



TIMBER NOTICE OF SALE

SALE NAME: Q FRESH START

AGREEMENT NO: 30-106696

AUCTION: October 31, 2024 starting at 10:00 a.m., Southeast Region Office, Ellensburg, WA

COUNTY: Yakima

SALE LOCATION: Sale located approximately 11 miles west of Tarpico, WA

PRODUCTS SOLD AND SALE AREA:

All timber meeting the Schedule A Cutting Prescription; bounded by pink flagging and timber sale boundary tags and all timber bounded by orange "Right-of-Way" tags.

All forest products above located on part(s) of Sections 6 all in Township 11 North, Range 14 East, Sections 29, 32 and 33 all in Township 12 North, Range 14 East, W.M., containing 410 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BVC-SFIFM-018227)

ESTIMATED SALE VOLUMES AND QUALITY:

Table with columns: Species, Avg DBH, Ring Count, Total MBF, Total Tons, Price \$/Ton, MBF by Grade (1P, 2P, 3P, SM, 1S, 2S, 3S, 4S, UT)

MINIMUM BID: \$5.3/ton (est. value \$82,000.00)

BID METHOD: Sealed Bids

PERFORMANCE SECURITY:

\$16,400.00

SALE TYPE: Tonnage Scale

EXPIRATION DATE: July 31, 2026

ALLOCATION: Export Restricted

BIDDABLE SPECIES: Larch, Douglas fir Combined

BID DEPOSIT: \$8,200.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: All ground based harvest Falling and Yarding will not be permitted from December 1 to April 30 unless authorized in writing by the Contract Administrator.

ROADS: 55.25 stations of required construction. 22.70 stations of optional construction. 382.25 stations of required prehaul maintenance. Road construction will not be permitted from December 1 to April 30 unless authorized in writing by the Contract Administrator. The hauling of forest products will not be permitted from December 1 to April 30 unless authorized in writing by the Contract Administrator.



TIMBER NOTICE OF SALE

ACREAGE DETERMINATION

CRUISE METHOD: Traversed with Garmin 62s gps. Approximately 6 acres were deducted from the gross acres for roads and exclusion areas. Variable plot cruise- See narrative for details.

FEES: \$43,724.00 is due on day of sale. \$1.00 per ton is due upon removal. These are in addition to the bid price.

