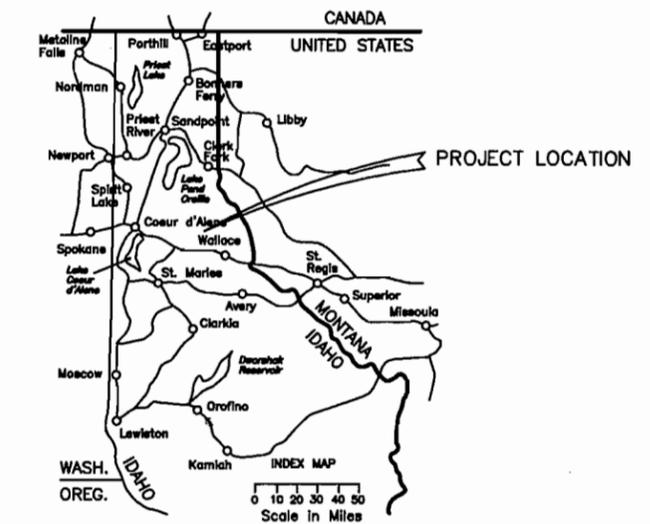
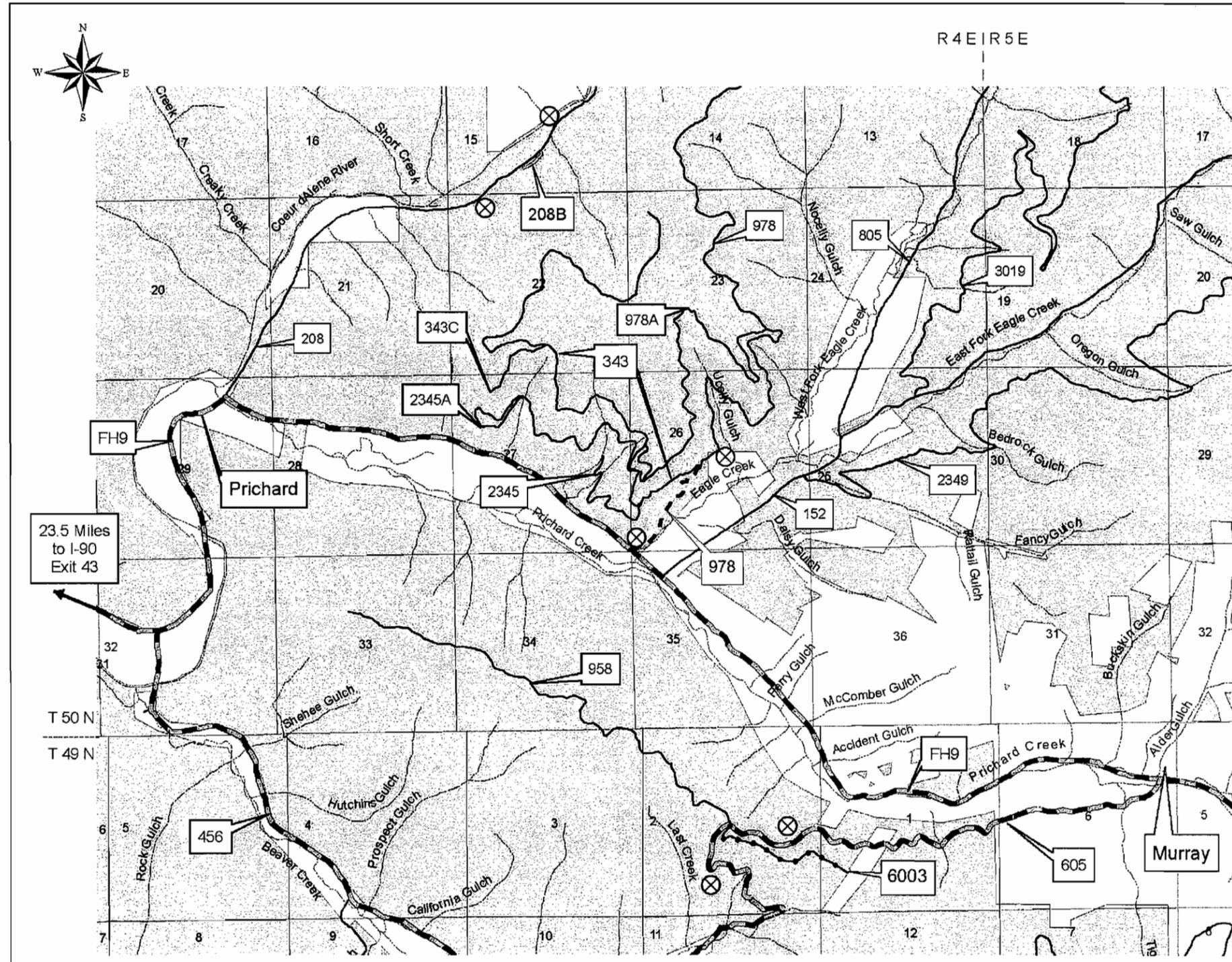


DRAWINGS FOR PROPOSED FOREST DEVELOPMENT
PRICHARD-MURRAY TIMBER SALE
 IDAHO PANHANDLE NATIONAL FORESTS
 COEUR D'ALENE RIVER RANGER DISTRICT
 SHOSHONE COUNTY, IDAHO

SHEET NO	CONTENT
1	COVER SHEET
2	SIGN PLAN
3	SUMMARY OF ESTIMATED QUANTITIES AND GENERAL NOTES
4	TYPICAL SECTIONS
5	WORKLISTS AND COMPOSITE ROAD RECONSTRUCTION
6 - 10	PLAN AND PROFILE SHEETS
11	TYPE III ROLLING DIP TYPICAL
12	HEAVY GATE
13	CULVERT DETAILS
14 - 16	COUPLING BAND DETAIL SHEETS



LEGEND

- COUNTY ROADS
- EXISTING PRIMARY ROADS
- COMPOSITE ROAD RECONSTRUCTION
- ROAD RECONSTRUCTION & RELOCATION
- ROAD RECONDITIONING
- SIGNS
- STREAMS
- FOREST SERVICE OWNERSHIP



UNITED STATES DEPARTMENT OF AGRICULTURE
 FOREST SERVICE
 REGION 1

Recommended to be technically correct and that this project is in conformance with Environmental Assessment requirements.
Scott Vandeyft 7/27/07
 PROJECT TEAM MANAGER DATE

Approved by:
Scott Vandeyft 7/27/07
 DISTRICT RANGER DATE

Approved to be in conformance with sound Engineering practice for safety, structural integrity, and operational requirements.
[Signature] 8/2/07
 FOREST ENGINEER DATE

KENNETH WHITE
 REVIEWED BY
 JAYME BERARD
 DESIGNED BY



LW21-15
36" X 36" MIN.



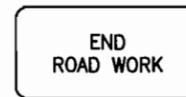
W3-4
36" x 36" MIN.



W 20-1
36" x 36" MIN.



W23-1
48" x 24" MIN.



G20-2
36" x 18" MIN.



W20-2d
36" x 36" MIN.



W20-2
36" x 36" MIN.



M4-10
48" x 18"
RIGHT OR LEFT



W21-1a
36" x 36" MIN.

R11-2
48" X 30"



W21-7a
36" x 36" MIN.



W8-8
30" x 30" MIN.



W5-3
36" x 36" MIN.



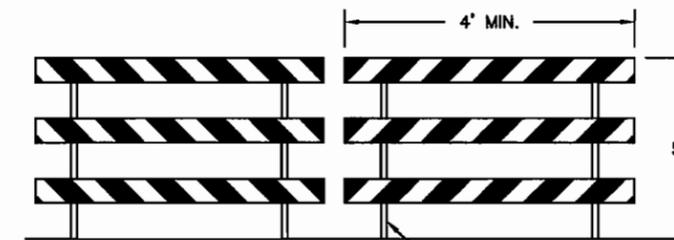
W8-6
30" x 30" MIN.



W8-7
30" x 30" MIN.

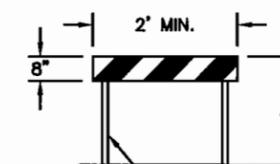


W21-2
30" x 30" MIN.

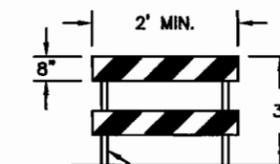


TYPE III BARRICADE

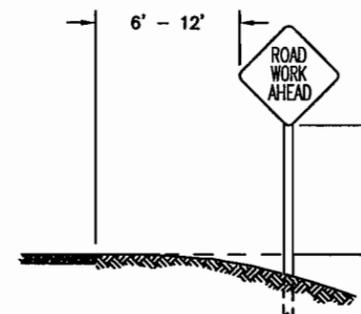
NOTE: STRIPES ARE 6" WDE, ALTERNATING ORANGE AND WHITE



TYPE I BARRICADE



TYPE II BARRICADE



TYPICAL INSTALLATIONS



NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL BE CONSTRUCTED, LOCATED, INSTALLED, AND MAINTAINED ACCORDING TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (MUTCD) LATEST EDITION.
- SIGNS SHALL BE MADE FROM SUITABLE MATERIALS WHICH ARE IN ACCORDANCE WITH ALL STATE AND FEDERAL SPECIFICATIONS.
- ALL WARNING SIGNS SHALL BE BLACK ON ORANGE.
- REFER TO FP-03 PARAGRAPH 718.01 FOR RETROREFLECTIVE SHEETING, USE ASTM D 4956 TYPE I, "ENGINEERING GRADE". FOR POSTED SPEEDS GREATER THAN 35 MPH USE TYPE VII "SUPER-HIGH-INTENSITY, PRISMATIC SHEETING".
- SIGN SUBSTRATE MAY BE WOOD, METAL, POLYPLATE, FABRIC OR OTHER APPROVED MATERIAL.
- SIGNS SHALL BE LOCATED WHERE THEY WILL BE CONSPICUOUSLY VISIBLE DAY AND NIGHT ON THE RIGHT HAND SIDE OF APPROACHING TRAFFIC.
- WHEN A SIGN IS REQUIRED FOR AN EXTENDED PERIOD, IT SHALL BE FASTENED TO 4 X 4 POSTS WITH 2-3/8" CARRIAGE BOLTS. PORTABLE SUPPORTS ARE PERMITTED FOR SHORT PERIODS PROVIDED THE CONSTRUCTION IS SUCH THAT WIND OR OTHER AGENTS CANNOT READILY UPSET THE SIGN.
- SIGNS WARNING OF CONSTRUCTION SHALL BE PLACED ON ALL MAJOR INTERSECTIONS ACCESSING THE WORK AREA.
- SELECTION AND PLACEMENT OF ALL SIGNS SHALL BE SUBJECT TO APPROVAL OF THE CONTRACTING OFFICER. SIGNS OTHER THAN THOSE PICTURED MAY BE USED PROVIDED THEY ARE IN CONFORMANCE WITH MUTCD STANDARDS AND APPROVED IN WRITING BY THE CONTRACTING OFFICER.
- IF REQUIRED BY THE CONTRACTING OFFICER, LIGHTING DEVICES SUCH AS FLASHERS, TORCHES, LANTERNS AND ELECTRIC LIGHTS SHALL BE PLACED AND MAINTAINED FROM SUNSET TO SUNRISE AT ALL POINTS OF HAZARD AND AT ALL SIGNS INDICATING CAUTION.
- ADDITIONAL SIGNS MAY BE REQUIRED AS DIRECTED BY THE CONTRACTING OFFICER.
- ALL SIGNS ARE TEMPORARY.
- TYPE III BARRICADES SHALL BE PLACED ON EITHER SIDE OF UNCOMPLETED CONSTRUCTION SITES WHEN NO CONSTRUCTION ACTIVITIES ARE IN PROGRESS AS APPROVED BY THE CONTRACTING OFFICE.
- WHERE VEHICLES ARE REQUIRED TO TURN, THE STRIPES ON BARRICADES SHALL SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH VEHICLES MUST TURN.
- WHERE VEHICLES ARE REQUIRED TO TURNAROUND, POSITION BARRICADES SO THAT STRIPES ON BARRICADES SHALL SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADES.

DRAWINGS
NOT TO SCALE

CONSTRUCTION SIGN SCHEDULE			
SIGN	ROAD # OR M.P.	LOCATION	TEXT
W20-1	208B	200' EACH SIDE OF ROAD #208B JUNCTION	ROAD WORK AHEAD
W20-1	605	200' EACH SIDE OF ROAD #6003 JUNCTION	ROAD WORK AHEAD
W20-1	978	M.P. 0.01	ROAD WORK AHEAD
W20-1	978	M.P. 0.66	ROAD WORK AHEAD



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

SIGN PLAN

2
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SUMMARY OF ESTIMATED QUANTITIES
--PRICHARD--MURRAY TIMBER SALE WORK--

GENERAL NOTES:

TOTALS

ROAD NUMBER				208B	978	6003	
TYPE OF CONSTRUCTION: C - CONSTRUCTION, R - RECONSTRUCTION				R	R	R*	
LENGTH OF ROAD (MI)				0.15	0.66	0.97	
ITEM NO.	ITEM DESCRIPTION	METHOD OF MEASURE	UNIT OF MEASURE				
173(01)A	ESTABLISH SLOPE STAKES, CUTSIDE(S), AND THROUGH FILLS, CLEARING LIMIT AND SLOPE STAKE COMBINED	DQ	MI			0.97	0.97
201(01)	CLEARING AND GRUBBING, SLASH TREATMENT METHOD FOR TOPS AND LIMBS 4.1, LOGS 4.1, AND STUMPS 4.1, UTILIZATION OF TIMBER 1	DQ	AC			3.80	3.80
201A(01)	ROADWAY BRUSHING	DQ	MI		0.66		0.66
203(01)H	EXCAVATION PLACEMENT METHOD 1, INCLUDES 1201 ST. YD. HAUL	DQ	CY			4192	4192
203(20)IID	DRAINAGE EXCAVATION, ROLLING DIP TYPE III	AQ	EA		1		1
299A(01)	COMPOSITE ROAD RECONSTRUCTION	DQ	MI	0.15			0.15
304(10)	CRUSHED AGGREGATE, TYPE SURFACE, GRADING D, COMPACTION A	DQ	CY		70		70
306(01)	RECONDITIONING OF ROADBED, COMPACTION A	DQ	MI		0.66		0.66
601(01)	MOBILIZATION	LSQ	LS	1	1	1	1
603(01)18C	18" CMP (INCLUDES CULVERT EXCAVATION); THICKNESS, STEEL 0.064", ALUMINUM 0.075"; METHOD C	AQ	LF	40			40
625(05)	SEEDING, DRY METHOD (WITHOUT MULCH)	DQ	AC			3.50	3.50
640(01)	FURNISH AND INSTALL ROAD CLOSURE DEVICE, TYPE GATE, SIZE 14'	AQ	EA			1	1

SECTION 201:

- LOG DECKS SHALL BE LOCATED BEYOND THE TOE OF FILL SO AS NOT TO INTERFERE WITH ROAD RECONSTRUCTION. PRIOR TO USE, ALL LOG DECKS ADJACENT TO EXISTING ROADS SHALL BE APPROVED BY THE CONTRACTING OFFICER.
- EMBANKMENT MATERIAL SHALL NOT BE PLACED ON OR AGAINST LOG DECKS.

