

DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
REGION 9  
ALLEGHENY NATIONAL FOREST

**Bobbs Fork Restoration Project**

Bradford Ranger District  
Warren and Forest Counties  
Pennsylvania

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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:

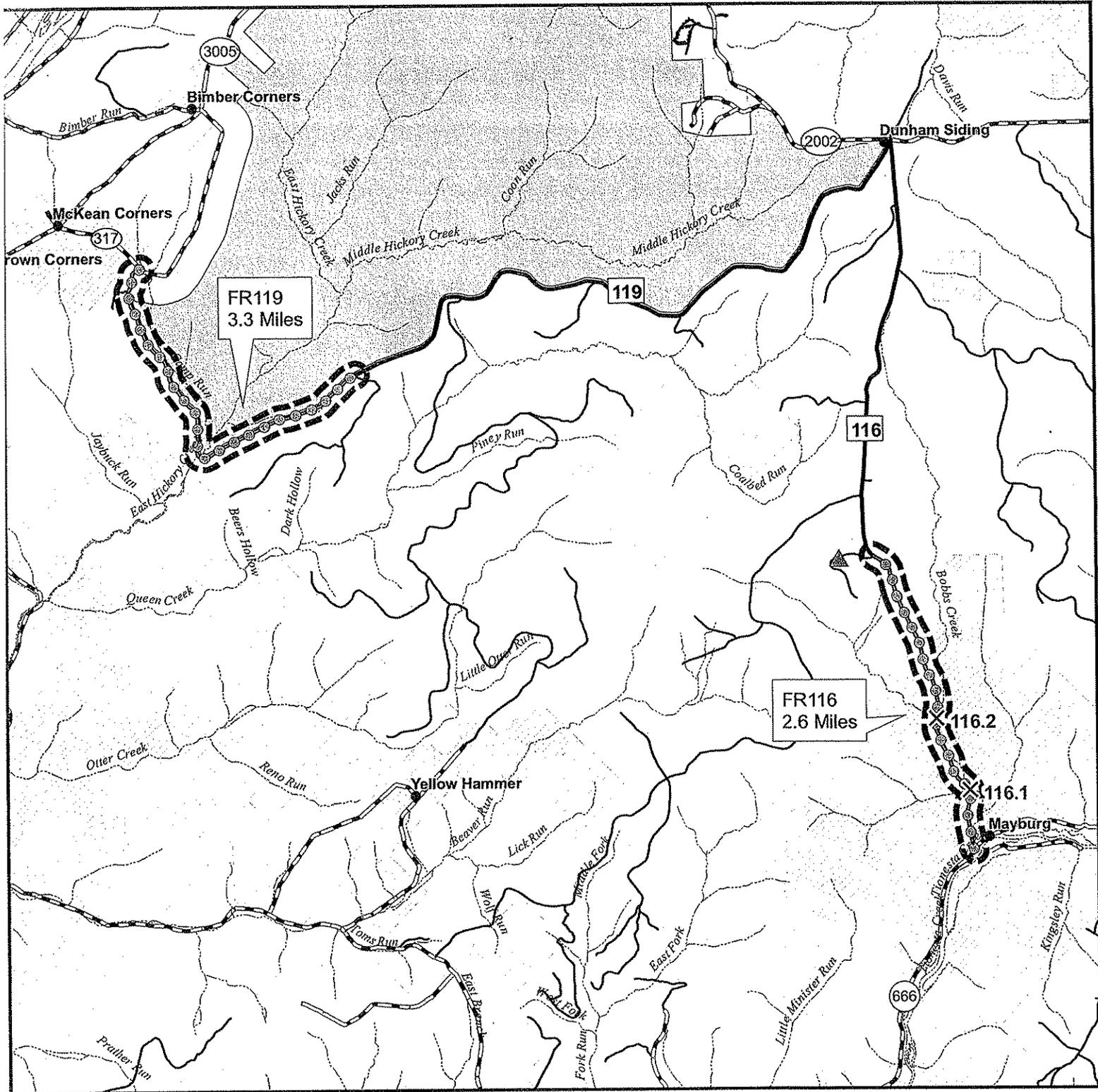
Henry D. Hus

Approved By:

P.V. M 10/6/09  
District Ranger Date

Don Schum 10-2-09  
Forest Engineer Date

Marion M. Muter 10-21-09  
Forest Supervisor Date

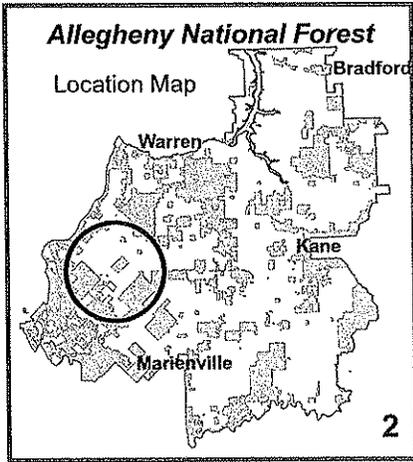
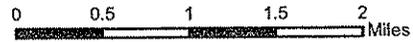


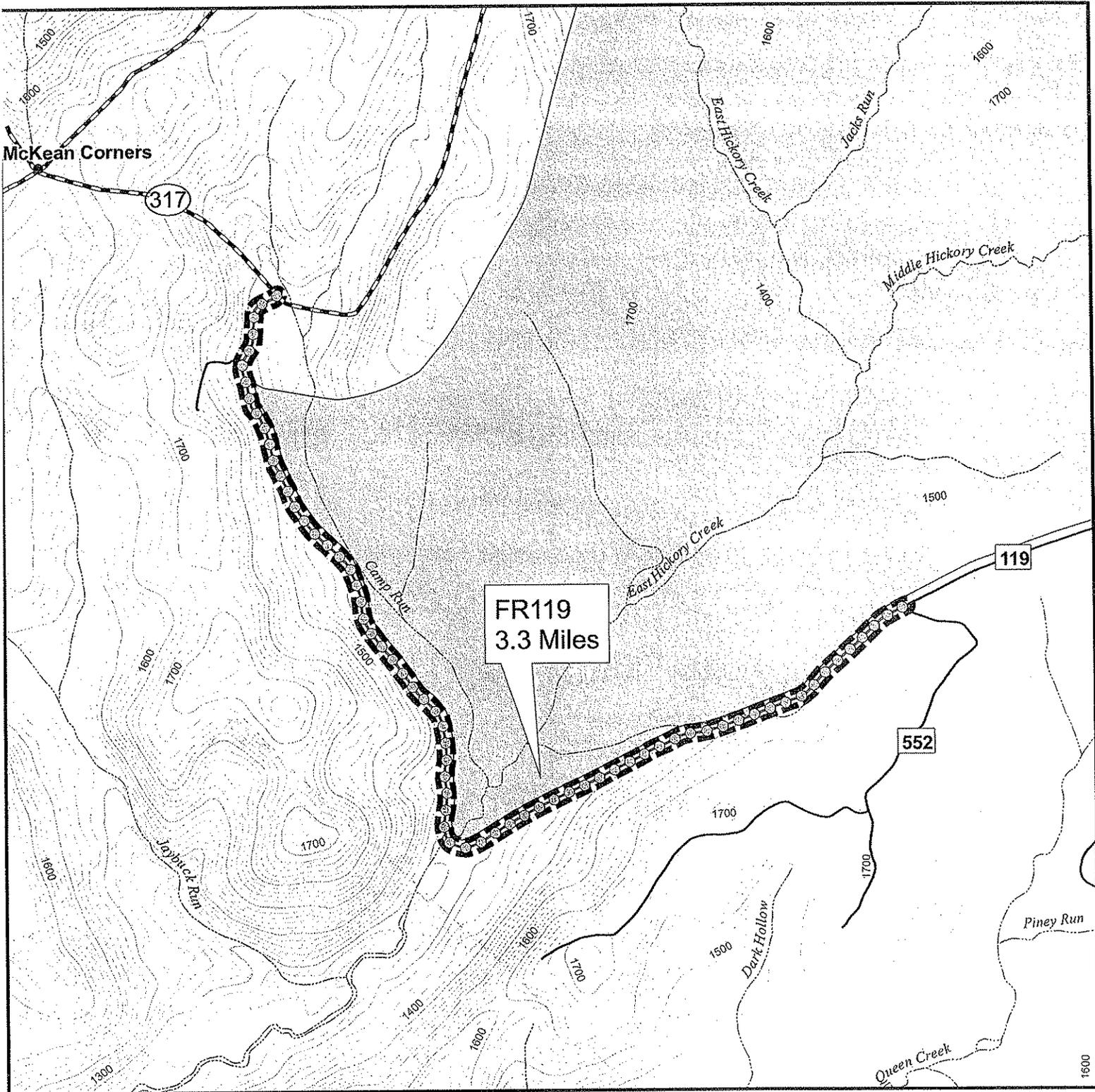
**Vicinity Map**  
**Bobbs Fork Restoration**  
**FR116 and FR119**

*Allegheny National Forest*  
*Bradford Ranger District*  
*Warren and Forest Counties*

**Legend**

- ▲ Pit
- × Road Stream Crossings
- Restoration
- Forest Roads
- Municipal Roads
- ▭ Contract Area Boundary
- ▨ Wilderness Area
- Forest Service Ownership
- Other Ownership



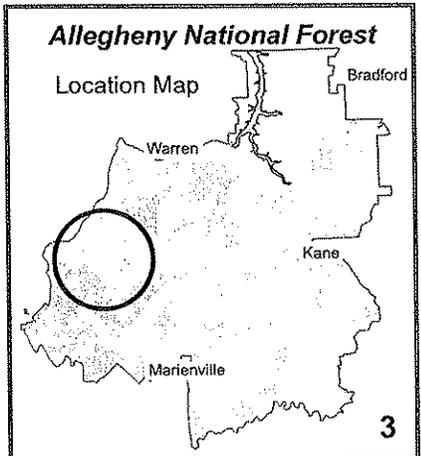
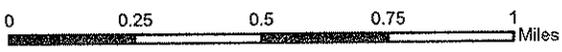


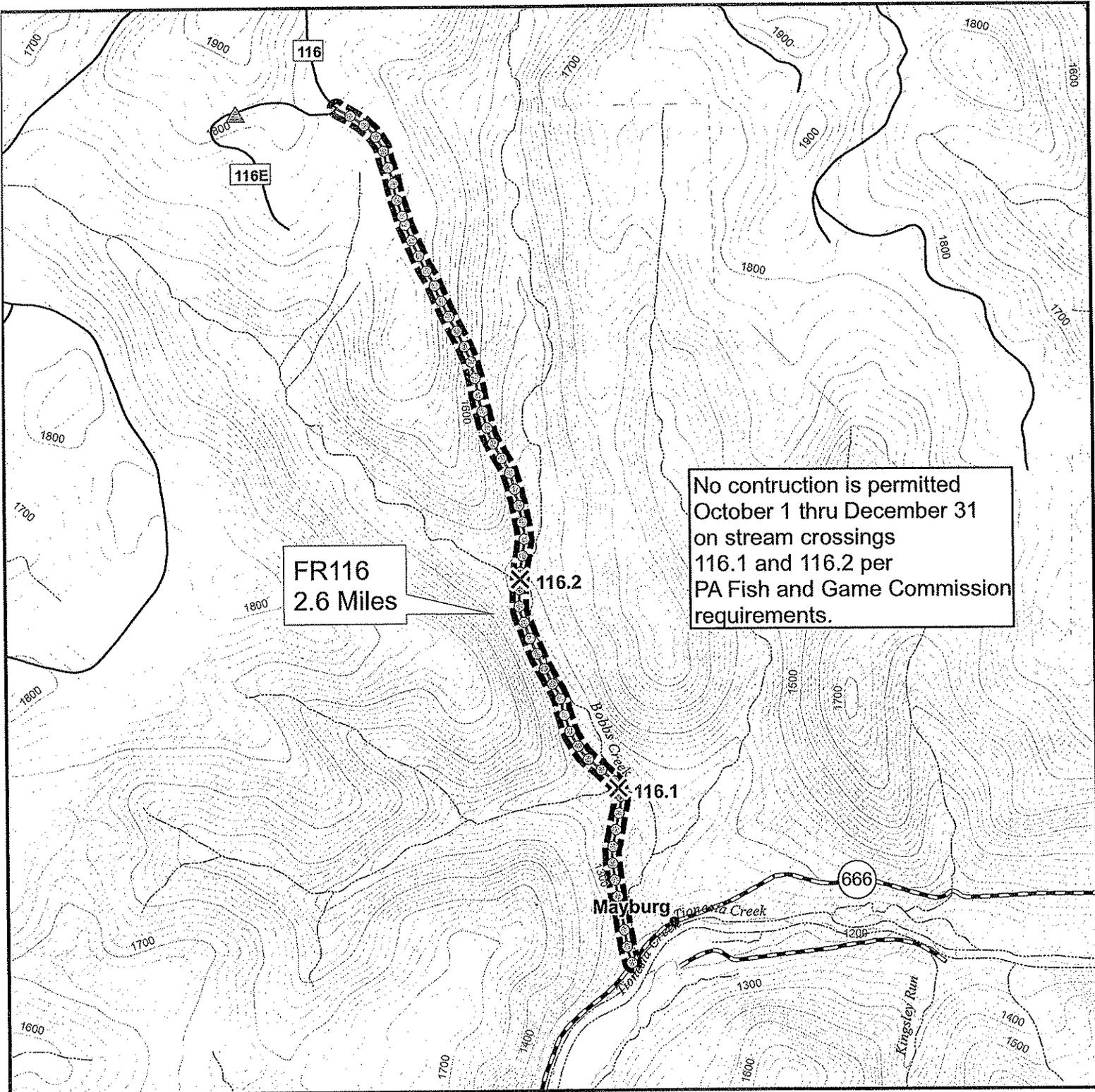
**Vicinity Map**  
**Bobbs Fork Restoration**  
**FR119**

*Allegheny National Forest*  
*Bradford Ranger District*  
*Warren and Forest Counties*

- Legend**
- ▲ Pit
  - ✕ Road Stream Crossings
  - ⊙-⊙ Restoration
  - Forest Roads
  - Municipal Roads
  - ▭ Contract Area Boundary
  - ▨ Wilderness Boundary
  - ▭ Forest Service Ownership
  - ▭ Other Ownership

1 in = 2,000 feet



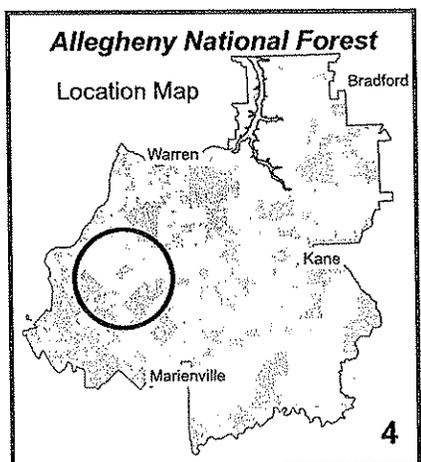
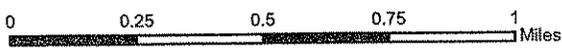


**Vicinity Map**  
**Bobbs Fork Restoration**  
**FR116**

*Allegheny National Forest*  
*Bradford Ranger District*  
*Warren and Forest Counties*

- Legend**
- ▲ Pit
  - ✕ Road Stream Crossings
  - ⊙⊙ Restoration
  - Forest Roads
  - Municipal Roads
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  - ▭ Forest Service Ownership
  - ▭ Other Ownership

1 in = 2,000 feet



## SCHEDULE OF ITEMS

FR 116

ITEM	DESCRIPTION	UNIT	QTY
15101	Mobilization (Lump Sum)	All	1
15713	Soil Erosion & Pollution Control (Lump Sum)	All	1
20102	Clearing & Grubbing (Lump Sum)	All	1
20301	Removal of culverts	Each	31
20957	Structural excavation, Type unclassified (Lump Sum)	All	1
25102	Placed riprap, NSA Size #R-4	Ton	100
25102	Placed riprap, NSA Size # R-5	Ton	240
30101	Aggregate base, grading AASHTO #57, compaction method B	Ton	60
30101	Aggregate base, grading bank run, compaction method B	Ton	40
30103	Aggregate base, grading pit run, compaction method B	Cubic Yard	1313
30115	Aggregate surface course, Type DSA 1" minus, compaction method B	Ton	3346
30318	Road reconditioning, roadbed, compaction method B	Mile	2.6
55201	Structural concrete, class A	Cubic Yard	68
60263	18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A	Foot	1124
60305	16'-0" span, 3'-6" rise, structural plate box culvert, .109 inch thickness, method A	Foot	32
60305	17'-0" span, 5'-3" rise, structural plate box culvert, .109 inch thickness, method A	Foot	40
62503	Seeding, hydraulic or dry method (Lump Sum)	All	1
63306	Object markers, Type 3	Each	8
63501	Temporary Traffic Control (Lump Sum)	All	1
65102	Pit and quarry development	Each	1