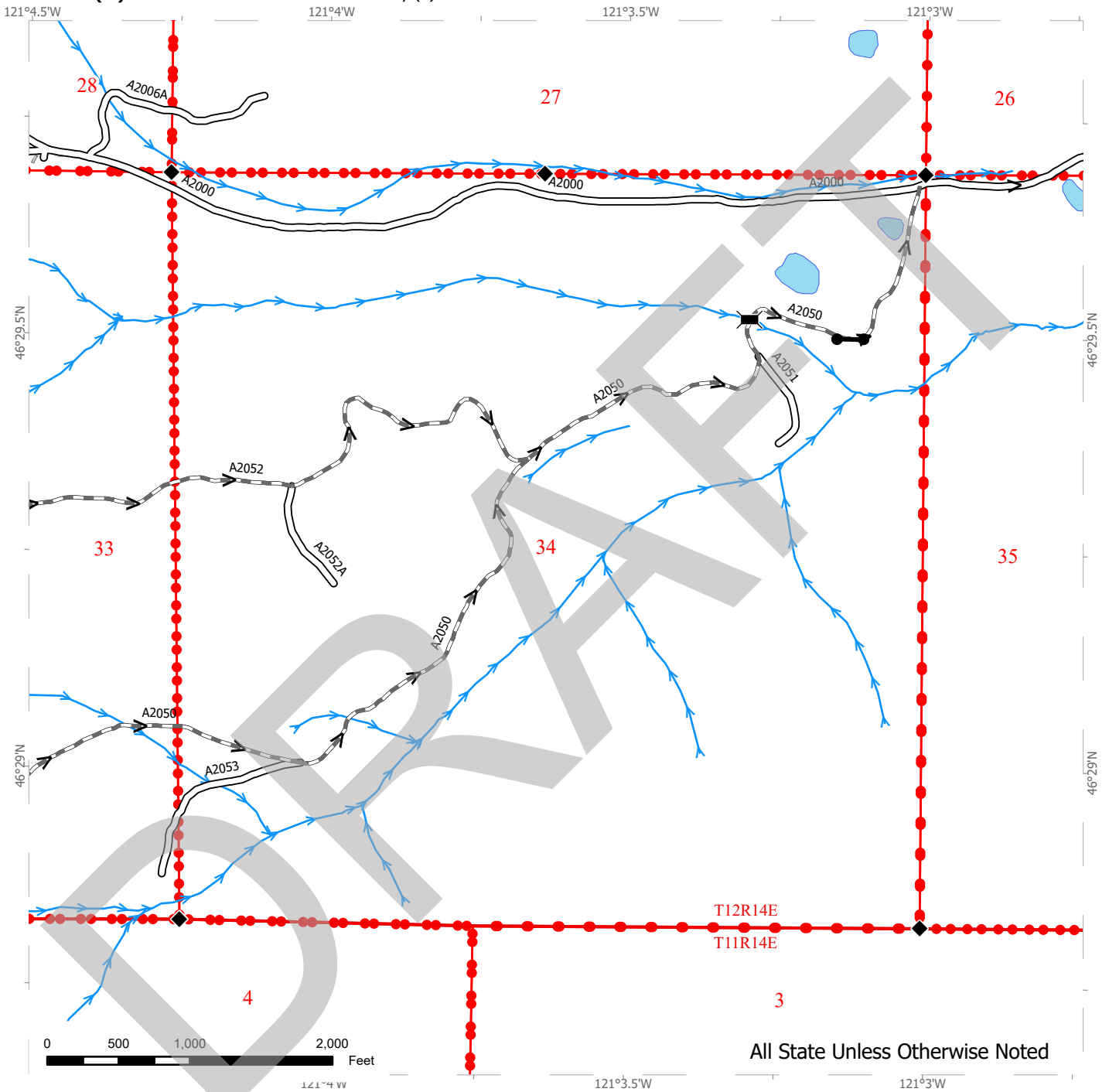
SPECIAL REMARKS: There is an estimated 74 mbf of utility wood on this sale. Utility is optional removal a \$2.00 per ton. There is a significant component of downed wood across the sale. This can be removed as Utility. A minimum of 2 downed logs per acre must be left with minimum dimensions of small end diameter inside bark of 12" and 20 feet in length.






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TIMBER SALE MAP

SALE NAME: Q FRESH START
AGREEMENT #: 30-106696
TOWNSHIP(S): T11R14E, T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