SECTION 203:

- EXCESS OR UNSUITABLE EXCAVATION MATERIAL, SECTIONS 203.06(a) AND 203.06(d), SHALL BE UNIFORMLY SPREAD OVER ADJACENT FILL SLOPES, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- NO EXCESS OR UNSUITABLE MATERIAL SHALL BE SIDECAST INTO OR ON SLOPES ADJACENT TO LIVE OR INTERMITTENT STREAMS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- SCARIFICATION WILL NOT BE REQUIRED.
- REMOVAL OF LOOSE MATERIAL FROM SLOPES WILL NOT BE REQUIRED UNDER SECTION 203.10.

SECTION 206A:

- ALL EXCESS OR UNSUITABLE MATERIAL SHALL BE UNIFORMLY SPREAD OVER ADJACENT FILL SLOPES, OR AS OTHERWISE AGREED.
- NO EXCESS OR UNSUITABLE MATERIAL SHALL BE SIDECAST INTO OR ON SLOPES ADJACENT TO LIVE OR INTERMITTENT STREAMS.

SECTION 304:

- ALL QUANTITIES AND DEPTHS SHOWN ON THE DRAWINGS ARE COMPACTED IN-PLACE.
- ALL AGGREGATE SOURCES ARE COMMERCIAL SOURCES.

SECTION 306:

- ALL EXCESS AND UNSUITABLE MATERIAL SHALL BE UNIFORMLY SIDECAST ALONG THE ROADWAY, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- NO EXCESS OR UNSUITABLE MATERIAL SHALL BE SIDECAST INTO OR ON SLOPES ADJACENT TO LIVE OR INTERMITTENT STREAMS.
- SCARIFICATION WILL NOT BE REQUIRED.
- ALL ROAD INTERSECTIONS WILL BE TREATED UNDER SECTION 306 FOR A DISTANCE OF 50 FT. OR TO THE ROAD CLOSURE DEVICE.

SECTION 625:

ALL AREAS OF DISTURBED EARTH OUTSIDE THE ROADBED SHALL BE SEEDDED.

NOTES:

LSQ = LUMP SUM QUANTITIES DQ = DESIGNED QUANTITIES
 LS = LUMP SUM AQ = ACTUAL QUANTITIES
 AC = ACRE CY = CUBIC YARDS

R* = INCLUDES TWO (2) AREAS TO BE RELOCATED FOR A LENGTH OF 1100'.



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD--MURRAY TIMBER SALE

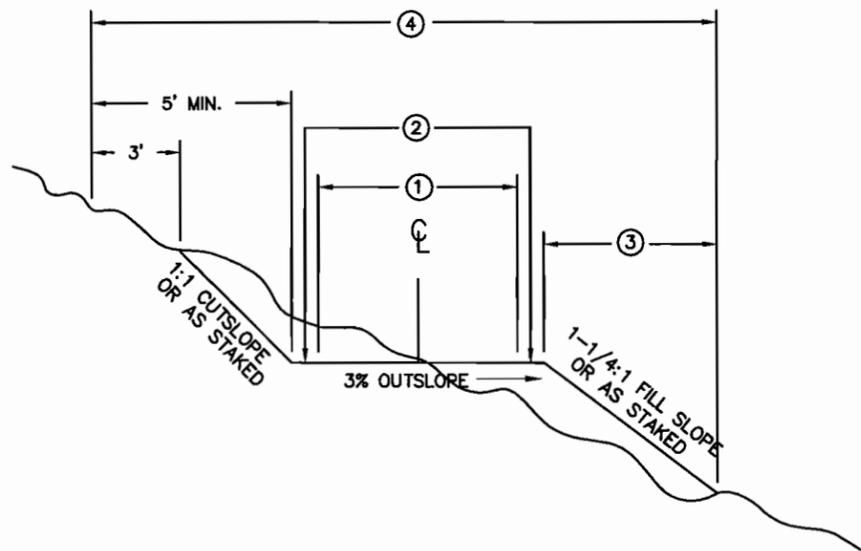
SUMMARY OF ESTIMATED
QUANTITIES AND GENERAL NOTES

3

16

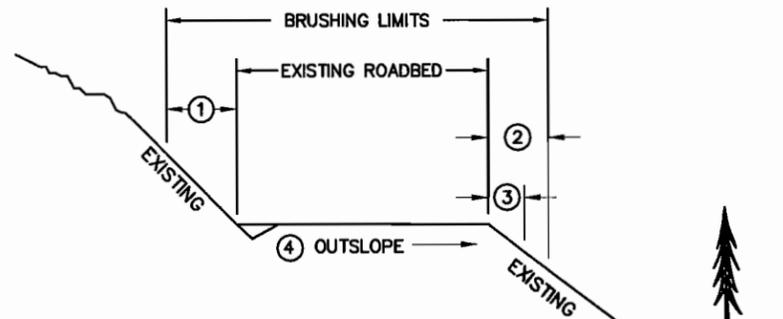
TYPICAL SECTIONS (NO SCALE)

TYPICAL ROAD RECONSTRUCTION
AND RELOCATION
ROAD #6003



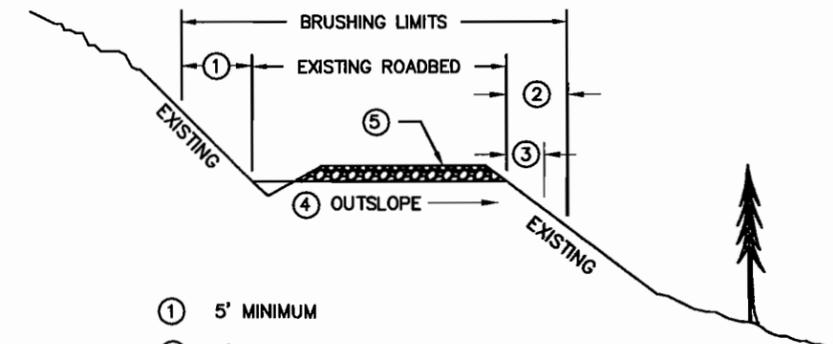
- ① BASIC ROAD WIDTH = 14'
- ② CURVE WIDENING (DETERMINED BY LOG TRUCK OR LOWBOY FORMULA) AS SHOWN ON THE DRAWINGS AND AS STAKED IN THE FIELD.
- ③ CLEAR TO A MINIMUM OF 5' BEYOND THE FILL SHOULDER OR TO THE TOE OF THE FILL SLOPE, WHICHEVER IS THE GREATER DISTANCE.
- ④ MINIMUM TOTAL CLEARING WIDTH = 30'

RECONDITIONING ROADBED
ROAD #978



- ① 5' MINIMUM
- ② 3' MINIMUM
- ③ ALL TREES AND STUMPS 2' OR LESS FROM SHOULDER OF ROAD SHALL BE CUT AND GRUBBED IF MARKED BY THE CONTRACTING OFFICER. REMOVAL OF SHOULDER TREES AND STUMPS NOT MARKED IS A REQUIREMENT.
- ④ OUTSLOPE SHALL BE 3% ON ALL ROADS

RECONDITIONING ROADBED WITH CRUSHED AGGREGATE
ROAD #978



- ① 5' MINIMUM
- ② 3' MINIMUM
- ③ ALL TREES AND STUMPS 2' OR LESS FROM SHOULDER OF ROAD SHALL BE CUT AND GRUBBED IF MARKED BY THE CONTRACTING OFFICER. REMOVAL OF SHOULDER TREES AND STUMPS NOT MARKED IS A REQUIREMENT.
- ④ OUTSLOPE SHALL BE 3% ON ALL ROADS
- ⑤ PLACE PIT RUN AGGREGATE 4" THICK BY 18' WIDE

ROAD NO.	SERVICE LEVEL	DESIGN SPEED	DESIGN VEHICLE	CONSTRUCTION TOLERANCE
ALL OTHERS	C	15	LOG TRUCK	E
978	C	15	LOWBOY	E



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

TYPICAL SECTIONS

WORKLISTS

WORK LIST - ROAD #208B	
M.P.	DESCRIPTION OF WORK
0.00	JUNCTION WITH COUNTY ROAD. BEGIN COMPOSITE ROAD RECONSTRUCTION ITEM 299A(01).
0.01	INSTALL 18"X40' CMP ITEM 603(01)18C
0.15	END COMPOSITE ROAD RECONSTRUCTION

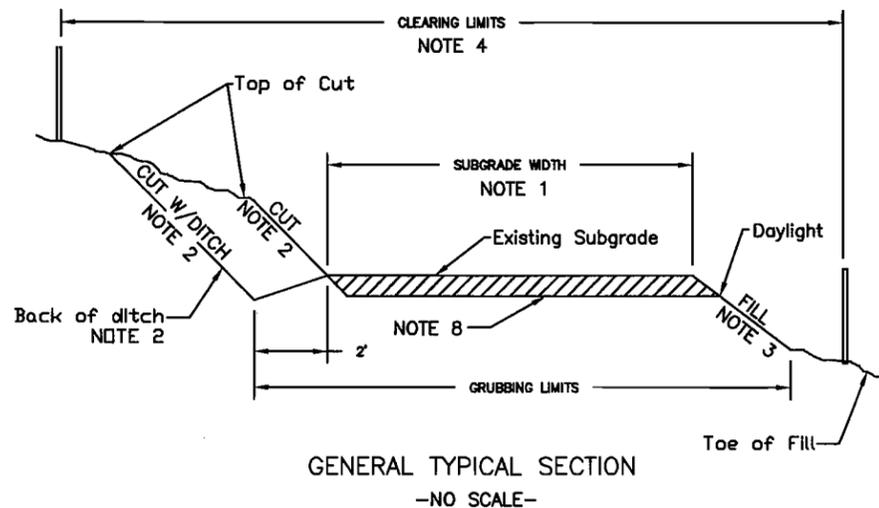
WORK LIST - ROAD #978	
M.P.	DESCRIPTION OF WORK
0.00	JUNCTION WITH FOREST HIGHWAY 9. BEGIN CLEARING AND BRUSHING, ITEM 201A(01) AND RECONDITIONING OF ROADBED, ITEM 306(01).
0.40	BEGIN PLACEMENT CRUSHED AGGREGATE, ITEM 304(10).
0.45	RECONSTRUCT TYPE III ROLLING DIP, ITEM 203(20)IID. END PLACEMENT OF CRUSHED AGGREGATE, ITEM 304(10).
0.66	JUNCTION WITH ROAD #343. END ITEMS 201A(01) AND 306(01).

ITEM 299A(01) NOTES:

THE FOLLOWING REQUIREMENTS APPLY UNLESS NOTED OTHERWISE IN THE PROJECT WORK DESCRIPTION.

1. SUBGRADE WIDTH SHALL BE A MINIMUM 12' OR AS MARKED. OUTSLOPE SHALL BE 3% ON ALL ROADS.
2. CUT SLOPES SHALL BE 1:1, 3/4:1 IN ROCK.
3. FILL SLOPES SHALL BE 1 1/4:1.
4. CLEARING LIMITS SHALL BE 3' PAST THE FINISHED TOP OF CUT AND 2' PAST THE FINISHED SHOULDER. CLEARING ON THE FILL SIDE OF THE ROAD SHALL BE SUCH AS TO MAINTAIN A VISUAL BUFFER OF TREES BETWEEN THE PAVED COUNTY ROAD AND ROAD #208B.
5. SLASH TREATMENT: PER SECTIONS 201.05 AND 299A, TOPS AND LIMBS 11.3, LOGS 11.3, AND STUMPS 11.3. UTILIZATION OF TIMBER (UOT), 1. PILES SHALL BE PLACED ABOVE THE TOP OF CUT.
6. UNMERCHANTABLE TIMBER SHALL BE PLACED ABOVE THE TOP OF CUT IN A STABLE POSITION ON THE GROUND SLOPE OUTSIDE OF THE CLEARING LIMITS.
7. METHOD OF SEEDING SHALL BE "SEEDING, DRY METHOD (GENERAL MIX WITHOUT MULCH)" AS SET FORTH IN SECTION 625. ALL AREAS OF DISTURBED EARTH OUTSIDE THE ROADBED SHALL BE SEEDED.
8. ON ROAD #208B, ADDITIONAL SUBGRADE WIDTH MAY BE OBTAINED BY UNIFORMLY CUTTING INTO THE CUTSLOPE AND SIDECASTING THE MATERIAL OVER THE FILL SLOPE SHOULDER.
9. LOG DECKS SHALL BE LOCATED BEYOND THE TOP OF CUT SO AS NOT TO INTERFERE WITH ROAD RECONSTRUCTION. PRIOR TO USE, ALL LOG DECKS ADJACENT TO EXISTING ROADS SHALL BE APPROVED BY THE CONTRACTING OFFICER.
10. ALL AREAS OF DISTURBED EARTH OUTSIDE THE ROADBED SHALL BE SEEDED.

