

DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
REGION 9  
ALLEGHENY NATIONAL FOREST

**Prue Hollow TIMBER SALE**

**FR 202 B    Boat Road Run Road - B    0.3 Miles    Reconstruction Service Level J**

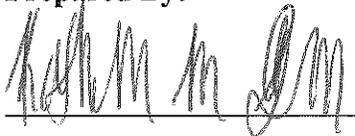
Bradford Ranger District  
McKean County  
Pennsylvania

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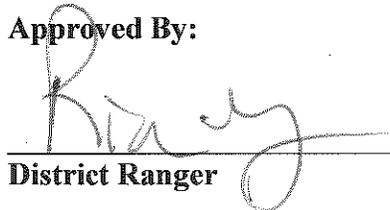
The location and design elements of these facilities have been correlated with the plans, policies and constraints of the approved Greater Stickney Environmental Assessment.

Plans are to be used with "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects" FP-03 with Special Project Specifications thereto included in this contract.

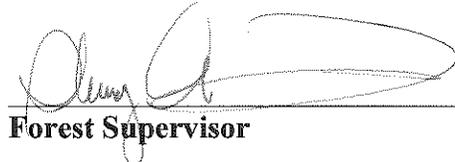
**Prepared By:**

 5-10-16

**Approved By:**

 5/4/16  
District Ranger Date

 5-10-16  
Forest Engineer Date

 May 10, 2016  
Forest Supervisor Date

## Road Summary

### SPECIFIED ROADS

#### a. Description of Work:

**Reconstruction: FR 202 B**

### PART 1 - GENERAL

#### 1.1 - Location

Prue Hollow Timber Sale specified road work will occur on Forest Service Road 202B. This road is located off State Route 346. See map on Sheet 1.

#### 1.2 - Site Work and Utilities

##### General

All work will be completed in accordance with **Project Specifications and Drawings**. The work includes: all labor, material, and equipment necessary to perform all the operations for the work specified in the **Project Specifications** and/or as **Shown on the Drawings** and any other miscellaneous items identified.

##### Scope of work

The project consists of the reconstruction of FR 202B. Major Work includes:

1. Dozer Reconditioning of approximately 0.3 miles of road.
2. Reconstruction and cleaning of approximately 0.3 miles of ditch line.
3. Hauling and placement of approximately 220 tons of surfacing materials. Surfacing material shall be at a minimum of four (4) inch depth.
4. Clear the inlet and outlet of approximately 6 existing CMP culvert pipes.
5. The reconstruction of 1 turnaround.
6. Seed and mulch disturbed area.

#### 1.3 - Timing of Work

The Forest Road will be open to the public during construction. The **Contractor** will take all possible precautions to protect **Government**, public and private property during construction.

#### 1.4 - Government-Furnished Facilities

1. All temporary service use areas, and storage areas will be completely removed and the areas restored to pre-construction conditions upon completion of use.
2. Water for construction purposes is not available at the project site.
3. Transportation to and from the work site for the **Contractor's** personnel and materials will be provided at the **Contractor's** expense.

#### 1.5 - Material Sources

All materials will be obtained from a commercial source.

#### 1.6 - Storage Areas

Materials and equipment storage area will be confined to the areas identified by the **Contracting Officer**.

#### 1.7 - Clean up and Disposal

Disposal of waste material will be off National Forest Land and in compliance with local laws regarding disposal of construction waste.

#### 1.8 – Traffic

1. Warning devices and barricades will be maintained in the construction area at all times, and will be in conformance with the Manual on Uniform Traffic Control Devices.
2. Traffic safety: Safety precautions will be in accordance with the latest edition of the State of Pennsylvania Construction Safety orders
3. The **Contractor** will keep the project area open for administrative and emergency traffic at all times.

#### 1.9 - Precautionary Measures

##### Protection of Work:

The **Contractor** will take precautions to protect all work during the construction period and will provide and maintain adequate protection during severe weather conditions to prevent damage to work, worksite, equipment and materials.

##### Safety:

The **Contractor** is responsible for safeguarding employees, public, forest service employees, existing facilities, and forest resources from these operations. The **Contractor** will erect signs and chain-link fencing barricades as necessary to make unguarded operations safe. Signs and barricades will be maintained at night and on weekends. Precautions such as lowering tractor blades and safely storing materials will be practiced to prevent injury to others in the area.

Security:

No security will be provided by the **Government**. The **Contractor** will take all precautions deemed necessary to secure the worksite, work, equipment, and materials. This may include security fencing.

2.0 – Summary of Work Items

Mobilization, Road Reconditioning/Reconstruction, Commercial Road Base and Surfacing, and Seeding & Mulching.

b. Completion dates: 9/30/2017

c. Construction Costs:

<u>Road No.</u>	<u>Miles</u>	<u>Estimated Road Cost</u>	<u>Engineer's Estimate</u>	<u>Reconstruction Deposits</u>
202 B	0.3	\$8,505.00	\$10,206.00	\$1,275.75
<b>Total</b>	<b>0.3</b>	<b>\$8,505.00</b>	<b>\$10,206.00</b>	<b>\$1,275.75</b>

d. Oil and Gas Contact information:

N/A

## Road Log - Work Descriptions

**FR 202B**  
**Level of Service J**

Milepost	Station	Road Log/Work Description
		<i>*Work Items Shown in Bold*</i>
		Location of intersection with FR202: <b>Coordinates: Latitude 41° 58' 5.447" N (41.96818)</b> <b>Longitude 78° 48' 58.175" W (-78.81616)</b>
0.000	0+00	Intersection with FR 202
<b>0.0 - 0.3</b>	<b>0+00 - 16+00</b>	<b>Dozer recondition roadbed, and clean all culverts</b>
<b>0.00 - 0.128</b>	<b>0+00 - 06+75</b>	<b>Spot Surfacing (4" min. depth for surfacing) <i>Approximately 128 Tons PA-2A</i></b>
0.013	0+70	Forest Road Number Carsonite
0.017	0+90	12" x 24' CMP
0.027	1+40	Forest Gate
0.076	4+00	Old Landing Left
0.097	5+10	12" x 20' CMP
0.128	6+75	12" x 20' CMP
0.203	10+70	12" x 20' CMP
<b>0.242</b>	<b>12+80</b>	<b>Brush and Recondition Turnaround Left. <i>Approximately 92 Tons of PA-2A; Removal of 12 trees and cut of 60 cubic yards to widen turnaround to right. See Detail sheet 4.</i></b>
0.256	13+50	12" x 20' CMP
0.288	15+20	12" x 20' CMP
<b>0.3</b>	<b>16+00</b>	<b>End of Road Work. Road Continues</b>

Schedule of Items

FR 202B

Pay Item	Description	Pay Unit	Estimated Quantity	Unit Price	Extended Total	Engineer's Estimate Unit Price	Engineer's Extended Total
15101	Mobilization (Lump Sum)	LSQ	1	1,000.00	\$ 1,000.00	1,200.00	\$ 1,200.00
157	Soil Erosion Control	LSQ	1	150.000	\$ 150.00	180.00	\$ 180.00
20464(b)	Turn Around Construction/Reconstruction	Each	1	550.00	\$ 550.00	660.00	\$ 660.00
30109	Aggregate surface, grading PA 2A, compaction method B	Ton	220	25.00	\$ 5,500.00	30.00	\$ 6,600.00
30326	Road Reconditioning (includes but is not limited to: Scarifying of existing roadway; Dozer Reconditioning; Ditch Cleaning; Clearing of Culvert inlet and outlets; the placement of any additional material; and compaction of surfacing material)	Mile	0.3	1850.00	\$ 555.00	2,220.00	\$ 666.00
62501	Seeding, hydraulic or dry method (Lump Sum)	LSQ	1	750.00	\$ 750.00	900.00	\$ 900.00
<b>TOTAL</b>					<b>\$ 8,505.00</b>		<b>\$ 10,206.00</b>

## General Notes

- **Prior to any earth disturbing activities, contractor shall call the Pennsylvania One Call System (800-242-1776) and all Oil & Gas Operators in the work area to determine locations of any underground utility lines.**
- All road work will be completed prior to timber haul, unless otherwise approved.
- Contractor is responsible for maintenance of all Forest Service roads over which pit run or commercial stone material is hauled. Roads shall be bladed or shaped to restore travel way to the condition found prior to haul.
- Culvert cleaning and repair will be considered incidental to road reconditioning.
- Contractor shall furnish, erect and maintain the barricades and warning signs identified in the Special Project Specifications until final inspection and acceptance, unless otherwise directed by the CO. Signs shall conform to the Manual on Uniform Traffic Control Devices (MUTCD). **Contractor shall install “ROAD CONSTRUCTION AHEAD” signs on all roads in this project area and at ATV trail crossings. Contractor’s sign plan must be approved by Forest Service prior to work. Signs will be covered on weekends, holidays and any days when contractor is not working.**
- Roads shall be completed in such a manner that water shall not pond on roadbed or in ditch lines.
- Contouring, topsoil re-spreading, seeding and mulching of disturbed areas as determined by the Forest Service is required.
- DSA limestone shall be shipped at optimum moisture content not exceeding 15%. Limestone loads that fail field test parameters will be rejected.
- Roadway sod encountered during road reconditioning operations will be spread and leveled outside the road template avoiding piles. Natural terrain depressions and openings are the preferred waste locations. Seeding and mulching may be required to supplement natural revegetation.
- Vegetation cut down during roadside brushing will be pulled beyond the clearing limits and the toe of any roadway template construction. Mixing of soil and cut vegetation shall be avoided. All material will be scattered and lopped within 3’ of the ground.
- Aggregate stockpiled for culvert replacement will be located on the existing road surface to assure maximum utilization of the material and eliminate disturbance of existing vegetated areas.
- **Contractor shall install approved soil and erosion control measures such as: filter socks, silt fence and straw bales at live stream crossings to eliminate sediment in the stream course. Any sediment collected will be removed and stabilized with seed and mulch. This will be considered incidental to Pay Item 157.**

**Specifications for Specified Roads**  
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## Specifications Description

The following specifications will be used for this contract:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects – FP-03 U.S. Customary Units. FP-03 is available on the internet at the following site:

<http://flh.fhwa.dot.gov/resources/pse/specs/>

Supplemental Specifications – The specifications identified in this contract were prepared by the Forest Service and are a supplement to or change the FHWA specifications.

Special Project Specifications – Are specifications prepared on the Allegheny National Forest and pertain to Pennsylvania Department of Transportation nomenclature. These are designated SPS.

## Preface

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-03 for construction of National Forest System Roads.

## 101 - Terms, Format, and Definitions

### 101.01 Meaning of Terms

Delete all references to the TAR (Transportation Acquisition Regulations) in the specifications.