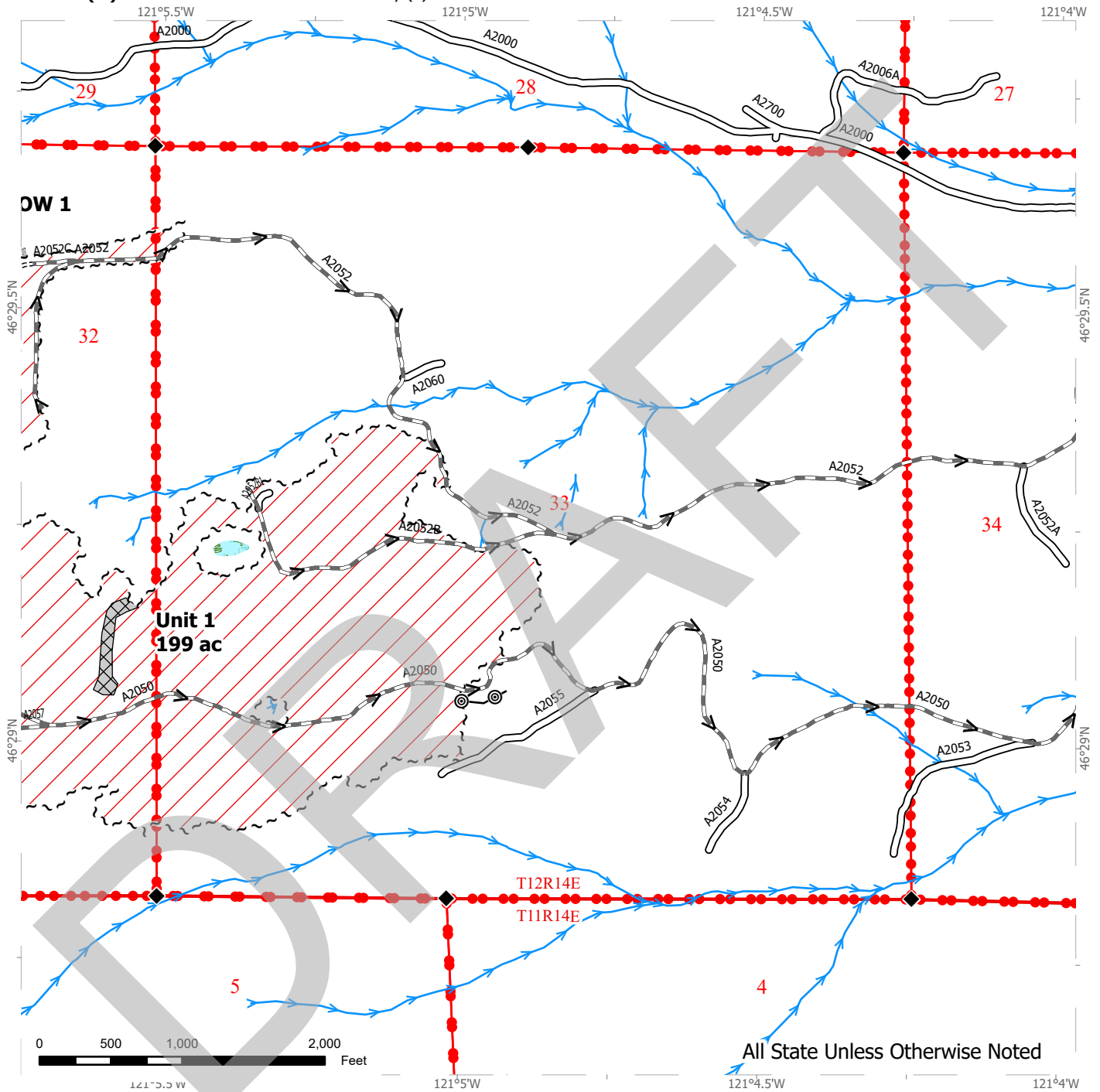
 Existing Roads	 Bridge
 Required Pre-Haul Maintenance Haul Route	 Gate (<<Lock Type>>)
	 Survey Monument