COMPOSITE ROAD RECONSTRUCTION
ROAD #208B (ITEM 299A(01))

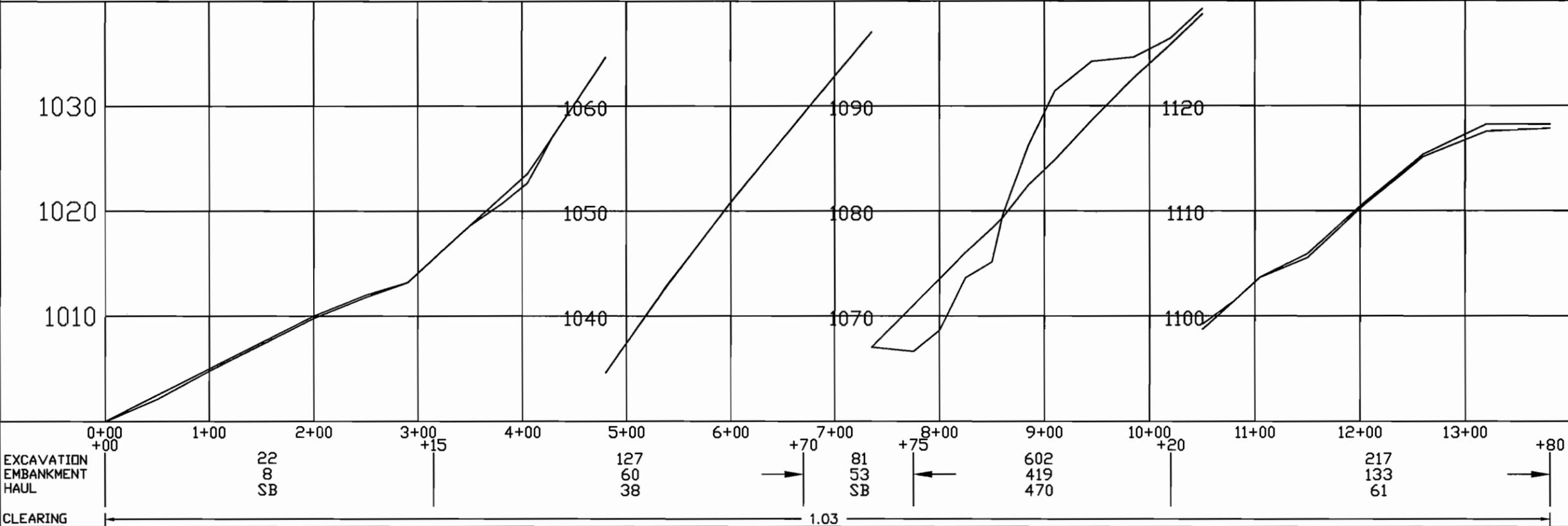
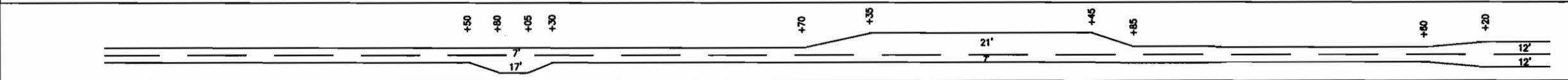
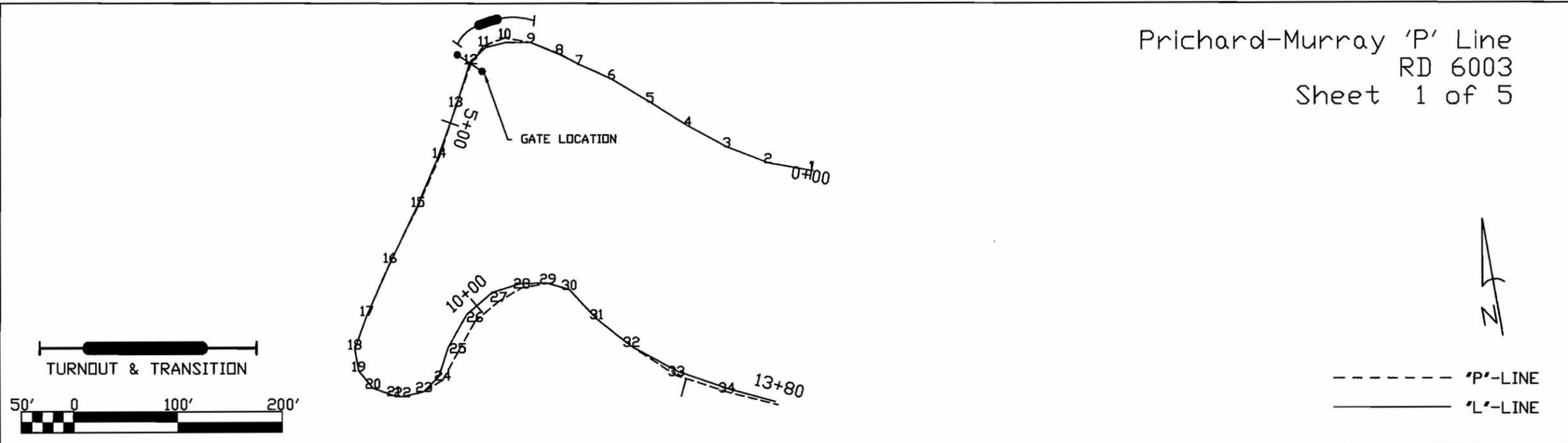


UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

WORKLISTS AND COMPOSITE ROAD
RECONSTRUCTION NOTES AND
TYPICAL

Prichard-Murray 'P' Line
RD 6003
Sheet 1 of 5



SB = SELF BALANCE

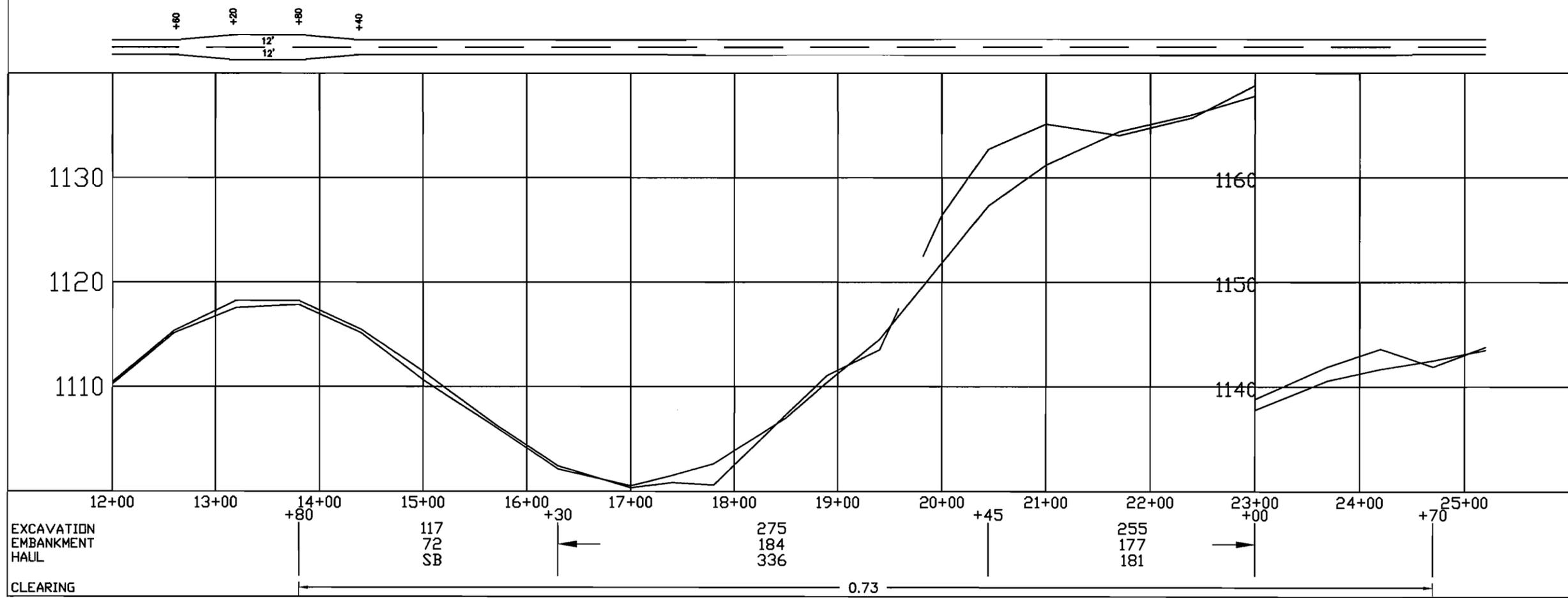
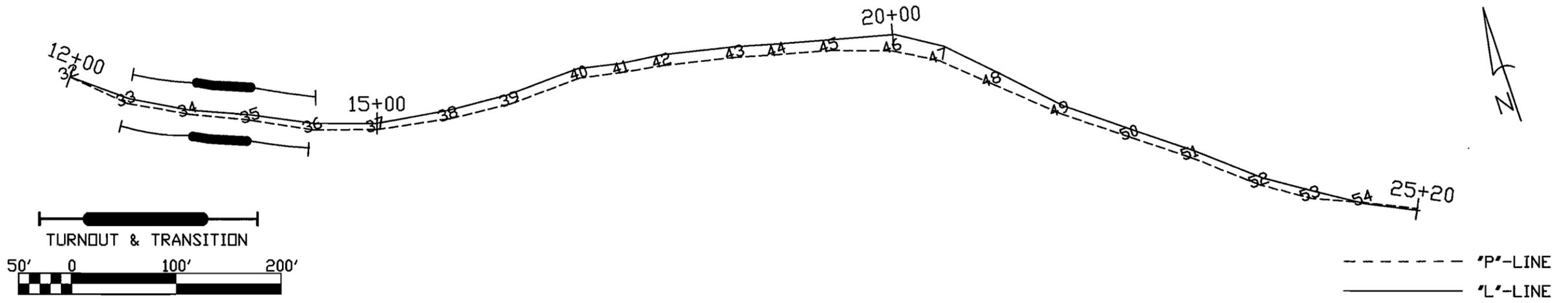


UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

PLAN AND PROFILE
SHEET 1 OF 5

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16



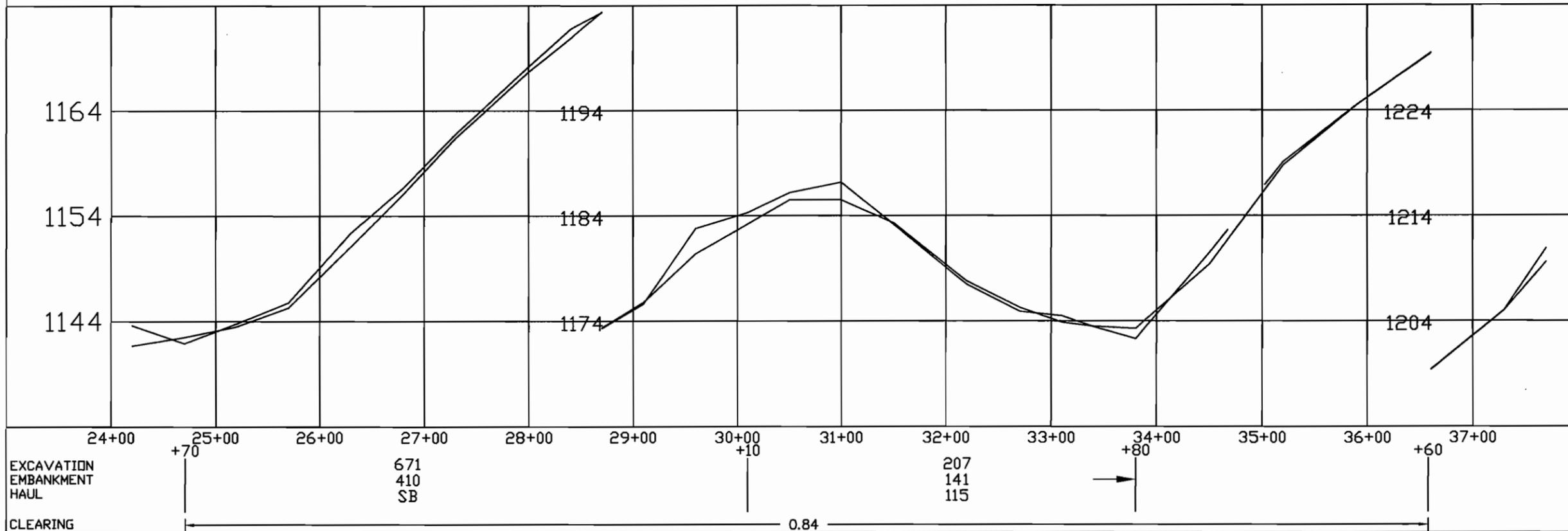
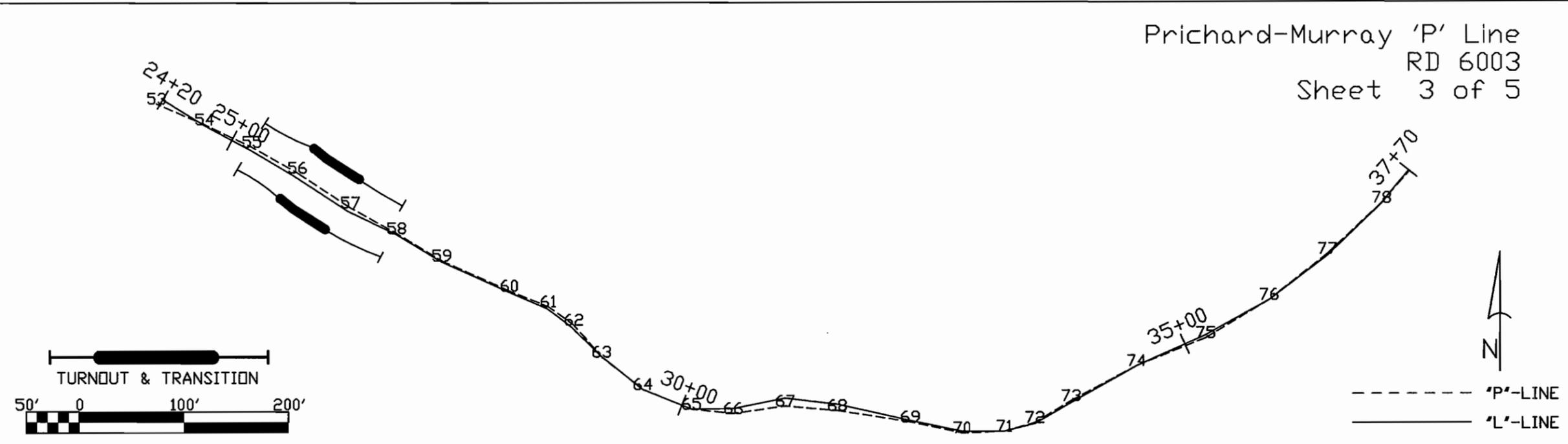
SB = SELF BALANCE