## SCHEDULE OF ITEMS

FR 119

ITEM	DESCRIPTION	UNIT	QTY
15101	Mobilization (Lump Sum)	All	1
20301	Removal of culverts	Each	8
25102	Placed riprap, NSA Size #R-4	Ton	140
30103	Aggregate base, grading pit run, compaction method B	Cubic Yard	288
30115	Aggregate surface course, Type DSA limestone, compaction method C	Ton	5508
30115	Aggregate surface course, Type 1" minus, compaction method C	Ton	69
30318	Road reconditioning, roadbed, compaction method C	Mile	3.3
60103	Concrete method, sakrete	All	1
60263	18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A	Foot	498
60263	36 inch aluminized steel, type 2, corrugated steel pipe, 0.079 inch thickness, method A	Foot	38
60264	49 inch span, 33 inch rise aluminized steel, type 2, corrugated steel pipe arch, .109 inch thickness, method A	Foot	70
60264	57 inch span, 38 inch rise aluminized steel, type 2, corrugated steel pipe arch, .109 inch thickness, method A	Foot	36
62503	Seeding, hydraulic or dry method (Lump Sum)	All	1
63301	Sign system	Each	1
63306	Object markers, type 3	Each	6
63501	Temporary Traffic Control (Lump Sum)	All	1
65102	Pit and quarry development	Each	1

## General Notes

- Culvert cleaning and repair will be considered an indirect payment to road reconditioning.
- Contractor is responsible for maintenance of all Forest Service roads over which pit run, gravel or limestone material is hauled. Roads shall be bladed or shaped to restore travel way to the condition found prior to haul.
- Contractor shall install "ROAD CONSTRUCTION AHEAD" signs on all roads worked on in this project area. Signs shall conform to the Manual on Uniform Traffic Control Devices (MUTCD). Signs shall be covered when construction activity is not taking place.
- Oversize material and boulders encountered during construction or remaining after processing on the finished road surface will be hauled back to the pit or placed as directed by Forest Service.
- Pit run aggregate quantities are estimated as compacted in place on the road.
- Roads shall be completed in such a manner that water shall not pond on roadbed or in ditch lines.
- The Forest Service will mark clearing limits. Hazard trees that could fall on the road right of way will be removed by the contractor.
- All removed culverts shall be hauled off Federal lands and become the property of the contractor, unless otherwise indicated for by the Forest Service.
- Contouring topsoil re-spreading, seeding and mulching of disturbed areas as determined by the Forest Service is required.
- DSA limestone shall be shipped from a Penndot approved source at optimum moisture content in tarp covered trucks. The road surface to receive the aggregate shall have template with crown of 2% or ¼ inch per foot. The receiving surface is to be scarified to permit knitting of the aggregate. Limestone shall be tailgate spread, shaped with grader and compacted with a self propelled roller with a minimum weight of 6 tons. Do not run the roller lengthwise directly on the crown. Make successive longitudinal passes.
- Contractor shall follow the submitted Soil Erosion & Sediment Control Plan.
- NO CONSTRUCTION PERMITTED ON STREAM CROSSINGS 116.1 AND 116.2 FROM OCTOBER 1 THRU DECEMBER 31. This is a Pennsylvania Fish and Game Commission Requirement.**

FR 116 Dunham Siding (Level C)

Station	Road Log/Work Description
0+00	Intersection with SR 666 near Mayburg
<b>0+00-139+50</b>	<b>Recondition roadbed to TYPICAL RECONDITION SECTION, clean all culverts and ditches</b>
0+00-7+80	Existing 4" DSA limestone surfacing
0+25	STOP sign left
0+35	18" x 32' CMP
0+65	Forest road sign right
0+70	Weight LIMIT 10 TONS MARCH 1 TO MAY 15" sign right
1+45	18" x 32' CMP on left forward skew, ditch block left (2005)
4+00	18" x 30' CMP (2005)
5+50	Turnout right
7+30	18" x 30' CMP (2005)
7+80	End existing DSA limestone surfacing
7+80-16+00	Existing commercial surfacing
<b>7+80-92+50</b>	<b>Apply 4" DSA (1" minus) commercial surfacing to road including all turnouts and parking areas</b>
9+45	Crest vertical curve
<b>10+50</b>	<b>Turnout right</b>
<b>13+00</b>	<b>Remove 18" x 30' CMP, install 18" x 36' CMP lowering outlet, place 8 tons R-4 riprap at outlet, place 12 CY pit run backfill</b>
15+00	Crest vertical curve
<b>15+50</b>	<b>Turnout right</b>
16+00-139+50	Existing pit run surfacing

16+95 Remove 18" x 30' CMP, install 18" x 34' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill

18+60 Remove 18" x 28' CMP, install 18" x 30' CMP, place 12 CY pit run backfill

21+25 Turnout right

25+20 Install 18" x 36' CMP on right forward skew to divert water away from live stream, apply 12 CY pit run backfill

26+20 Remove two 48" x 26' CMPS, install 16'0" x 3'6" x 32' steel box culvert on concrete footings, see FR 166.1 Construction Drawings, place 425 CY pit run, salvage existing cut stone for headwalls and wingwalls, place 120 tons R-5 riprap along footings and in plunge pool at outlet, place Type 3 Object markers at each end of culvert

27+20 Turnout right

32+10 Remove 18" x 28' CMP, install 18" x 28' CMP, place 12 CY pit run backfill

34+50 Install 18" x 32' CMP on left forward skew, place 12 CY pit run backfill

35+00 Turnout left (narrow)

38+55 Remove 21" x 15" x 30' CMPA, install 18" x 30' CMP, place 2 tons R-4 riprap at outlet, place 12 CY pit run backfill

40+50 Remove 18" x 30' CMP, install 18" x 30' CMP, lowering outlet, place 5 tons R-4 riprap at outlet, place 12 CY pit run backfill

43+18 Spring left

43+30 Turnout right

45+60 Steep road left (Collins Pine)

45+90 Remove 18" x 28' CMP, install 18" x 30' CMP lowering outlet, place 8 tons riprap at outlet, place 12 CY pit run backfill

48+45 Turnout left

- 50+25 Remove 18" x 28' CMP, install 18" x 32' CMP lowering outlet, place 5 tons R-4 riprap at outlet, place 12 CY pit run backfill
- 52+85 Road left
- 53+75 Remove 18" x 26' CMP, install 18" x 32' CMP lowering outlet, place 5 tons R-4 riprap at outlet, place 12 CY pit run backfill
- 54+00 Turnout right
- 56+25 Remove 18" x 28' CMP, install 18" x 36' CMP lowering outlet, place 8 tons R-4 riprap at outlet, apply 12 CY pit run backfill
- 58+00 Turnout left
- 59+55 Remove 18" x 28' CMP, install 18" x 32' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill
- 60+35 Turnout right, road parking area on left with leadoff ditch and sediment basin
- 61+75 Remove three 48" x 34' CMPs, install 17'0" x 5'3" x 40' steel low profile box culvert, place 480 CY pit run for backfill and to raise road 12" in this area (200 feet), re-install cut stone headwalls and wingwalls, place 100 tons R-5 riprap around footings
- 62+50 Turnout right
- 63+40 Install 18" x 32' CMP, place 12 CY pit run, construct leadoff ditch and sediment basins
- 65+35 Remove 18" x 32' CMP, install 18" x 34' CMP, place 12 CY pit run backfill
- 67+75 Turnout right
- 69+55 Remove 18" x 32' CMP, install 18" x 32' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill
- 71+15 Remove 18" x 30' CMP, install 18" x 32' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill
- 74+05 Remove 18" x 30' CMP, install 18" x 32' CMP, place 8 tons R-4 riprap at outlet, spring left, place 12 CY pit run

74+80 Turnout right

75+85 Remove 15" x 26' reinforced concrete pipe (RCP), install 18" x 28' CMP, place 5 tons R-4 riprap at outlet, place 12 CY pit run (spring)

77+85 Remove 18" x 32' CMP, install 18" x 36' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill

79+00 Turnout right

79+45 Old road right, new road left with corrugated plastic pipe in left ditch

81+50 Remove 18" x 34' CMP, install 18" x 36' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run

81+75 Turnout right

83+70 Install 18" x 36' CMP, place 12 CY pit run, place 3 tons R-4 riprap at outlet

85+60 Remove 15" x 30' RCP, install 18" x 34' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run, re-install cut stone rock headwalls

87+50 Install 18" x 36' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run

88+00 Turnout right

89+55 Remove 18" x 32' CMP, install 18" x 36' CMP, place 3 tons R-4 riprap at outlet (spring), place 12 CY pit run

90+25 Turnout right

92+50 End DSA (minus 1") commercial surfacing

94+05 Turnout right

94+35 Remove 18" x 36' CMP, install 18" x 36' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill

95+75 Install 18" x 36' CMP, place 3 tons R-4 riprap at outlet, place 12 CY pit run backfill

97+00	<b>Remove 18" x 32' CMP, install 18" x 32' CMP, clean catch basin, 12 CY pit run backfill</b>
98+25	Turnout right
99+00	Leadoff ditch right
99+00-110+00	<b>Remove right berm and bank to eliminate ditch</b>
100+20	<b>Install 18" x 36' CMP, place 3 tons riprap at outlet, place 12 CY pit run backfill</b>
101+40	<b>Remove 18" x 34' CMP, install 18" x 34' CMP, place 3 tons riprap at outlet, place 12 CY pit run backfill (spring)</b>
103+50	<b>Install 18" x 36' CMP, place 3 tons riprap at outlet, place 12 CY pit run backfill</b>
104+50	<b>Reconstruct turnout right, remove shallow ditch right</b>
105+75	<b>Remove 15" x 30' RCP, install 18" x 32' CMP, place 12 CY pit run backfill, re-install cut stone headwalls</b>
107+20	Leadoff ditch right
108+40	Leadoff ditch right
109+25	Turnout right
109+90	Leadoff ditch right
110+75	Small road left
114+25	Turnaround right, 12" x 46' corrugated plastic pipe (CPP) in right ditch, parking area right
117+25	21" x 15" x 28' CMPA
121+75	21" x 15" x 28' CMPA
125+55	FR 116B right
127+75	<b>Remove 21' x 15" x 28' CMPA, install 18" x 30' CMP, place 12 CY pit run backfill</b>
131+25	Turnout right
138+25	<b>Remove 21" x 15" x 28' CMPA, install 18" x 30' CMP, place 12 CY pit run backfill</b>
139+35	FR 116E left, end of reconditioning

FR 119 Wheeler (Level C)

Station	Road Log/Work Description
0+00	Intersection with T-317 near McKean Corners
<b>0+00-171+90</b>	<b>Recondition roadbed including all turnouts and turnarounds, see TYPICAL RECONDITION SECTION, clean all culverts and leadoff ditches</b>
<b>0+00-136+40</b>	<b>Apply 4" DSA limestone surfacing to road including all turnouts, turnarounds and parking areas</b>
0+40	STOP sign left
0+45	Road number sign right
0+55	WEIGHT LIMIT 10 TONS MARCH 1- MAY 15 right
1+70	18" x 30' CMP
3+15	24" x 38' CMP (spring), place 5 tons R-4 riprap at inlet ditch
<b>3+55-4+60</b>	<b>Turnout right</b>
6+90	18" x 32' CMP (spring)
8+85	18" x 34' CMP
<b>8+80-10+20</b>	<b>Turnout left</b>
12+15	FR 512 right, gated
<b>12+25</b>	<b>Turnout right</b>
14+15	18" x 32' CMP
<b>14+25-15+65</b>	<b>Turnout left</b>
15+55	Hickory Creek Wilderness sign left
15+85	18" x 30' CMP
16+60	18" x 30' CMP
<b>17+50-19+50</b>	<b>Turnout right</b>

20+45	18" x 30' CMP
<b>23+00-24+05</b>	<b>Turnout left</b>
24+25	18" x 30' CMP, place 3 tons R-4 riprap at outlet
26+95	18" x 32' CMP, place 2 tons R-4 riprap at outlet
27+85	18" x 32' CMP
30+05	18" x 28' CMP
<b>30+75-31+85</b>	<b>Turnout left</b>
32+25	18" x 32' CMP, place 2 tons R-4 riprap at outlet
34+80	18" x 30' CMP, place 2 tons R-4 riprap at outlet
<b>34+90-36+75</b>	<b>Turnout left</b>
37+00	18" x 32' CMP
<b>39+70</b>	<b>Remove 18" x 38' CMP, install 36" x 38' CMP, backfill with 36 CY pit run, place 5 tons R-4 riprap at inlet and 5 tons at outlet (intermittent drainage)</b>
<b>39+85</b>	<b>2 car parking area</b>
<b>40+60-41+95</b>	<b>Turnout left</b>
41+90	18" x 30' CMP, place 5 tons riprap at inlet and 5 tons riprap at outlet
44+10	18" x 30' CMP, place 4 tons R-4 riprap at outlet
45+15	18" x 32' CMP, place 2 tons R-4 riprap at outlet (spring)
<b>45+00-47+20</b>	<b>Turnout left</b>
<b>47+15</b>	<b>Remove 18" x 28' CMP, install 18" x 30' CMP, backfill with 12 CY pit run, place 2 tons R-4 riprap at outlet</b>
47+80	18" x 28' CMP (spring)

<b>48+15</b>	<b>Remove 18" x 28' CMP, install 18" x 28' CMP, backfill with 12 CY pit run (spring)</b>
<b>48+80</b>	<b>18" x 32' CMP</b>
<b>49+00-51+80</b>	<b>Turnout left</b>
<b>51+90</b>	<b>18" x 32' CMP (dry drain), place 5 tons R-4 riprap at outlet</b>
<b>51+95-53+40</b>	<b>Turnout left</b>
<b>53+60</b>	<b>Remove 18" x 28' CMP, install 18" x 30' CMP, align with spring, backfill with 12 CY pit run, reset riprap at outlet</b>
<b>54+00</b>	<b>Turnaround left</b>
<b>54+30</b>	<b>Install 18" x 30' CMP, align with drainage, backfill with 12 CY pit run</b>
<b>54+60-56+60</b>	<b>Turnout right</b>
<b>56+65</b>	<b>18" x 32' CMP, place 3 tons R-4 riprap at outlet</b>
<b>58+80</b>	<b>18" x 32' CMP (spring)</b>
<b>59+20-61+20</b>	<b>Turnout left</b>
<b>61+50</b>	<b>18" x 30' CMP</b>
<b>64+15</b>	<b>18" x 28' CMP, place 2 tons R-4 riprap at outlet</b>
<b>66+50</b>	<b>18" x 30' CMP (spring)</b>
<b>70+25</b>	<b>Install 18" x 32' CMP, backfill with 12 CY pit run</b>
<b>70+25-71+75</b>	<b>Place 23 tons R-4 riprap in ditchline</b>
<b>71+75</b>	<b>18" x 28' CMP</b>
<b>71+75-73+50</b>	<b>Turnout left</b>
<b>73+50</b>	<b>18" x 34' CMP (dry drain)</b>
<b>73+50-75+15</b>	<b>Turnout left</b>
<b>75+50</b>	<b>Install 18" x 32' CMP (seep), backfill with 12 CY pit run</b>

76+35	18" x 38' CMP, place 5 tons R-4 riprap at outlet
77+20	Install 18" x 32' CMP, backfill with 12 CY pit run
79+50	15" x 26' reinforced concrete pipe, replace with 18" x 32' CMP, place 2 tons R-4 riprap at outlet, backfill with 12 CY pit run
80+30-82+35	Very large grassy pullout
80+40	Install 18" x 32' CMP, backfill with 12 CY pit run
82+00	18" x 38' CMP, install Type 3 marker on carsonite post at inlet and outlet
83+30	18" x 38' CMP (dry drain), place 3 tons riprap at outlet
85+20	18" x 34' CMP
83+95-86+40	Turnout left
86+75	2 car parking lot right
87+00	Remove 24" x 70' CMP, install 49" x 33" x 70' CMPA, backfill with 96 CY pit run, place 10 tons riprap at outlet (stream)
87+50-89+25	Turnout left
89+25	15" x 26' RCP, place 2 tons riprap at outlet
89+50	NARROW BRIDGE sign right
90+20	5 car parking area left
91+35	Replace 4 Type 3 object markers at bridge
92+50	Install NARROW BRIDGE sign left
92+95	24" x 32' CMP
92+00-96+00	Turnout right
97+05	Turnaround left
97+75	Parking area right

