clearing Limit and Slope Stake Combined.	Mi.
173(01)D -	Establishing of Fill Stakes in Layer Placed Fill Areas . . .	Mi.
173(02)A -	Establishing Slope Stakes, Cut Side(s) and Through-Fills, Clearing Limit and Slope Stake Separate.	Mi.
173(02)B -	Establishing Slope Stakes, Both Sides, Clearing Limit and Slope Stake Separate.	Mi.

*** Note**: When using stakes 21" and Longer, the Station may be written on the front of the stake.

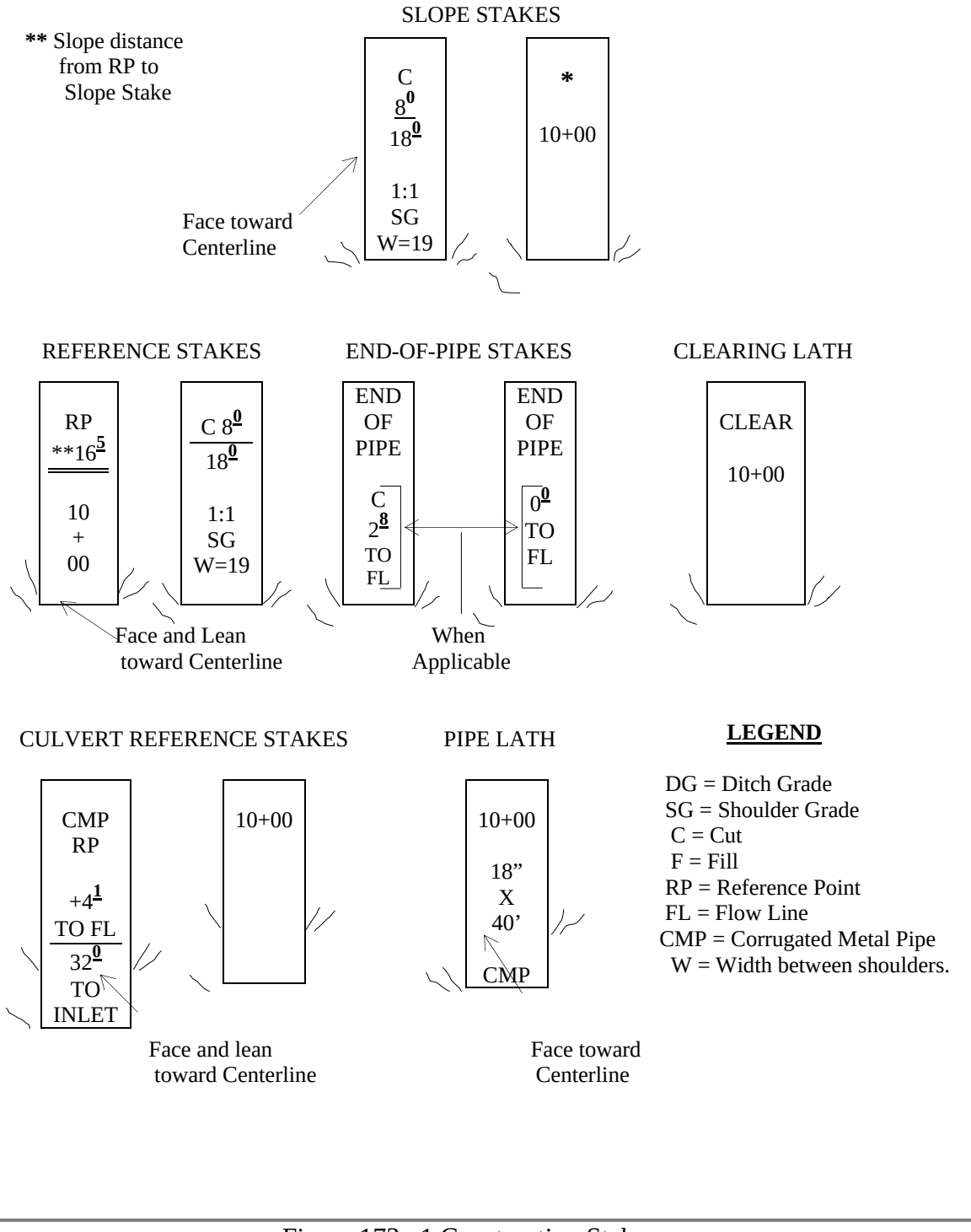

Figure 173 –1 Construction Stakes

Section 201 - Clearing and Grubbing

DESCRIPTION

201.02 Clearing and Grubbing

Replace (a) with:

"(a) Undisturbed stumps outside the roadway or in embankment areas, provided they do not extend more than 1 foot above the original ground nor closer than 1 foot to the finished subgrade and do not interfere with the placement or compaction of embankments."