UNITED STATES DEPARTMENT OF AGRICULTURE
 FOREST SERVICE
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IDAHO PANHANDLE NATIONAL FOREST
 COEUR D'ALENE RIVER RANGER DISTRICT
 PRICHARD-MURRAY TIMBER SALE

PLAN AND PROFILE
 SHEET 2 OF 5



SB = SELF BALANCE



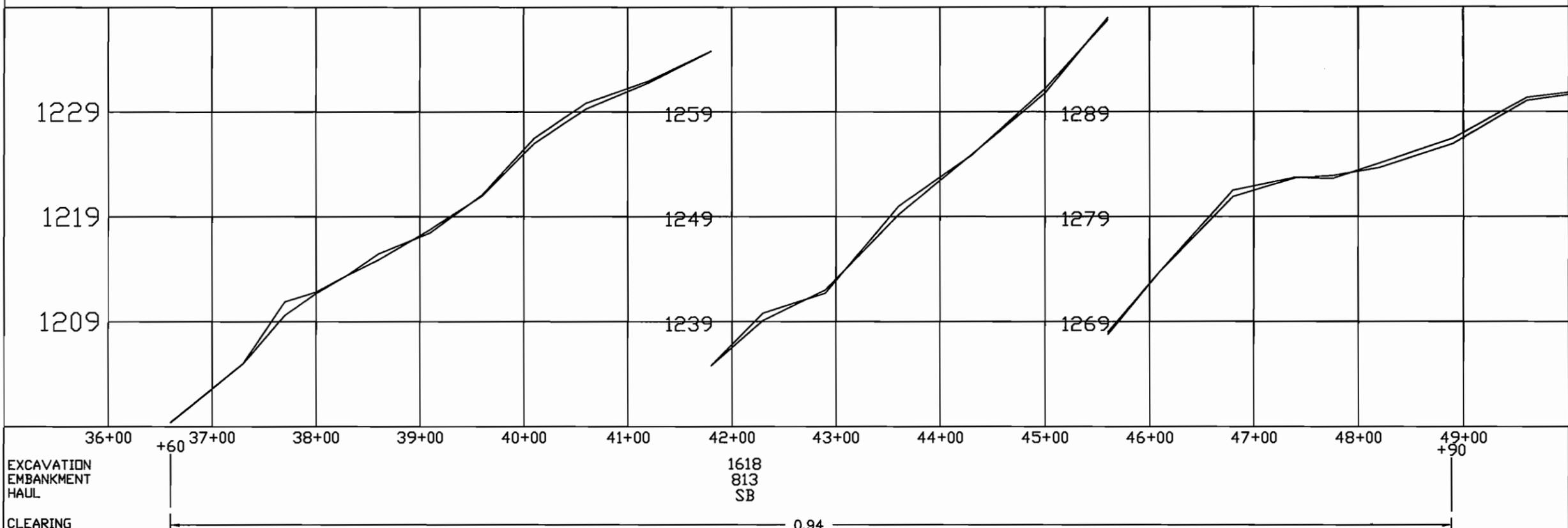
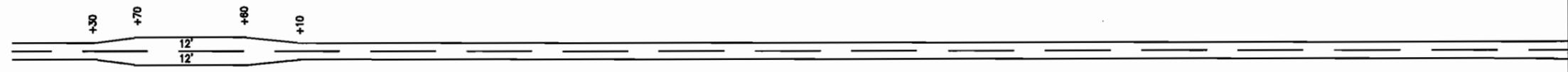
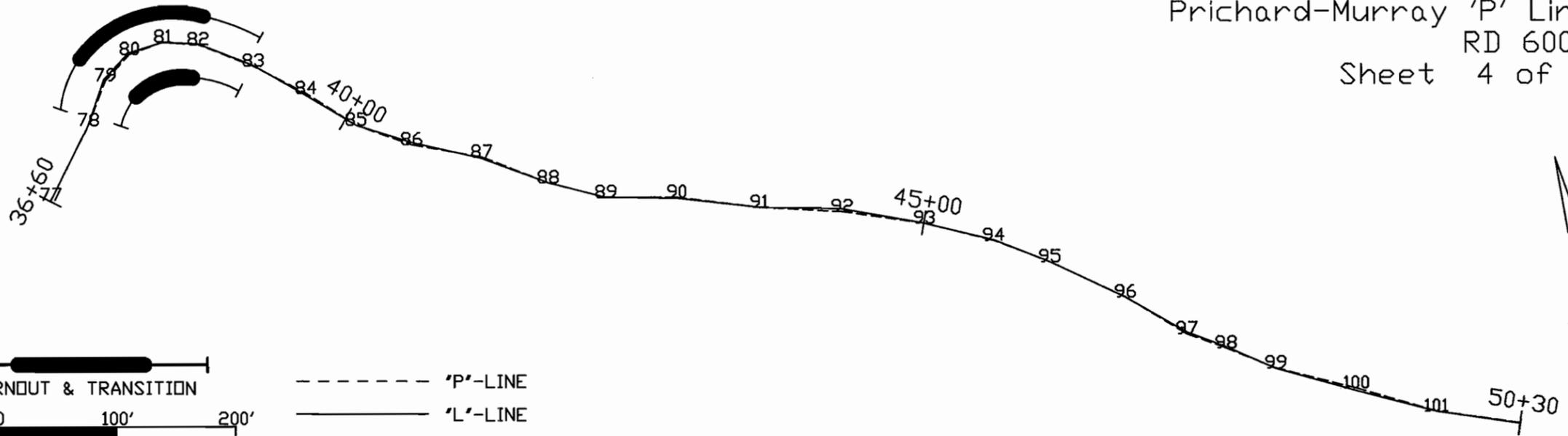
UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

PLAN AND PROFILE
SHEET 3 OF 5

8
16

Prichard-Murray 'P' Line
RD 6003
Sheet 4 of 5



EXCAVATION
EMBANKMENT
HAUL
CLEARING

1618
813
SB

0.94

SB = SELF BALANCE

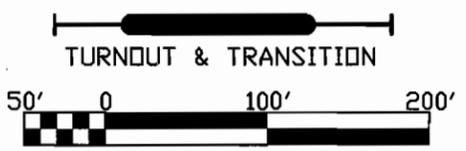
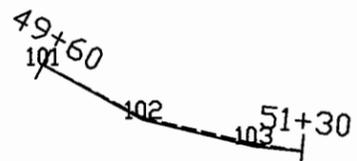


UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
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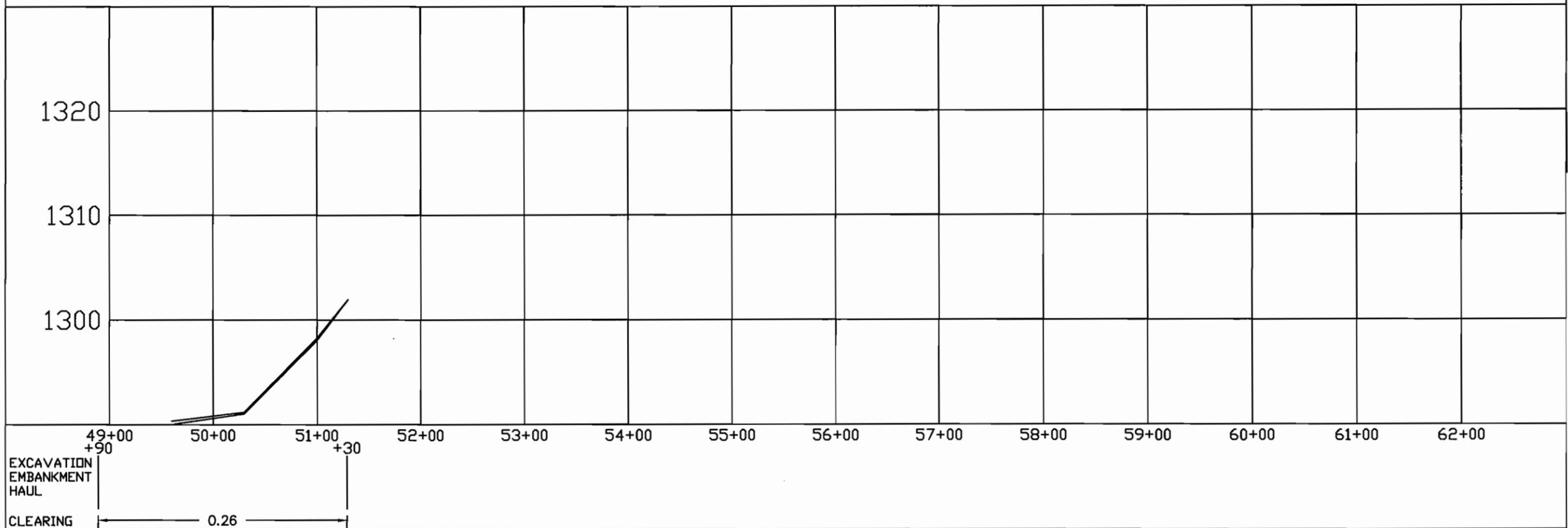
IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

PLAN AND PROFILE
SHEET 4 OF 5

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16



----- 'P'-LINE
 _____ 'L'-LINE



SB = SELF BALANCE

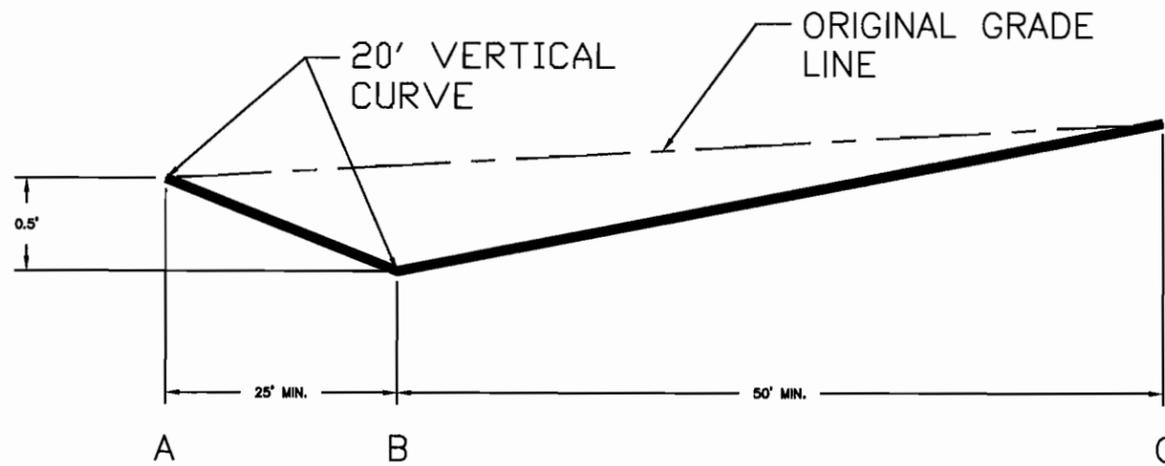


UNITED STATES DEPARTMENT OF AGRICULTURE
 FOREST SERVICE
 REGION 1

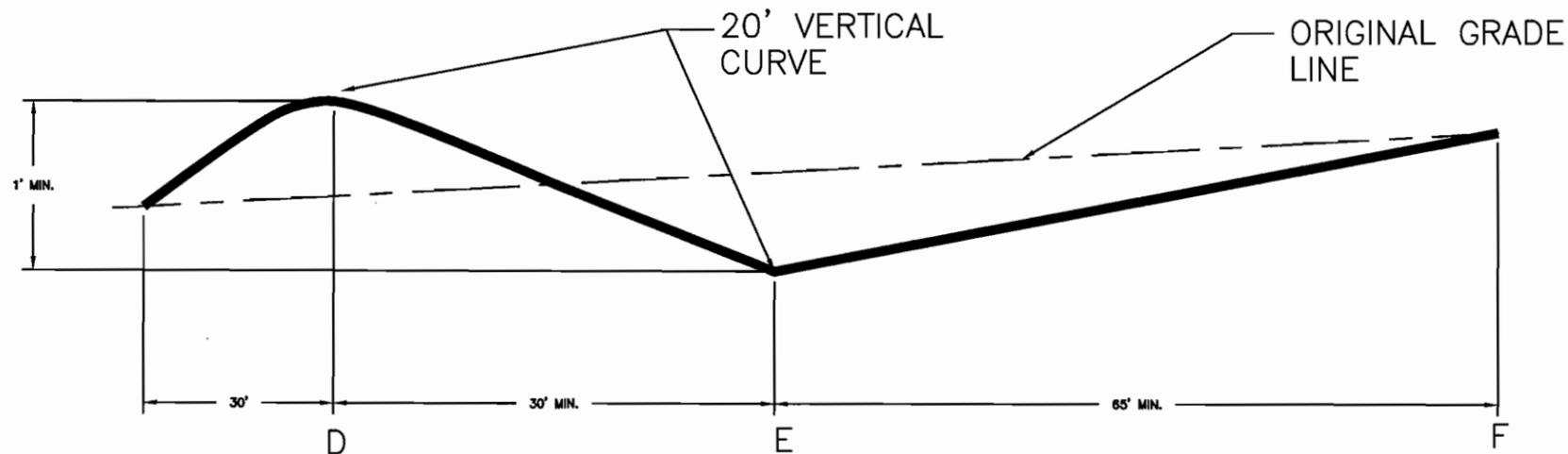
IDAHO PANHANDLE NATIONAL FOREST
 COEUR D'ALENE RIVER RANGER DISTRICT
 PRICHARD-MURRAY TIMBER SALE