99+25	24" x 34' CMP, live drainage, <b>place 2 tons R-4 riprap at outlet</b>
<b>99+80</b>	<b>Construct sediment basin right</b>
99+80	Leadoff ditch left
<b>100+25</b>	<b>Place 23 tons R-4 riprap in ditch line</b>
102+55	18" x 30' CMP
104+00	Leadoff ditch left
106+50	18" x 30' CMP, dry drain
<b>107+25-108+70</b>	<b>Turnout left</b>
108+80	Leadoff ditch left
109+20	18" x 34' CMP
110+75	18" x 34' CMP, <b>place 2 tons R-4 riprap at outlet (drainage)</b>
112+65	18" x 36' CMP, drainage
114+15	18" x 36' CMP, drainage, <b>place 2 tons R-4 riprap at outlet</b>
115+40	Leadoff ditch left
116+95	18" x 34' CMP, drainage, <b>clean inlet ditch, place 3 tons R-4 riprap at outlet</b>
<b>116+95-118+45</b>	<b>Turnout left</b>
118+45	18" x 30' CMP, <b>clean inlet and outlet, place 2 tons R-4 riprap at outlet</b>
119+65	<b>Install 18" x 32' CMP, backfill with 12 CY pit run</b>
121+00	<b>Install 18" x 32' CMP, backfill with 12 CY pit run</b>
124+30	24" x 30' CMP, drainage
125+40	<b>Install 18" x 32' CMP, backfill with 12 CY pit run</b>
126+60	18" x 30' CMP, drainage

127+70	<b>Install 18" x 32' CMP, backfill with 12 CY pit run</b>
128+50	<b>Turnaround left</b>
129+40	18" x 30' CMP, drainage, <b>place 2 tons R-4 riprap at outlet</b>
131+15	18" x 40' CMP, drainage
131+30-132+75	<b>Turnout right</b>
133+00	18" x 30' CMP
134+95	18" x 32' CMP, drainage
136+40	<b>Remove 18" x 30' CMP, install 18" x 30' CMP, backfill with 23 tons -1" commercial stone (drainage)</b>
136+40	<b>End limestone surfacing</b>
137+55	18" x 28' CMP, water is running underneath pipe at inlet, seal with 3 bags SAKRETE
138+20	<b>Install 18" x 30' CMP, backfill with 23 tons -1" commercial stone</b>
139+70	Turnout left
141+60	Parking area right
142+65	<b>Remove 36" x 36' CMP, install 57" x 38" x 36' CMPA, backfill with 48 CY pit run, top with 23 tons DSA limestone (drainage)</b>
145+35	Leadoff ditch left
147+35	18" x 36' CMP
149+70	18" x 28' CMP, <b>place 2 tons R-4 riprap at outlet</b>
150+60-152+30	Turnout right
152+00	<b>Install 18" x 32' CMP, apply 23 tons -1" commercial stone</b>
153+20	Leadoff ditch left
154+45	Leadoff ditch right, <b>place 4 tons R-4 riprap to stream at right</b>

156+00	Remove debris from ditch line
156+25	Leadoff ditch right
155+70-157+65	Turnout left
157+80	18" x 30' CMP
160+90	18" x 30' CMP
161+50	Turnaround right
164+90	18" x 34' CMP
166+10-168+05	Turnout left
167+00	End of existing limestone surfacing
167+00-421+00	Existing commercial surfacing
168+70	Dispersed camping, <b>reshape entrance to provide drivable ditch</b>
171+50	18" x 28' CMP
171+90	FR 552 right, <b>end of road reconditioning</b>

**NOTES**

TEMPORARY BENCH MARK 1 - ASSUMED ELEV. 100.00

USE CUT STONE FROM TWO EXISTING PIPES HEADWALL TO ARMOR BANKS AT INLET AND OUTLET

DO NOT DISTURB CUT STONE RETAINING WALL ON SOUTH END OF THE ROAD ON THE DOWNSTREAM EDGE OF SHOULDER, ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION

GALV. STEEL STRUCTURAL PLATE BOX CULVERT 16'-0" SPAN, 3'-6" RISE, 32' LONG

RIPRAP IS NSCA CLASS R-5 SIZE

RIPRAP PLACEMENT SUBJECT TO FIELD ADJUSTMENT BY INSPECTOR

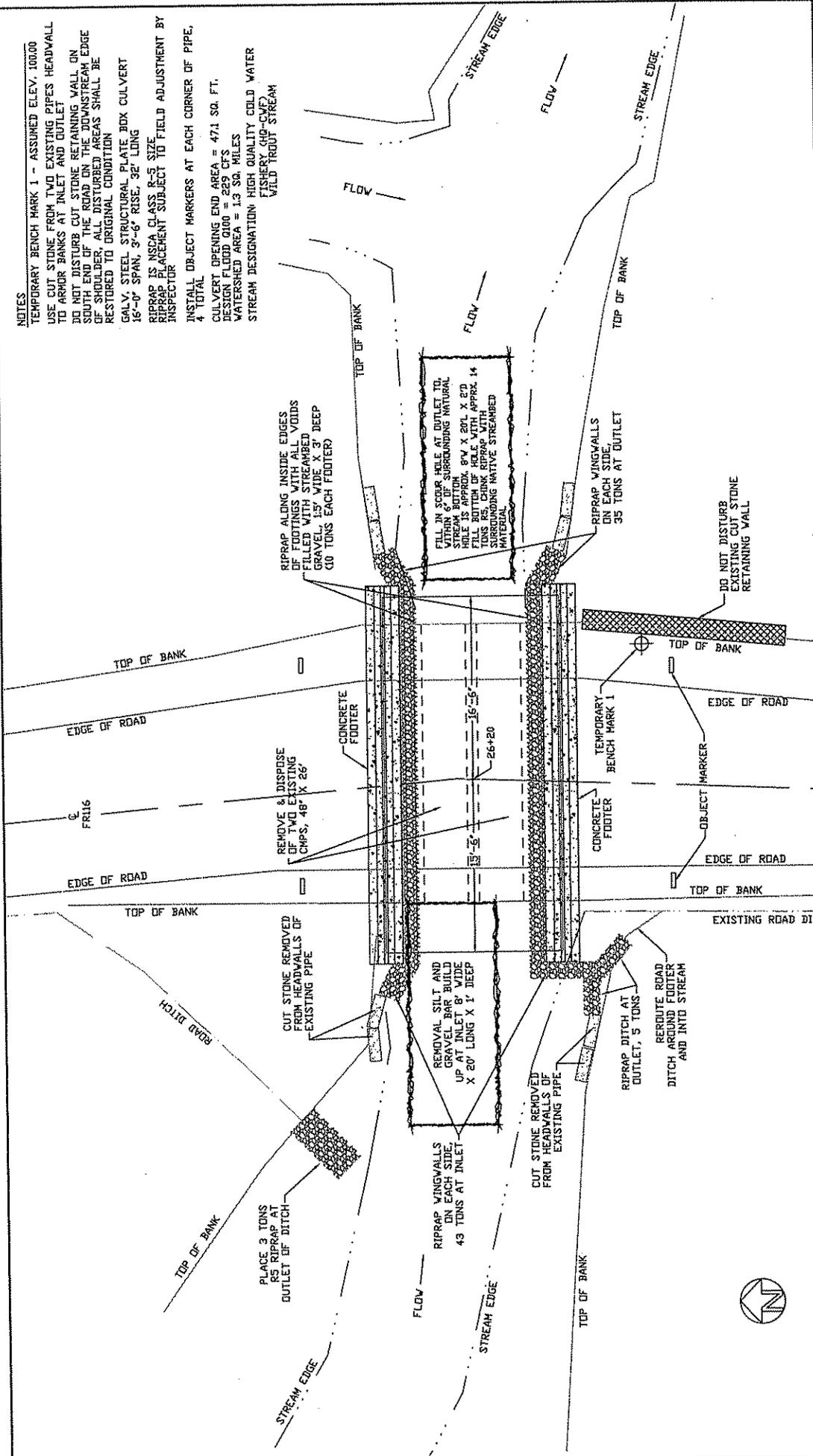
INSTALL OBJECT MARKERS AT EACH CORNER OF PIPE, 4' TOTAL

CULVERT OPENING END AREA = 471 SQ. FT.

DESIGN FLOW 2000 CFS

WATERSHED AREA = 1.3 SQ. MILES

STREAM DESIGNATION HIGH QUALITY COLD WATER FISHERY (H2CWF)



SHT. NO. 1/3

SHT. NAME

TRIB. TO BOBBS CREEK CULVERT

FR 116.1 STA. 26+20

PLAN VIEW

NOT TO SCALE



PROJECT

FR 116.1 INSTALLATION

REVISIONS
07/03/08 J.ROBINSON

DRAWN BY: J.ROBINSON

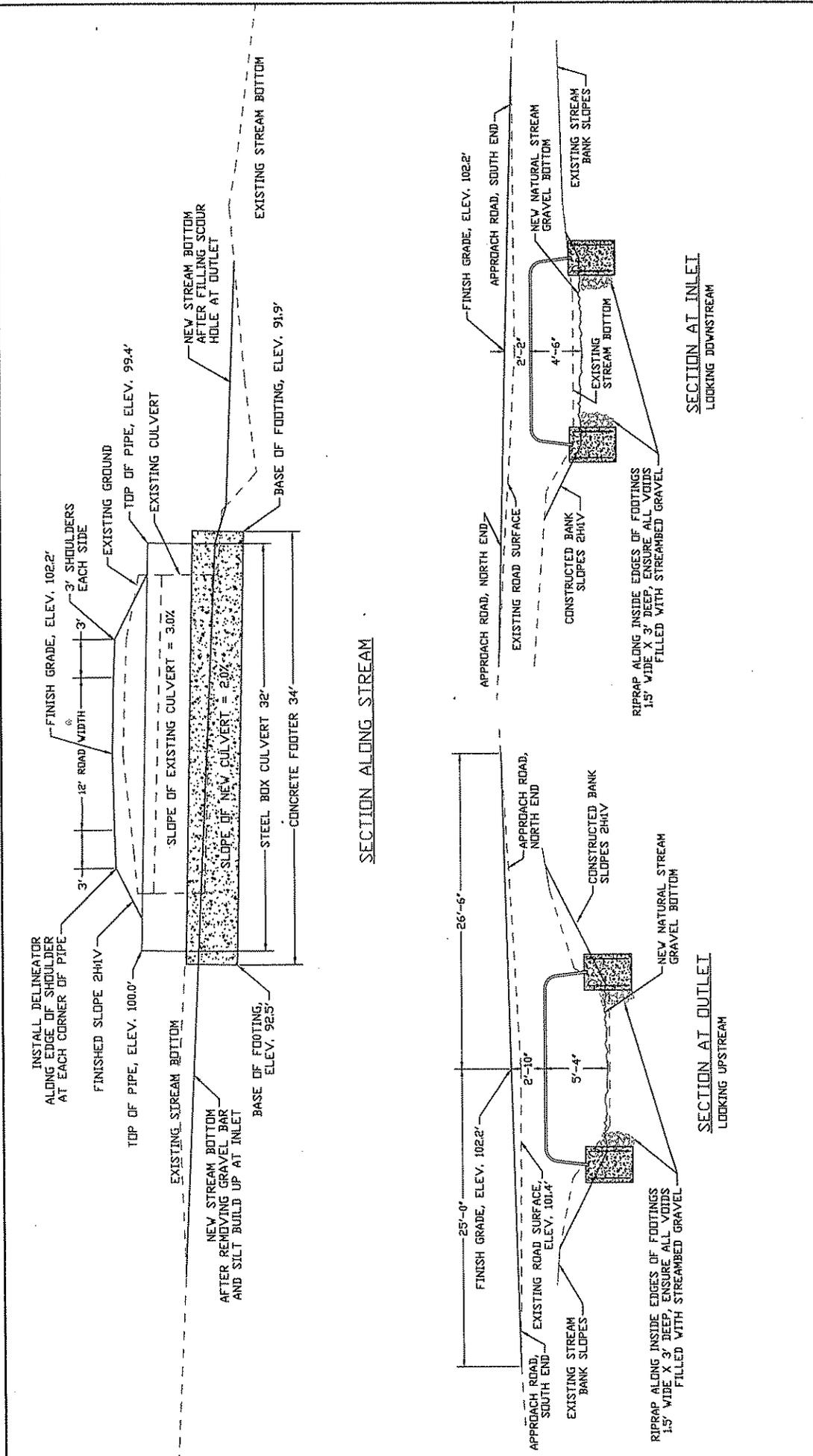
CHECKED: G.PARTER

DATE: 07/2008

PROJ. NO.

FILE PATH: K:\9999\drawings\FR 116.1\FR116.1\_CULVERT\_BOBBSCK.dwg





SECTION ALONG STREAM

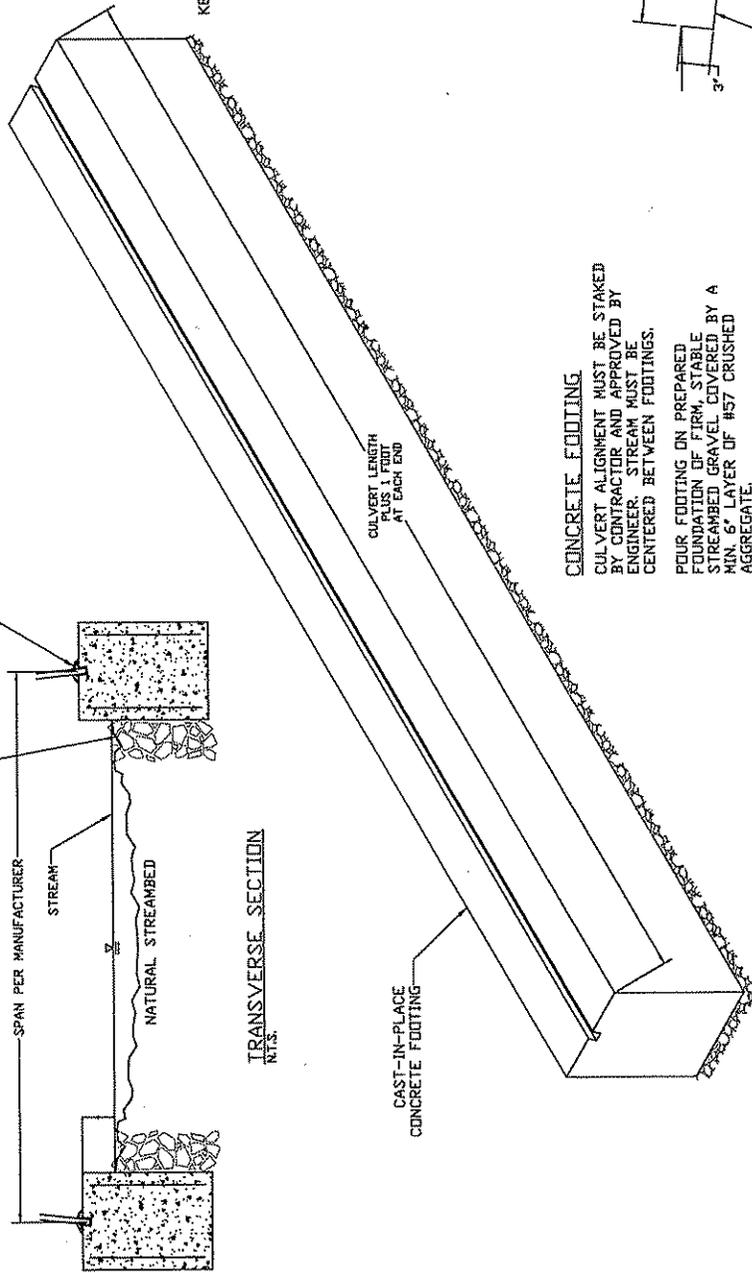
SECTION AT INLET  
LOOKING DOWNSTREAM

SECTION AT OUTLET  
LOOKING UPSTREAM

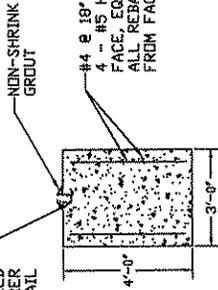
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	21						

**NOTES**

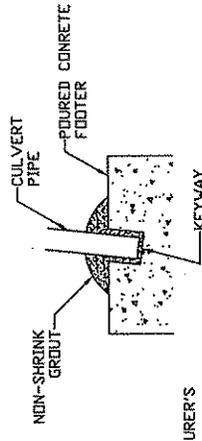
- ALL CONCRETE SHALL BE CLASS A AIR ENTRAINED.
- DO NOT DROP UNCONFINED CONCRETE A DISTANCE OF MORE THAN 5 FEET.
- PLACE CONCRETE AS NEAR AS POSSIBLE TO ITS FINAL POSITION.