Add the following:

"(c) Stable trees up to 6 inches in diameter and uncut vegetation less than 3 feet in height and less than 3 inches in diameter within the clearing limits but beyond the roadway that do not interfere with visibility."

Delete the first sentence of the fifth paragraph and replace with the following:

"Trees within the clearing limits may be felled outside the area being cleared."

201.03 Utilization of Timber

Add the following to the first paragraph after the first sentence:

"Timber meeting utilization standards shall be that timber as described in A-2 of the Timber Sale Contract and shall be treated as included timber, except for timber cut on other than National Forest land which shall be handled separately in accordance with the special provisions in the Timber Sale Contract."

201.05 Slash Treatment

(b) Specific Methods.

(6) Chipping. Add the following:

"(6.1) (CHIPPING WITH MAINTENANCE TYPE BRUSH CUTTER-RESIDUE SIZE LIMITED.)

The intent of Method (6.1) Chipping, may be met with a mechanized brush cutter, provided that no residue larger than _3_ inches in diameter and _3_ foot in length remain after the operation is completed."

Delete Method (8) and replace with:

"(8.1) Decking Unmerchantable Material.
(DECKING FIREWOOD)

All reasonably sound logs which do not meet utilization standards but can be used for firewood and are _5_ inches or more in diameter and _6_ feet or more in length shall be limbed and bucked into lengths not to exceed _32_ feet and decked outside the roadway.

The logs shall be decked in a stable position at locations approved by the Contracting Officer. If logs are decked on the lower side of the road they shall be decked in areas where the fill does not exceed _15_ feet in height and shall be placed between the roadbed and the windrow or slash piles and not covered by the windrow or slash piles. Decks shall not be closer than _5_ feet to the shoulder. Logs not suitable for firewood shall be treated by one or more of the slash treatment methods specified for tops and limbs."

Delete Method (11) and replace with:

"(11.1) Piling Construction Slash.
(LARGE CONTINUOUS PILES)

All construction slash shall be placed in piles at the toe of the embankment. Piles shall be stable, compact, uniform, neat in appearance, reasonably free of dirt with all material laid parallel to the roadway. Stumps shall not be placed on top of the pile, but shall be placed in the lower half, on the uphill side of the pile, in a stable position so they will not roll. Piles may extend beyond the clearing limits into adjacent natural openings. Slash may be piled on standing trees. Grubbing of stumps in piling areas is not required.

Length of piles shall not exceed _200_ feet with breaks of at least _20_ feet between piles. Other breaks of at least _20_ feet shall be constructed where big game trails or migratory routes cross the roadway and breaks of at least _20_ feet where cutting unit boundaries marked on the ground intersect the roadway.

At ditch relief culvert locations or at culvert locations in dry or intermittent wet draws, the piles shall not be broken but shall be placed a minimum of _10_ feet below the culvert outlet. At culvert locations in live streams piles shall not be broken but shall be continued at the toe of the embankment over the top of the culvert. No slash shall be allowed to restrict the flow of water from the culvert. No stumps shall be placed in the piles within _50_ feet of the culvert. All piles within _50_ feet of the culvert shall be placed and compacted to insure continuous contact with the ground surface to act as a silt barrier. If there is insufficient slash material available in the immediate area of the culvert location, material within _500_ feet of either side of the culvert shall be conserved and used to construct the piles at the culvert location. Height of the piles shall be determined by the following:

Height of Fill	Height of Piles above Subgrade
5 feet or less	10 feet maximum
greater than 5 feet	5 feet maximum

All slash shall be kept a minimum of _5_ feet from the shoulder of the road and in no case shall the piles reduce sight distance to less than _80_ feet."

"(11.3) Piling and Reducing Slash.
(SMALL PILES AT TOE AND BURNED BY THE FOREST SERVICE)

Construction slash shall be piled in small, compact piles, free of dirt, inside the clearing limits or in adjacent natural or man-made openings. These openings will be selected 50 feet to 200 feet apart in locations where a minimum amount of merchantable trees will be cut to accommodate the piles. All merchantable trees shall be removed within 10 feet of the finished piles. Protruding material shall be trimmed from slash piles and repiled. Stumps 12 inches in diameter or greater, shall be split so that all pieces are less than 12 inches maximum dimension measured across the cut face unless treated under Method 13. The piles shall be left for later burning by the Forest Service."

Section 202 - Removal of Structures and Obstructions

CONSTRUCTION

202.03 Removal of Bridges, Culverts, And Other Structures

Add to this section:

"All metal pipe removed shall become the property of the Contractor and be removed from National Forest System Lands or shall be crushed and buried within a designated fill approved by the Contracting Officer. The pipes shall be placed in such a manner that all pieces shall extend no closer than two feet from finished grade. All voids and cavities surrounding the pipes shall be filled during backfilling operations.