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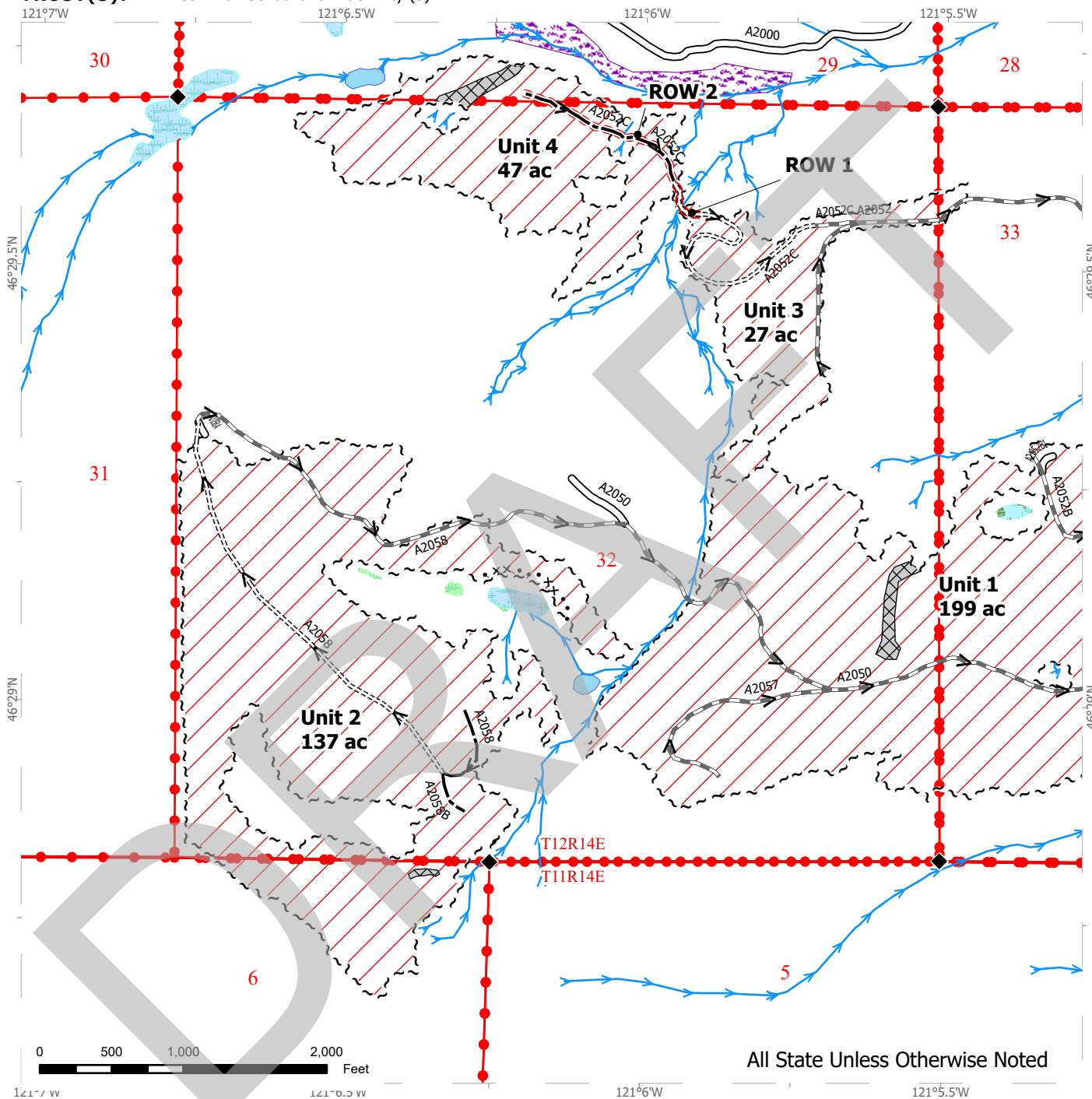
All State Unless Otherwise Noted

Ground	Existing Roads	Survey Monument
Forested Wetland	Required Pre-Haul Maintenance Haul Route	
Channel Migration Zone	Required Construction	
Equipment Limitation Zone		
Sale Boundary Tags		
Designated External Skid Trail		

TIMBER SALE MAP

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All State Unless Otherwise Noted

Ground	Right of Way Tags	Stream Break
Forested Wetland	Existing Roads	Survey Monument
Wetlands - Non-forested	Required Pre-Haul Maintenance	
Special Mgt Area	Required Construction	
Channel Migration Zone	Optional Construction	
Equipment Limitation Zone	Required Abandonment	
Sale Boundary Tags	Haul Route	
Special Mgmt Area		



Timber Sale Cruise Report Q FRESH START

Sale Name: Q FRESH START

Sale Type: WEIGHT SCALE

Region: SOUTHEAST

District: ALPINE

Lead Cruiser: Brendan Cockrum

Other Cruisers: Estan Vargas

Cruise Narrative:

Location: Sections 6 T 11N R14E; Sections 29, 32, & 33 T12N R14E

Access: The Q Fresh Start timber sale is located approximately 11 miles west of Tampico, WA. From Tampico, WA, take the North Fork rd 9.4 miles to junction of A2000 and A3000. Stay left on the A2000 and continue 2.4 miles. Turn left onto the A2050 and drive 0.8 miles to junction of A2050 and A2052. To Units 1 and 2; From A2050-A2052 junction, stay left on the A2050 and drive 1.5 miles to arrive at Unit 1. From arrival point into Unit 1, continue on A2050 for 0.7 miles to junction of A2050 and A2057. Stay right on A2050 and continue 0.4 miles. Turn right onto A2058 and drive 0.2 miles to arrive at Unit 2. To Units 3 & 4; From A2050-A2052 junction, turn right onto A2052 and drive 2.0 miles to arrive at Unit 3. From Unit 3, walk west along orange flag line (A2052C New Construction) 0.7 miles to arrive at Unit 4.