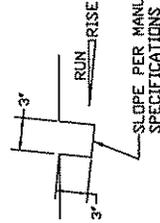
KEYWAY FOR PIPE INSTALLATION ANGLE CHANNEL AS REQUIRED BY CULVERT MANUFACTURER SEE KEYWAY DETAIL



**SECTION THROUGH FOOTING**  
N.T.S.



**KEYWAY DETAIL**  
N.T.S.



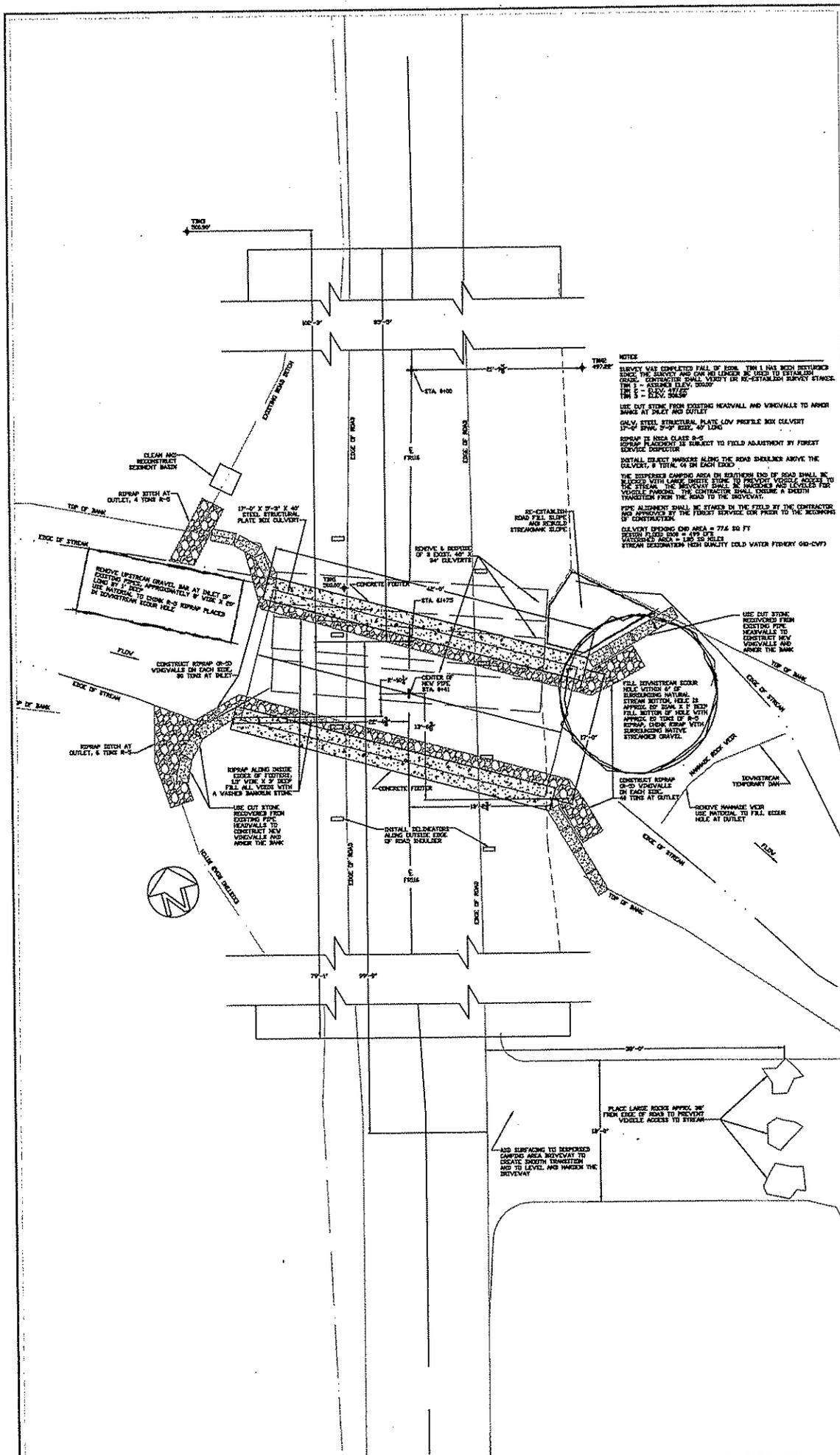
**CONCRETE FOOTING**

CULVERT ALIGNMENT MUST BE STAKED BY CONTRACTOR AND APPROVED BY ENGINEER. STREAM MUST BE CENTERED BETWEEN FOOTINGS.

FOUR FOOTING ON PREPARED FOUNDATION OF FIRM, STABLE STREAMBED GRAVEL COVERED BY A MIN. 6" LAYER OF #57 CRUSHED AGGREGATE.

FOUNDATION MATERIAL MUST BE APPROVED BY ENGINEER BEFORE PROCEEDING. UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED BY SUITABLE COMPACTED GRAVEL PER ENGINEER'S DIRECTION.

	DRAWN BY: J. Robinson DATE: 07/2008 FILE PATH: K:\YODE\Drawings\FR 116.1\FR116.1_CULVERT_BBBS.CRK.dwg	CHECKED: G. Perter PROJ. NO.	SHEET NO. 3/3
	REVISIONS 07/03/08 J. ROBINSON	PROJECT FR 116.1 INSTALLATION	SHEET NAME TRIB. TO BOBBS CREEK CULVERT FR 116.1 STA. 26+20 DETAILS NOT TO SCALE



SHT. NO. 1/8

SHT. NAME  
 TRIB. TO BOBBS CREEK  
 FRI16.2 STA. 61+75  
 OVERALL SITE PLAN  
 NOT TO SCALE

PROJECT  
 FRI16.2 TRIB. TO BOBBS CREEK  
 STREAM CROSSING

REVISIONS	CHECKED: G.Por-ter

DRAWN BY: J.Robinson  
 DATE: 03/2009  
 PROJ. NO. F:\Ops\Culvert-StreamCrossings\FRI16.2\_DarlingBranch\  
 FILE PATH: FRI16.2\_BobbsCreek

MATERIAL QUANTITIES		
ITEM	UNIT	QUANTITY
RS REFRAP	TON	150
4-7 STONE	TON	40
BANK BURN	TON	40
PURIN	CT	500
CONCRETE	CT	40

NOTES

1. SURVEY WAS COMPLETED FALL OF 2009. THE PLAN HAS BEEN REVISED TO REFLECT THE RESULTS OF THE RE-ESTABLISH SURVEY STAKES. THE CONTRACTOR SHALL RE-ESTABLISH THE STAKES TO THE FOLLOWING ELEVATIONS:

TERM 1 - ELEV. 509.97
TERM 2 - ELEV. 509.72
TERM 3 - ELEV. 509.97

2. USE CUT STONE FROM EXISTING ROADWALL AND VINDWALLS TO REPAIR BANKS IN AREAS WHERE THE LOW PROFILE BOX CULVERT IS 17'-0" WIDE. USE 3'-0" DIA. 40' LONG.

3. REFRAP IS ASCE CLASS R-3 SERVICE INSPECTOR.

4. THE ROAD SHOULD BE ADJUSTED TO FIELD ADJUSTMENT ABOVE THE ORIGINAL BE SET IN EACH END.

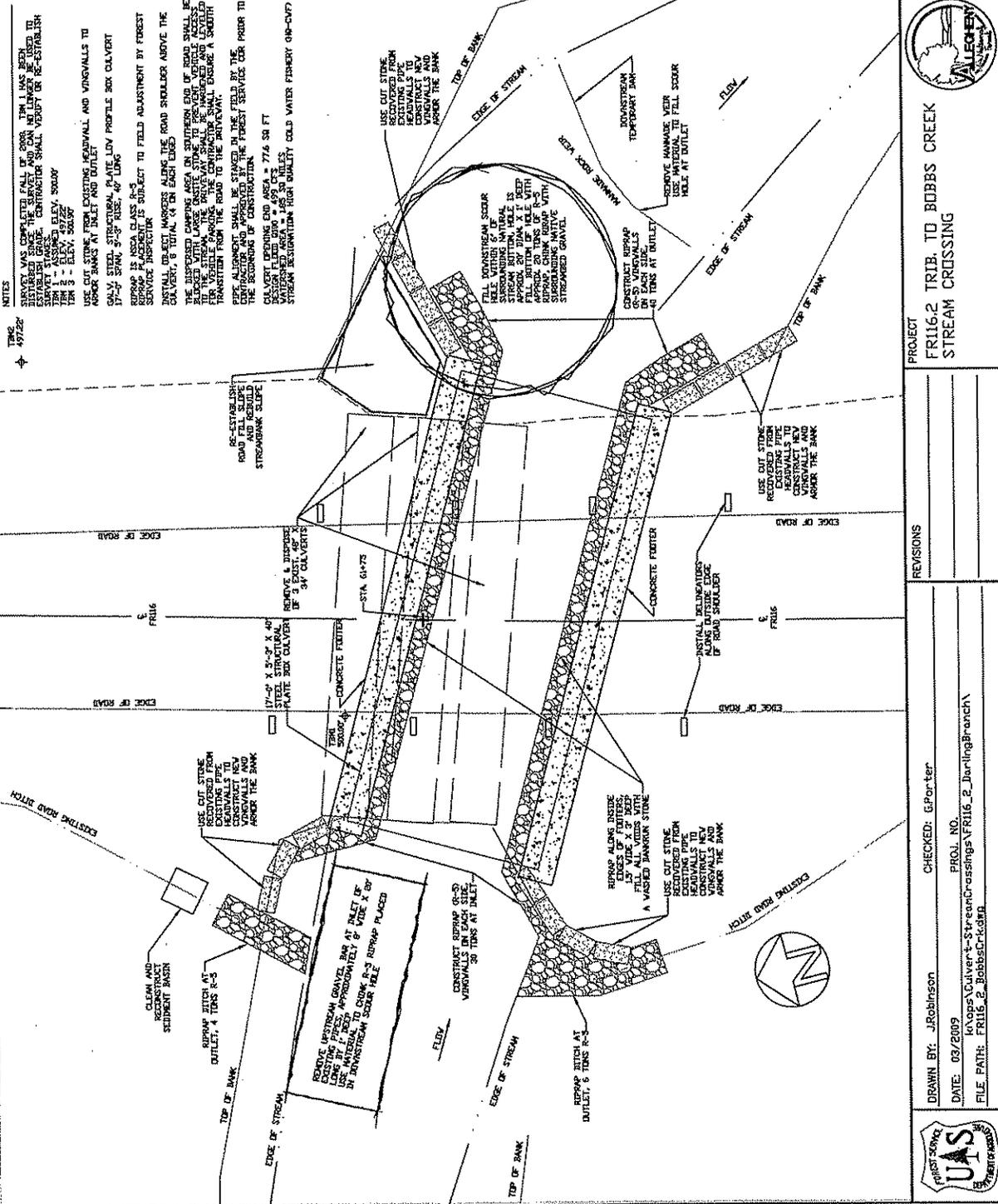
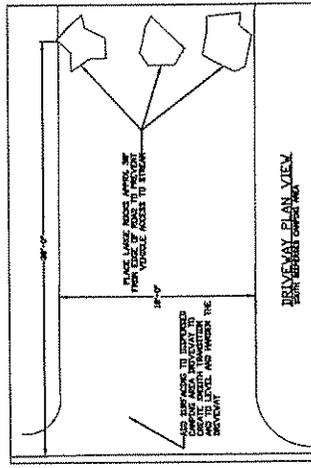
5. THE DESIGN CHANGING AREA ON THE SOUTHERN END OF ROAD SHALL BE RECONSTRUCTED WITH LARGE BRITTLE STONE TO PREVENT VEHICLE ACCESS TO THE SLOPE. THE CONTRACTOR SHALL ENSURE A SMOOTH TRANSITION FROM THE ROAD TO THE DRIVEWAY.

6. PIPE ALIGNMENT SHALL BE STAYED IN THE FIELD BY THE CONTRACTOR. THE FOREST SERVICE CDR PRIOR TO THE BEGINNING OF CONSTRUCTION.

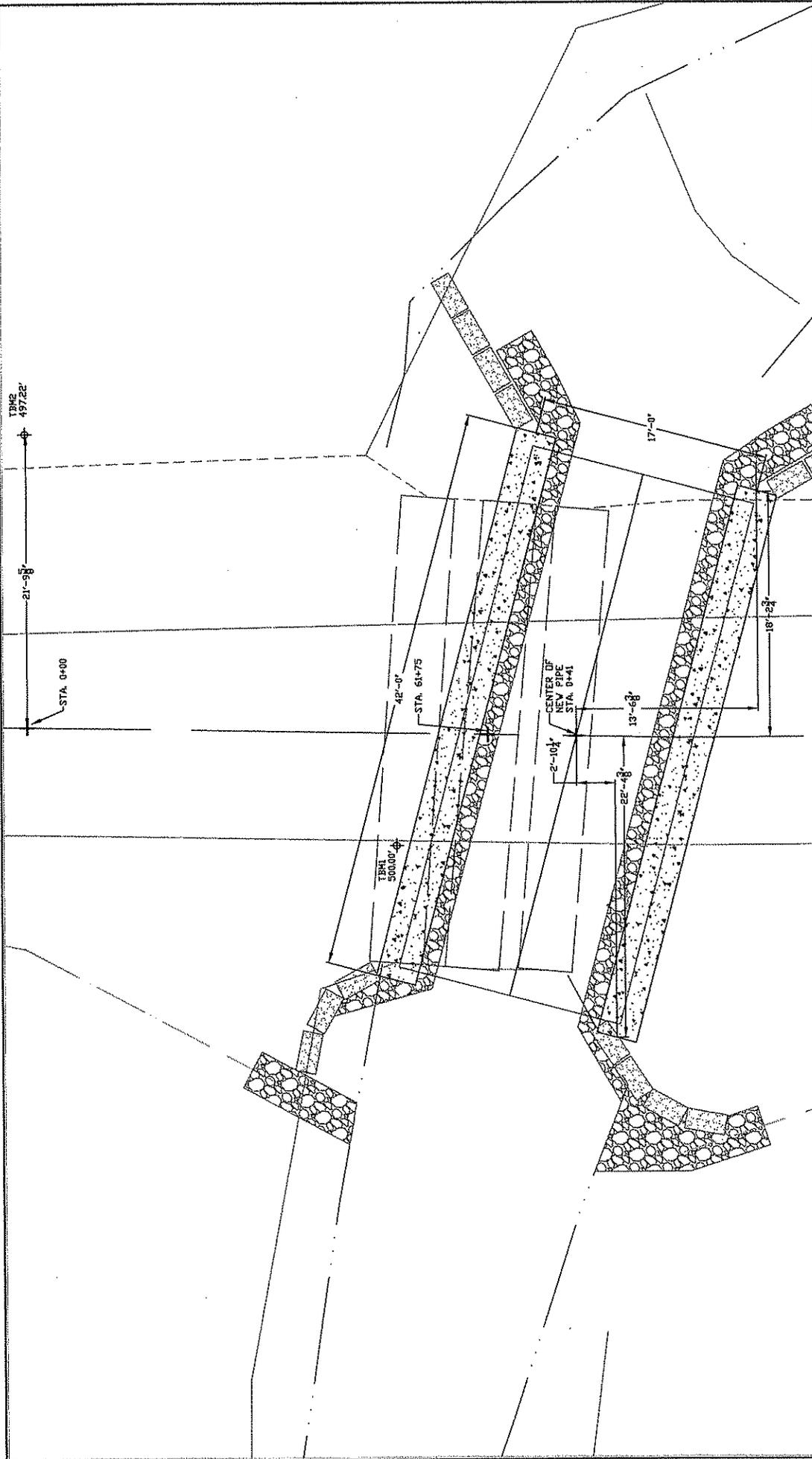
7. CLEAR DISTANCE TO ROAD = 77.66 SQ FT.