Woody debris from the removal of log culverts and open top culverts shall be treated with the clearing debris and disposed of by using the same methods required for the adjacent R.O.W. clearing.

Section 203 - Excavation & Embankment

DESCRIPTION

203.01 Work — Insert the word "haul" after the word "roadway" on the first line.

CONSTRUCTION

203.04 Clearing & Grubbing — Add the following to the last sentence:

"..., unless specifically allowed under Section 201."

203.08 Finishing Roadbed — Add the following:

"For simplification, out-sloping and in-sloping of the travelway have not been reflected in the construction staking, however, they will be required as SHOWN ON THE DRAWINGS.

203.15 Embankment Placing — Under (b) specific methods add the following to method 1

“The top one foot of subgrade shall be compacted by operating compacting equipment meeting the requirements of Subsection 212.02(b) or (c) for a minimum of three complete passes over the width of the subgrade. The material being compacted shall be at a moisture content suitable to obtain a mass that will not visibly deflect under the load of the hauling equipment. Excessively wet material shall be handled in accordance with Subsection 203.06 (c).

PAYMENT

203.19 Basis — Add the following Pay Item:

Pay Item		Pay Unit
203(01)H	Excavation Placement Method 1, Includes Sta. Yd. Haul	C.Y.

Section 204 - Soil Erosion & Water Pollution Control

DESCRIPTION

204.01 Work

Delete in entirety and substitute the following:

"This work consists of special temporary and/or permanent construction measures as SHOWN ON THE DRAWINGS and/or listed in this specification to control soil erosion and water pollution. Such measures may include (but are not limited to) filter windrows, slash blankets, brush barriers, drainage devices, earth berms, earthen water bars, sediment basins, aggregate base/surfacing, rock ditches, riprap, seeding, mulching, and/or straw bales.

This work shall also include special construction methods SHOWN ON THE DRAWINGS to control erosion at control areas."

MATERIALS

204.02 Requirements

Delete the 2nd paragraph and substitute the following:

"All other materials shall meet commercial grade standards and shall be approved before being incorporated into the project."

CONSTRUCTION

204.03 Performance

Delete the 2nd paragraph and substitute the following:

"Erosion control measures shall be incorporated into the project no later than the dates specified in Table 204.1. Variations in this schedule must be approved in writing by the Contracting Officer."

Add the following after the 3rd paragraph:

"The following construction requirements shall apply:

a.- Earthwork. Clearing and grubbing, excavation, borrow and embankment operations shall be scheduled and performed so that grading operations and permanent erosion control measures can follow without interference or be constructed within the time periods listed in Table 204.1.

b.- Stream Courses. Temporary culvert installations will not be permitted in live streams unless approved individually in writing by the Contracting Officer. If such approval is granted, temporary culverts shall be offset a sufficient distance so that installation of the permanent culvert can be completed without removal of the temporary culvert. Temporary culverts shall not be removed until flowing water is completely confined to the permanent culvert.

Diversion of live streams to allow work in the streambed shall be performed in such a manner as necessary to prevent erosion. Dikes of sufficient height to divert the flow without being overtopped shall be constructed in the stream above the drainage structure. Water shall be conveyed around the work area by a non-eroding conduit. Watertight pipes, tubing, or lined trenches may be used. Trench or pipe outlet areas shall be protected with plastic or other material approved by the Contracting Officer to insure that diverted water does not cause erosion as it returns to the stream.

Equipment shall not operate in the stream unless authorized by the Contracting Officer. This does not include a one time crossing of the stream to begin installation. After installation of the permanent drainage structure is completed, all dikes, temporary culverts, basins, and trenches shall be removed and the area restored to near natural condition.

c.- Wet Conditions. The contractor shall conduct operations so as to minimize erosion and not develop conditions that will cause erosion. Work may continue during wet conditions as long as erosion and rutting is controlled.

d.- End of Construction Season and prior to Move-out. Any rutted areas and other damaged areas shall be smoothed, sloped and graded to drain. All temporary stream course diversion conduits and temporary culverts shall be removed and the stream returned to its natural channel. All erosion control measures required under this specification shall be functional and approved by the Contracting Officer. The seeding method prescribed in Section 625 shall be used on all areas where work has been completed.

e.- Temporary Seeding and Fertilizing. Temporary seeding and fertilizing shall consist of placing seed in one application by the dry method, 23 lbs. Per acre (pure live seed) as per Subsection 625.05 and 150 lbs. Per acre of fertilizer (that has the same chemical analysis as per 625.05) on those portions of road cut/fill slopes, waste areas and/or other disturbed areas that have been constructed as staked or as directed. Seeding of these areas shall be accomplished within _5_ days of completion of the subgrade, or sooner when specified in writing by the Contracting Officer.