Aspect: North, East, West

Elevation: 4520 - 5960

Slope: The majority of slopes within the sale area are less than 35%. Steepest pitches up to 60% for short distances.

Cruise Design:

In Units 1, 3, & 4 all plots were cruised. Unit 2 utilized the Big-Little BAF method. Walkthrough method was used on plots near boundaries. Unit 1 utilized a 27.78 BAF. Unit 2 utilized a Big BAF of 90 and Little BAF of 33.61. Units 3 & 4 utilized a 40 BAF. All stems ≥ 7 " dbh were cruised including marked leave trees to capture overall stand volume and condition. There are 10 species present on this sale; Western Larch (WL), Douglas-fir (DF), Grand fir (GF), Sub-Alpine fir (AF), Engelmann spruce (ES), Mountain Hemlock (MH), lodgepole pine (LP), ponderosa pine (PP), Whitebark pine (WB), and Western white pine (WP).

Take/Leave Prescription:

Unit 1 will be a harvest by prescription seedtree removal. Leave tree prescription for Unit 1 is retaining 6 tpa of the largest available utilizing a species preference order of DF, GF, ES, MH, WL (Free of dwarf mistletoe), AF. All LP will be cut. Emphasis will be placed on removing WL infected with dwarf mistletoe. Units 2, 3, & 4 were marked leave using a single band of orange paint.

In all units, ponderosa pine, Whitebark pine, and Western white pine will be retained. Stems with a dbh greater than or equal to 32 inches will be retained. Protection of existing regeneration is very high priority across the unit.

Log Length:

All species except PP utilize westside scale running 40' logs where possible with a minimum log length of 12'. Top DIB sawlogs is 5" and Utility is 2".

Cruise Acres Determination – Existing road acreages were subtracted from gross acres.

Timber Quality – The removal volume is composed of 35%-WL, 19%-ES, 14%-GF, 10%-AF, 9%-DF, 7%-LP, and 7%-MH. The most significant defect found across all species was found in the lower bole of the larger dbh GF. This is mainly a result of age and historic fire damage. The other notable defect is found in the lower bole of the 7-9 inch dbh stems due sweep. The mid-diameter stems were mostly clear and straight.

Logging and Stand Conditions: The sale is 100% ground-based harvest. Dwarf-mistletoe infection in the western larch is moderate across the sale acreage. There is a significant amount of standing and down dead wood in all units. Protection will be placed on standing snags over 18" dbh. The sub-alpine fir component has seen the most mortality in all diameter ranges. Over stocking and climax stand conditions in Units 2, 3, and 4 have left this stand at risk to many damaging agents. Unit 1 has a significant advanced regen component. Protection of this cohort is of the highest priority. This sale is in an area managed for Northern Spotted Owl dispersal habitat.

Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
WL	14.8			924	200	506	202	16
ES	13.5			502	104	259	130	10
GF	10.5			384	21	125	224	13
AF	11.6			255	28	94	127	7
DF	13.4			228	27	126	71	4
LP	10.6			202		72	110	21
MH	12.2			151		100	48	4
ALL	12.5			2,648	380	1,281	912	74

Timber Sale Notice Weight (tons)

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
WL	8,416	1,647	4,697	1,792	279
ES	4,450	753	2,115	1,394	188
GF	3,895	233	1,254	2,196	212
DF	2,479	273	1,359	754	93
AF	2,379	214	822	1,233	110
MH	1,847		1,187	576	84
LP	1,802		665	927	209
ALL	25,269	3,121	12,100	8,873	1,175

Timber Sale Overall Cruise Statistics

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
122.1	3.8	81.5	1.9	10,094	4.3