8. DESIGN FLOOD D80 = 49.93 CFS.

9. VERTICAL ALIGNMENT FROM QUALITY COLD WATER FISHERY 08-047



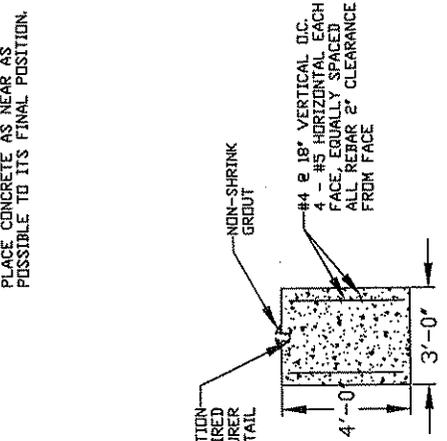
	DRAWN BY: J. Robinson DATE: 03/2009 FILE PATH: FRI16_2_BobbsCreek	CHECKED: E. Porter PROJ. NO.: FRI16_2_BobbsCreek	SHT. NO. 2/8
	PROJECT: FRI16.2 TRIB. TO BOBBS CREEK STREAM CROSSING SHT. NAME: TRIB. TO BOBBS CREEK FRI16.2 STA. 61+75 SITE PLAN NOT TO SCALE		



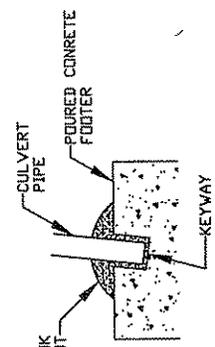
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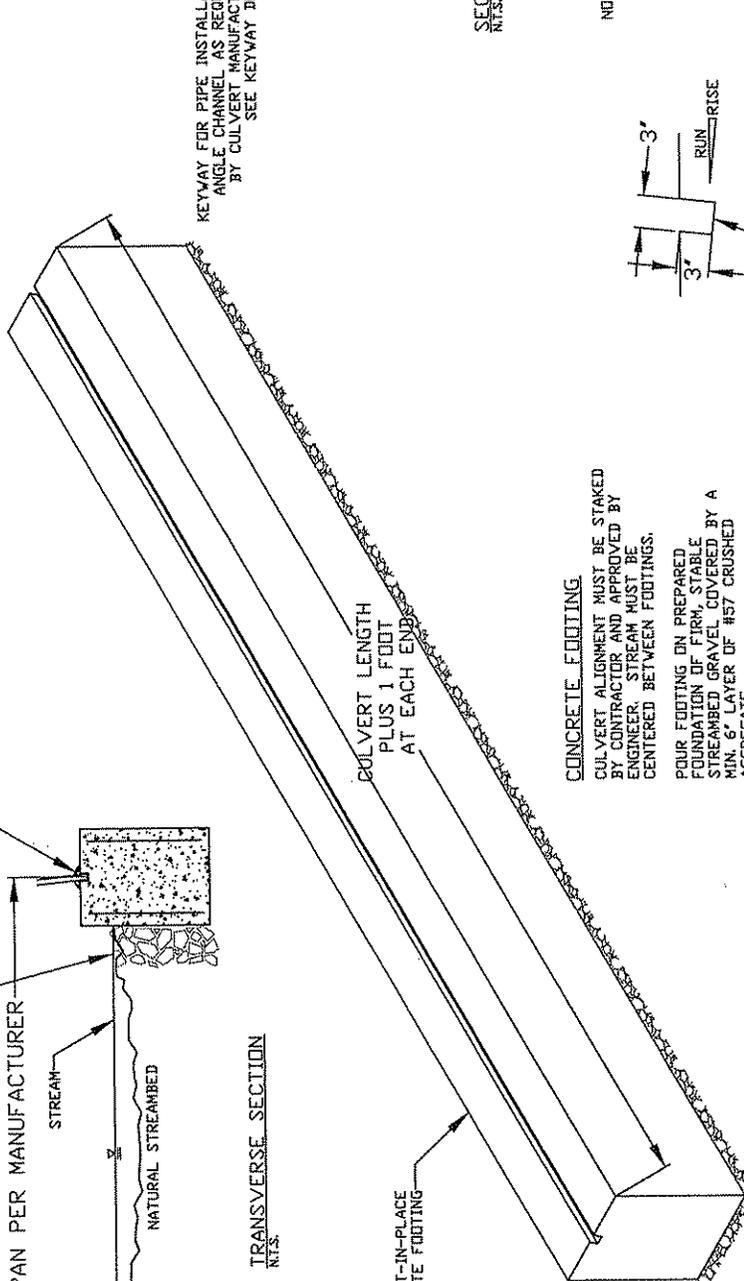
**NOTES**  
 ALL CONCRETE SHALL BE CLASS A AIR ENTRAINED.  
 DO NOT DROP UNCONFINED CONCRETE A DISTANCE OF MORE THAN 5 FEET.  
 PLACE CONCRETE AS NEAR AS POSSIBLE TO ITS FINAL POSITION.



**SECTION THROUGH FOOTING**  
 N.T.S.

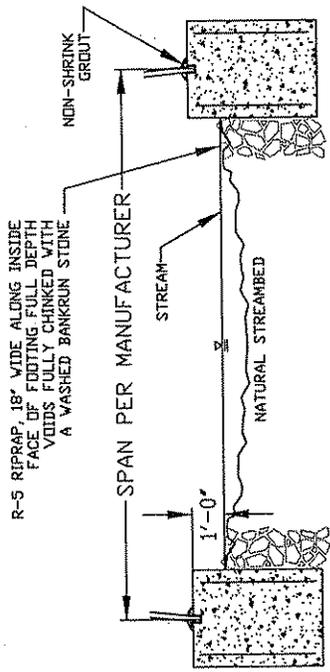


**KEYWAY DETAIL**  
 N.T.S.

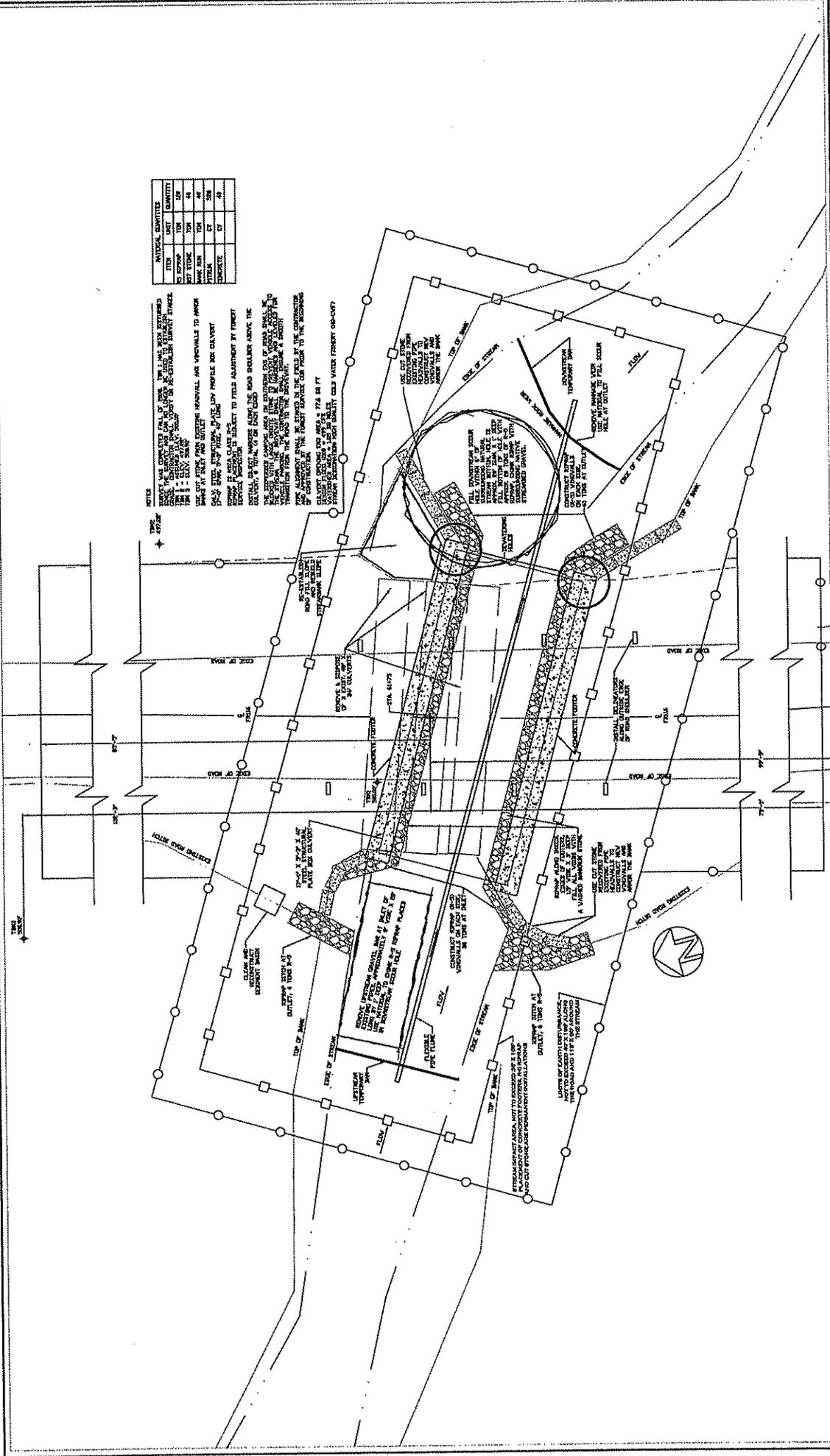


**TRANSVERSE SECTION**  
 N.T.S.

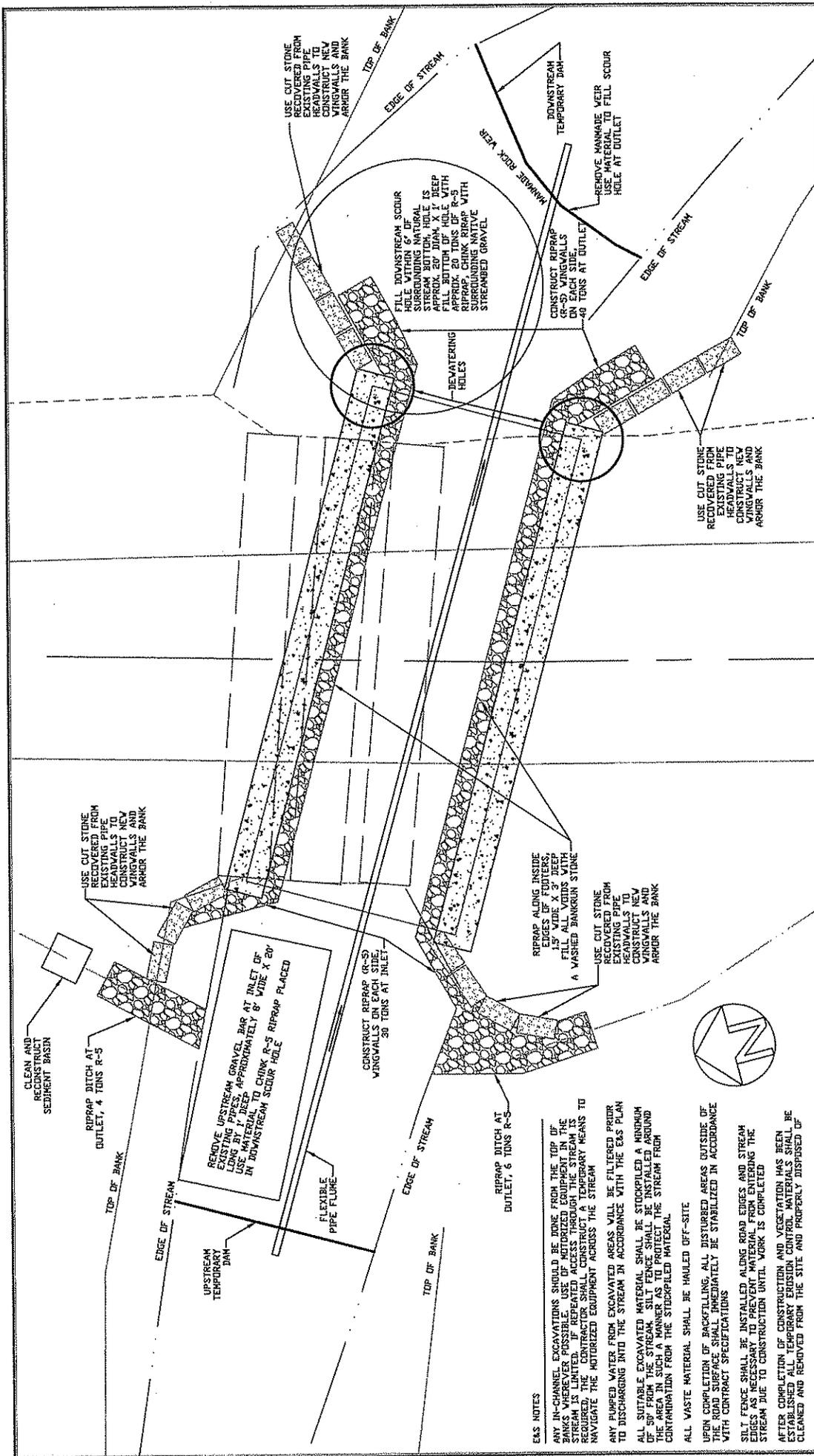
**CONCRETE FOOTING**  
 CULVERT ALIGNMENT MUST BE STAKED BY CONTRACTOR AND APPROVED BY ENGINEER. STREAM MUST BE CENTERED BETWEEN FOOTINGS.  
 POUR FOOTING ON PREPARED FOUNDATION OF FIRM, STABLE STREAMBED GRAVEL COVERED BY A MIN. 6" LAYER OF #57 CRUSHED AGGREGATE.  
 FOUNDATION MATERIAL MUST BE APPROVED BY ENGINEER BEFORE PROCEEDING. UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED BY SUITABLE COMPACTED GRAVEL PER ENGINEER'S DIRECTION.



	DRAWN BY: J. Robinson DATE: 03/2009 FILE PATH: FRI16.2_BobbsCreek	CHECKED: G. Porter PROJ. NO.: I:\apps\Culvert-StreamCrossings\FRI16.2_BartlingBranch\	PROJECT: FRI16.2 TRIB. TO BOBBS CREEK STREAM CROSSING	SHT. NAME: TRIB. TO BOBBS CREEK FRI16.2 STA. 61+75 FOOTER DETAILS NOT TO SCALE	SHT. NO.: 5/8
	REVISIONS				



MATERIAL QUANTITIES		
ITEM	UNIT	QUANTITY
NO. 5 GRAVEL	TON	120
NO. 20 SAND	TON	40
NO. 40 SAND	TON	10
NO. 100 SAND	TON	5
NO. 200 SAND	TON	5
NO. 400 SAND	TON	5
NO. 800 SAND	TON	5
NO. 1600 SAND	TON	5
NO. 3200 SAND	TON	5
NO. 6400 SAND	TON	5
NO. 12800 SAND	TON	5
NO. 25600 SAND	TON	5
NO. 51200 SAND	TON	5
NO. 102400 SAND	TON	5
NO. 204800 SAND	TON	5
NO. 409600 SAND	TON	5
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NO. 20086724252167060354666507520732728888822745600 SAND	TON	5
NO. 40173448504334120709333015041465457777745491200 SAND	TON	5
NO. 803468970086		



**EAS NOTES**

ANY IN-CHANNEL EXCAVATIONS SHOULD BE DONE FROM THE TOP OF BANKS WHEREVER POSSIBLE. USE OF MOTORIZED EQUIPMENT IN THE STREAM IS LIMITED. IF REPEATED ACCESS THROUGH THE STREAM IS REQUIRED, THE MOTORIZED EQUIPMENT SHOULD BE LIMITED TO NAVIGATE THE MOTORIZED EQUIPMENT ACROSS THE STREAM.

ANY PUMPED WATER FROM EXCAVATED AREAS WILL BE FILTERED PRIOR TO DISCHARGING INTO THE STREAM IN ACCORDANCE WITH THE E&S PLAN.

ALL SUITABLE EXCAVATED MATERIAL SHALL BE STOCKPILED A MINIMUM OF 50' FROM THE STREAM. SILT FENCE SHALL BE INSTALLED AROUND THE AREA IN SUCH A MANNER AS TO PROTECT THE STREAM FROM CONTAMINATION FROM THE STOCKPILED MATERIAL.

ALL WASTE MATERIAL SHALL BE HAULED OFF-SITE.

UPON COMPLETION OF BACKFILLING, ALL DISTURBED AREAS OUTSIDE OF THE ROAD SURFACE SHALL IMMEDIATELY BE STABILIZED IN ACCORDANCE WITH CONTRACT SPECIFICATIONS.

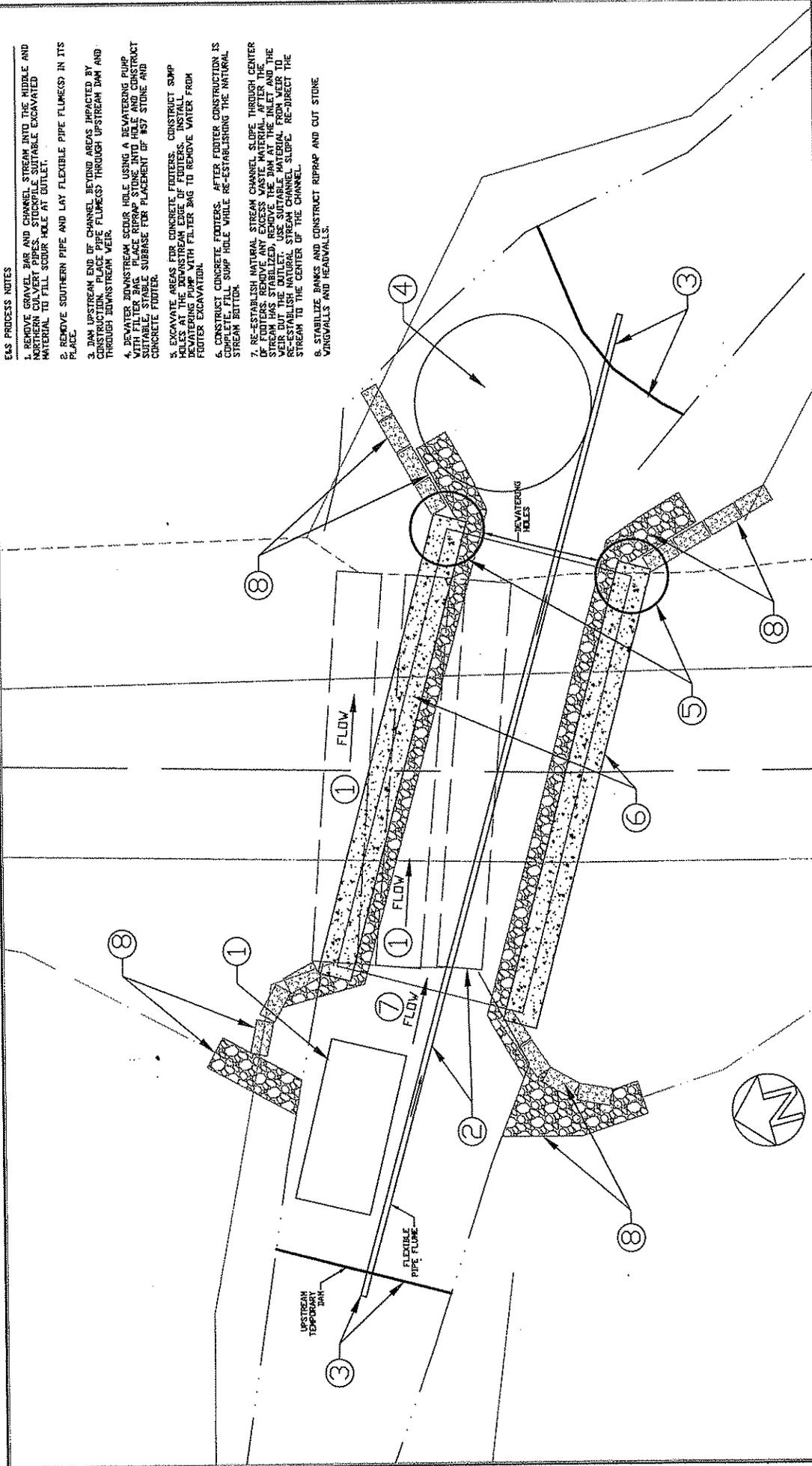
SILT FENCE SHALL BE INSTALLED ALONG ROAD EDGES AND STREAM EDGES AS NECESSARY TO PREVENT MATERIAL FROM ENTERING THE STREAM DUE TO CONSTRUCTION UNTIL WORK IS COMPLETED.