### 101.03 Abbreviations

Add the following to (a) Acronyms:

AFPA	American Forest and Paper Association
MSHA	Mine Safety and Health Administration
NIST	<u>National Institute of Standards and Technology</u>
NESC	National Electrical Safety Code
WCLIB	West Coast Lumber Inspection Bureau

Add the following to (b) SI symbols:

mp	Milepost
ppm	Part Per Million

### 101.04 Definitions

Delete the following definitions and substitute the following:

**Bid Schedule**--The Schedule of Items.

**Bridge**--No definition.

**Contract Modification**--No definition.

**Contractor**--The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the "purchaser".

**Culvert**--No definition.

**Day**--No definition.

**Notice to Proceed**--No definition.

**Right-of-Way**--A general term denoting (1) the privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or (2) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

**Solicitation**--No definition.

Add the following:

**Adjustment in Contract Price**--“Equitable adjustment,” as used in the Federal Acquisition Regulations, or “construction cost adjustment,” as used in the Timber Sale Contract, as applicable.

**Change**--“Change” means “change order” as used in the Federal Acquisition Regulations, or “design change” as used in the Timber Sale Contract.

**Design Quantity**--“Design quantity” is a Forest Service method of measurement from the *FS-96 Forest Service Specifications for the Construction of Roads and Bridges*. Under these FP specifications this term is replaced by the term “Contract Quantities”.

**Forest Service**--The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

**Neat Line**--A line defining the proposed or specified limits of an excavation or structure.

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

**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 agents, employees, or subcontractors.

**Protected Streamcourse**--A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

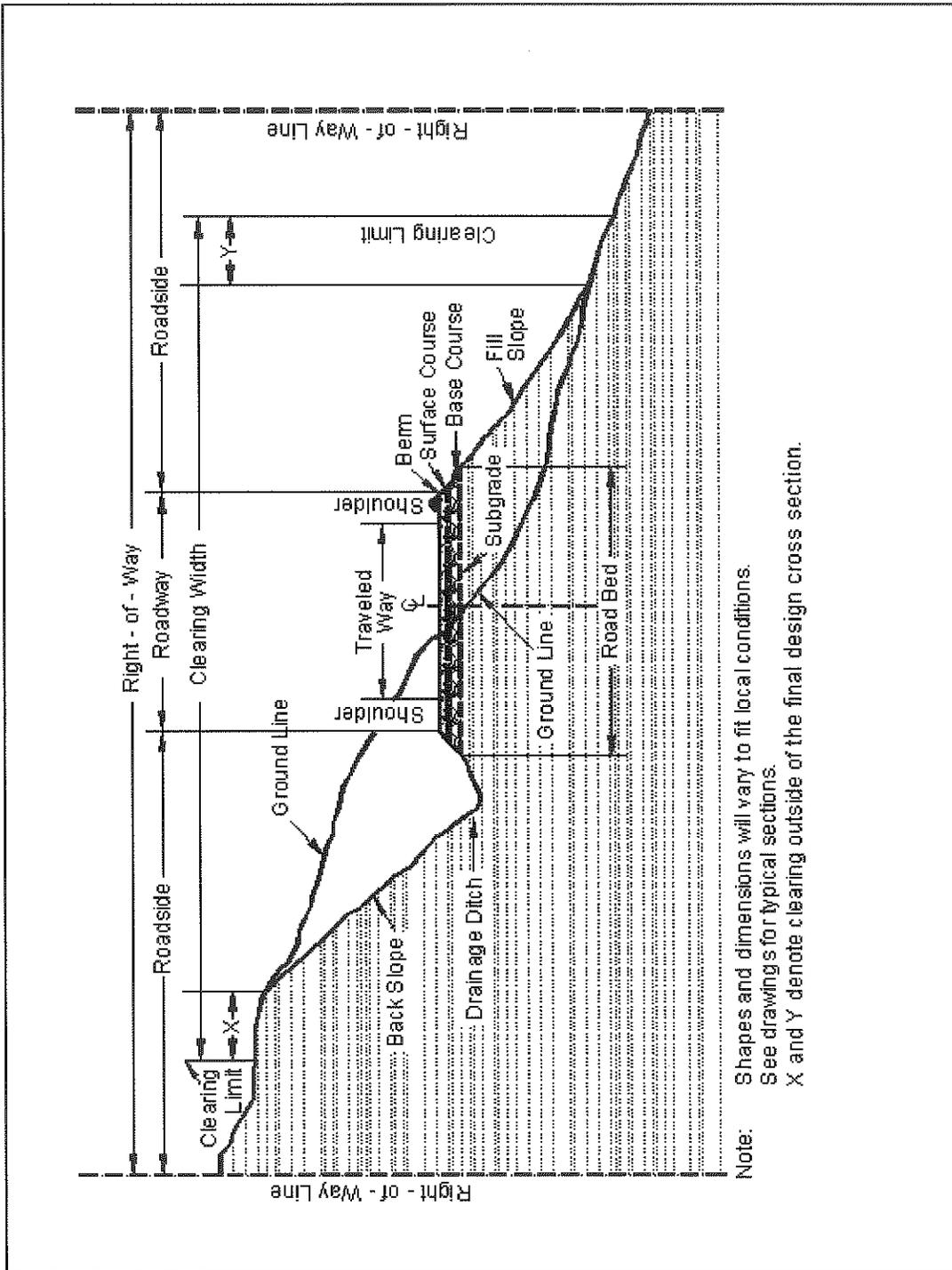
**Road Order**--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

**Schedule of Items**--A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

**Utilization Standards**--The minimum size and percent soundness of trees described in the specifications to determine merchantable timber.

Add Figure 101-1—Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



## 102 - Bid, Award, and Execution of Contract

Delete Section 102 in its entirety.

## 103 - Scope of Work

Deletions

Delete all but subsection 103.01 Intent of Contract.

## 104 - Control of Work

Deletions

Delete Sections 104.01, 104.02, and 104.04.

104.03 Specifications and Drawings.

Delete 104.03.

Add the following subsection:

104.06 Use of Roads by Contractor

The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

## 105 - Control of Material

105.01 Source of Supply and Quality Requirements.

Add the following:

All materials incorporated into the project shall be certified noxious weed seed free, either through visual inspection or commercial certification.

105.02 Material Sources.

**(a) Government-provided sources.**

Add the following:

Comply with the requirements of 30 CFR 56, subparts B and H. Use all suitable material for aggregate regardless of size unless otherwise designated. When required, re-establish vegetation in disturbed areas according to section 625.

**(b) Contractor-located sources.**

Add the following:

Prior to any pit development or use of materials, the pit site shall be approved by the CO that the pit site is free of noxious weed as listed on the "All States Noxious Weeds List".

105.04 Storing and Handling Material.

Add the following to the beginning of the first sentence:

Transport,

105.05 Use of Material Found in the Work.

Delete 105.05 (a) and (b) and the last sentence of the second paragraph and substitute the following:

Materials produced or processed from Government lands in excess of the quantities required for performance of this contract are the property of the Government. The Government is not obligated to make reimbursement for the cost of producing these materials.

## 106 - Acceptance of Work

106.07 Delete

Delete subsection 106.07.

## 107 - Legal Relations and Responsibility to the Public

### 107.05 Responsibility for Damage Claims.

Delete the entire subsection.

### 107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.

“except as provided in Subsection 106.07”.

### 107.09 Legal Relationship of the Parties.

Delete the entire subsection.

### 107.10 Environmental Protection.

Add the following:

Design and locate equipment repair shops, stationary refueling sites, or other facilities to minimize the potential and impacts of hazardous material spills on Government land.

Before beginning any work, submit a Hazardous Spill Plan. List actions to be taken in the event of a spill. Incorporate preventive measures to be taken, such as the location of mobile refueling facilities, storage and handling of hazardous materials, and similar information. Immediately notify the CO of all hazardous material spills. Provide a written narrative report form no later than twenty-four (24) hours after the initial report and include the following:

- Description of the item spilled (including identity, quantity, manifest number, and other identifying information).
- Whether amount spilled is EPA or state reportable, and if so whether it was reported, and to whom.
- Exact time and location of spill including a description of the area involved.
- Containment procedures.
- Summary of any communications the Contractor had with News Media, Federal, State and Local regulatory agencies and officials, or Forest Service officials.
- Description of clean-up procedures employed or to be employed at the site including final disposition and disposal location of spill residue.

When available provide copies of all spill related clean up and closure documentation and correspondence from regulatory agencies.

The Contractor is solely responsible for all spills or leaks that occur during the performance of this contract. Clean up spills or leaks to the satisfaction of the CO and in a manner that complies with Federal, state, and local laws and regulations.

## 108 - Prosecution and Progress

108 Delete.

Delete Section 108 in its entirety.

## 109 - Measurement and Payment

109 Deletions

Delete the following entire subsections:

**109.06 Pricing of Adjustments.**

**109.07 Eliminated Work.**

**109.08 Progress Payments.**

**109.09 Final Payment.**

109.02 Measurement Terms and Definitions.

**(b) Contract quantity.**

Add the following:

Contract quantities will be adjusted only when there are errors in the original design of fifteen percent (15%) or more.

Change the following:

“(b) Cubic yard” to “(c) Cubic yard”.

Add the following definition:

**(p) Thousand Board Feet (Mbf).** Thousand (1,000) board feet based on nominal widths, thickness, and extreme usable length of each piece of lumber or timber actually incorporated in the job. For glued laminated timber, thousand (1,000) board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

## 151 – Mobilization

Delete Section 151 in its entirety and replace with the following.

### Description

151.01 This work consists of moving personnel, equipment, material, and incidentals to the project and performing all work necessary before beginning work at the project site; obtaining of permits, insurance, and bonds. This work also includes washing and treating construction equipment and vehicles necessary for equipment transport to remove terrestrial and aquatic seeds, plants, and plant fragments before the equipment is used on Forest Service lands and water, according to the requirements within.

### Construction Requirements

151.02 **General.** Notify the CO in writing at least seventy-two (72) hours before moving any construction equipment onto the National Forest. Notification will include an agreed upon location where the equipment will be available for inspection by the Forest Service. Inspection will be required after every cleaning.

Use methods of cleaning and locations for cleaning approved by the CO.

For work at a commercial washing facility, use an approved facility.

New infestations of aquatic nuisance species or noxious weeds of concern to Forest Service and identified by either Contractor or Forest Service, in the Project Area or on the haul route, will be promptly reported to the other party. Contractor and Forest Service will agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. A current Forest Service list of noxious weeds and aquatic nuisance species of concern is available at each Forest Service office.

151.03 **Terrestrial Requirements.** Wash the sides, tops, and undercarriages of all construction equipment. Remove all seeds, plants, plant fragments, dirt, and debris from the construction equipment. Only equipment inspected by the Forest Service will be allowed to operate within the project area. All subsequent move-ins of equipment to the project area will be treated in the same manner as the initial move-in. This requirement does not apply to cars, pickup trucks, and other vehicles that regularly travel between the construction site and areas off the National Forest.