Temporary seeding and fertilizing shall be prior to, and in addition to, any seed and fertilizer specified in Subsection 625.05.

Pounds of pure live seed shall be computed as described in Subsection 625.05.

f.- Straw Mulching. Straw mulching shall consist of the application, by hand or machinery specifically designated for such work, of 1.5 tons per acre of straw mulch meeting the requirements of 713.05(b) on areas designed on the DRAWINGS or on other areas directed by the Contracting Officer.

g.- Filter Windrow. For filter windrow construction, suitable slash shall be conserved from Item 201 Clearing and Grubbing, and stockpiled at approved sites. Slash to be conserved shall consist of tops, limbs, and brush not to exceed 6 inches in diameter and 12 feet in length. Stumps and root wads shall not be included.

Logs of not less than 12-inch diameter shall be placed on the fill slope immediately above and parallel to the toe for the windrow to catch against. Reasonably sound cull logs may be used if available. They shall be firmly anchored against undisturbed stumps, rocks, or trees, or as otherwise directed by the Contracting Officer.

All material in the windrow shall be matted down with construction equipment to form a neat, compact, and uniform pile, so as to effectively halt the flow of sediment. Windrows shall be placed so that they do not interfere with the functioning of drainage structures or block stream channels.

Filter windrows shall be constructed only in locations staked by the Contracting Officer and in accordance with the drawings.

The windrow shall have breaks a minimum of 20 ft. in length at least every _200_ lineal feet and at game trails and ridge tops."

MEASUREMENT

204.04 Method

Add the following to the first paragraph:

"Items not shown in the SCHEDULE OF ITEMS will not be measured."

PAYMENT

204.05 Basis

Add the following:

"Other erosion control work required under this specification and not shown in the SCHEDULE OF ITEMS is considered incidental to pay items in the Section listed in Table 204.1."

TABLE 204.1

SECTION	DURATION	DESCRIPTION OF WORK	TIMING OF CONSTRUCTION
203	Permanent	Culvert Catch Basins and Ditch Transitions	Concurrently with culvert installation.
203	Permanent	Inslope/Outslope as shown on drawings.	Continuously as road is roughed to grade.
203	Permanent	Ditches	Within 5 days of completion of cut & fill slopes.
Incidental to 203	Temporary	Waterbars in all areas of disturbed earth. 1. In areas not roughed to grade or without completed permanent drainage features: maximum spacing: 100' for road grades over 12% 200' for road grades 6% to 12% 300' for road grades under 6%	Prior to winter shutdown or when construction activity ceases for 15 days or more.
	Permanent	2. In areas where permanent drainage features are completed and no gravel surfacing is specified: Within 20 ft. uphill of all culverts, except in through fill areas. Within 20 ft. uphill of the start of through fills. Approximately halfway between culverts, except in through fill areas as needed to control erosion during periods of winter shutdown. maximum spacing: 100' for road grades over 12% 200' for road grades 6% to 12% 300' for road grades 4 to 6% 1000' for road grades under 4%	Within 5 days of completion of subgrade.
203	Permanent	Drainage Dip Locations shown on the drawings.	Prior to the end of the construction season for all areas roughed to grade.
Incidental to 203	Temporary	Straw Bales/Straw Mulch. As necessary to stabilize eroding areas.	Immediately upon discovery of active erosion.
203	Temporary	Uncompleted Roads. The total length of all roads with uncompleted excavation and embankment, including pioneer roads, shall not exceed 5000 lineal feet between Jun. 1 and Sep. 15 and shall not exceed 1500 lineal feet after Sep. 15.	See description of work. This applies to Roads: 361C, 765C, 765D, 3499, 3499A

TABLE 204.1(Cont.)

SECTION	DURATION	DESCRIPTION OF WORK	TIMING OF CONSTRUCTION
204	Temporary	Temporary Seeding and Fertilizing Locations shown on the drawings.	Within 5 days of construction activity or sooner when specified in writing by the Contracting Officer.
204	Temporary	Sediment Basins Locations shown on the drawings.	Prior to pioneer road construction.
603	Permanent	Culverts Live Streams	At time of initial crossing of live streams.
		Cross Drains	Within 5 days of completion of cut & fill slopes.
625	Permanent	Seeding	As specified in Section 625
625	Permanent	Mulching Locations shown on the drawings. Application rate: 1.5 tons of straw mulch per acre.	Immediately after seeding & fertilizing.

Section 205A - Haul

MEASUREMENT

205A.02 Methods — Delete the last sentence of this subsection.