AFTER COMPLETION OF CONSTRUCTION AND VEGETATION HAS BEEN ESTABLISHED ALL TEMPORARY EROSION CONTROL MATERIALS SHALL BE CLEANED AND REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

	DRAWN BY: J. Robinson DATE: 03/2009 FILE PATH: FR116_2_BOBBSCK-Habit	CHECKED: G. Porter PROJ. NO.	REVISIONS	PROJECT FR116.2 TRIB. TO BOBBS CREEK STREAM CROSSING	SHT. NO. 7/8
	SHT. NAME TRIB. TO BOBBS CREEK FR116.2 STA. 61+75 E&S PLAN NOT TO SCALE				

E&S PROCESS NOTES

1. REMOVE GRAVEL BAR AND CHANNEL STREAM INTO THE MIDDLE AND NORTHERN CULVERTY PIPES. STOCKPILE SUITABLE EXCAVATED MATERIAL TO FILL SCOUR HOLE AT OUTLET.
2. REMOVE SOUTHERN PIPE AND LAY FLEXIBLE PIPE FLUME(S) IN ITS PLACE.
3. DAM UPSTREAM END OF CHANNEL BEYOND AREAS IMPACTED BY CONSTRUCTION. PLACE PIPE FLUME(S) THROUGH UPSTREAM DAM AND THROUGH DOWNSTREAM VEER.
4. DEWATER DOWNSTREAM SCOUR HOLE USING A DEWATERING PUMP WITH FILTER BAG. PLACE RIPRAP STONE INTO HOLE AND CONSTRUCT SUITABLE, STABLE SUBBASE FOR PLACEMENT OF #57 STONE AND CONCRETE FOOTER.
5. EXCAVATE AREAS FOR CONCRETE FOOTERS. CONSTRUCT SUMP HOLES AT THE DOWNSTREAM EDGE OF FOOTERS. INSTALL DEWATERING PUMP WITH FILTER BAG TO REMOVE WATER FROM FOOTER EXCAVATION.
6. CONSTRUCT CONCRETE FOOTERS. AFTER FOOTER CONSTRUCTION IS COMPLETE, FILL SUMP HOLE WHILE RE-ESTABLISHING THE NATURAL STREAM BOTTOM.
7. RE-ESTABLISH NATURAL STREAM CHANNEL SLOPE THROUGH CENTER OF FOOTERS. REMOVE ANY EXCESS WASTE MATERIAL AT THE STREAM HEADS. STABILIZE, RE-ESTABLISH, AND REPAIR THE SUBBASE WITH RIPRAP. USE SUITABLE MATERIAL FROM WEIR TO RE-ESTABLISH NATURAL STREAM CHANNEL SLOPE. RE-DIRECT THE STREAM TO THE CENTER OF THE CHANNEL.
8. STABILIZE BANKS AND CONSTRUCT RIPRAP AND CUT STONE VANGWALLS AND HEADWALLS.



SHT. NO. 8/8

SHT. NAME  
TRIB. TO BOBBS CREEK  
FR116.2 STA. 61+75  
E&S DETAILS  
NOT TO SCALE



PROJECT  
FR116.2 TRIB. TO BOBBS CREEK  
STREAM CROSSING

REVISIONS

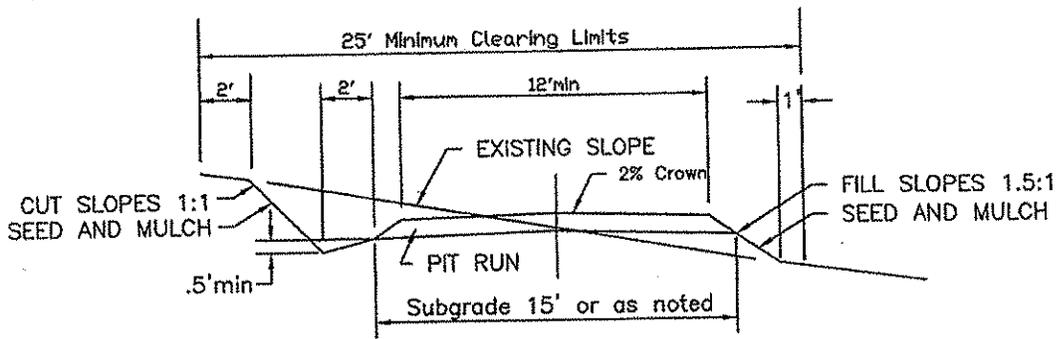
NO.	DESCRIPTION

DRAWN BY: J. Robinson      CHECKED: G. Porter

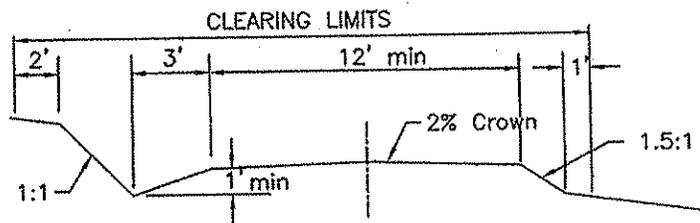
DATE: 03/2009      PROJ. NO.      FR116.2

FILE PATH: FR116.2\_BobbsCrK.dwg

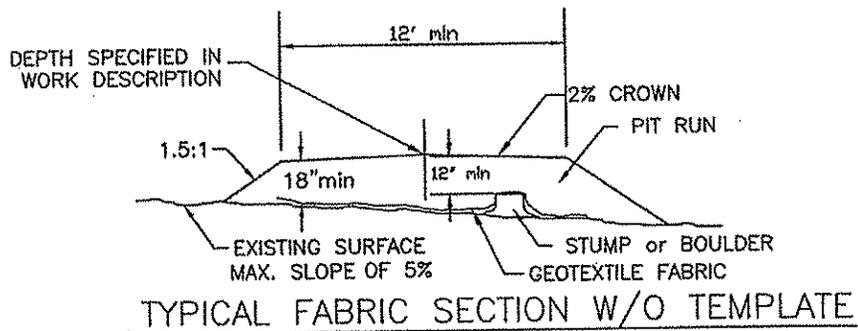




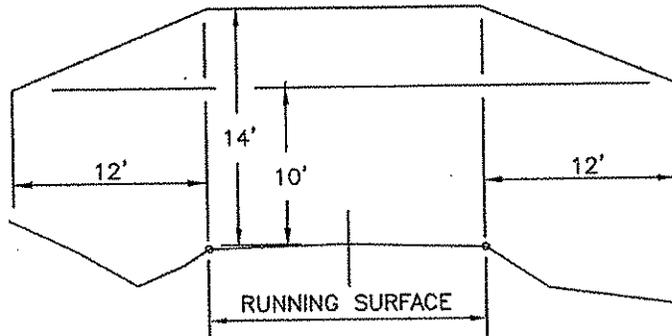
TYPICAL CONSTRUCTION SECTION



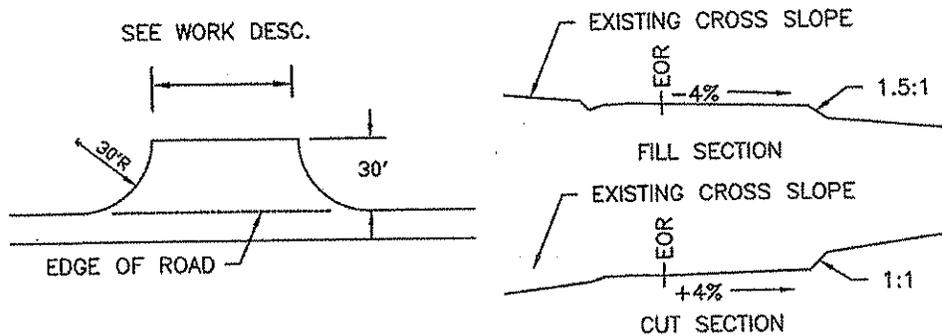
TYPICAL RECONDITION SECTION



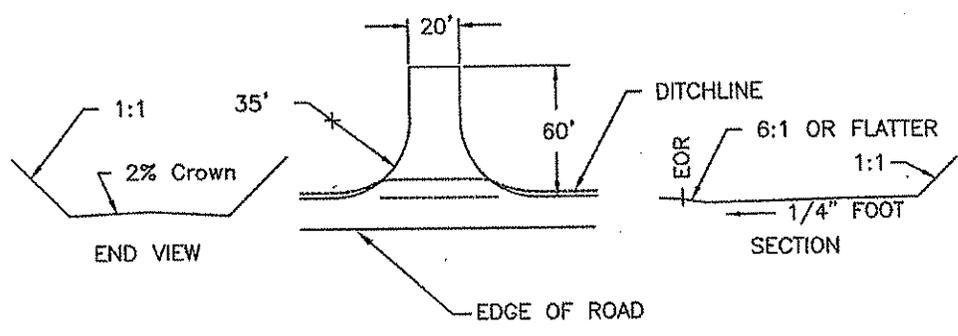
TYPICAL FABRIC SECTION W/O TEMPLATE



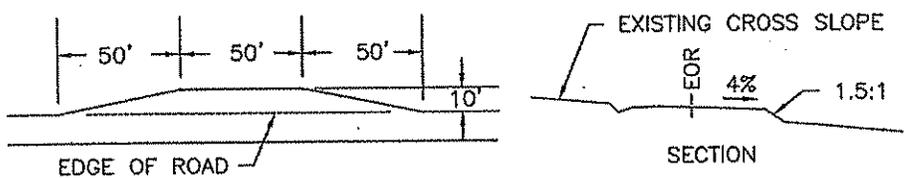
ROADSIDE BRUSHING DETAIL



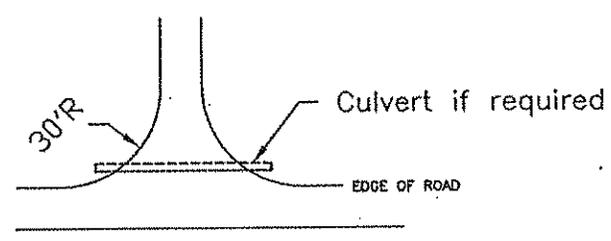
PARKING LOT DETAIL



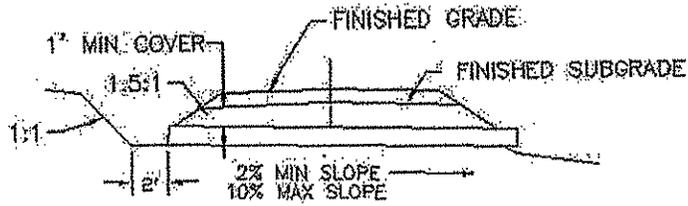
TURNAROUND DETAIL



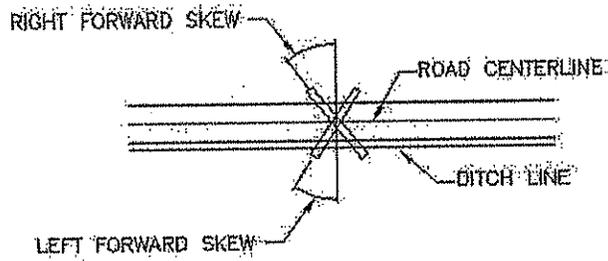
TURNOUT DETAIL



INTERSECTION DETAIL



CULVERT SECTION



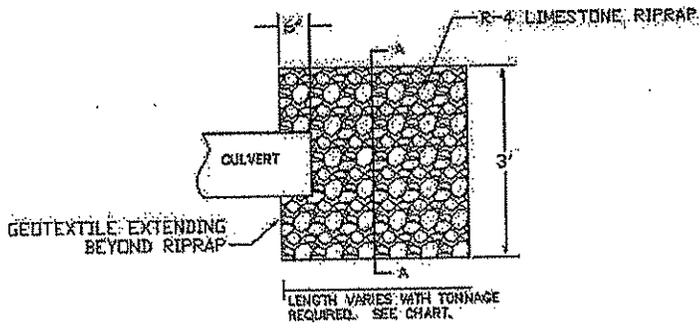
SKEW DETAIL

NOTE: Field locate ditch to minimize new clearing

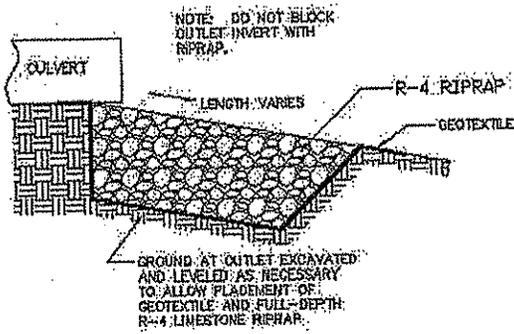


OUTLET/LEAD OFF DITCH SECTION

## CULVERT OUTLET RIPRAP DETAIL

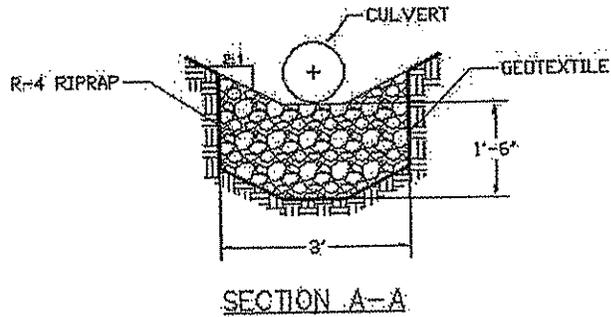


PLAN VIEW



R-4 RIPRAP	
QUANTITY	APPROXIMATE COVERAGE
2 TONS	3' X 7' X 1.5'
3 TONS	3' X 10' X 1.5'
4 TONS	3' X 13' X 1.5'

PROFILE



## Pit Development Plan

Pit run for this project will come from the pit located on FR 116E station 14+00

### A. Pit Development

1. The overburden removed will be stockpiled in a location agreed upon by the Forest Service and the contractor, and used for pit reclamation.
2. Only ONE face of the pit is to be open and worked on at any given time.
3. High walls are a violation of OSHA regulations.
4. The pit floor will be sloped to prevent pooling of water.
5. Any oversized material left over in the pit area shall be stockpiled at a mutually agreed upon, by Forest Service and contractor, location.
6. No disposed equipment, trash, vehicles, pipe, or miscellaneous supplies will be allowed to accumulate or be stored in the pit and surrounding areas unless first agreed to by the Forest Service.
7. Operator will not undermine any boundary of the pit area.
8. No slash, soil or stumps will be permitted against live trees. No undercutting of roots of live trees allowed.

### B. Timber

1. Slash resulting from this project will be scattered outside the clearing limits of the road and pit site. Stumps will be scattered at random and set upright. Stumps will be pulled into the pit floor not out into the woods.
2. The Forest Service will mark any further pit expansion after being notified, in advance by the Operator.
3. Any timber stored within the pit area that is decked for a timber sale shall not be damaged or buried. Timber shall be decked at a location designated by the Forest Service.
4. No timber may be cut or pushed over unless it is marked by the Forest Service and compensated for.