Equipment will be considered free of soil, seed, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment, components or the need for specialized inspection tools is not required.

151.04 **Aquatic Requirements.** Wash the outside and inside of equipment that will come in contact with waterbodies, such as streams, lakes, wetlands, and ditches with one of the following approved methods:

1. Wash debris, mud, sediments, organisms, plant material and fragments from all equipment that will enter water feature. Allow equipment to thoroughly air dry (inside and out) for a minimum of forty-eight hours (48 hrs.)
2. Wash equipment with heated water greater than one hundred and forty degrees Fahrenheit (>140° F) for a minimum of ten minutes (10 min.) and until all mud, sediments, organisms, plant material and fragments are removed from equipment. Allow equipment to thoroughly air dry for a minimum of two hours (2hrs.), or until no visible moisture exits.
3. Wash equipment with a minimum of five percent (5%) Quaternary ammonium solution (Quat128 Sparquat256) for a minimum of ten minutes (10 min.) and until all mud, sediments, organisms, plant material and fragments are removed from equipment. Allow equipment to thoroughly air dry for a minimum of two hours (2 hrs.), or until no visible moisture exits.

Only equipment inspected by the Forest Service will be allowed to operate within the project. All subsequent move-ins of equipment to the project area will be treated in the same manner as the initial move-in

Equipment will be considered free of debris, mud, sediments, organisms, plant material and fragments when a visual inspection does not disclose such material. Disassembly of equipment, components or the need for specialized inspection tools is not required.

#### Measurement

151.05 Clean equipment prior to moving onto this project. The initial cleaning will not be included in the measurement for payment. Payment for cleaning will only be made if subsequent cleanings are ordered by the CO. Measurement shall be on an "each" basis, meaning one complete cleaning of all equipment required for this contract. Subsequent cleanings necessitated by the Contractor's actions but not directed by the CO will not be included in the measurement for payment.

Measure mobilization according to Subsection 109.02.

#### Payment

151.06 The accepted quantity, measured as provided in Subsection 109.02, will be paid at the contract price per unit of measurement for the Section 151 pay item shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Include all costs associated with the initial cleaning of equipment in the unit bid price for Mobilization. Cleaning for subsequent move-ins will not be paid for unless after a suspension ordered by the CO.

## 153 - Contractor Quality Control

### 153.02 Contractor Quality Control Plan.

#### Add the following:

Submit written proposals for approval of alternate AASHTO or State approved test methods. Alternate methods may be allowed based on documented equivalence to the specified method.

### 153.04 Records.

Delete all but the first sentence

## 155 - Schedules for Construction Contracts

Delete Section 155 in its entirety.

## 201 - Clearing and Grubbing

### 201.02 Material:

Delete Tree wound dressing material reference.

### 201.03 General.

Delete the last sentence.

### 201.04 Clearing.

Delete the last sentence of (d).

### 201.01 Description

Replace with the following

This work consists of clearing and grubbing within clearing limits and other designated areas.

## Construction Requirements

### 201.04 Clearing.

#### Add the following:

Utilization standards for merchantable timber are listed below. Fall and buck merchantable material into lengths not to exceed forty (40) feet. Pieces (logs) meet utilization standards when such pieces would have met Utilization Standards if bucking lengths were varied to include such material.

#### **Minimum Utilization Standards**

Length	Diameter (Inside Bark) at Small End	33-1/3% Net Scale in % of Gross Scale
8 feet	9.6 inches	

### 201.04 Clearing. (c)

#### Delete paragraph (c) and replace with the following:

(c) In areas outside the excavation, embankment, and slope rounding limits, cut stumps to within twelve (12) inches or one-third ( $\frac{1}{3}$ ) of the stump diameter of the ground, whichever is higher, measured on the side adjacent to the highest ground. For timber sales, stump heights will meet the requirements of the Timber Sale contract.

### 201.04 Clearing.

#### Delete subsection (d) and replace with the following:

(d) Do not cut vegetation less than three (3) feet tall and less than three (3) inches in diameter, that is within the clearing limits but beyond the roadway and not in a decking area, and that does not interfere with sight distance along the road.

#### Add the following:

(e) Trim branches of remaining trees or shrubs to give a clear height of fourteen (14) feet above the roadbed unless otherwise indicated. Trim tree limbs as near flush with the trunk as practicable.

(f) Remove brush from log decks. Deck logs so that logs are piled parallel to one another; can be removed by standard log loading equipment; will not damage standing trees; will not interfere with drainage, and will not roll. Keep logs in log decks free of brush and soil.

#### 201.04 Clearing.

##### Add the following:

When marked in advance, remove dead trees over six (6) inches in diameter measured at twelve (12) inches above the ground that lean toward the road and are tall enough to reach the roadbed.

#### 201.06 Disposal.

##### Delete the first sentence of this subsection and substitute the following:

Merchantable timber removed from Forest Service land is subject to the Forest Resources Conservation and Shortage Relief Act of 1990 (PL 101-382; 104 Stat. 714-726; 16 USC 620 et. seq.). Do not export timber from the United States or use in direct or indirect substitution for unprocessed timber exported from the United States, from private lands by Purchaser, or any person as defined in Section 493 (16 USC 620e) of the Act.

Unless Forest Service determines that circumstances warrant a written waiver or adjustment, (1) hammer brand all products on both ends with an assigned contract brand before removal from the project site, (2) hammer brand each product exempt from domestic processing on both ends with an exempt brand registered for use on exempt logs from National Forest, and (3) paint all domestic processing products on both ends with two (2) inch circle of yellow paint according to Interim Specification 2400-400 (**available upon request**). Paint or brand products before removing them from project site unless approved by the CO. Brands and yellow paint must remain on logs until they are processed.

Contractor may remanufacture logs into different log lengths as approved. Repaint or rebrand all remanufactured pieces. Pay all surveillance costs except that Forest Service may waive such payment if such costs are minor and part of normal remanufacturing operations.

## 204 - Excavation and Embankment

##### Delete Section 204 in its entirety and replace with the following.

#### Description

204.01 This work consists of excavating material, constructing embankments and drainage excavation. This includes furnishing, hauling, stockpiling, placing, disposing, sloping, shaping, compacting, and finishing earthen and rocky material.

#### 204.02 Definitions.

**(a) Excavation.** Excavation consists of the following:

**(1) Roadway excavation.** All material excavated from within the right-of-way or easement areas, except subexcavation covered in (2) below and structure excavation covered in Sections 208 and 209. Roadway excavation includes all material encountered regardless of its nature or characteristics.

**(2) Subexcavation.** Material excavated from below subgrade elevation in cut sections or from below the original groundline in embankment sections. Subexcavation does not include the work required by Subsections 204.05, 204.06(b), and 204.06(c).

**(3) Borrow excavation.** Material used for embankment construction that is obtained from outside the roadway prism. Borrow excavation includes unclassified borrow, select borrow, and select topping.

**(b) Embankment construction.** Embankment construction consists of placing and compacting roadway or borrow excavation. This work includes:

- (1)** Preparing foundation for embankment;
- (2)** Constructing roadway embankments;
- (3)** Benching for side-hill embankments;
- (4)** Constructing dikes, ramps, mounds, and berms; and
- (5)** Backfilling subexcavated areas, holes, pits, and other depressions.

**(c) Conserved topsoil.** Excavated material conserved from the roadway excavation and embankment foundation areas that is suitable for growth of grass, cover crops, or native vegetation.

**(d) Waste.** Excess and unsuitable roadway excavation and subexcavation that cannot be used.

#### Material

204.03 Conform to the following Subsections:

Backfill material	704.03
Select borrow	704.07
Select topping	704.08
Topping	704.05
Unclassified borrow	704.06
Water	725.01

## Construction Requirements

**204.04 Preparation for Roadway Excavation and Embankment Construction.** Clear the area of vegetation and obstructions according to Sections 201 and 203.

**204.05 Reserved.**

**204.06 Roadway Excavation.** Excavate as follows:

**(a) General.** Do not disturb material and vegetation outside the construction limits. Incorporate only suitable material into embankments. Replace any shortage of suitable material caused by premature disposal of roadway excavation

At the end of each day's operations, shape to drain and compact the work area to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

Retrieve material deposited outside of the clearing limits as directed by the CO. Place unsuitable material in designated areas.

**(b) Rock cuts.** Blast rock according to Section 205. Excavate rock cuts to six (6) inches below subgrade within the roadbed limits. Backfill to subgrade with topping or with other suitable material. Compact the material according to Subsection 204.11. When blasting rock, use blasting methods according to Subsection 205.08.

**(c) Earth cuts.** Scarify earth cuts to six (6) inches below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

**(d) Pioneer Roads.** Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

**(e) Drainage Excavation.** Drainage excavation includes construction of all ditches, minor channel changes, drainage dips, catchbasins, surface water deflectors, and other minor drainage structures. Compact by method (f) unless otherwise shown on the plans. Excavate on a uniform grade between control points.

**204.07 Subexcavation.** Excavate material to the limits as designated. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

**204.08 Borrow Excavation.** Use all suitable roadway excavation in embankment construction. Do not use borrow excavation when it results in excess roadway excavation. Deduct excess borrow excavation from the appropriate borrow excavation quantity.

Obtain borrow source acceptance according to Subsection 105.02. Develop and restore borrow sources according to Subsection 105.03. Do not excavate beyond the established limits. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

**204.09 Preparing Foundation for Embankment Construction.** Prepare foundation for embankment construction as follows:

**(a) Embankment less than four (4) feet high over natural ground.** Unless otherwise designated by the CO, remove topsoil. Break up the ground surface to a minimum depth of six (6) inches by plowing or scarifying. Compact the ground surface according to Subsection 204.11.

**(b) Embankments over an existing asphalt, concrete, or gravel road surface.** Scarify gravel roads to a minimum depth of six (6) inches. Scarify or pulverize asphalt and concrete roads to six (6) inches below the pavement. Reduce all particles to a maximum size of six (6) inches and produce a uniform material. Compact the surface according to Subsection 204.11.

**(c) Embankment across ground not capable of supporting equipment.** Dump successive loads of embankment material in a uniformly distributed layer to construct the lower portion of the embankment. Limit the layer thickness to the minimum depth necessary to support the equipment.

**(d) Embankment on an existing slope steeper than 1V:3H.** Cut horizontal benches in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Bench the slope as the embankment is placed and compacted in layers. Begin each bench at the intersection of the original ground and the vertical cut of the previous bench.

**204.10 Embankment Construction.** Incorporate only suitable roadway excavation material into the embankment. When the supply of suitable roadway excavation is exhausted, furnish unclassified borrow to complete the embankment. Obtain written approval before beginning construction of embankments over six (6) feet high at subgrade centerline. Construct embankments as follows:

**(a) General.** At the end of each day's operations, shape to drain and compact the embankment surface to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

Compact embankment side slopes flatter than 1V:1.75H with a tamping type roller or by walking with a dozer. For slopes 1V:1.75H or steeper, compact the slopes as construction of the embankment progresses.