PLAN AND PROFILE
 SHEET 5 OF 5

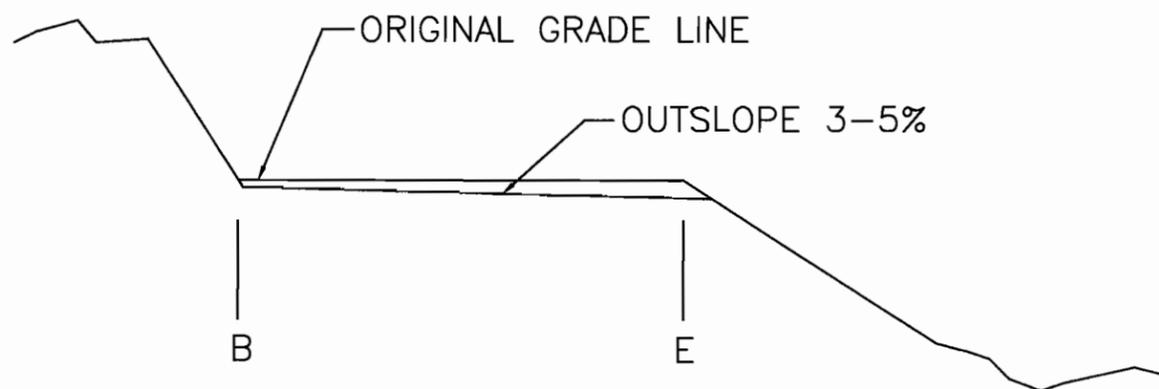
10
 16



ROAD PROFILE ALONG A-B-C OF DRAIN DIP



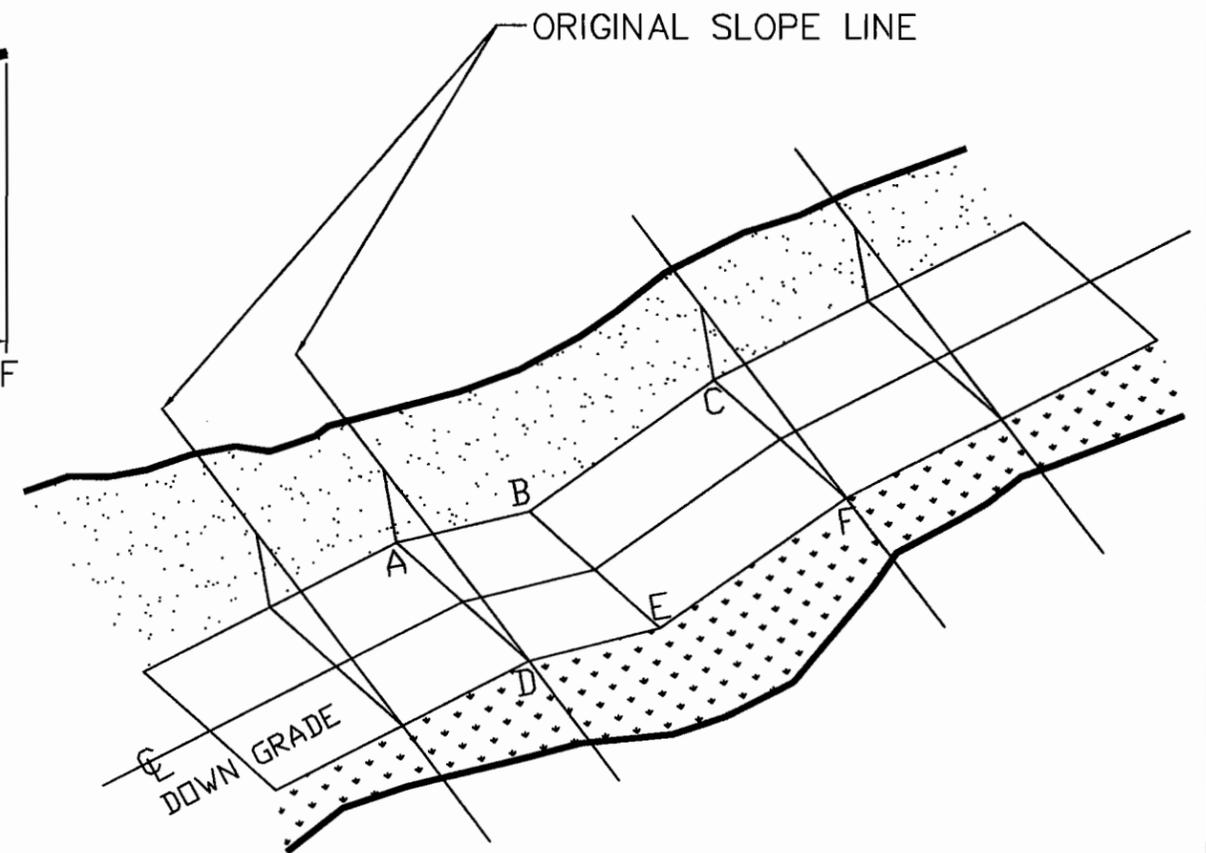
ROAD PROFILE ALONG D-E-F OF DRAIN DIP



ROAD PROFILE ALONG B-E OF DRAIN DIP

NOTES:

1. Construct rolling dips as staked or as approved.
2. Out slope drainage dip 3-5%.
3. Skew line B-E to fit low point in draw, if located in natural drain.
4. Excavation below the existing grade line will be placed as embankment above the existing grade line on the down side of the drainage dip.



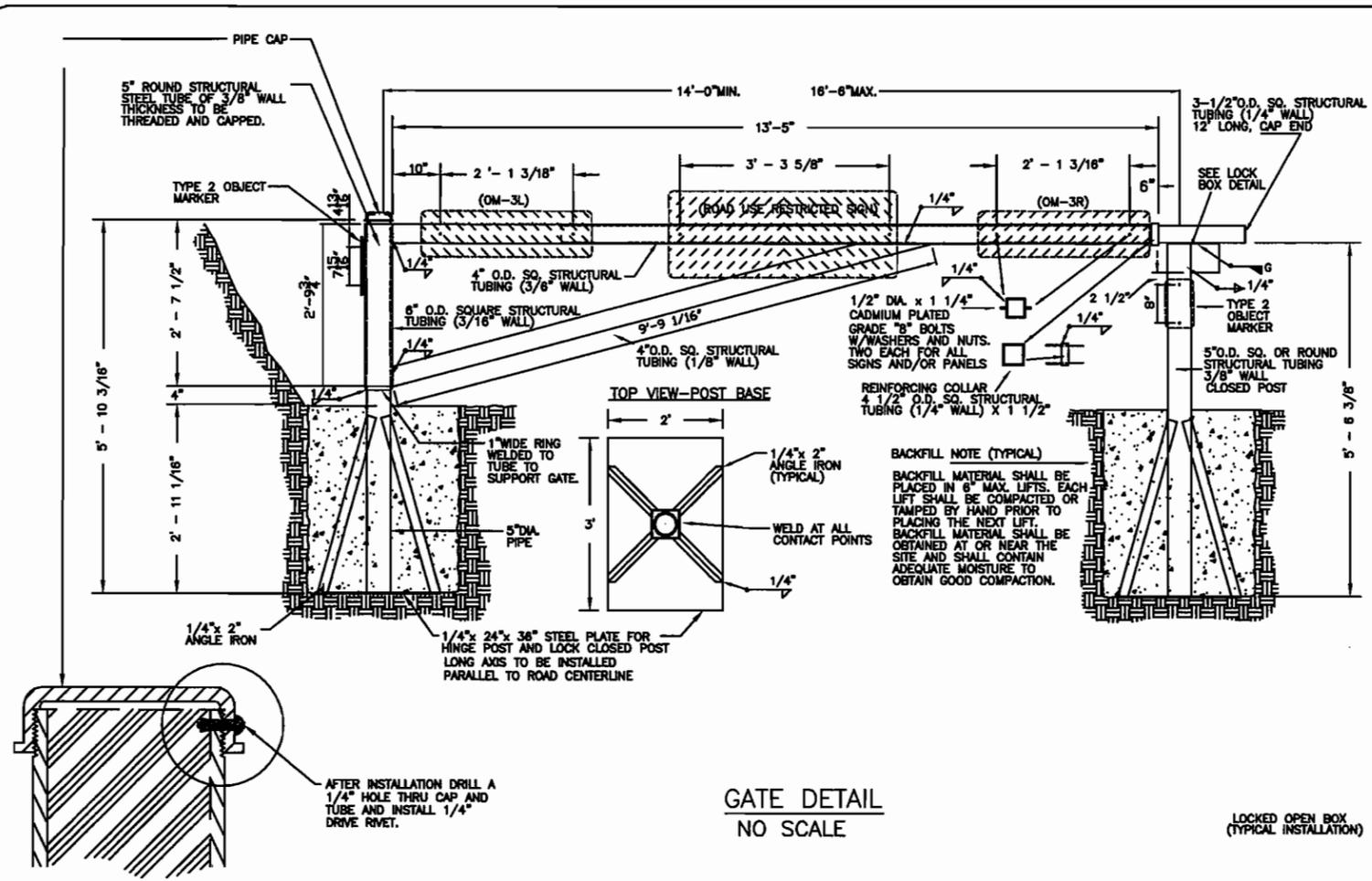
PERSPECTIVE VIEW



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

TYPE III ROLLING DIP
TYPICAL



GATE DETAIL
NO SCALE

LOCKED OPEN BOX
(TYPICAL INSTALLATION)

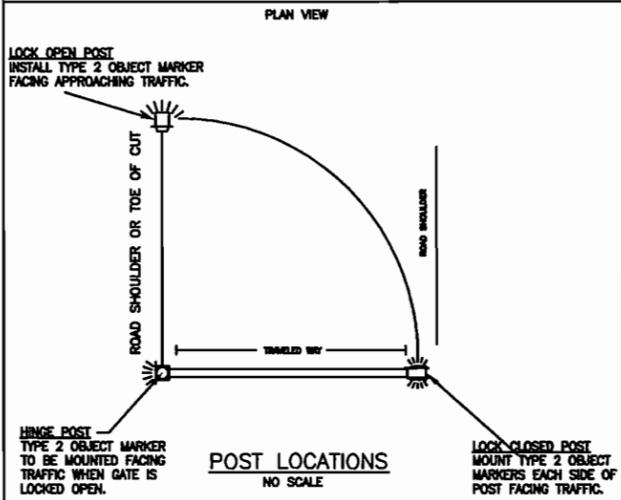
ROAD USE RESTRICTED

4" LETTERS

NOTES:

- LETTERS SHALL BE WHITE ON BROWN BACKGROUND
- SIGN SHALL BE REFLECTORIZED
- SIGN MATERIALS SHALL MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

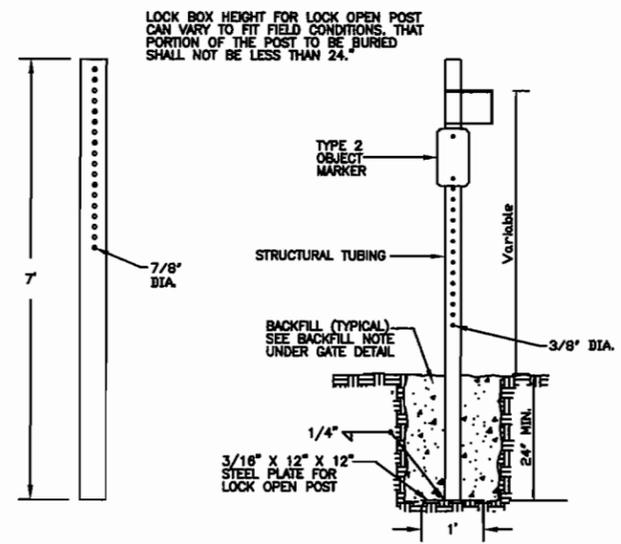
ROAD USE RESTRICTED SIGN
NO SCALE



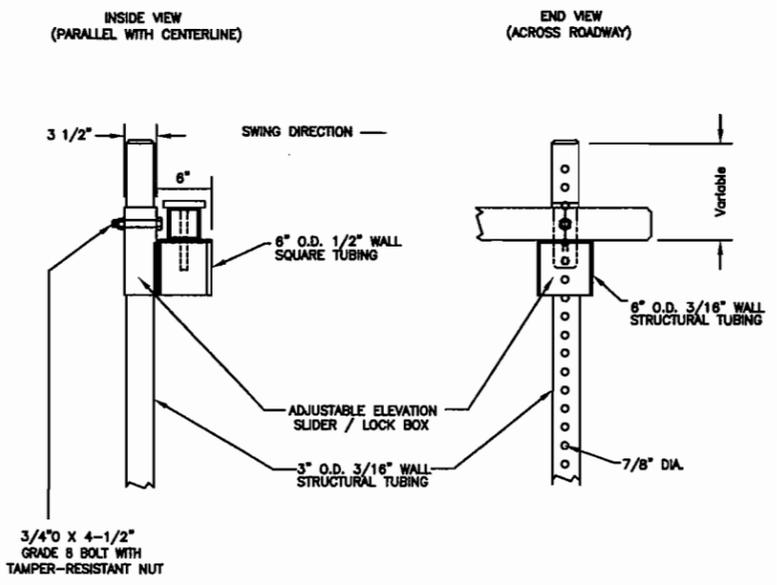
POST LOCATIONS
NO SCALE

NOTES:

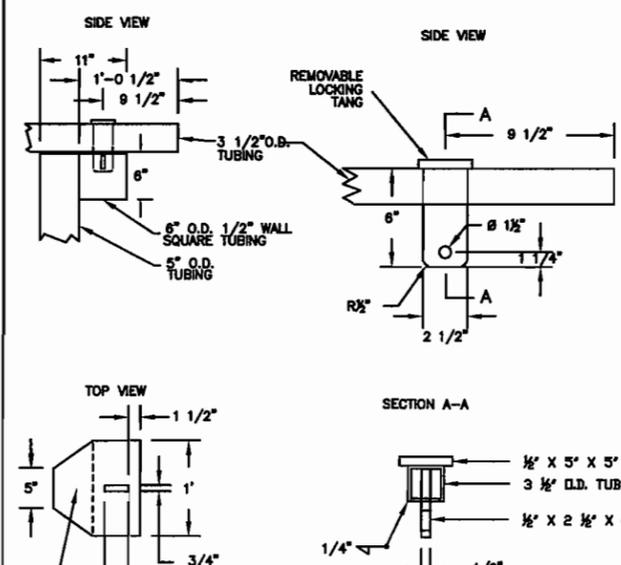
- THE ROAD USE RESTRICTED SIGN SHALL BE CENTERED ON GATE AS SHOWN ON THE DRAWINGS.
- GATE POSTS SHALL BE MARKED WITH REFLECTORIZED YELLOW TYPE 2 OBJECT MARKERS (IN COMPLIANCE WITH CURRENT MUTCD STANDARDS) ON BOTH SIDES OF THE LOCKED CLOSED POST AND ONE SIDE OF THE LOCKED OPEN POST AS SHOWN ON DRAWINGS. ON HINGE POST, THE MARKER SHALL BE MOUNTED TO FACE TRAFFIC WHEN THE GATE IS LOCKED OPEN.
- THE ROAD USE RESTRICTED SIGN SHALL BE FURNISHED BY THE FOREST SERVICE AND INSTALLED BY THE CONTRACTOR.
- TYPE 3 OBJECT MARKERS REQUIRED ARE 12"x36" PANELS, WHITE WITH 3" WIDE REFLECTIVE RED STRIPES.
- TYPE 2 OBJECT MARKERS REQUIRED ARE 6"x12" PANELS, YELLOW.
- ALL OBJECT MARKERS, TYPES 2 AND 3, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
- AFTER FABRICATION, ALL GATE COMPONENTS MUST BE SANDED TO REMOVE ALL RUST, SCALE, AND ONLY SUBSTANCES, THEN PAINTED WITH BROWN OR RED PRIMER MEETING THE REQUIREMENTS OF ITEM 708.03(f)(1).
- STRUCTURAL TUBING SHALL BE ASTM A 36 STRUCTURAL STEEL.
- TUBE SIZES SHOWN ARE FOR STRUCTURAL STEEL TUBING WALL THICKNESS AS SHOWN ON THE DRAWINGS,
- INSTALL LOCK BOXES TO THE ELEVATION NECESSARY TO MAKE THE HORIZONTAL GATE MEMBER LEVEL.



LOCK OPEN POST
NO SCALE



LOCK OPEN BOX AND POST DETAIL
NO SCALE



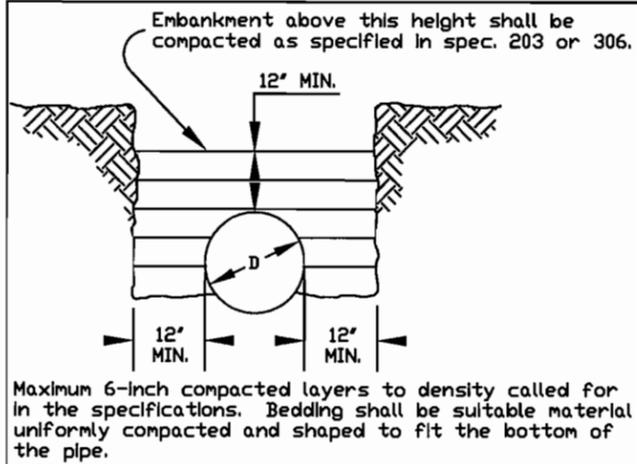
LOCK BOX DETAILS
NO SCALE



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 1

IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

HEAVY GATE



METAL THICKNESS AND GAGE TABLES

Steel		Aluminum	Approx. Gage
Zinc Coated	Un-Coated		
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8
0.188	0.1838		7
0.218	0.2145		5
0.249	0.2451		3
0.280	0.2758		1

Maximum 6-inch compacted layers to density called for in the specifications. Bedding shall be suitable material uniformly compacted and shaped to fit the bottom of the pipe.

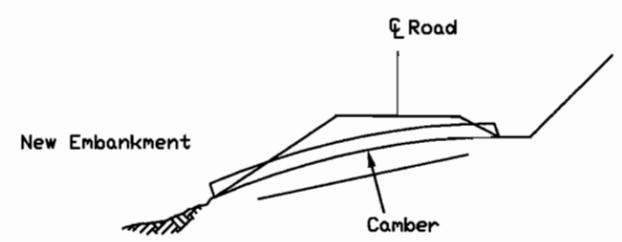
GENERAL NOTES:

TREATMENT OF DAMAGED SPELTER: The damaged or corroded ends of metal pipe to be extended shall be removed. If the damaged end is flame cut, the burned spelter on the galvanized pipe shall be wire brushed to clean metal and the area shall be painted with two coats of paint, high in zinc content, for repair of the galvanized surfaces.

SETTLEMENT AND CAMBER: Pipes shall be cambered as necessary to compensate for any anticipated settlement in the foundation or bed. Camber shall be on a parabolic curve with no point along the invert being higher than the invert at the inlet.

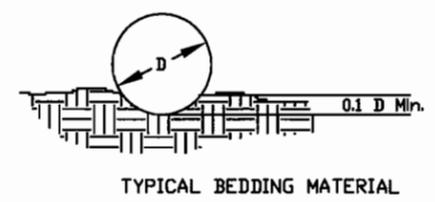
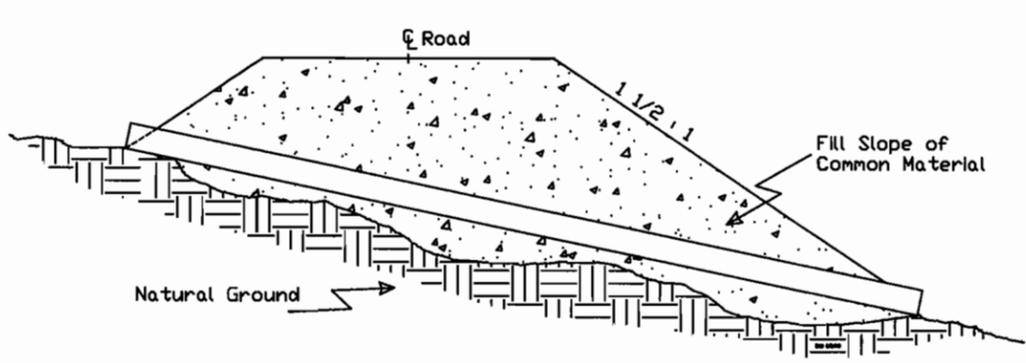
EMBANKMENT AND FOUNDATION SOIL CONDITION
Existing Fills, Regardless of Foundation Soils

CAMBER
1% of pipe length, not to exceed 3/4 of pipe span.

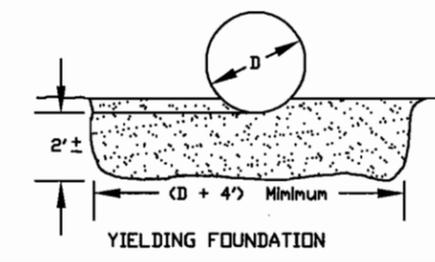


1% of pipe length, not to exceed 3/4 of pipe span or as determined by the engineer.

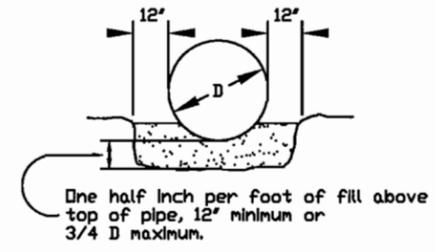
TYPICAL INSTALLATION IN EMBANKMENT



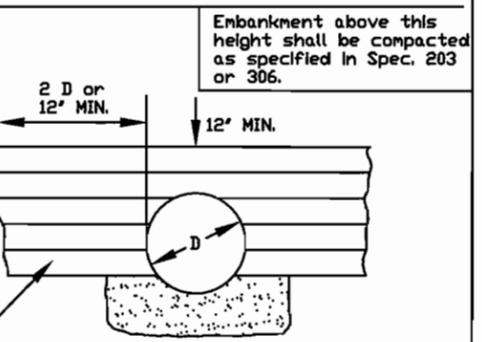
TYPICAL BEDDING MATERIAL



YIELDING FOUNDATION

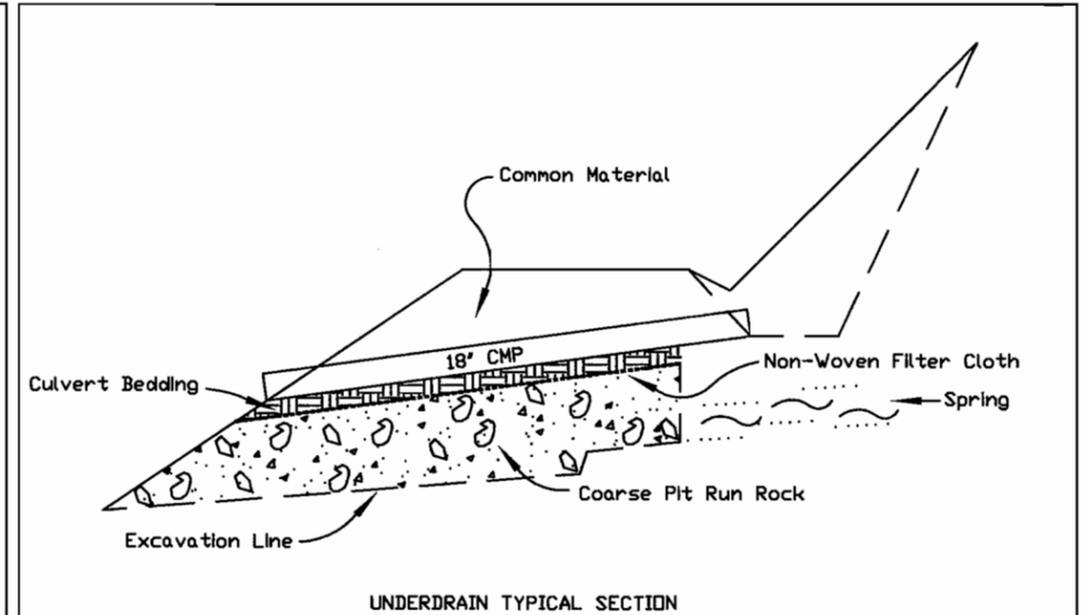


ROCK FOUNDATION

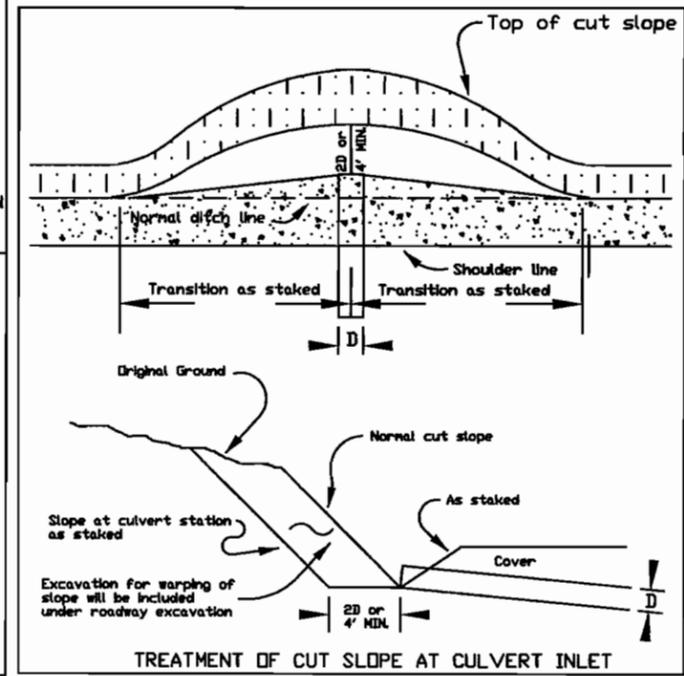


TYPICAL BACKFILL DETAIL

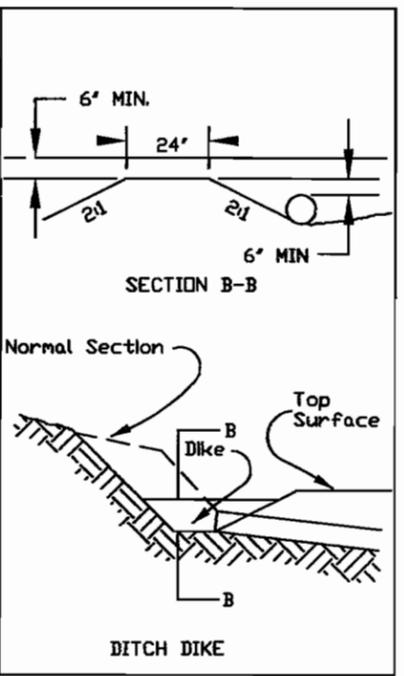
Bedding shall be suitable material uniformly compacted and shaped to fit the bottom of the pipe