### C. Pit Reclamation

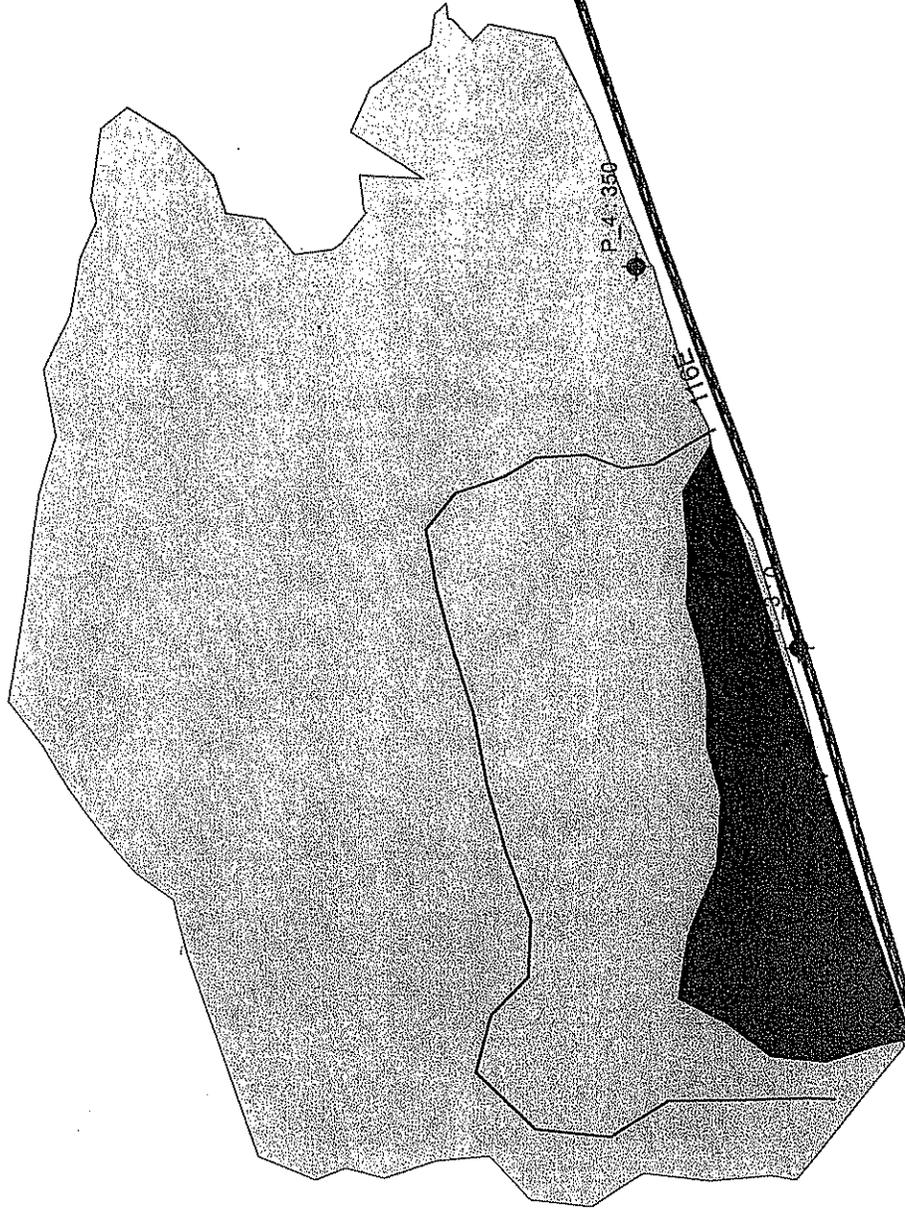
1. As each open face is depleted of suitable rock material, that area will be reclaimed promptly to a slope of 1.5:1 or greater using the previously stockpiled overburden.
2. The slope/reclaimed area will then promptly be seeded, fertilized, and mulched using a non-exotic seed mixture designed by the Forest Service.
3. Areas seeded that are not receiving 50% or greater germination will be reseeded within 30 days, or the next suitable seeding season.
4. No open face of the pit will be closed without prior notification to the Forest Service.
5. When excavation of material is complete, the Forest Service will be notified to approve and document the reclamation work.

# Bobb's Fork / Queen Data Collection

## FR 116E Pit #1

Warrent 52-33

	clearing limit
	pit_floor
	overburd
	top_of_cut
	access_road
	photo #: azimuth azimuth
	Point_generic
	Line_gen
<b>MDCODE</b>	
	GPS3
<b>pit point</b>	
<b>STATUS</b>	
	active
	depleted
	inactive
	tested found stone
	tested no stone found
	Pits GPS 7/2006



Specification –Stream Crossings	Road Number		
	116	119	Page #
Preface	X	X	39
101 - Terms, Format, and Definitions	X	X	
SS101 - Terms, Format, and Definitions	X	X	40
102 - Bid, Award, and Execution of Contract	X	X	
SS102 - Bid, Award, and Execution of Contract	X	X	43
103 - Scope of Work	X	X	
SS103 - Scope of Work	X	X	44
104 - Control of Work	X	X	
SS104 - Control of Work	X	X	45
105 - Control of Material	X	X	
SS105 - Control of Material	X	X	46
106 - Acceptance of Work	X	X	
SS106 - Acceptance of Work	X	X	47
107 - Legal Relations and Responsibility to the Public	X	X	
SS107 - Legal Relations and Responsibility to the Public	X	X	48
108 - Prosecution and Progress	X	X	
SS108 - Prosecution and Progress	X	X	50
109 - Measurement and Payment	X	X	
SS109 - Measurement and Payment	X	X	51
151 - Mobilization	X	X	
153 – Contractor Quality Control	X	X	
SS 153 – Contractor Quality Control	X	X	52
155 - Schedules for Construction Contracts	X	X	
SS155 - Schedules for Construction Contracts	X	X	53
156 - Public Traffic	X	X	
SS156 - Public Traffic	X	X	54
157 – Soil Erosion Control	X	X	
SS 157 – Soil Erosion Control	X	X	55
201 - Clearing and Grubbing	X	X	
SS-201 Clearing and Grubbing	X	X	56
203 - Removal of Structures and Obstructions	X	X	
SS203 - Removal of Structures and Obstructions	X	X	58
204 - Excavation and Embankment	X	X	
SS204 – Excavation and Embankment	X	X	59
207 - Earthwork Geotextiles	X	X	
209 – Structure Excavation and Backfill	X	X	

SS209 – Structure Excavation and Backfill	X	X	72
251 – Riprap	X	X	
SS251 – Riprap	X	X	74
301 – Untreated Aggregate Courses	X	X	
SS301 – Untreated Aggregate Courses	X	X	75
303 – Road Reconditioning	X	X	
SS303 – Road Reconditioning	X	X	80
552 - Structural Concrete	X		
SS552 – Structure Concrete	X		81
554 – Reinforcing Steel	X		
SS554 – Reinforcing Steel	X		85
602 – Culverts and Drains	X	X	
SS602 – Culverts and Drains	X	X	86
603 – Structural Plate Structures	X		
SS603 – Structural Plate Structures	X		87
625 – Turf Establishment	X	X	
SS625 – Turf Establishment	X	X	88
635 – Temporary Traffic Control	X	X	
SS635 – Temporary Traffic Control	X	X	91
651 – Development of Pits & Quarries	X	X	
SS651 – Development of Pits & Quarries	X	X	92
703 – Aggregate	X	X	
SPS-703 -Aggregate	X	X	93
705 – Rock	X	X	
SPS705 Rock	X	X	95
707 – Metal Pipe	X	X	
711 – Concrete Curing Material and Admixtures	X	X	
713 – Roadside Improvement Material	X	X	
714 – Geotextile and Geocomposite Drains	X	X	
717 – Structural Metal	X	X	
718 – Traffic Signing and Marking Material	X	X	
SS718 – Traffic Signing and Marking Material	X	X	96
725 – Miscellaneous Material	X	X	

## Preface

Preface\_wo\_03\_15\_2004\_m

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

101.00\_nat\_us\_07\_25\_2005

101.01\_nat\_us\_04\_04\_2007

### 101.01 Meaning of Terms

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

101.03\_nat\_us\_06\_16\_2006

### 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\_nat\_us\_03\_29\_2007

### 101.04 Definitions.

Delete the following definitions and substitute the following:

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

**Bridge**--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.

**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.

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.

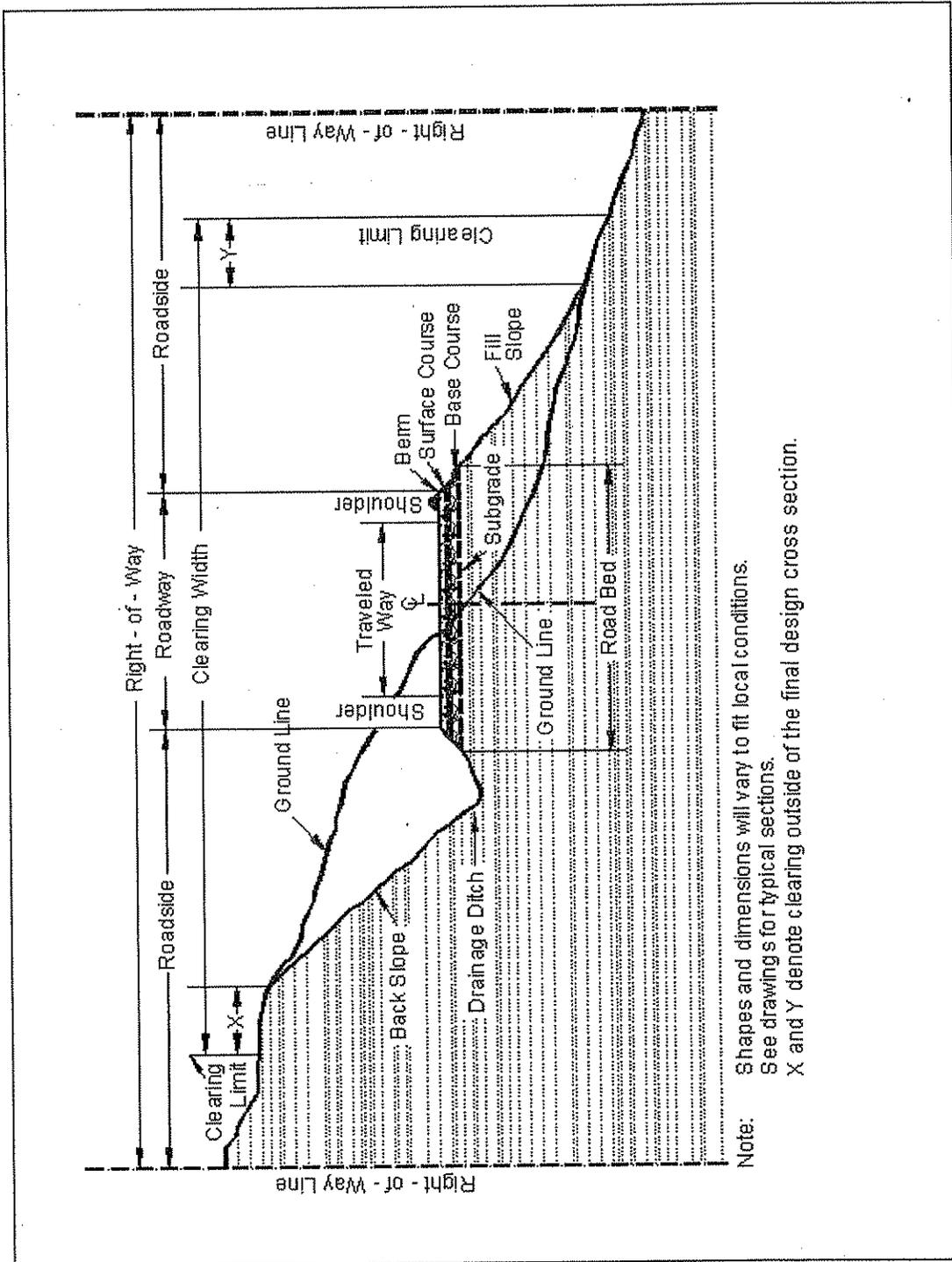
**Road Order**--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

**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.



Note: Shapes and dimensions will vary to fit local conditions.  
 See drawings for typical sections.  
 X and Y denote clearing outside of the final design cross section.

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

102.00\_nat\_us\_02\_16\_2005

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

Delete Section 102 in its entirety.

## 103 - Scope of Work

103.00\_nat\_us\_02\_16\_2005

### Deletions

Delete all but subsection 103.01 Intent of Contract.

## 104 - Control of Work

104.00\_nat\_us\_06\_16\_2006

### **Deletions**

Delete Sections 104.01, 104.02, and 104.04.

104.06\_nat\_us\_02\_17\_2005

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

105.02\_nat\_us\_01\_18\_2007

### 105.02 Material Sources.

#### 105.02(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.

105.05\_nat\_us\_05\_12\_2004

#### 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\_nat\_us\_05\_11\_2004

### 106.07 Delete

Delete subsection 106.07.

## 107 - Legal Relations and Responsibility to the Public

107.05\_nat\_us\_05\_11\_2004

### 107.05 Responsibility for Damage Claims.

Delete the entire subsection.

107.06\_nat\_us\_06\_16\_2006

### 107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.  
"except as provided in Subsection 106.07".

107.09\_nat\_us\_06\_16\_2006

### 107.09 Legal Relationship of the Parties.

Delete the entire subsection.

107.10\_nat\_us\_06\_16\_2006

### 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 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

108.00\_nat\_us\_02\_16\_2005

**108 Delete.**

Delete Section 108 in its entirety.

## 109 - Measurement and Payment

109.00\_nat\_us\_02\_17\_2005

### 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\_nat\_us\_06\_16\_2006

### 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 15% or more.

Change the following:

“(b) Cubic yard” to “(c) Cubic yard”.

Add the following definition:

**(p) Thousand Board Feet (Mbf).** 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, 1,000 board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

## 153 - Contractor Quality Control

153.04\_nat\_us\_10\_24\_2007

### 153.04 Records.

Delete all but the first sentence

## 155 - Schedules for Construction Contracts

155.00\_nat\_us\_05\_11\_2004

**155 Delete.**

Delete Section 155 in its entirety.

## 156 - Public Traffic

156.03\_nat\_us\_02\_24\_2005

### 156.03 Accommodating Traffic During Work.

Delete the following from the last paragraph:

according to Subsection 106.07(b)

156.04\_nat\_us\_02\_24\_2005

### 156.04 Maintaining Roadways During Work.

(a) Add the following:

Do not construct detours outside of the clearing limits or use alternate route detours without the approval of the CO.

156.08\_nat\_us\_02\_24\_2005

### 156.08 Traffic and Safety Supervisor.

Delete this subsection in its entirety.

## 157 - Soil Erosion Control

157.03\_nat\_us\_02\_24\_2005

### 157.03 General

Delete the entire subsection and replace with the following:

Prior to the start of construction, submit a written plan that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Do not begin work until the necessary controls for that particular phase of work have been implemented. Do not modify the type, size, or location of any control. An alternate erosion control plan with all necessary permits may be submitted 30 days before intended use.

Incorporate all permanent erosion control features into the project at the earliest practicable time, as outlined in the approved plan.

When erosion control measures are not functioning as intended, immediately take corrective action.

## 201 - Clearing and Grubbing

201.00\_nat\_us\_05\_01\_2006

### 201.02 Delete:

Delete Tree wound dressing material reference.

### 201.03 General.

Delete the last sentence.

### 201.04 Clearing.

Delete the last sentence of (d).

201.01\_nat\_us\_02\_18\_2005

### 201.01 Description

Replace with the following

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

201.04\_nat\_us\_02\_22\_2005

### 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 12 inches or one-third 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 3 feet tall and less than 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 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.

## 203 - Removal of Structures and Obstructions

203.01\_nat\_us\_02\_25\_2005

### 203.01 Description.

Delete and replace with the following:

This work consists of disposing of construction slash and debris, salvaging, removing, and disposing of buildings, fences, structures, pavements, culverts, utilities, curbs, sidewalks, and other obstructions.

203.04\_nat\_us\_02\_18\_2005

### 203.04 Removing Material.

Replace the fourth and fifth paragraphs with the following:

Where part of an existing culvert is removed, remove the entire culvert upstream from the removal. The remaining downstream culvert may be left in place if no portion of the culvert is within 12 inches of the subgrade, embankment slope, or new culvert or structure; and the culvert ends are sealed with concrete.

Remove structures and obstructions in the roadbed to 12 inches below subgrade elevation. Remove structures and obstructions outside the roadbed to 12 inches below finished ground or to the natural stream bottom.

203.08\_nat\_us\_02\_24\_2005

### 203.08 Payment

Add the following:

Disposal of construction slash will be compensated under the designated pay item in Section 201.

## 204 - Excavation and Embankment

204.00\_nat\_us\_10\_23\_2007

Replace Section 204 in its entirety with the following:

### Description

**204.01** This work consists of excavating material and constructing embankments. 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. Dispose of unsuitable or excess excavation material according to Subsection 204.14.