Where placing embankment on one side of abutments, wing walls, piers, or culvert headwalls, compact the material using methods that prevent excessive pressure against the structure.

Where placing embankment material on both sides of a concrete wall or box structure, conduct operations so compacted embankment material is at the same elevation on both sides of the structure.

Where structural pilings are placed in embankment locations, limit the maximum particle size to 4 inches.

**(b) Embankment within the roadway prism.** Place embankment material in horizontal layers not exceeding twelve (12) inches in compacted thickness. Incorporate oversize boulders or rock fragments into the twelve (12) inch layers by reducing them in size or placing them individually as required by (c) below. Compact each layer according to Subsection 204.11 before placing the next layer.

Material composed predominately of boulders or rock fragments too large for twelve (12) inch layers may be placed in layers up to twenty-four (24) inches thick. Incorporate oversize boulders or rock fragments into the twenty-four (24) inch layer by reducing them in size or placing them individually according to (c) below. Place sufficient earth and smaller rocks to fill the voids. Compact each layer according to Subsection 204.11 before placing the next layer.

**(c) Individual rock fragments and boulders.** Place individual rock fragments and boulders greater than twenty-four (24) inches in diameter as follows:

- (1) Reduce rock to less than forty-eight (48) inches in the largest dimension.
- (2) Distribute rock within the embankment to prevent nesting.
- (3) Place layers of embankment material around each rock to a depth not greater than that permitted by (b) above. Fill all the voids between rocks.
- (4) Compact each layer according to Subsection 204.11 before placing the next layer.

**(d) Embankment outside of roadway prism.** Where placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding twenty-four (24) inches in compacted thickness. Compact each layer according to Subsection 204.11.

**204.11 Compaction.** Compact the embankment using one of the following methods as specified:

**(a) Compaction A.** Use AASHTO T 27 to determine the amount of material retained on a Number 4 sieve. If there is more than eighty (80%) percent retained on the No. 4 sieve use procedure (1). If there is fifty (50%) to eighty (80%) percent retained on the No. 4 sieve use procedure (2). If there is less than fifty (50%) percent retained on the No. 4 sieve use procedure (3).

**(1)** Adjust the moisture content to a level suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Use compression-type rollers at speeds less than six (6) feet per second and vibratory rollers at speeds less than three (3) feet per second. Compact each layer of material full width with one of the following and until there is no visible evidence of further consolidation.

*(a)* Four roller passes of a vibratory roller having a minimum dynamic force of forty-thousand (40,000) pounds impact per vibration and a minimum frequency of one-thousand (1,000) vibrations per minute.

*(b)* Eight (8) roller passes of a twenty (20) ton compression-type roller.

*(c)* Eight roller passes of a vibratory roller having a minimum dynamic force of thirty-thousand (30,000) pounds impact per vibration and a minimum frequency of one-thousand (1,000) vibrations per minute.

Increase the compactive effort for layers deeper than twelve (12) inches as follows:

- For each additional six (6) inches or fraction thereof, increase the number of roller passes in (a) above by four (4) passes.
- For each additional six (6) inches or fraction thereof, increase the number of roller passes in (b) and (c) above, by eight (8) passes.

**(2)** Use AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 sieve. Multiply this number by the percentage of material passing a No. 4 sieve, and add two (2%) percent to determine the optimum moisture content of the material. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within two (2%) percent of the optimum moisture content.

Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than three (3) feet per second. Compact each layer of material full width according to (1) above.

**(3)** Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 180, method D. For other material classifications, determine the optimum moisture content and maximum density according to AASHTO T 99, method C.

Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within two (2%) percent of the optimum moisture content.

Use compression-type or vibratory rollers. Compact each layer of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

**(b) Compaction B.** Place material by end dumping to the minimum depth needed for operation of spreading equipment. Adjust the moisture content of the material to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Operate compaction equipment over the full width of each layer until there is no visible evidence of further consolidation or, if when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

**(c) Compaction C.** Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

**(d) Compaction D.** Hauling and Spreading Equipment. Adjust the moisture content to a level suitable for compaction. Compact the material by operating equipment over the full width of the roadway.

**(e) Compaction E.** Roller Compaction. Adjust the moisture content to a level suitable for compaction. Operate Rollers over the full width of each layer until visual displacement ceases, but not fewer than three complete passes. Use rollers that meet the following requirements:

- (1)** Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than two-hundred and fifty (250) pounds per inch of width of the compression roll or rolls.
- (2)** Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum weight of six (6) tons, specifically designed to compact the material on which it is used.

(3) Pneumatic-tired rollers with smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least eighty pounds per square inch (80 psi).

(4) Sheepsfoot, tamping, or grid rollers capable of exerting a force of two-hundred and fifty pounds per inch (250 lbs/inch) of width of roller drum.

(f) **Compaction F. Mechanical Tamper.** Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact each six (6) inch layer with a minimum of three complete passes with a mechanical tamper.

**204.12 Ditches.** Slope, grade, and shape ditches. Remove all projecting roots, stumps, rock, or similar matter. Maintain all ditches in an open condition and free from leaves, sticks, and other debris.

Form furrow ditches by plowing or using other acceptable methods to produce a continuous furrow. Place all excavated material on the downhill side so the bottom of the ditch is approximately eighteen (18) inches below the crest of the loose material. Clean the ditch using a hand shovel, ditcher, or other suitable method. Shape to provide drainage without overflow.

**204.13 Sloping, Shaping, and Finishing.** Complete slopes, ditches, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish as follows:

(a) **Sloping.** Leave all earth slopes with uniform roughened surfaces, except as described in (b) below, with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of all slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale all rock slopes. Slope rounding is not required on tolerance class D through M roads.

If a slide or slipout occurs on a cut or embankment slope, remove or replace the material, and repair or restore all damage to the work. Bench or key the slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

(b) **Stepped slopes.** Where required by the contract, construct steps on slopes of 1½V:1H to 1V:2H. Construct the steps approximately eighteen (18) inches high. Blend the steps into natural ground at the end of the cut. If the slope contains nonrippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks that may fall, scaling stepped slopes is not required.

(c) **Shaping.** Shape the subgrade to a smooth surface and to the cross-section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground.

**(d) Finishing.** Finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in Table 204-2. Ensure that the subgrade is visibly moist during shaping and dressing. Scarify to six (6) inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For surfaced roads, remove all material larger than six (6) inches from the top six (6) inches of the roadbed.

For unsurfaced roads, use one of the following methods to finish the roadbed:

**(1) Method A.** Remove all material larger than six (6) inches from the top six (6) inches of the roadbed and replace with suitable material.

**(2) Method B.** Use a vibratory grid roller or approved equal with a minimum weight of ten (10) tons. Roll at least five (5) full-width passes or until there is no visible evidence of further consolidation.

**(3) Method C.** For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

**204.14 Disposal of Unsuitable or Excess Material.** Dispose of unsuitable or excess material at designated sites or legally off of the project.

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

**204.15 Acceptance.** See Table 204-1 for sampling and testing requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Clearing and removal of obstructions will be evaluated under Sections 201 and 203.

#### Measurement

**204.16** Measure the Section 204 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

**(a) Roadway excavation.** Measure roadway excavation in its original position as follows:

**(1)** Include the following volumes in roadway excavation:

- (a)* Roadway prism excavation;
- (b)* Rock material excavated and removed from below subgrade in cut sections;
- (c)* Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
- (d)* Ditches, except furrow ditches measured under a separate bid item;
- (e)* Topsoil;
- (f)* Borrow material used in the work when a pay item for borrow is not shown in the bid schedule;
- (g)* Loose scattered rocks removed and placed as required within the roadway;
- (h)* Conserved material taken from stockpiles and used in Section 204 work; and
- (i)* Slide and slipout material not attributable to the Contractor's method of operation.

**(2)** Do not include the following in roadway excavation:

- (a)* Overburden and other spoil material from borrow sources;
- (b)* Overbreakage from the backslope in rock excavation;
- (c)* Water or other liquid material;
- (d)* Material used for purposes other than required;
- (e)* Roadbed material scarified in place and not removed;
- (f)* Material excavated when stepping cut slopes;
- (g)* Material excavated when rounding cut slopes;
- (h)* Preparing foundations for embankment construction;
- (i)* Material excavated when benching for embankments;
- (j)* Slide or slipout material attributable to the Contractor's method of operation;
- (k)* Conserved material taken from stockpiles constructed at the option of the Contractor; and
- (l)* Material excavated outside the established slope limits.

**(3)** When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:

*(a)* Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;

*(b)* Slide and slipout material not attributable to the Contractor's method of operations; and

*(c)* Drainage ditches, channel changes, and diversion ditches.

**(b) Unclassified borrow, select borrow, and select topping.** When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden.

Do not measure borrow excavation used in place of excess roadway excavation.

**(c) Embankment construction.** Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

**(1)** Include the following volumes in embankment construction:

*(a)* Roadway embankments;

*(b)* Material used to backfill subexcavated areas, holes, pits, and other depressions;

*(c)* Material used to restore obliterated roadbeds to original contours; and

*(d)* Material used for dikes, ramps, mounds, and berms.

**(2)** Do not include the following in embankment construction:

*(a)* Preparing foundations for embankment construction;

*(b)* Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and

*(c)* Material used to round fill slopes.

**(d) Rounding cut slopes.** Measure rounding cut slopes horizontally along the centerline of the roadway if a pay item for slope rounding is included in the bid schedule. If a pay item for slope rounding is not included in the bid schedule slope rounding will be considered subsidiary to excavation.

**(e) Waste.** Measure waste by the cubic yard in its final position. Take initial cross-sections of the ground surface after stripping overburden. Upon completion of the waste placement, retake cross-sections before replacing overburden.