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
Q FRESH START U1	B1: VR, 1 BAF (27.78) Measure All, Sighting Ht = 4.5 ft	198.6	202.9	80	80	2
Q FRESH START U3	BBL: VR, Big BAF (90 Measure, 33.61 Count) Sighting Ht = 4.5 ft	137.5	138.8	81	81	1
Q FRESH START U4	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	26.5	27.4	16	16	1
Q FRESH START U5	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	46.6	46.6	28	28	0
Unit ROW	ST: Strip/Percent Sample (1 tree expansion)	0.5		1	1	0
All		409.7	415.7	206	206	4

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
AF	LIVE	2 SAW	Domestic	12.9	40	69	69	0.0	214.5	28.2
AF	LIVE	3 SAW	Domestic	7.1	39	234	229	2.2	822.3	93.8
AF	LIVE	4 SAW	Domestic	5.2	31	315	309	1.8	1,232.9	126.8
AF	LIVE	UTILITY	Pulp	2.1	16	16	16	0.0	109.7	6.6
DF	LIVE	2 SAW	Domestic	12.9	40	66	66	0.0	272.8	27.1
DF	LIVE	3 SAW	Domestic	8.0	40	312	307	1.7	1,359.5	125.6
DF	LIVE	4 SAW	Domestic	5.3	28	180	174	2.8	754.4	71.5
DF	LIVE	UTILITY	Pulp	2.1	17	10	10	0.0	92.5	4.2
ES	LIVE	2 SAW	Domestic	15.7	40	263	254	3.5	753.2	104.0
ES	LIVE	3 SAW	Domestic	8.6	39	649	631	2.7	2,115.2	258.7
ES	LIVE	4 SAW	Domestic	5.2	29	340	317	7.0	1,394.1	129.7
ES	LIVE	UTILITY	Pulp	2.1	17	23	23	0.0	188.0	9.6
GF	LIVE	2 SAW	Domestic	14.9	40	65	52	19.8	233.1	21.5
GF	LIVE	3 SAW	Domestic	8.1	40	314	305	3.1	1,253.5	124.8
GF	LIVE	4 SAW	Domestic	5.1	26	564	548	2.8	2,196.1	224.4
GF	LIVE	UTILITY	Pulp	2.2	17	33	33	0.0	212.5	13.4
LP	LIVE	3 SAW	Domestic	8.2	40	188	175	7.1	665.0	71.6

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
LP	LIVE	4 SAW	Domestic	5.2	29	300	268	10.6	927.4	109.7
LP	LIVE	UTILITY	Pulp	2.5	20	52	52	0.0	209.5	21.2
MH	LIVE	3 SAW	Domestic	7.6	40	254	245	3.4	1,187.2	100.4
MH	LIVE	4 SAW	Domestic	5.2	25	122	116	5.0	575.8	47.5
MH	LIVE	UTILITY	Pulp	2.4	15	9	9	0.0	83.8	3.5
WL	LIVE	2 SAW	Domestic	13.6	40	500	487	2.6	1,647.1	199.6
WL	LIVE	3 SAW	Domestic	8.3	40	1,268	1,236	2.5	4,697.3	506.3
WL	LIVE	4 SAW	Domestic	5.3	28	507	494	2.5	1,792.3	202.4
WL	LIVE	UTILITY	Pulp	2.1	17	38	38	0.0	278.9	15.6