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 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

**(c) Earth cuts.** Scarify earth cuts to 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.

**204.07 Subexcavation.** Excavate material to the limits designated by the CO. 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 4 feet high over natural ground.** When designated, remove topsoil and break up the ground surface to a minimum depth of 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 6 inches. Scarify or pulverize asphalt and concrete roads to 6 inches below the pavement. Reduce all particles to a maximum size of 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 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 12 inches in compacted thickness. Incorporate oversize boulders or rock fragments into the 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 12-inch layers may be placed in layers up to 24 inches thick. Incorporate oversize boulders or rock fragments into the 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 24 inches in diameter as follows:

- (1) Reduce rock to less than 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 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 80 percent retained on the No. 4 sieve use procedure (1). If there is 50 to 80 percent retained on the No. 4 sieve use procedure (2). If there is less than 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 6 feet per second and vibratory rollers at speeds less than 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 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

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

*(c)* Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

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

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

**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 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  $1\frac{1}{2}V:1H$  to  $1V:2H$ . Construct the steps approximately 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 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 6 inches from the top 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 6 inches from the top 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 10 tons. Roll at least 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 13,000 yd <sup>3</sup>	"	"	"
		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 in work	Yes, when requested	Before using in work
		Gradation	—	AASHTO T 27 & T 11	"	"	"	"
		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 13,000 yd <sup>3</sup>	"	"	"
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 Material	Split Sample	Reporting Time
Earth embankment (204.1.1, 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>	“	“	“
Top of subgrade (204.1.1 Compaction A)	Measured and tested for conformance (106.04)	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
		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 <sup>(a)</sup>												
	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 (% slope <sup>(b)</sup> )	±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

## 209 - Structure Excavation and Backfill

209.10\_nat\_us\_10\_23\_2007

### 209.10 Backfill.

#### (a) General.

##### Add the following:

Replace any pipe that is distorted by more than 5 percent of nominal dimensions, or that is ruptured or broken.

Do not place or backfill pipe that meets any of the following conditions until the excavation and foundation have been approved in writing by the CO:

- Embankment height greater than 6 feet at subgrade centerline.
- Installation in a protected streamcourse.
- Round pipe with a diameter of 48 inches or greater.
- Pipe arches with a span of 50 inches or greater.
- Any box culvert of structure other than pipe culverts.

#### (b) Pipe culverts.

##### (1) Pipe culverts with compacted backfill.

##### Add the following:

Excavate an area on each side of the pipe as needed to effectively achieve compaction requirements. Backfill without damaging or displacing the pipe. Complete backfilling of the trench with suitable material.

209.11\_nat\_us\_02\_24\_2005

### 209.11 Compacting.

##### Delete the subsection and add the following:

Compact backfill using designated compaction method A, B, or C:

**Method A.** Ensure that backfill density exceeds the density of the surrounding embankment.

**Method B.** Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact each layer using appropriate compaction equipment until visual displacement ceases. For compaction under sections 252, 254, 255, 257, 258 and 262 compact with a vibratory steel wheeled roller with a mass of at least 8 tons.

**Method C.** Determine optimum moisture content and maximum density according to AASHTO T 99 method C. Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact material placed in all layers 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.

**Table 209-1 Sampling and Testing Requirements**

Add the following:

(2) Compaction methods (A) and (B) do not require AASHTO T-99 or T-310 test methods for foundation fill.

## 251 - Riprap

251.03\_nat\_us\_06\_18\_2007

### Construction Requirements

#### 251.03 General.

Add the following:

Place riprap under or adjacent to structures before placing prefabricated superstructure units or constructing superstructure falsework unless otherwise approved by the CO.

#### 251.08 Measurement.

Add the following:

Payment for excavation and embankment required for placement of riprap is indirectly included in the pay item for riprap.

## 301 - Untreated Aggregate Courses

301.00\_nat\_us\_03\_03\_2005

### 301 Title Change.

Change the title to: Section 301 Aggregate Courses

301.01\_nat\_us\_03\_03\_2005

### 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\_nat\_us\_05\_16\_2005

### 301.02 Material.

Add the following:

Bentonite	725.30
Calcium Chloride Flake	725.02
Lignon Sulfonate	725.20
Magnesium Chloride Brine or Calcium Chloride Liquid	725.02

301.03\_nat\_us\_09\_14\_2005

### 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 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\_nat\_us\_05\_17\_2005

**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 5 and 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 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 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 95 per-cent of the maximum density, as determined by AASHTO T 180, method C or D.

**Compaction G.** Compact to a density of at least 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\_nat\_us\_03\_03\_2005

### **301.06 Surface Tolerance.**

Add the following:

Thickness and Width requirements:

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

The maximum variation from the specified width will not exceed +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  $\frac{1}{2}$  mile of road segment is within +4 inches of the specified width.

**Table 301-1 Field Density Requirements.**  
Table 301-1: Delete laboratory and field density requirements for base, subbase, and surfacing and replace with the following:

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time	
Base and Subbase	Measured and tested conformance (Subsection 106.04)	Moisture Density Method C	---	AASHTO T 99	1 per type and source of material	Source of material	Yes	Before using in work	
		Method C-1	---	R-1 Marshall	"	"	"	"	
		Method D	---	AASHTO T 180	"	"	"	"	
		Method D-1	---	R-1 Marshall	"	"	"	"	
		Compaction	---						
		Method C, C-1, D, D-1	---	AASHTO T 310 or other approved procedures	1 per 500 t	In-place	---	---	Before placing the next layer
		Moisture Density Method C-1	---	R-1 Marshall	"	"	"	"	Before using in work
Surfacing	Measured and tested conformance (Subsection 106.04)	Method D	---	AASHTO T 180	"	"	"	"	
		Method D-1	---	R-1 Marshall	"	"	"	"	
		Compaction							
		Method C, C-1, D, D-1	---	AASHTO T 310 or other approved procedures	1 per 500 t	In-place	---	---	Before placing the next layer
		Moisture Density Method C-1	---	R-1 Marshall	"	"	"	"	Before using in work

**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

303.01\_nat\_us\_03\_02\_2005

### 303.01 Work.

Delete and add the following:

This work consists of reconditioning ditches, shoulders, roadbeds, cattleguards, asphalt surfaces, and aggregate surfaces.

## 552 - Structural Concrete

552.02\_nat\_us\_06\_20\_2007

### Material

#### 552.02 Add the following:

Anchor bolts	717.01
Dowels	717.17
Epoxy resin adhesives	725.21
High strength non-shrink grout	701.02
Mortar	701.02
Portland cement	701.01
Sealants, fillers, seal, and sleeves	712.01

### Construction Requirements

#### 552.03 **Composition (Concrete Mix Design).**

Delete Tables 552-1, 2, and 3 and replace with the following:

**Table 552-1  
Composition of Concrete**

Class of Concrete	Minimum Cement Content (pound per cubic yard)	Maximum W/C Ratio	Slump <sup>(1)</sup> (inches)	Maximum Nominal Coarse Aggregate Size <sup>(5)</sup> (inches)
A	611	0.49	2 to 4	1½
A(AE)	611	0.44	1 to 4	1½
B	517	0.58	2 to 4	2½
B(AE)	517	0.58	2 to 4	2½
C	658	0.49	2 to 4	¾
C(AE)	658	0.44	1 to 3	¾
D(AE) <sup>(2)</sup>	611	0.40	1 to 3	1½
E(AE) <sup>(3)</sup>	611	0.40	4 to 6 <sup>(4)</sup>	¾
P (Prestressed)	658	0.44	0 to 4	1
P(AE)	658	0.44	0 to 4	1
Seal	658	0.54	4 to 8	1½

<sup>(1)</sup> Maximum slump is 8 inches if approved mix design includes a high-range water reducer.

<sup>(2)</sup> Concrete with a water reducing and retarding admixture conforming to AASHTO M 194, type D.

(3) A latex modified concrete with 0.037 gallons of modifier per pound of cement.

(4) Measure the slump 4 to 5 minutes after the concrete is discharged from the mixer.

(5) Meeting the processing requirements of AASHTO M43, Table 1 – Standard Sizes of Processed Aggregate.

(6) Use Class P (AE) concrete in the entire depth of the top flange of all multi-beam bridge girders. In lieu of this, Class P (AE) concrete may be used for fabrication of the entire girder, and throughout the entire depth of prestressed slabs. In all cases, furnish concrete meeting the 28 day specified minimum concrete strength requirements for the prestressed members as shown on the plans, unless otherwise specified.

**Table 552-2  
Minimum Air Content for Air Entrained Concrete**

Nominal Maximum Aggregate Size <sup>(1)</sup>	As Delivered Minimum Air Content <sup>(2)(3)</sup> (%)
2½ inch	3.5
2 inch	3.5
1½ inch	4.0
1 inch	4.5
¾ inch	4.5
½ inch	5.5

<sup>(1)</sup> Meeting the processing requirements of AASHTO M 43, Table 1 – Standard Sizes of Processed Aggregate.

<sup>(2)</sup> These air contents apply to the total mix. When testing these concretes, aggregates larger than 1½ inches are removed by handpicking or sieving, and air content is determined on the minus 1½-inch fraction of the mix. Air content of the total mix is computed from the value determined on the minus 1½-inch fraction.

<sup>(3)</sup> For P(AE) concrete, the as delivered minimum air contents may be reduced 1.0 % and the maximum air content is 6.0 %

**Table 552-3  
Required Average Compressive Strength <sup>(1)</sup>**

Specified Compressive Strength (f'c) (psi)	Required Average Compressive Strength (f'cr) (psi)

Less than 3000	$f'c + 1000$
3000 to 5000	$f'c + 1200$
Over 5000	$1.10f'c + 700$

(1) Use this table when there is not enough data available to establish a standard deviation

Delete the first paragraph after Table 552-2 and replace with the following:

Submit written concrete mix designs for approval at least 30 calendar days before production.

Add the following under the list of items to be included in the mix design submittal:

(y) Evaluation of potential aggregate reactivity

**552.08 Delivery.**

**(a) Truck mixer/agitator.**

Add the following:

Do not exceed 130 total revolutions at mixing speed, including both initial mixing and remixing. Do not exceed 300 total revolutions, including both mixing and agitating speed.

**552.09 Quality Control of Mix.**

Add the following after the first paragraph:

At least 2 weeks prior to the start of concrete placement operations, arrange a pre-concrete placement conference. Coordinate attendance with the CO and any applicable subcontractors. Be prepared to discuss and/or submit the following:

- (1) Proposed concrete placement schedule.
- (2) Review approved concrete mix design and determination of batch weights.
- (3) Discuss Section 153, Contractor Quality Control, minimum frequency schedule for process control sampling and testing (to be performed by the Contractor).
- (4) Discuss batching, mixing, placing, and curing requirements.
- (5) Discuss Subsections 106.03, Certification, and 106.05, Statistical Evaluation of Material for Acceptance.

**552.11 Handling and Placing Concrete.**

Add the following after the forth paragraph:

Use an approved form release agent to produce a minimum of staining, air holes, and hydration discoloration.

**552.12 Construction Joints.**

Add the following at the end of the first paragraph:

Provide form cleanout ports at construction joints.

**552.18 Loads on New Concrete Structures.**

Add the following paragraph:

Do not allow public traffic on the bridge until approaches, curbs, and bridge rail are completed and in-place. Erect barricades at each end of bridge spans when road approaches allow vehicles to drive directly onto the structure.

## 554 - Reinforcing Steel

554.03\_nat\_us\_06\_20\_2007

### Construction Requirements

#### 554.03 Order Lists.

Delete the first paragraph and replace with the following:

Do not submit order lists or bending diagrams for approval.

#### 554.08 Placing & Fastening.

Delete the first sentence and replace with the following:

Place, fasten, and support the bars according to the *CRSI Manual of Standard Practice*.  
Use precast concrete blocks or metal supports, but only use precast mortar blocks in areas permanently hidden from view in the completed structure.

### Measurement

#### 554.11 Method.

Add the following to the end of the second paragraph:

Do not measure or include reinforcing steel fabricated into the prestressed member.

## 602 - Culverts and Drains

602.03\_nat\_us\_09\_06\_2005

### 602.03 General.

#### Add the following:

Ensure that the final installed alignment of all pipe allows no reverse grades, and does not permit horizontal and vertical alignments to vary from a straight line drawn from center of inlet to center of outlet by more than 2 percent of pipe center length or 1.0 feet, whichever is less.

## 603 - Structural Plate Structures

603.03\_nat\_us\_03\_02\_2005

### 603.03 General.

#### Add the following:

Do not place or backfill structure until the CO has approved in writing the excavation and foundation. Submit four sets of shop drawings of the long-span structure to the CO at least 21 days before planned construction. Accompany shop drawings with all calculations used to determine the size, shape, location, and spacing of stiffening ribs, thrust beams, or other special structural features.

603.04\_nat\_us\_03\_02\_2005

### 603.04 Erecting.

#### Add to the third paragraph:

Torque all bolts before beginning the backfill.

## 625 - Turf Establishment

625.03\_nat\_us\_07\_02\_2007

### 625.03 General.

Delete this subsection and replace with the following:

Apply turf establishment to prepared ground or any disturbed area between April 15 and October 15. Apply turf establishment to the areas shown on the plans or worklists within 5 days after completion of ground disturbing activities. Unless otherwise specified in writing by the CO apply turf establishment after each 500 foot section of road has been constructed to template lines. Seeded areas damaged by construction activities shall be reseeded within 10 days of the damage. Do not seed during windy weather or when the ground is excessively wet, frozen, or snow covered.

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

### 625.04 Preparing Seedbed.

Delete entire subsection and replace with the following:

Ensure that the surface soil is in a roughened condition favorable for germination and growth. Apply 3000 pounds agricultural limestone per acre.

### 625.05 Watering

Delete entire subsection.

### 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 (b).

**Seed Mix.** Furnish and apply the following kinds and amounts of pure live seed from Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA 16335 (800)873-3221 or Fax (814)336-5191 or [www.ernstseed.com](http://www.ernstseed.com) Native Right-of-Way Woods Seed Mix with Annual Ryegrass-ERNMX-132-1:

<u>Type of Seed</u>	<u>Quantity of Pure Live Seed (Lbs/Acre)</u>
1. 30% Virginia Wild Rye	9
2. 20% Annual Ryegrass	6
3. 15% Shelter Switchgrass	4.5
4. 10% Creeping Fed Fescue	3
5. 5% Autumn Bentgrass	1.5
6. 5% Fox Sedge	1.5
7. 5% Showy Tick Trefoil	1.5
8. 5% Nimble Will	1.5
9. 5% Tioga Deer Tongue	1.5

Total Seeding rate 30 lb per 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 **straw** 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.

**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.

## 635 - Temporary Traffic Control

635.03\_nat\_us\_05\_13\_2004

### 635.03 General.

#### Add the following:

Install temporary traffic control signs to temporary posts or approved temporary sign mounts.

## 651 - Development of Pits & Quarries

651.00\_nat\_us\_03\_02\_2005

### Description

**651.01** This work consists of clearing, grubbing, stripping topsoil, removing overburden, constructing access roads, conducting restoration activities, and performing other incidental work required for pit or quarry development.

### Construction Requirements

**651.02 General.** Submit a plan of operations according to Section 105. Perform all work in accordance with Sections 105, 201, 203, 204, 625, and 635, landscape preservation requirements, and the approved pit and quarry development plan of operations. Perform the work in accordance with MSHA 30 CFR, part 56.

**651.03 Acceptance.** Developing pits and quarries will be evaluated under Subsections 106.02 and 106.04.

### Measurement

**651.04** Measure the Section 651 items listed in the bid schedule according to Subsection 109.02.

### Payment

**651.05** The accepted quantities will be paid at the contract price per unit of measurement for the Section 651 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

## 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 $\frac{1}{2}$ inch	100%	
$\frac{3}{4}$ 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 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

Road Preparation Specifications: The road surface to receive the aggregate should have template with crown of 2% or  $\frac{1}{4}$  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 full depth in small quantities and with a spreader box in quantities over 5000 tons. 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 $\frac{1}{2}$ inch	100%		
$\frac{3}{4}$ 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.

## SPS 705 - Rock

Replace 705.02 with the following:

**705.02 Riprap Rock.** Furnish rock sound, free from structural defects and foreign substances such as soil, shale, and organic materials. Use rock conforming to the following requirements:

No shale seams

Hard and angular shaped rock with neither width nor thickness less than one-third its length.

Minimum specific gravity of 2.5 as determined according to AASHTO T 85, bulk saturated, but surface-dry basis.

Each load of rock well-graded, from smallest to the largest size

Class, Size No.	Percent Passing (Square Openings)				
	R-7	R-6	R-5	R-4	R-3
Rock Size (inches)					
30	100				
24		100			
18	15-50		100		
12	0-15	15-50		100	
9			15-50		
6		0-15		15-50	100
4			0-15		
3				0-15	15-50
2					0-15
Nominal					
Thickness	36	30	24	18	12

## 718 - Traffic Signing and Marking Material

718.05\_nat\_us\_02\_25\_2008

### 718.05 Aluminum Panels

Delete the third paragraph and replace with the following:

Clean, degrease and properly prepare the panels according to methods recommended by the sheeting manufacturer. Conversion coatings will conform to ASTM B-921 or ASTM B-449.

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