**(f) Slope scaling.** Measure slope scaling by the cubic yard in the hauling vehicle.

#### Payment

204.17 The accepted quantities will be paid at the contract price per unit of measurement for the Section 204 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Table 204-1  
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Topping (704.05) & unclassified borrow (704.06)	Measured and tested for conformance (106.04)	Classification	—	AASHTO M 145	1 per soil type	Processed material before incorporating in work	Yes, when requested	Before using in work
		Moisture-density	—	AASHTO T 180, method D <sup>(1)</sup> or T 99, method C <sup>(1)</sup>	1 per soil type but not less than 1 per	"	"	"
		Compaction	—	AASHTO T 310 or other approved procedures	1 per 6000 yd <sup>2</sup> but not less than 1 per layer	In-place	—	Before placing next layer
Select borrow (704.07 & Select topping (704.08)	Measured and tested for conformance (106.04)	Classification	—	AASHTO M 145	1 per soil type but not less than 1 for each day of production	Processed material before incorporating	Yes, when requested	Before using in work
		Gradation	—	AASHTO T 27	"	"	"	"
		Liquid limit	—	AASHTO T 89	"	"	"	"
		Moisture-density	—	AASHTO T 180, method D <sup>(1)</sup> or T 99, method C <sup>(1)</sup>	1 per soil type but not less than 1 per	"	"	"
Compaction	—	AASHTO T 310 or other approved procedures	1 per 6000 yd <sup>2</sup> but not less than 1 per layer	In-place	—	Before placing next layer		

(1) Minimum of 5 points per proctor

Table 204-1 (continued)  
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Earth embankment (204.11, Compaction A)	Measured and tested for conformance (106.04)	Classification	—	AASHTO M 145	1 per soil type	Source of Material	Yes, when requested	Before using in work
		Moisture-density	—	AASHTO T 180, method D <sup>(1)</sup> or T 99, method C <sup>(1)</sup>	1 per soil type but not less than 1 per 13,000 yd <sup>3</sup>	“	“	“
		Compaction	—	AASHTO T 310 or other approved procedures	1 per 3500 yd <sup>2</sup> but not less than 1 per layer	In-place	—	Before placing next layer
Top of subgrade (204.11, Compaction A)	Measured and tested for conformance (106.04)	Compaction	—	AASHTO T 310 or other approved procedures	1 per 2500 yd <sup>2</sup>	In-place	—	Before placing next layer

(1) Minimum of 5 points per proctor.

Table 204-2  
Construction Tolerances

	Tolerance Class (a)												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Roadbed width (ft)	+0.5	+0.5	+1.0	+1.0	+1.0	+1.0	+1.5	+1.0	+2.0	+2.0	+2.0	+2.0	+2.0
Subgrade elevation (ft)	±0.1	±0.2	±0.2	±0.5	±0.5	±1.0	±1.0	±1.5	±2.0	±3.0	±2.0	±3.0	(c)
Centerline alignment (ft)	±0.2	±0.2	±0.5	±0.5	±1.0	±1.0	±1.5	±1.5	±2.0	±3.0	±3.0	±5.0	(c)
Slopes, excavation, and embankment (ft)	±3	±5	±5	±5	±5	±5	±10	±10	±10	±10	±20	±20	±20

(a) Maximum allowable deviation from construction stakes and drawings.

(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of

## 230 - Roadside Brushing

Add Section 230 in its entirety.

### Description

**230.01 Work.** This work consists of removing all vegetative material including limbs, residual slash, live roadside brush, and small trees within the brushing limits designated on the plans. Brushing areas include turnouts and culverts.

### Construction

**230.02 Brushing.** Cut all brush and small trees (Do NOT cut trees six (6) inches diameter or greater at the point of cut and are greater than eight (8) feet in length) inside the brushing limits, outside the roadbed, and at both ends of existing culverts, no higher than four (4) inches above ground level (six (6) inches for machine brushing). If rocks or other obstructions are encountered, cut no higher than six (6) inches above the obstruction. Limb live trees with a diameter larger than six (6) inches to provide a clear height of fourteen (14) feet above the road surface.

Cut all brush and trees located on the roadbed as nearly flush to the road surface as possible so stumps will not become a hazard to vehicle tires.

**230.03 Windfalls.** Limb windfalls lying within or across the brushing limits, cut off at the top of the existing cut slope or five (5) feet from the shoulder on the fill slope. Dispose of windfall material as slash.

**230.04 Road Junctions.** Do not deposit brushing debris on the roadway of adjoining roads.

**230.05 Slash Treatment.** Scatter slash outside the brushing limits without damaging residual trees. Slash is defined as any material that has a length greater than thirty-six (36) inches or a diameter greater than two (2) inch at any point. Do not deposit material in streams, streambeds, culvert inlets or outlets, drainage ways, or cattle guards.

**230.06 Acceptance.** Roadside brushing will be evaluated under Subsection 106.02.

### Measurement

**230.07 Method.** Measure the Section 230 items listed in the bid schedule according to Subsection 109.02 and the following.

Linear measurements will be horizontal along the road centerline.

Quantities will be the number of miles (or stations) and fractions thereof along the road centerline.

### Payment

230.08. The accepted quantities will be paid at the contract price per unit of measurement for the section 230 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 109.05.

## 301 - Untreated Aggregate Courses

301 Title Change.

Change the title to: Section 301 Aggregate Courses

301.01 Work.

Add the following:

Work includes producing aggregate by pit-run, grid rolling, screening, or crushing methods, or placing Government-furnished aggregate. Work may include additive mineral filler, or binder.

301.02 Material.

Add the following:

Bentonite	725.30
Calcium Chloride Flake	725.02
Lignosulfonate	725.20
Magnesium Chloride Brine or Calcium Chloride Liquid	725.02

301.03 General.

Add the following:

Written approval of the roadbed is required before placing aggregate.

For pit run or grid-rolled material, furnish material smaller than the maximum size. No gradation other than maximum size will be required for pit-run or grid-rolled material. For grid rolling, use all suitable material that can be reduced to maximum size. After processing on the road, remove all oversize material from the road and dispose of it as directed by the CO.

Provide additives or binder, if required, at the proportions specified.

Develop and use Government furnished sources according to Section 105.

If the aggregate is produced and stockpiled before placement, handle and stockpiled according to Section 320. Establish stockpile sites at locations approved. Clear and grub stockpile sites according to Section 201.

#### 301.04 Mixing and Spreading.

Delete the first sentence of the first paragraph and add the following:

Ensure that aggregate and any required additives, water, mineral filler, and binder are mixed by the specified method except, if crushed aggregate products are being produced and mineral filler, binder, or additives are required, uniformly blend following crushing. Control additive proportions to five-tenth's (0.5%) percent dry weight.

**(a) Stationary Plant Method.** Mix the aggregate with other required materials in an approved mixer. Add water during the mixing operation in the amount necessary to provide the moisture content for compacting to the specified density. After mixing, transport the aggregate to the jobsite while it contains the proper moisture content, and place it on the roadbed or base course using an aggregate spreader.

**(b) Travel Plant Method.** After placing the aggregate for each layer with an aggregate spreader or windrow-sizing device, uniformly mix it with other required materials using a traveling mixing plant. During mixing, add water to provide the necessary moisture content for compacting.

**(c) Road Mix Method.** After placing the aggregate for each layer, mix it with other required materials at the required moisture content until the mixture is uniform throughout. Mix aggregate, water, and all other materials until a uniform distribution is obtained.

Spread the aggregate in a uniform layer, with no segregation of size, and to a loose depth that will provide the required compacted thickness.

When placing aggregate over geotextile, place aggregate in a single lift to the full depth specified.

Route and distribute hauling and leveling equipment over the width and length of each layer.

#### 301.05 Compacting

Delete and replace with the following:

Compact each layer full width. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and all places not accessible to the roller, compact the material with approved tampers or compactors.

Compact the aggregate using one of the following methods as specified:

**Compaction A.** Operating spreading and hauling equipment over the full width of the travelway.

**Compaction B.** Operate rollers and compact as specified in Subsection 204.11(a)(1).

**Compaction C.** Moisten or dry the aggregate to a uniform moisture content between five (5) and seven (7) percent based on total dry weight of the mixture. Operate rollers and compact as specified in Subsection 204.11(a)(1).

**Compaction D.** Compact to a density of at least ninety-five (95) percent of the maximum density, as determined by AASHTO T 99, method C or D.

**Compaction E.** Compact to a density of at least ninety-six (96) percent of the maximum density, as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).

**Compaction F.** Compact to a density of at least ninety-five (95) percent of the maximum density, as determined by AASHTO T 180, method C or D.

**Compaction G.** Compact to a density of at least one-hundred (100) percent of the maximum density as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).

For all compaction methods, blade the surface of each layer during the compaction operations to remove irregularities and produce a smooth, even surface. When a density requirement is specified, determine the in place density and moisture content according to AASHTO T 310 or other approved test procedures.

### 301.06 Surface Tolerance.

Add the following:

#### Thickness and Width requirements:

The maximum variation from the compacted specified thickness is half ( $\frac{1}{2}$ ) inch. The compacted thickness is not consistently above or below the specified thickness and the average thickness of four (4) random measurements for any half ( $\frac{1}{2}$ ) mile of road segment is within plus a quarter ( $+\frac{1}{4}$ ) inch of the specified thickness.

The maximum variation from the specified width will not exceed plus twelve (+12) inches at any point. The compacted width is not consistently above the specified width and the average of any four random measurements along any half (½) mile of road segment is within plus four (+4) inches of the specified width.

301.09 Measurement.

Replace the second paragraph with the following:

Measure aggregate by cubic yard compacted in place when payment is by contract quantities.

301.10 Payment

Delete the following:

adjusted according to Subsection 106.05

### 303 - Road Reconditioning

Delete Section 303 in its entirety and replace with the following.

#### Description

303.01 This work consists of reconditioning ditches, shoulders, roadbeds, parking areas, turnouts, approach road intersections, cattleguards, asphalt surfaces and aggregate surfaces. Construct outlopes, clean and maintain all roadbed drainage structures when shown on the plans.

#### Material

303.02 Conform to the following Subsection:

Water 725.01

#### Construction Requirements

303.03 Ditch Reconditioning. Remove all slide material, sediment, vegetation, and other debris from the existing ditches and culvert inlets and outlets. Reshape ditches and culvert inlets and outlets to achieve positive drainage and a uniform ditch width, depth, and grade. Dispose of waste as shown on the plans.

**303.04 Shoulder Reconditioning.** Repair soft and unstable areas according to Subsection 204.07. Remove all slide material, vegetation, and other debris from existing shoulders including shoulders of parking areas, turnouts, and other widened areas. Dispose of waste as shown on the plans.

**303.05 Roadbed Reconditioning** Repair soft and unstable areas according to Subsection 204.07. Remove all organic, deleterious material larger than six (6) inches from the top six (6) inches of subgrade. Dispose of waste as shown on the plans. Scarify, rip and shape the traveled way and shoulders at locations and to the depth and width designated on the plans. Remove surface irregularities and shape to provide a uniform surface.

Dispose of rock larger than four (4) inches brought to the surface during scarification in areas designated on the plans.

For portions of roads not requiring scarification, the roadbed may contain rocks larger than four (4) inches provided they do not extend above the finished roadbed surface. Reduce in place or remove rock extending above the finished roadbed surface, unless otherwise directed by CO. Dispose of removed rock in areas designated on the plans.

Compact using the following method as specified:

(a) **Compaction A.** Operate equipment over the full width.

(b) **Compaction B.** Operate rollers over the full width of each layer until visual displacement ceases, but not fewer than three (3) complete passes. Use rollers that meet the following requirements:

(1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than two-hundred and fifty (250) pounds per inch of width of the compression roll or rolls.