PAYMENT

205A.03 Basis — Delete this subsection and replace with the following:

"When no pay item for 205A is specified, the payment for haul shall be included as a subsidiary item to Section 203. No separate payment shall be made under Item 205A.

Section 206A - Excavation for Culverts & Minor Structures

MEASUREMENT

206A.08 Methods

Add the following:

"(c) For gabion structures, measurement will be to the lines and grades as SHOWN ON THE DRAWINGS."

"(d) Excavation for pipe culverts with diameter of 36 inches or smaller and for pipe arches 42 inches by 29 inches or smaller and drop inlets shall not be measured."

PAYMENT

206A.09 Basis

After the first sentence, add:

"Payment for excavation for pipe culverts with diameter of 36 inches or smaller and for pipe arches 42 inches by 29 inches or smaller and drop inlets shall be included as a subsidiary item to Section 603 and Section 604. No separate payment shall be made under this Section or under Section 603, 603A, 603B, or 604."

Section 207 - Developing Water Supply & Watering

CONSTRUCTION

207.03 Development of Supply & Access

Add the following:

"All activities which may cause siltation or damming of a stream shall be approved in advance of the work, in writing by the Contracting Officer. The intake hose for pumping water from streams shall be equipped with a ¼ inch mesh screen to prevent fish intake. Not more than 20% of the total stream flow shall be pumped (removed) from the stream at any given time."

PAYMENT

207.06 Basis

Delete the first paragraph and substitute with the following:

"Payment for Developing Water Supply & Watering shall be included as a subsidiary item to Section 304. No separate payment shall be made under Section 207."

Section 304 - Aggregate Base or Surface Course

MATERIALS

304.03 Gradation — Delete in entirety and substitute the following:

"The crushed aggregate gradation shall meet the requirements of Table 703-4 for the grading shown in the SCHEDULE OF ITEMS. Aggregate shall be well graded from coarse to fine within the gradation band."

CONSTRUCTION

304.08 Preparation of Roadbed — The following is added to this subsection:

"The subgrade receiving aggregate shall be compacted to a depth of one foot, in accordance with Subsection 203.15, Method 3. This work shall be considered incidental to Pay Item 304(10)."

304.09 Mixing & Placing — Delete the word "three" from the first sentence of the first paragraph:

304.12 Thickness Requirements — Add the following to this subsection:

"Compensation will not be made for thickness exceeding the specified thickness."

MEASUREMENT

304.14 Method — Add the following to this subsection:

"Where water for dust abatement or for calcium chloride flake is not shown on the SCHEDULE OF ITEMS, dust abatement during rock haul shall be incidental to 304(10) pay items."

Section 306 - Reconditioning Existing Road

DESCRIPTION

306.01 Delete "scarifying and" from the text.

Add: "and catch basins" following "outlets"

CONSTRUCTION

306.02 Performance Delete the first two paragraphs including (a) and (b) of the second paragraph and replace with the following:

"Scarification of the traveled way and shoulders is not required. Any rock protruding less than two inches may be left in place. Rock protruding in excess of two inches shall be removed or the tops blasted. Resulting holes in the roadway or shoulders shall be backfilled with compacted suitable material."

Section 412 - Dust Palliative Treatment

Delete this entire specification and substitute the following:

DESCRIPTION
412.01
Work

This work shall consist of furnishing, sampling and applying dust palliative to a road surface. Road surface preparation requirements are DESIGNATED IN THE SCHEDULE OF ITEMS.

MATERIALS
412.02
Requirements

The type of material shall be as shown on the SCHEDULE OF ITEMS and shall meet the specified requirements shown below:

Magnesium or Calcium Chloride Brine

Chloride brines shall consist of water and magnesium and/or calcium chloride. The chemical composition, percent by weight brine, shall be as follows:

Chloride Concentration (Sum of Magnesium & Calcium Chloride)	
Magnesium Chloride product	28.0 % minimum
Calcium Chloride products	36.0 % minimum
Sulfate	4.3 % maximum
Nitrate	5.0 % maximum

(Test method R1-412/Cl must be used. It is available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, Montana 59807)

The pH shall be between 4.5 and 10.0. The temperature of the material shall be 40^{o}F or above when it is applied.

Calcium Chloride Flake

The chemical composition as shown below shall be determined by ASTM E 449-79 on a percent-by-weight basis:

Calcium Chloride ($CaCl_2$)	77% Minimum
Total Alkali Chlorides (as NaCl)	3% Maximum
Calcium Hydroxide ($Ca(OH)_2$)	0.3% Maximum

Particle size shall be as follows: 100% pass the 3/8" screen, 80 to 100% pass the #4 screen, and 0 to 5% pass the #30 screen

412.03
Certificate
& Sampling

(a) Certification with Shipments. When each load of dust palliative is delivered, the contractor shall furnish the Engineer with one copy of the Bill of Lading and a fully executed Certificate of Compliance containing the applicable information shown in Figure 412-1. A separate Certificate of Compliance will not be required if the standard Bill of Lading contains the applicable information required by the certificate.