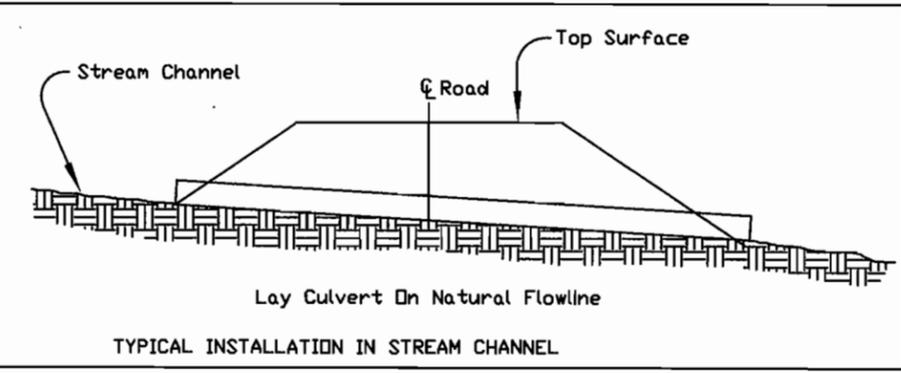
UNDERDRAIN TYPICAL SECTION



TREATMENT OF CUT SLOPE AT CULVERT INLET



DITCH DIKE



TYPICAL INSTALLATION IN STREAM CHANNEL

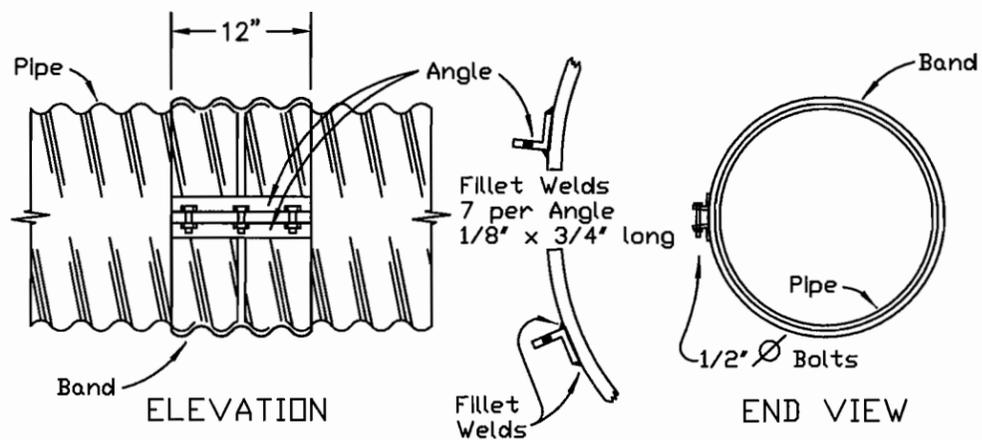
NO SCALE
CULVERT DETAILS



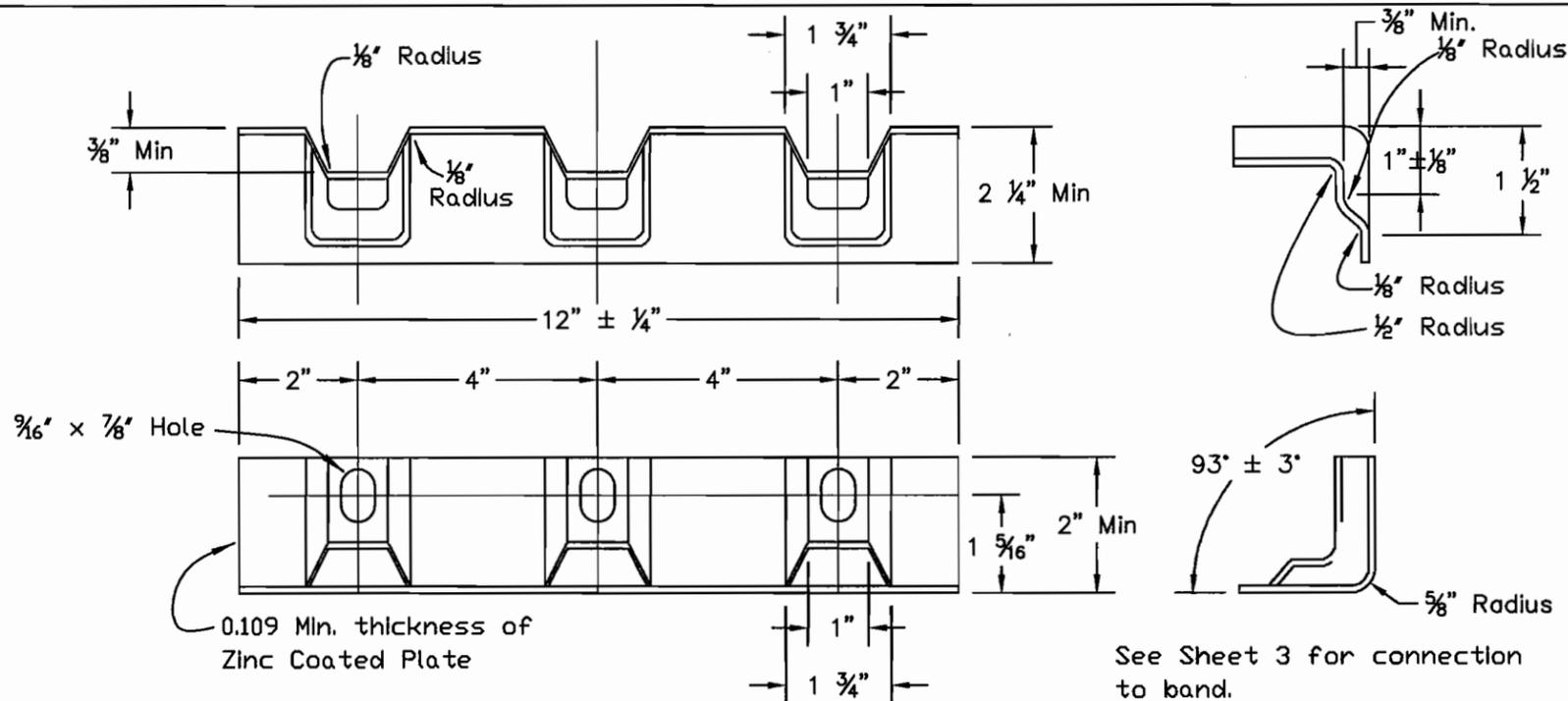
UNITED STATES DEPARTMENT OF AGRICULTURE
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IDAHO PANHANDLE NATIONAL FOREST
COEUR D'ALENE RIVER RANGER DISTRICT
PRICHARD-MURRAY TIMBER SALE