(2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum weight of six (6) tons, specifically designed to compact the material on which it is used.

(3) Pneumatic-tired rollers with smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least eighty pounds per square inch (80 psi).

**303.06 Aggregate Surface Reconditioning.** Repair soft and unstable areas to the full depth of the aggregate surface and according to Subsection 204.07. Scarify to the depth of the aggregate surface or to a depth of eight (8) inches, whichever is less, and remove surface irregularities. Reshape, finish, and compact the entire aggregate surface according to Section 308.

**303.07 Roadway Reconditioning.** Perform all the applicable work described in Subsections 303.03 through 303.06.

Maintain the existing cross slope or crown unless otherwise shown on the plans. Establish a blading pattern that will retain the surfacing on the roadbed and provide a through mixing of the materials within the completed surface width.

Blade and shape the subgrade for both surfaced and unsurfaced roads when moisture content is suitable for compaction.

**303.08 Pulverizing.** Scarify the surface to the designated depth and width. Pulverize all material to a size one and one half times the maximum sized aggregate or to one and a half (1½) inches, whichever is greater. Mix, spread, compact, and finish the material according to Section 301.

**303.09 Acceptance.** See Table 303-1 for sampling and testing requirements. Road reconditioning work will be evaluated under Subsections 106.02 and 106.04.

#### Measurement

**303.10** Measure the Section 303 items listed in the Schedule of Items according to Subsection 109.02 and the following as applicable.

Measure ditch reconditioning and shoulder reconditioning by the mile, by the station or foot horizontally along the centerline of the roadway for each side of the roadway.

Measure roadbed reconditioning, aggregate surface reconditioning, roadway reconditioning, and pulverizing by the mile, by the station, or by the square yard.

#### Payment

**303.11** The accepted quantities will be paid at the contract price per unit of measurement for the Section 303 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

## 602 - Culverts and Drains

### 602.03 General

#### Add the following:

Clean and paint damaged coating caused by welding, field cutting, or handling in accordance with AASHTO M 36M and ASTM A 849.

### 602.05 Laying Metal Pipe

#### Add the following:

Install helically corrugated lock-seam pipe with the seam at the inlet end placed below the horizontal centerline. This, requirement also applies to the outlet end, when less than 5 feet below subgrade.

## 607 – Cleaning, Reconditioning, and Repairing Existing Drainage

### 607.04 Cleaning Culverts in Place.

#### Add the following:

If approved by the CO, all or part of the pipe designated to be cleaned in-place may be removed, cleaned, and re-laid in accordance with Section 602. In these cases, furnish all material required to replace damaged pipe and joints and relay the pipe.

## 622 - Rental Equipment

### 622.02 Rental Equipment

Delete the first two sentences of the first paragraph and add the following:

Hydraulic Excavator. Provide a track mounted hydraulic excavator, 1990 model year or newer. Bucket must be equipped with a hydraulic "thumb". It is anticipated that an excavator of a size capable of performing the excavation needs for the project, i.e. structure excavation, riprap construction, etc., will be of an adequate size to be acceptable for any work that the Contractor may be directed to perform under this section.

## 625 - Turf Establishment

### Construction Requirements

#### 625.03 General

Delete this entire subsection and add the following:

Apply all seed, fertilizer, and/or mulch, as specified in the pay items, to the areas shown on the drawings, in the work lists, or other disturbed ground surfaces and as discussed herein. Do not apply materials during windy weather, or when the ground is excessively wet, frozen, or snow covered.

Assure that all seed and mulch conforms to the weed free requirements of Section 713.

Time of seed application shall be specified as follows:

- (1) During the periods of **April 15 to June 1** and **September 15 to October 30**.
- (2) Within **7 days** following the establishment of cut and fill slopes and prior to crusting or glazing of slopes.
- (3) First half of seed application as specified in (2) above. Second half of seed application as specified in (1) above, but not within **30 days** of first application.

#### 625.04 Preparing Seedbed.

Delete this subsection and add the following.

Soil for broadcast seeding should be left in a roughened condition favorable to the retention and germination of seed. A minimum of one half inch of surface soil shall be in a loose condition, unless otherwise specified. Lightly raking the soil to cover seeds is beneficial.

Care and protection of the seedbed will be done prior to final acceptance of the revegetation work. Contractors will be responsible for repairing and reseeding areas damaged (compacted or disturbed surfaces) by construction operations, unless otherwise specified.

#### 625.06 Fertilizing

Delete entire subsection and replace with the following:

Apply fertilizer having a chemical analysis as listed below by the following methods.

- (a) **Dry Method.** Apply the fertilizer with approved mechanical equipment. Hand operated methods are satisfactory on areas inaccessible to mechanical equipment.

**(b) Hydraulic method.** Use hydraulic-type equipment capable of providing a uniform application using water as the carrying agent. Add fertilizer to the slurry and mix before adding seed. Add the tracer material when designated by the CO.

**Fertilizer.** Apply fertilizer at the rate of 450 pounds per acre. Insure that the fertilizer meets the following chemical analysis:

<u>Nutrient</u>	<u>Percent</u>
Nitrogen, N .....	<u>10</u>
Phosphorus, P <sub>2</sub> O <sub>5</sub> .....	<u>20</u>
Potassium, K .....	<u>20</u>

625.07 Seeding.

Delete the first sentence and add the following.

Apply seed mix by the following methods:

**(a) Dry method.** Delete the third sentence.

Add the following after subsection

Seeding Requirements:

	Spring	Fall
Grass	*See mix below	*See mix below
Lime	Agricultural lime @ 2tons/acre or Pelletized lime @ 400 lbs/acre	Agricultural lime @ 2tons/acre or Pelletized lime @ 400 lbs/acre
Fertilizer	10-20-20 @ 450lbs/acre	10-20-20 @ 450lbs/acre
Mulch	Straw only @ 60 bales/acre	Straw only @ 60 bales/acre

- Spring Oats or Winter Rye 1.5 bushels/acre
- Annual Rye grass 5 lbs/acre
- White Dutch Clover w/inoculant 5 lbs/acre
- Indiangrass – PA Ecotype 3 lbs/acre
- Switchgrass ‘Shelter’ 3 lbs/acre

Determine the pounds of seed to be furnished per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

#### 625.08 Mulching.

Delete the entire subsection and replace with the following:

Apply Mulch within 24 hours after seeding by the following methods.

**(a) Dry Method.** Apply mulch with a hand spreader or a spreader utilizing forced air at a rate of 4000 pounds per acre. Anchor the mulch with an approved stabilizing emulsion tackifier at a rate of 0 gallons per acre. Do not mark or deface structure, pavements, utilities, or plant growth with tackifier.

**(b) Hydraulic Method.** Apply mulch in a separate application from the seed using hydraulic-type equipment according to Subsection 625.07(b).

Apply wood fiber or grass straw cellulose fiber mulch at a rate of 775 pounds per acre.

Apply bonded fiber matrix hydraulic mulch at a minimum rate of 775 pounds per acre.

Apply so no hole in the matrix is greater than 0.04 inches. Apply so that no gaps exist between the matrix and the soil.

Inaccessible areas may be mulched by hand. Apply mulch uniformly over the entire disturbed area.

#### 625.09 Protecting and Caring for Seeded Areas

Delete the first sentence and add the following:

Protect and care for seeded areas until final acceptance.

#### Measurement

#### 625.11 Measurement.

Delete the entire Subsection and replace with the following:

Measure the Section 625 items listed in the bid schedule according to Subsection 109.02.

## SPS 703 – Aggregate

Add the following:

**703.20 Driving Surface Aggregate.** All Driving Surface Aggregate (DSA) is to be derived from natural limestone formations. Stone is defined as rock that has been crushed; rock is defined as consolidated mineral material. For use in this program, both are restricted to that which has been mined or quarried from existing bedrock formations.

All components of the aggregate mix are to be derived from crushed parent rock material that meets program specifications for abrasion resistance, pH and freedom from contaminants. Ninety-eight percent (98%) of the fines passing the #200 sieve must be parent rock material. No clay or silt soil may be added. The amount of particles passing the #200 sieve shall be determined using the washing procedures specified in PTM No. 100.

Size: The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%
1 ½ inch	100%	
¾ inch	65%	90%
#4	30%	65%
#16	15%	30%
#200	10%	20%

LA Abrasion: The acceptable limit is measured by weight loss is “less than 40% loss”. Los Angeles Abrasion test, AASHTO T-96 (ASTM C 131) shall be used to determine this property. Existing tests made for and approved by PennDOT will be accepted.

Sulfate Test: Soundness or resistance to freeze/thaw (i.e. sulfate test) is not specified for this application because a gravel road driving surface aggregate is not bound within a concrete or asphalt mix.

pH: Aggregate must be within the range of pH 6 to pH 9 as measured by EPA 9045C.

Optimum Moisture: Material is to be delivered and placed at optimum moisture content as determined for the particular source. The optimum percentage moisture is to be identified by the supplier in the bid purchasing documents. Loads with excessive moisture shall be rejected. Water draining from the tailgate, excess material sticking to the roller drum or the inability to compact the material are field indicators of excess moisture. In addition, if a load is too dry or does not have enough fines it will be rejected. Visual inspection of the load and poorly consolidated material after compactive effort are field indicators of low moisture or poor product gradation.

Transport: Tarps are to be used to cover one hundred percent (100%) of the load’s exposed surface from the time of loading until immediately before dumping. This requirement includes standing time waiting to dump.

**Aggregate producers are required by the program to certify that the aggregate they deliver conforms to the program specifications.** To eliminate segregation of material, stockpiling of material at jobsite will not be permitted unless authorized by COR.

The following are “Local” sources for this material:

- Hawbaker – Turtlepoint, PA. 814-237-1444 or 814-642-2500
- New Enterprise Stone & Lime Co. – Tyrone, PA 814-695-4405
- Allegheny Mineral Corporation, Glacial Sand & Gravel Company – Kittanning, PA 814-548-8101

Road Preparation Specifications: The road surface to receive the aggregate should have template with crown of 2% or ¼ inch per foot. The receiving surface is to be scarified to permit knitting of the aggregate.

Driving Surface Aggregate Placement: Minimum compacted depth of four inches is to be established for driving surface. Driving Surface Aggregate is to be applied by tailgate spreading unless spreader box is specified. Material when placed shall be compacted as follows: Beginning on the lower or berm side of the crown, begin rolling and work your way to the top of the crown by overlapping the successive longitudinal passes. Do not run the roller lengthwise directly on the crown. Compaction with truck tires is not accepted. Steel wheel rollers other than vibratory shall be capable of exerting a force of not less than 250 pounds per inch of width of the compression roller or rollers. Rollers shall be self propelled with a minimum weight of 6 tons. Contractor must have certification in writing that material placed is Driving Surface Aggregate meeting this specification.