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
AF	< 5	LIVE	Pulp	2.1	16	16	0.0	109.7	6.6
AF	5 - 8	LIVE	Domestic	5.5	33	484	2.2	1,852.4	198.4
AF	9 - 11	LIVE	Domestic	9.7	40	54	0.0	202.9	22.2
AF	12 - 14	LIVE	Domestic	12.9	40	69	0.0	214.5	28.2
DF	< 5	LIVE	Pulp	2.1	17	10	0.0	92.5	4.2
DF	5 - 8	LIVE	Domestic	5.8	31	355	2.5	1,631.2	145.3
DF	9 - 11	LIVE	Domestic	10.2	40	126	1.0	482.7	51.7
DF	12 - 14	LIVE	Domestic	12.8	40	66	0.0	272.8	27.1
ES	< 5	LIVE	Pulp	2.1	17	23	0.0	188.0	9.6
ES	5 - 8	LIVE	Domestic	5.5	31	553	4.6	2,255.2	226.7
ES	9 - 11	LIVE	Domestic	10.7	40	194	0.0	720.1	79.3
ES	12 - 14	LIVE	Domestic	12.4	40	87	0.0	250.9	35.5
ES	15 - 19	LIVE	Domestic	17.7	40	326	6.8	924.3	133.7
ES	20+	LIVE	Domestic	20.6	40	42	0.0	112.0	17.3
GF	< 5	LIVE	Pulp	2.2	17	32	0.0	209.7	13.1
GF	5 - 8	LIVE	Domestic	5.4	27	735	2.3	2,981.8	301.2
GF	5 - 8	LIVE	Pulp	5.6	13	1	0.0	2.8	0.3
GF	9 - 11	LIVE	Domestic	9.9	39	104	4.0	407.2	42.8
GF	12 - 14	LIVE	Domestic	12.9	40	22	13.3	109.3	9.0
GF	15 - 19	LIVE	Domestic	16.4	40	43	24.2	184.4	17.6
LP	< 5	LIVE	Pulp	2.3	18	30	0.0	146.8	12.4
LP	5 - 8	LIVE	Domestic	5.6	30	384	9.6	1,395.8	157.3
LP	5 - 8	LIVE	Pulp	6.0	30	21	0.0	62.7	8.8
LP	9 - 11	LIVE	Domestic	10.1	40	42	3.4	145.9	17.3
LP	12 - 14	LIVE	Domestic	12.4	40	16	14.8	50.7	6.7

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
MH	< 5	LIVE	Pulp	2.4	15	9	0.0	83.8	3.5
MH	5 - 8	LIVE	Domestic	5.8	30	292	4.8	1,491.0	119.5
MH	9 - 11	LIVE	Domestic	10.2	40	69	0.0	272.0	28.4
WL	< 5	LIVE	Pulp	2.1	17	38	0.0	278.9	15.6
WL	5 - 8	LIVE	Domestic	5.9	32	1,119	2.8	4,366.4	458.6
WL	9 - 11	LIVE	Domestic	10.5	40	610	2.1	2,123.2	250.1
WL	12 - 14	LIVE	Domestic	13.3	40	385	1.2	1,311.7	157.7
WL	15 - 19	LIVE	Domestic	15.7	40	102	7.5	335.4	41.9

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Cruise Unit Report Q FRESH START U1

Unit Sale Notice Volume (MBF): Q FRESH START U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WL	15.8			552	147	299	98	7
DF	14.1			140	11	85	42	2
GF	10.9			104		26	77	1
LP	10.1			84		24	46	14
ES	10.7			28			28	0
MH	9.9			9			9	
AF	8.8			5			4	0
ALL	13.0			921	158	435	304	25

Unit Cruise Design: Q FRESH START U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (27.78) Measure All, Sighting Ht = 4.5 ft	198.6	202.9	80	80	2

Unit Cruise Summary: Q FRESH START U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
PP		12	0.2	0
WP		2	0.0	0
WL	83	91	1.1	0
DF	28	53	0.7	0
GF	28	35	0.4	0
LP	16	16	0.2	0
ES	9	12	0.2	0
MH	3	3	0.0	0
AF	1	1	0.0	0
ALL	168	225	2.8	0

Unit Cruise Statistics: Q FRESH START U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
PP	4.2	398.3	44.5						

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WP	0.7	628.4	70.3						
WL	31.6	108.1	12.1	96.4	25.7	2.8	3,045	111.1	12.4
DF	18.4	149.9	16.8	72.5	32.0	6.0	1,334	153.2	17.8
GF	12.2	166.0	18.6	54.0	30.0	5.7	656	168.7	19.4
LP	5.6	268.6	30.0	76.3	29.9	7.5	424	270.3	30.9
ES	4.2	337.1	37.7	44.8	38.8	12.9	186	339.3	39.8
MH	1.0	509.8	57.0	43.8	24.4	14.1	46	510.4	58.7
AF	0.3	894.4	100.0	66.3	0.0	0.0	23	894.4	100.0
ALL	78.1	64.0	7.2	78.0	37.2	2.9	6,093	74.1	7.7