(b) Sampling. Sampling of dust palliative may be required to validate certifications furnished by the contractor. When sampling is directed by the Government, the actual samples shall be obtained by the contractor. The Engineer will be given the opportunity to witness sampling. All liquid delivery equipment shall be constructed to permit sampling in conformance with AASHTO T40 test procedure.

CERTIFICATE OF COMPLIANCE

Consignee	Destination .....
Transportation ID (Truck No., etc)	Date .....
Percent Concentration by Weight:	Magnesium Chloride: ..... %
Calcium Chloride : ..... %	Lignin Sulfonate: ..... %
Net Weight Total Shipment	Net Gallons @ 60^{o}F.....
Specific Gravity @ 60^{o}F	
This shipment of ..... identified above and covered by this Certificate of Compliance complies with Forest Service Specifications applicable to Contract Number _____.	
Producer	Signed ..... (Producer's Representative)

Figure 412 - 1. -- Sample Certificate of Compliance

CONSTRUCTION

412.04
Weater
Limitations

All dust abatement materials shall be applied only when the surface to be treated contains appropriate moisture to get adequate penetration and absorption of dust abatement materials. Application during a light rain is acceptable provided the material penetrates the road surface, and does not flow to low areas or off the road surface.

Chloride brine materials shall be applied only when the temperature is 40°F or higher and the ground is not frozen.

To accelerate the penetration and absorption of calcium chloride flake materials, the road surface may be dampened prior to or after the flake application.

412.05
Equipment

The distribution equipment shall be so designed, equipped, maintained, and operated such that the dust abatement material may be applied uniformly on variable widths of surface. Application shall be at readily determined and controlled rates from 0.10 to 0.50 gallons per square yard with uniform pressure and application. The allowable variation from the specified application rate shall not exceed 10% of the specified rate for individual distributor loads, and 2% of the specified rate for the entire project. For liquid products the following requirements shall apply: (1) The spray pattern from each nozzle on the spray bar shall be uniform across the spray bar; (2) Distribution equipment shall include accurate volume measuring devices or a calibrated tank, a thermometer for measuring temperatures of tank contents, and a hose and nozzle attachment for applying material to areas inaccessible to the spray bar.
Calcium Chloride Flake shall be spread with equipment that evenly distributes the material across the required road width. The weight of flake in distribution vehicles trucks shall be accurately determined prior to application. The relative weight of material placed shall be easily determined during application.

412.06
Preparation
of Road
Surface

One or more of the following preparation and application methods shall be followed as DESIGNATED IN THE SCHEDULE OF ITEMS.

Method 1. Apply the dust palliative directly to the previously prepared surface.

For Method 2 and 3 the road surface shall be processed by blading below the elevation of ravelling, washboarding, and pot holes. The top two inches of surfacing material shall have a moisture content greater than 5 percent. After processing, the surface shall be shaped by blading to the required cross section SHOWN ON THE DRAWINGS. The prepared surface shall be approved in writing by the Engineer prior to treatment.

Method 2. A layer of loose cushion material approximately 1 inch in depth shall be developed for the full width of traveled way and kept in as loose a condition as possible prior to applying dust palliative. After the dust palliative has penetrated and pickup of material will not occur, the surface shall be compacted as SHOWN ON THE DRAWINGS, or compacted over the full treated width with either roller(s) or loaded truck(s).

If the one-inch layer of cushion material becomes compacted by traffic prior to treatment, a one-inch thickness shall be cut from the surface and bladed into a berm on the shoulder. Just prior to applying the dust palliative, the material in the berm shall be bladed to a uniform depth across the full width of the previously watered surface. The loose material shall have a moisture content greater than 5 percent just prior to applying dust palliative. After application, compact as specified above.

Method 3. Approximately 1 inch of the surface material shall be bladed into a berm on the shoulder. The initial application shall then be made on the existing surface. As soon as practical, but no more than 1 hour after application, the material in the berm(s) shall be bladed to a uniform depth across the previously treated surface and watered, if necessary, to meet the 5 percent minimum moisture content. The second application shall then be applied. Compaction shall be performed as specified in Method 2.

412.07
Application
of Dust
Palliative

Dust palliative application rates and width of road surface to be covered shall be as SHOWN ON THE DRAWINGS. For liquid products the rate is expressed as gallons per square yard and for Calcium Chloride Flake, the rate is expressed in pounds per square yard. If the actual application rate is less than specified, the dust abatement material left over will be applied at locations and application rates designated by the Engineer. If the application rate used by the contractor is greater than specified and additional material is required to complete the project coverage, the additional material shall be furnished and applied at the Contractor's expense.