**1” Minus Aggregate (DSA Gravel non limestone) Size:** The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%	
1 ½ inch	100%		
¾ inch	65%	95%	
#4	30%	65%	LA Abrasion < 40%
#16	15%	30%	Sulfate Test – Not Applicable
#200	10%	15%	PH between 6 and 9

Material available at:

- Glenn O. Hawbacker – Pittsfield Pit 814-563-7911
- AI Construction Corporation – Gardland Plant 814-563-7680

**Pennsylvania 2A Gradation:**

The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%	
2 inch	100%		
¾ inch	52%	100%	
#4	24%	50%	LA Abrasion < 40%
#16	10%	30%	Sulfate Test – Not Applicable
#200	0%	10%	PH between 6 and 9

**AASHTO 57 Gradation:**

The required amount and allowed ranges, determined by weight, for various size particles are:

PASSING SIEVE	LOWER%	HIGH%
1-1/2 inch	100%	
1 inch	95%	100%
1/2 inch	25%	60%
#4	0%	10%
#8	0%	5%

**General Notes**

- \* COMPLETELY REVIEW ALL SPECIFICATIONS.
- \* CONTRACTOR MUST CALL PA ONE CALL SYSTEM, THREE (3) BUSINESS DAYS PRIOR TO COMMENCEMENT OF WORK. 1-800-242-1776 OR 811.

Sheet Index:

1	TITLE SHEET
2	FR 202B PLAN VIEW
3	ROADS DETAILS
4	ROADS DETAILS 1
5	BRUSHING DETAILS



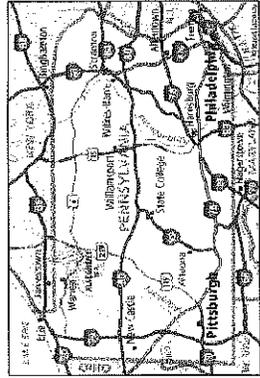
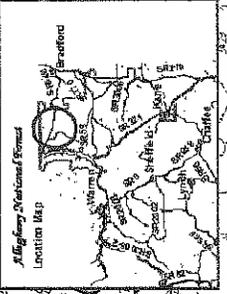
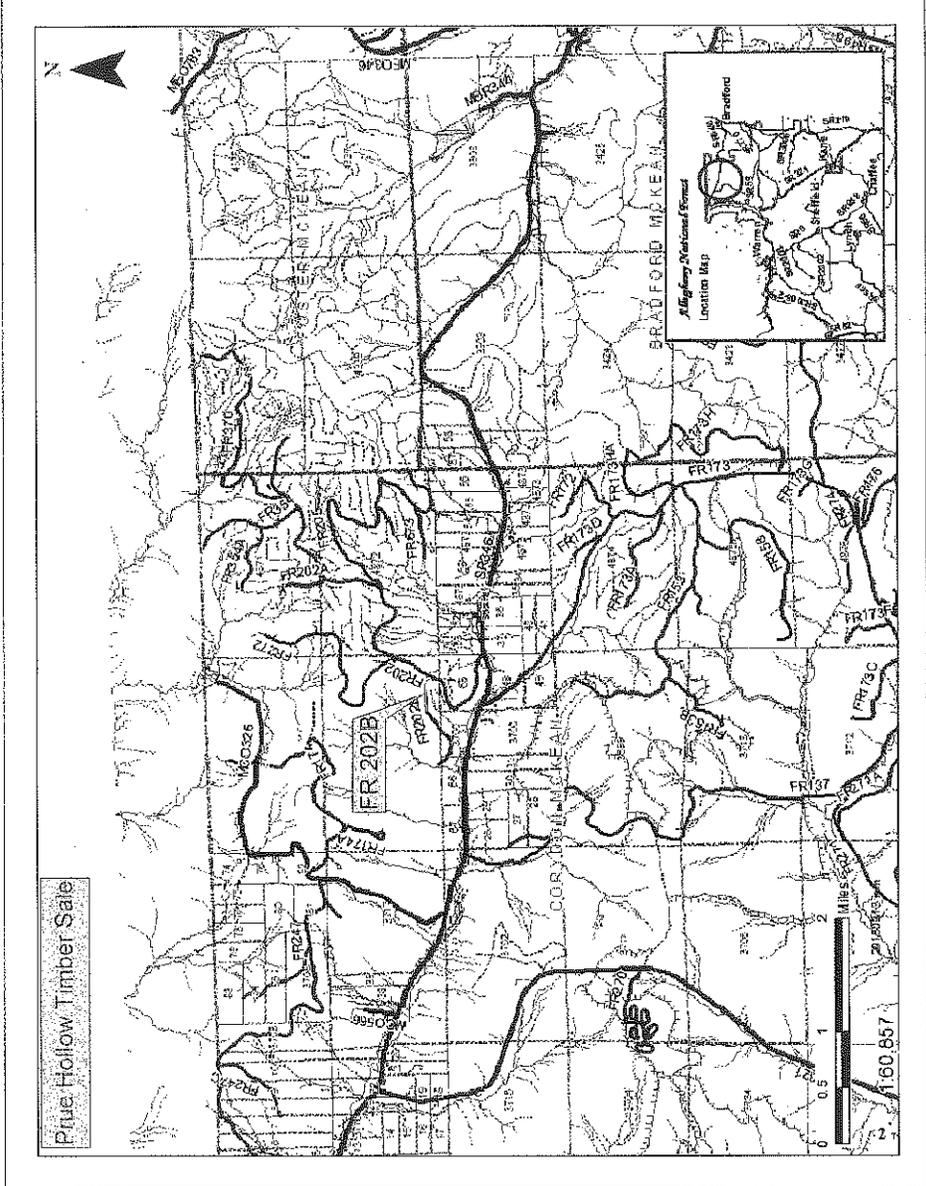
PRUE HOLLOW TIMBER SALE

BRADFORD RANGER DISTRICT

TITLE SHEET

OWNER	PRUE HOLLOW COMPANY
DESIGNER	K. GOODE
DRAWN BY	1
DATE	2/23/2016
AS SHOWN	AS SHOWN

Sheet 1 of 4



PLANS APPROVED BY: *[Signature]* DATE: 5/7/16  
 DISTRICT RANGER: *[Signature]*  
 FOREST ENGINEER: *[Signature]*

**General Notes**  
 \* CONTRACTOR MUST CALL PA ONE CALL SYSTEM THREE (3) BUSINESS DAYS PRIOR TO COMMENCEMENT OF WORK. 1-800-242-1776 OR 811.  
 1. CONTRACTOR SHALL DOZER RECONSTRUCTION DESIGNED ROAD AS SHOWN.  
 2. CONTRACTOR SHALL CLEAN ALL EXISTING CULVERT INLET AND OUTLET DRAINAGE.  
 3. CONTRACTOR SHALL RECONSTRUCTION EXISTING DITCH LINE ON BOTH SIDES, INCLUDING DITCH BLOCKS.  
 4. ALL SURFACING SHALL BE PA-2A.  
 5. ALL SURFACING SHALL HAVE A MINIMUM DEPTH OF 4 INCHES.

U.S. DEPARTMENT OF AGRICULTURE  
 FOREST SERVICE  
**Allegheny National Forest**  
 PL - EASTERN REGION

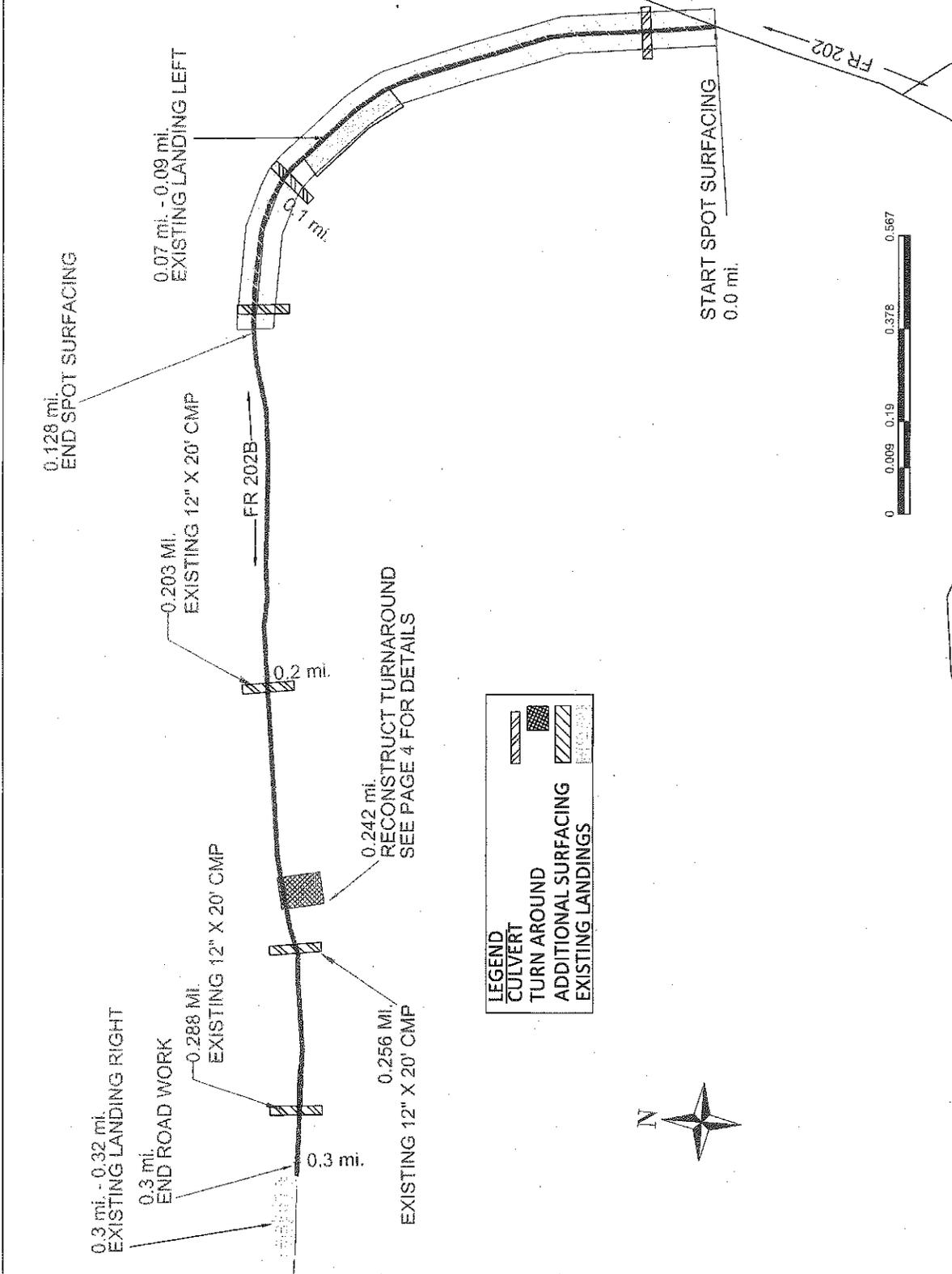
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Project Location  
**BRADFORD RANGER DISTRICT**