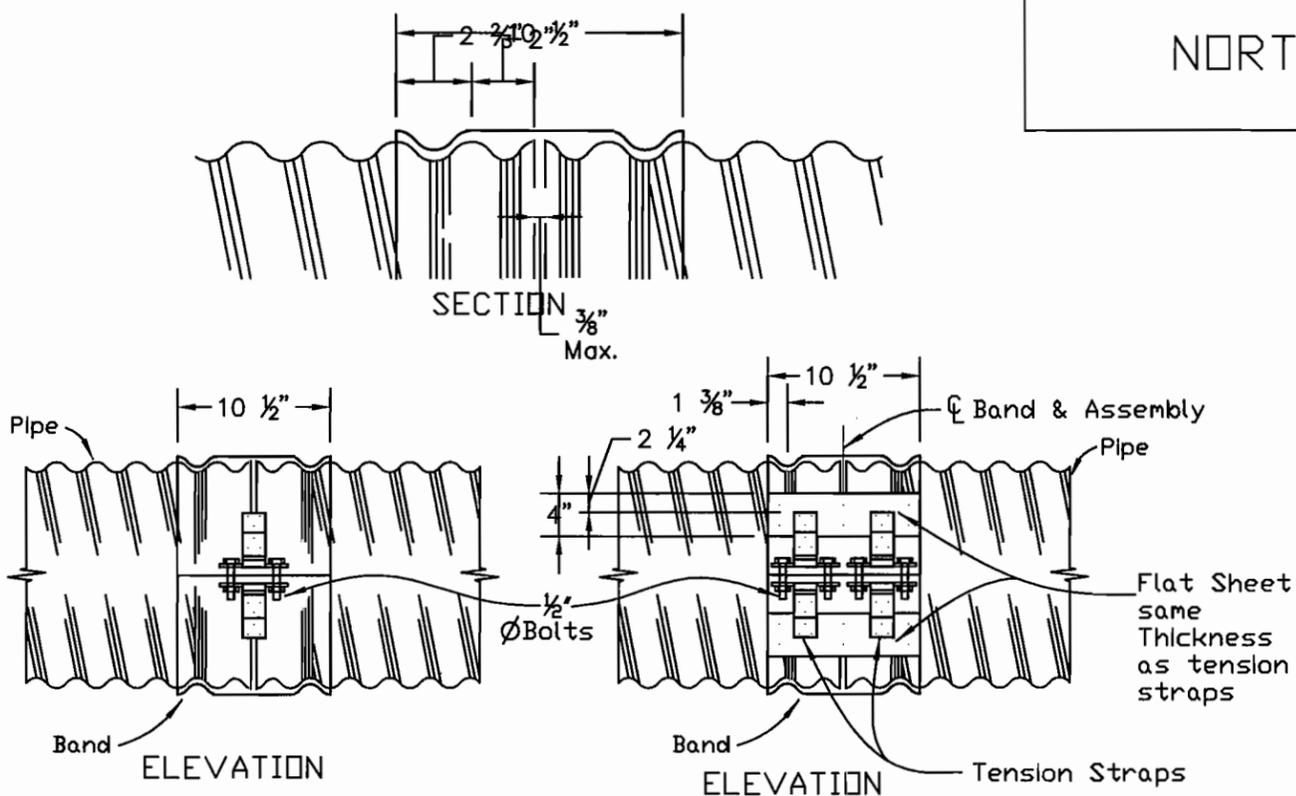
CULVERT DETAILS



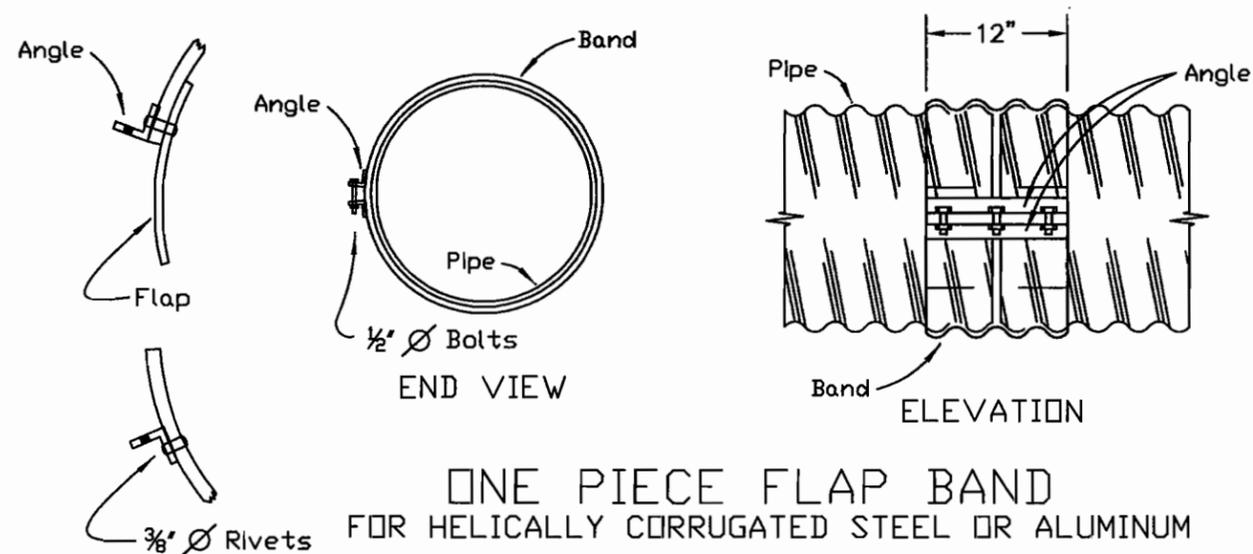
AMERICAN CULVERT BAND
FOR HELICALLY CORRUGATED STEEL PIPE



NORTHWEST CULVERT ANGLE ALTERNATIVE
FOR STEEL PIPE

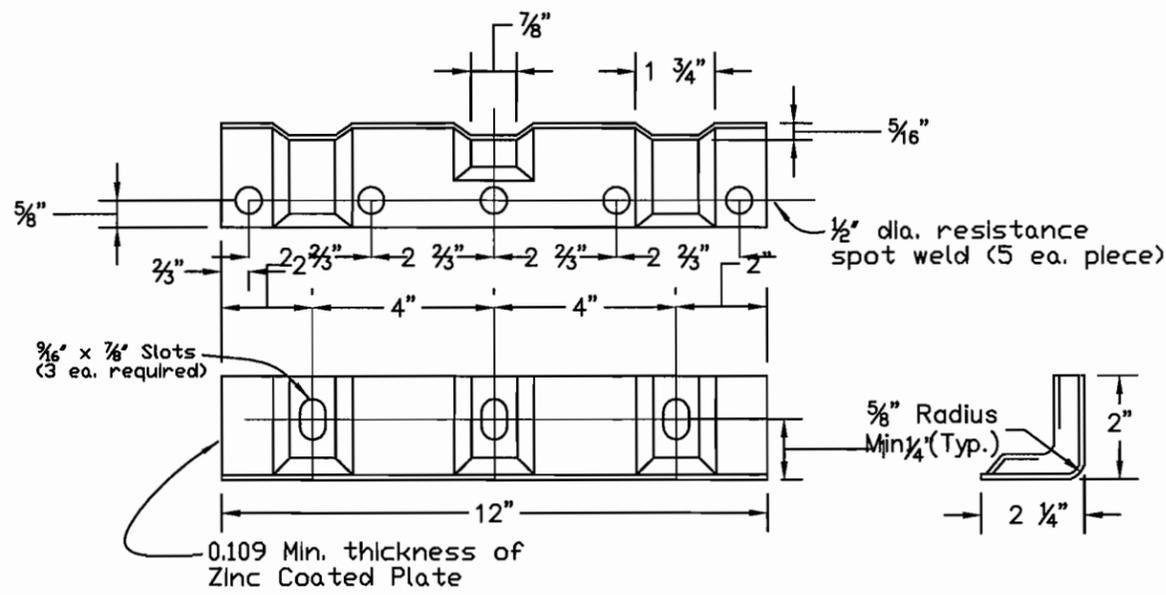


HUGGER COUPLING BAND
FOR REFORMED END HELICALLY CORRUGATED
WELDED SEAM STEEL PIPE

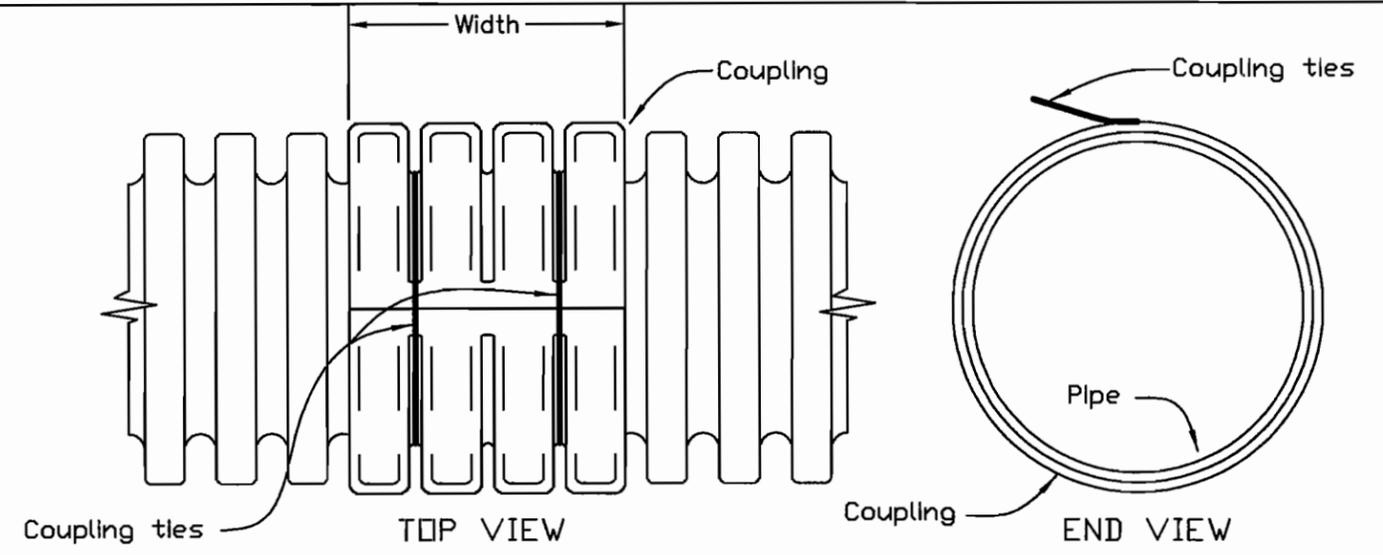


ONE PIECE FLAP BAND
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM



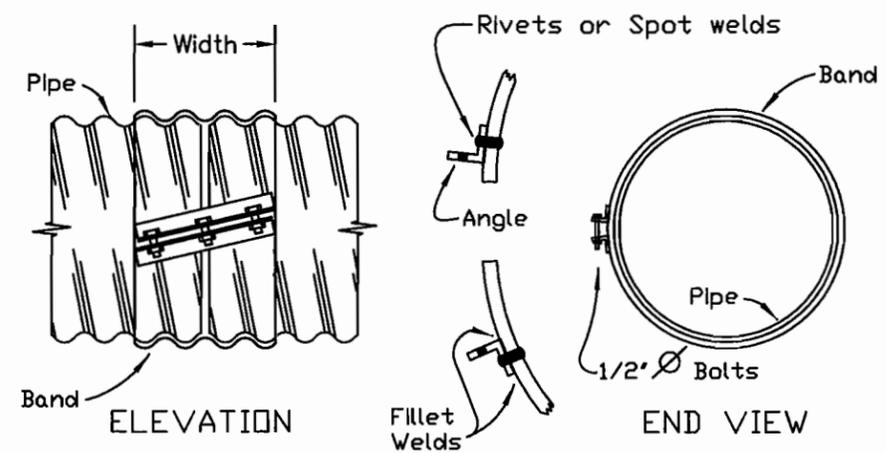


ALTERNATE FOR 2X2X3/16 ANGLE
FOR STEEL PIPE

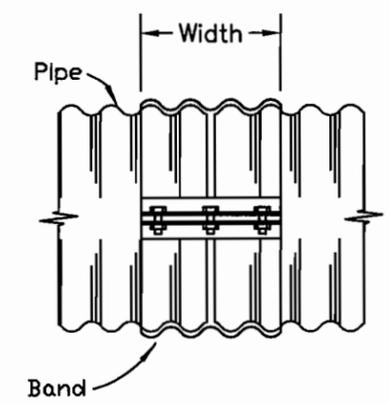


SPLIT COLLAR COUPLING
FOR ANNULAR CORRUGATED POLYETHYLENE PIPE

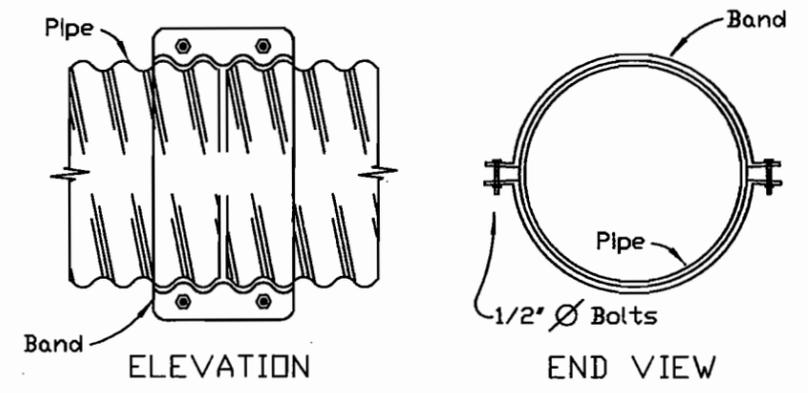
- Notes:
1. Minimum width 4 corrugations, 2 on each culvert segment.
 2. The opening of the coupling shall be within 15° of the top of the culvert.



HELICAL COUPLING BAND
FOR HELICALLY CORRUGATED
STEEL OR ALUMINUM PIPE



ANNULAR COUPLING BAND
FOR ANNULAR OR REFORMED END
HELICALLY CORRUGATED STEEL
OR ALUMINUM PIPE



TWO PIECE INTEGRAL FLANGE
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE

- Notes:
1. Use 2x12x0.150 thickness 5052-H141 aluminum plate washer under bolt head & nut on aluminum pipe flange.
 2. Use 2x12x0.125 thickness galvanized steel plate washer under bolt head & nut on steel pipe flange.



GENERAL NOTES

ANGLE - See Note 1-H

COUPLING TYPE	CORRUGATION Inches	PIPE DIAMETER Inches	WIDTH Inches	SPECIFIED THICKNESS See Note 1-C		DIMENSION	BOLTS NO / DIAMETER	ANGLE TO BAND	
				Pipe Wall	Band			RIVETS	SPOT WELDS
Metal Pipe Annular and Helical	2-2/3x1/2	Thru 36	12	0.064-0.138	0.064-0.079	2x2x3/16	3-1/2	3-3/8	5-1/2
		42-60	12	0.064-0.079	0.064	2x2x3/16	3-1/2	3-3/8	5-1/2
	(Steel or Aluminum)	42-60	12	0.064-0.168	0.064-0.109	2x2x5/16	3-1/2	5-3/8	
		66-84	24	0.109-0.168	0.064-0.109	2x2x5/16	5-1/2	7-3/8	
	3x1 and 5x1 (Steel Only)	36-60	14	0.064-0.079	0.064	2x2x3/16	3-1/2	3-3/8	5-1/2
		42-60	14	0.109	0.064	2x2x5/16	3-1/2	5-3/8	
		66-120	25	0.064-0.109	0.064	2x2x5/16	5-1/2	9-3/8	
One Piece Flap Band & Two Piece Integral Flange	2-2/3x1/2 (Steel or Aluminum) see Note 1-I	18-24	12	0.064-0.079	0.064		3-1/2	4-3/8*	* Flap Band Only
								WELDS ANGLE TO BAND	
American Culvert Band	2-2/3x1/2 (Steel Only)	Thru 24	12	0.064-0.109	0.064-0.079	2x2x0.183	3-1/2	7-1/8x3/4 Long Fillet	
		30-36	12	0.064-0.109	0.064	2x2x0.183	3-1/2		
		42-48	12	0.064-0.079	0.064	2x2x0.183	3-1/2		
Northwest Culvert Alternative	2-2/3x1/2 (Steel Only)	Thru 84	12	0.064-0.079	0.064-0.109			5-3/16x3/4 Long Fillet	
		Thru 54	12	0.109	0.064-0.109				
		Thru 42	12	0.138	0.064-0.109			5-1/2 Spot	
		Thru 84	12	0.064-0.168	0.064-0.109				
						BAR AND STRAP			
						NUMBER/THICKNESS	BOLT DIAMETER	BAR DIAMETER	BAR YIELD STRENGTH P.S.I.
Hugger	2-2/3x1/2 (Steel Only)	Thru 48	10-1/2	0.064-0.109	0.064-0.109	One 0.079	1/2	7/8	32,000
		36-48	10-1/2	0.138-0.168	0.079-0.109	One 0.109	1/2	7/8	45,000
		54-60	10-1/2	0.079-0.168	0.064-0.109	Two 0.079	1/2	7/8	32,000
		66-84	10-1/2	0.109-0.168	0.109	Two 0.109	1/2	7/8	45,000
	3x1 (Steel Only)	36-66	10-1/2	0.064-0.109	0.064	Two 0.079	1/2	7/8	32,000
		72-84	10-1/2	0.109	0.079	Two 0.079	1/2	7/8	32,000
		61-120	10-1/2	0.109	0.109	Two 0.109	1/2	7/8	45,000
PE Pipe Split Collar		Thru 24	See Drawing	per AASHTO M-294	per AASHTO M-294				

1. Metal Coupling Bands

- A. These coupling bands meet the strength requirements for special Joint Types under Non-erodible Soil Conditions, Table 2.23.3 of AASHTO's "Standard Specifications for Highway Bridges".
- B. For pipe walls and bands, the Specified Thickness for steel is given. For aluminum, the Specified Thickness is that for steel less the allowance for the zinc coating which is 0.003 to 0.004 of an inch per AASHTO M-36, M-196 and M-197.
- C. The minimum specified Thickness for bands is two Specified Thicknesses less than that for the pipe, but in no case thinner than 0.064 inches, (0.060 for aluminum).
- D. For pipe arches, use the same width band as for round pipe of equal periphery.
- E. A two-piece band is required for pipe greater than 42 inches in diameter.
- F. Tension straps may be connected to bands of plates with either spot or fillet welds that develop minimum required strength of strap.
- G. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
- H. Use 1 1/4 inch center to center gauge line dimension on attached angle leg for rivets and spot welds.
- I. The Two Piece Integral Flange coupling band shall not be used on pipe arches.
- J. Culvert bands shall be made of the same metal as the culverts being joined.

2. Polyethylene (PE) Couplings

Testing standards for Corrugated Polyethylene (PE) Pipe couplings have not been established nor have couplings been tested for shear or bending moment. Therefore, until further information is available, PE couplings shall be used only where bending moment and shear requirements are minimal. Typical situations are:

- A. Where the slope of the culvert will not be more than 5%.
- B. Where the fill below the culvert is less than 2 feet.
- C. In areas of firm soils. This excludes marshes unless the bedding is specially designed and approved by the engineer.

3. Other

Couplings other than those shown on this drawing may be used upon submission of testing data (see 1-A above) and approval by the Engineer.