The Engineer may field test Chloride brines and Lignin materials prior to application to make sure that the products meet the minimum concentrations specified. Acceptance of the material will be based on the concentration shown on the manufacturer's certificate, or on results of laboratory quality assurance tests done by the Forest Service on samples taken from distribution or hauling vehicles.

Uniform distribution shall be obtained at all points. For liquid products the spray pattern from each nozzle on the spray bar shall be uniform across the spray bar. For flake products, the coverage will be uniform on the road surface. Overlapping or skipping between spread sections shall be corrected. Accidental spillage and areas with excess dust palliative that are hazardous to traffic shall be covered with additional road surfacing material at the contractor's expense. The surface of adjacent structures and trees shall be protected from spattering or marring. Dust palliative material shall be discharged only in approved areas, and shall not be allowed to flow into ditches or stream courses.

412.08
Maintenance
& Opening
Traffic

The treated road surface shall be open to traffic within two hours following treatment. Traffic control and the prevention of vehicle undercoating is the contractor's responsibility. If dust abatement material is picked up by vehicles, the contractor shall apply road surfacing blotter material, and if necessary apply more dust abatement material to repair the damage. No compensation will be made for blotter or the additional dust abatement material to correct these problems. Reductions in payment may be made where traffic control and repair of the treated surface are not adequate.

MEASUREMENT

412.09
Method

The method of measurement, as described in Section 106, will be DESIGNATED in the SCHEDULE OF ITEMS.

PAYMENT

412.10
Basis

The accepted quantities will be paid for at the contract unit price for the pay item shown in the SCHEDULE OF ITEMS, with the following exceptions:

If laboratory quality assurance tests indicate that the minimum Calcium or Magnesium Chloride concentrations applied to the road surface were not as specified in Section 412.02, the Forest Service may reduce payment by multiplying the pay factor as calculated below, times the contract unit price for Item 412(07), 412(08), 412(13), 412(14), Item 412(15) or Item 412(16), times the accepted quantity. No payment will be made for brine concentrations below 20 percent.

Magnesium Chloride Brine Pay Factor =

$$1.0 - \frac{(28\% - \text{Concentration Applied})}{(8\%)}$$

Calcium Chloride Brine Pay Factor =

$$1.0 - \frac{(36\% - \text{Concentration Applied})}{(16\%)}$$

When each hauling/distribution vehicle cannot be readily weighed to determine quantities, the actual weight of material in full vehicles shall be determined at the start of the project. Thereafter, the number of vehicle loads applied to the road surface can be used for quantity determination, provided each load is full, each load is completely emptied on the project, and material lost from the load is deducted. The Engineer may direct the additional check weighing of loaded and empty vehicles at any time.

Pay Item	Pay Unit
412(05) Clarified Dust Oil DO-4 **Preparation Method**	**_____TON**
412(06) Clarified Dust Oil DO-4 **Preparation Method**	**_____GAL**
412(07) Magnesium Chloride Brine @ 28% minimum Concentration Preparation Method _____	TON
412(08) Magnesium Chloride Brine @ 28% minimum Concentration Preparation Method _____	GAL
412(09) Lignin Sulfonate Solution @ 48% minimum Concentration Preparation Method _____	TON
412(10) Lignin Sulfonate Solution @ 48% minimum Concentration Preparation Method _____	GAL
412(13) Calcium Chloride Brine @ 36% minimum Concentration Preparation Method _____	TON
412(14) Calcium Chloride Brine @ 36% minimum Concentration Preparation Method _____	GAL
412(15) Magnesium Chloride Brine @ 28% minimum Concentration or Calcium Chloride Brine @ 36% minimum Concentration, or Preparation Method _____	L.S.
412(16) Calcium Chloride Flake @ 77% minimum Concentration Preparation Method_____	TON

Section 603 - Metal Pipe

MATERIALS

603.02 Requirements

Delete the second sentence, last paragraph, and add:

"Pipe should not be ordered until culvert locations are DESIGNATED ON THE GROUND and the correct lengths are determined and approved by the Contracting Officer."

CONSTRUCTION

603.06 Joining Pipes

Replace the last sentence of the first paragraph with the following:

"Dimpled bands shall not be used unless approved by the Contracting Officer in writing."

603.08 Backfilling

At the end of the second paragraph, after "Method A or B," add:

"or C"

After Method B, add:

"Method C - Compaction shall be obtained by a minimum of two passes with a mechanical tamper, approved by the Contracting Officer, for each 6-inch layer (loose thickness) of backfill unless otherwise SHOWN ON THE DRAWINGS."