Drawn by  
**Plan View**

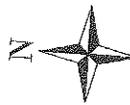
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Checker	K. GOODE
Drawn By	2/23/2018
Scale	1"=0.18 mil.
Sheet No.	2

Sheet 2 of 5



**LEGEND**

- CULVERT
- TURN AROUND
- ADDITIONAL SURFACING
- EXISTING LANDINGS



**General Notes**  
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 1. CONTRACTOR SHALL DOZER RECONDITION DESIGNED ROAD AS SHOWN.  
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U.S. DEPARTMENT OF AGRICULTURE  
 FOREST SERVICE  
**Allegheny National Forest**  
 REGION 8 - EASTERN REGION

Project Description  
**PRUE HOLLOW TIMBER SALE**

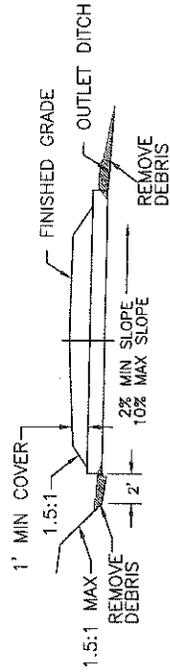
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**BRADFORD RANGER DISTRICT**

Drawn By  
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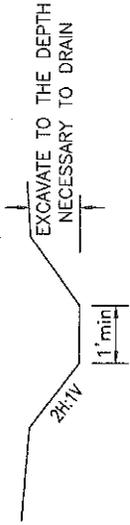
Drawn  
 G. MEENACH  
 Checked  
 K. GOODE  
 Date  
 03/20/16

Sheet 3 of 5

**TYPICAL CULVERT CLEAN OUT**

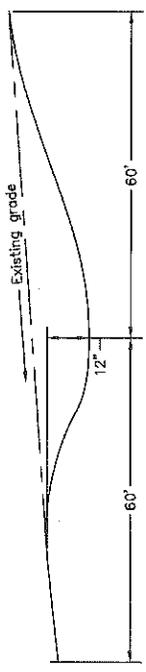
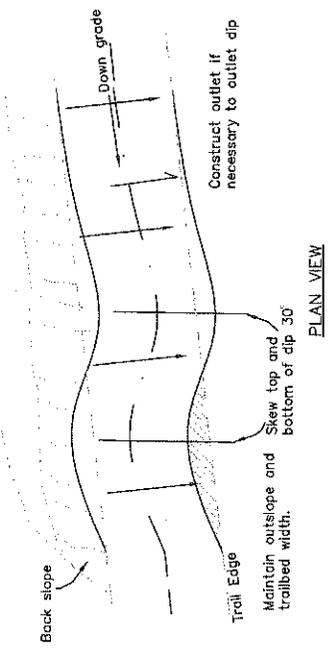


**CULVERT SECTION**



**OUTLET/LEAD OFF DITCH SECTION**

**ROLLING DIP**  
 NOT TO SCALE



**PROFILE**

**RECONDITIONING OF ROADBED:**

1. Crown all roads, when possible. Remove all outside berms. When this is impractical relieve berm every 50 linear feet.
2. Clean inlets and outlets of all culvert and casing pipes.
3. Clean and reshape all existing road ditches, leadoff ditches, dips, and waterbars to the lines specified in the typical's.
4. When 'Maintain Inslope/Outslope Configuration' is specified, reshape road bed to the existing width and inslope/outslope configuration.
5. Drain all low points, ponds, swales.
6. **Construction of lead-off ditches are incidental to road work or other pay items.**

**General Notes**

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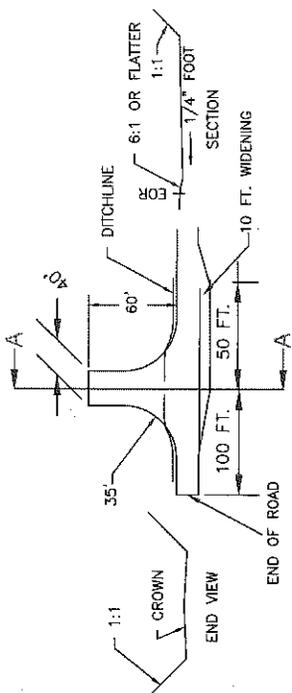
1. CONTRACTOR SHALL DOZER RECONDITION DESIGNED ROAD AS SHOWN.
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U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
**Allegheny National Forest**  
80 EASTERN REGION

PRUE HOLLOW TIMBER SALE

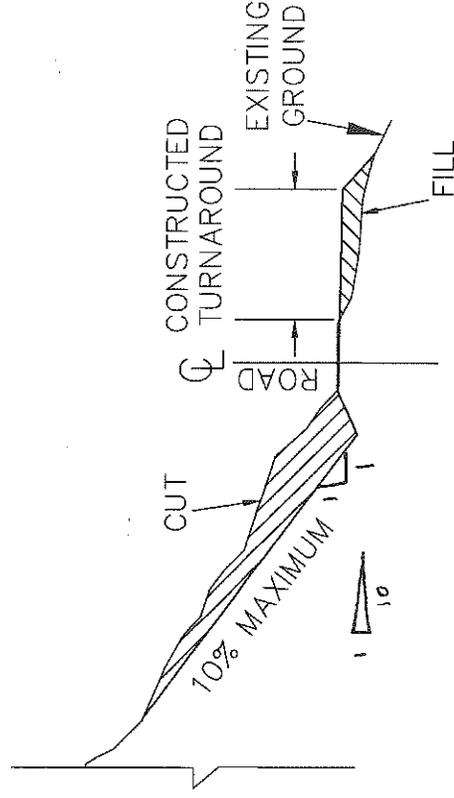
BRADFORD RANGER DISTRICT

Surveyor	C. MEENACH	Project	PRUE HOLLOW
Checker	K. GOODE	Drawing No.	
CAD File No.	1	Sheet	4
Date	2/28/2016	NO SCALE	Sheet 4 of 5



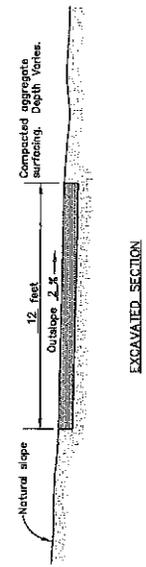
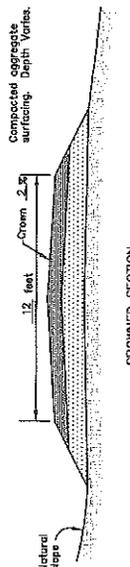
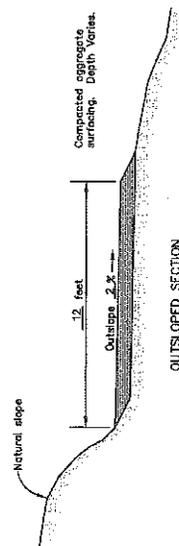
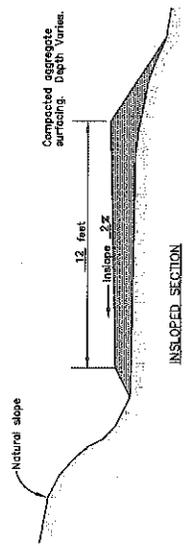
**TURNAROUND DETAIL**  
NO SCALE

NOTE: EXCAVATE A 10'x40' AREA ON THE OPPOSITE SIDE OF THE ROAD. MOVE BORROW MATERIAL BUILD TURNAROUND.

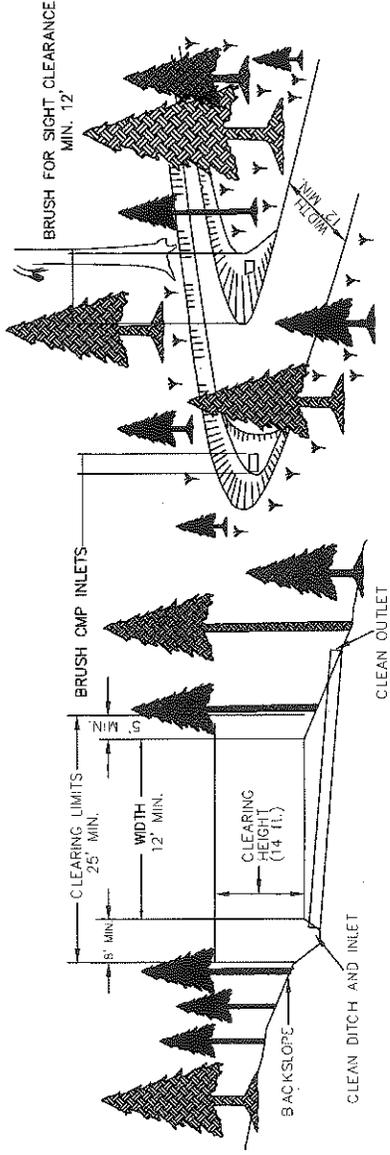


**SECTION A-A**  
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**TYPICAL ROAD TEMPLATE**  
NOT TO SCALE



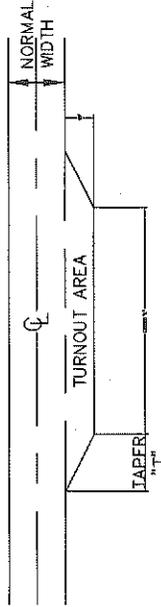
**CLEARING AND BRUSHING DETAILS**



**CLEARING AND BRUSHING NOTES:**

1. Clearing slash disposal methods shall be designated in the Schedule of Items or Shown On The Drawings.
2. Hazard trees will be marked by Forest Service prior to falling operations. Treatment of logs and limbs shall be treated as specified in the Specifications.
3. Clearing slash disposal sites shall be designated on the plans or the ground by the Forest Service.
4. Side cast all masticated material onto fill slopes. Remove masticated material from all drainage inlets and ditches.
5. Where "TREAT WITHIN UNITS" is specified, scatter slash within adjacent units. Slash treatment will then be treated with that specified for unit.

**TYPICAL TURNOUT SECTION**



**STANDARD TURNOUT**

LEFT OR RIGHT

NO SCALE

LENGTHS "T" AND "L" AS SHOWN ON PLAN—PROFILE SHEETS AND/OR STAKED

**General Notes**

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PRUE HOLLOW TIMBER SALE

BRADFORD RANGER DISTRICT

Brushing Details

PROJECT LEADER C. MEENACH	PROJECT HOLLOW PRUE HOLLOW
DESIGNER K. GOODE	DRAWING NO. 5
DATE 2/23/2016	SHEET NO SCALE
Sheet 5 of 5	