Section 625 - Seeding and Mulching

DESCRIPTION

625.01 Work — Add the following:

"All disturbed areas as well as finished cut and fill slopes are to be treated."

CONSTRUCTION

625.03 Seeding Seasons — Add:

"Time of application shall be as specified:

During the Months marked with an 'X' below:

JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
					X			X	X		

Should climatic conditions permit, application may be performed outside the months marked above upon written approval by the Contracting Officer."

Delete the first and last sentences and add the following:

"Unless otherwise approved, a maximum of 5000 lineal feet of roads(s) may remain unseeded after October 1. A maximum of 5000 lineal feet of road(s) (including pioneer roads) may remain unseeded at the end of any construction season."

625.05 Application Methods for Seed, Fertilizer, & Limestone — The following is added:

"The kinds of seed to be furnished and the amounts to be applied in terms of pure live seed (PLS) shall be as follows:

KIND OF SEED	QUANTITY/ACRE (# OF PLS)	
Native Seed Mix		
Slender Wheat grass "Highlander", Or "Pryor"	5	TOTAL
Mt. Brome "Bromar"	6	23# PLS/ACRE
Streambank Wheatgrass "Sodar"	5	
Indian Ricegrass "Nezpar"	4	
White Dutch Clover	3	Inoculation required

Pounds of seed to be furnished per acre shall be obtained by dividing the pounds of pure live seed (PLS) required per acre by the product of the percent purity and percent germination.

Example: $\frac{5(\text{\# PLS/acre})}{0.90 \times 0.85}$ = 6.55 pounds commercial seed per acre. (where purity=90% and germination=85%)

Certified, blue-tagged seed shall be used where a name variety or cultivar is specified. Blue tags, which are removed to mix the seed, shall be provided to the Forest.

All seed purchased will be certified to be free of the noxious weed seeds from weeds listed on the current "All States Noxious Weeds List".

Test results from a certified seed analyst and seed analysis labels attached to the bags will be provided to the Forest Service. Lab testing for noxious weeds will be conducted prior to seed mixing. Only after a finding and documentation in writing of no weeds on the current "All States Noxious Weeds List" will the seed be accepted and used.

Seed shall be applied by the Dry method. Fertilizer shall be applied at the rate of 300 pounds per acre in 1 application(s) by the Dry method and have a chemical analysis as listed below:

Nutrient	Percent	Nutrient	Percent
Nitrogen, N . . .	16	Potassium, K. .	16
Phosphorus, P205.	16		

625.06 Application of Mulch

The following is added:

"Mulch material shall be certified noxious weed free straw and shall be mechanically applied at a rate of 3000 pounds per acre. The Contractor shall furnish the Contracting Officer with a copy of the certification."

Section 640 - Road Closure Devices

CONSTRUCTION

640.03
Performance Add the following to the end of the first sentence in the first paragraph:

"or DESIGNATED ON THE GROUND by the Engineer."

Delete the third paragraph.

Add the following to this subsection:

"The Contractor shall notify the Engineer at least one week prior to installing any road closure device. The Contractor shall install all regulatory signs, barricade markers, and object markers as SHOWN ON THE DRAWINGS, immediately upon installation of the road closure device.

The road closure device shall be installed within __5__ days from the time construction begins on the road where the device is required."

PAYMENT

640.05 Add the following Pay Item:
Basis

Pay Item		Pay Unit
640(05)	Install Gate Bypass	EA

Section 713 - Roadside Improvement Materials

713.04
Seed

Replace the first paragraph with the following paragraph:

The kinds of grass, legumes and cover-crop seed furnished shall be those stipulated in the SPECIAL PROJECT SPECIFICATIONS. All seed shall meet the requirements of Federal Specification-JJJ-S-181 which shall be amended as follows:

All seed purchased shall be certified to be free of noxious weed seeds from weeds listed on the current "All States Noxious Weeds List."

Replace the second paragraph with the following paragraph:

Seed shall be furnished separately or in mixture in standard containers with (1) seed name; (2) lot number; (3) net weight; (4) percentages of purity and of germination (in case of legumes, percentage of germination to include hard seed); and (5) percentage of maximum weed seed content clearly marked for each kind of seed. The contractor shall furnish the Contracting Officer duplicate signed copies of a statement certifying that each lot of seed has been tested by a certified seed analyst. This statement shall include (1) name and address of laboratory, (2) date of test, (3) lot number for each kind of seed, and (4) results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Laboratory testing for noxious weeds shall be conducted prior to seed mixing. Only after a finding and documentation in writing of no weeds on the current "All States Noxious Weeds List" will the seed be accepted and used. Legume seed shall be inoculated with approved cultures in accordance with the instructions of the manufacturer. Seed analysis labels attached to the bags shall be provided to the Forest Service.