Unit Summary: Q FRESH START U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	1	ALL	8.8	38	45	23	23	0.0	0.8	0.3	0.1	4.6
DF	LIVE	CUT	28	ALL	14.1	54	66	718	705	1.9	9.0	9.7	2.6	140.0
ES	LIVE	CUT	9	ALL	10.7	37	44	151	140	7.6	5.0	3.1	1.0	27.8
GF	LIVE	CUT	28	ALL	10.9	38	45	547	525	4.0	15.0	9.7	2.9	104.2
LP	LIVE	CUT	16	ALL	10.1	52	64	482	424	12.0	10.0	5.6	1.7	84.1
MH	LIVE	CUT	3	ALL	9.9	34	41	49	46	6.2	1.9	1.0	0.3	9.1
WL	LIVE	CUT	83	ALL	15.8	63	79	2,822	2,777	1.6	21.2	28.8	7.3	551.6
ALL	LIVE	CUT	168	ALL	13.0	51	62	4,791	4,639	3.2	62.9	58.3	15.9	921.3
ALL	ALL	ALL	168	ALL	13.0	51	62	4,791	4,639	3.2	62.9	58.3	15.9	921.3

Cruise Unit Report Q FRESH START U2

Unit Sale Notice Volume (MBF): Q FRESH START U2

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
ES	14.1			421	93	247	73	8
WL	13.3			252	40	140	67	6
AF	11.7			251	28	94	123	6
MH	12.3			142		100	38	4
LP	10.7			49		8	36	5
GF	12.0			30	9	10	11	0
ALL	12.8			1,146	170	600	347	29

Unit Cruise Design: Q FRESH START U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
BBL: VR, Big BAF (90 Measure, 33.61 Count) Sighting Ht = 4.5 ft	137.5	138.8	81	81	1

Unit Cruise Summary: Q FRESH START U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF		13	0.2	0
WB		3	0.0	0
PP		2	0.0	0
ES	29	109	1.3	0
MH	13	111	1.4	0
WL	29	68	0.8	0
AF	24	65	0.8	0
GF	5	21	0.3	0
LP	4	10	0.1	0
ALL	104	402	5.0	0

Unit Cruise Statistics: Q FRESH START U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	5.4	423.2	47.0						
WB	1.2	513.1	57.0						

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
PP	0.8	632.4	70.3						
ES	45.2	104.5	11.6	105.5	38.0	7.1	4,771	111.2	13.6
MH	46.1	119.6	13.3	71.3	31.5	8.7	3,284	123.7	15.9
WL	28.2	162.5	18.1	88.3	23.8	4.4	2,491	164.3	18.6
AF	27.0	131.3	14.6	72.1	32.7	6.7	1,944	135.3	16.0
GF	8.7	303.6	33.7	75.6	34.7	15.5	659	305.5	37.1
LP	4.1	518.4	57.6	86.3	31.1	15.6	358	519.3	59.7
ALL	166.8	47.4	5.3	84.8	36.3	3.6	14,141	59.7	6.4

Unit Summary: Q FRESH START U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
AF	LIVE	CUT	24	ALL	8.6	48	59	1,857	1,825	1.8	62.7	25.3	8.6	250.9
ES	LIVE	CUT	29	ALL	13.7	56	70	3,193	3,064	4.1	28.4	29.0	7.8	421.3
GF	LIVE	CUT	5	ALL	13.2	47	57	234	220	6.0	3.1	2.9	0.8	30.2
LP	LIVE	CUT	4	ALL	11.6	57	70	383	358	6.5	5.7	4.1	1.2	49.2
MH	LIVE	CUT	13	ALL	11.2	49	59	1,075	1,036	3.7	21.2	14.5	4.3	142.4
WL	LIVE	CUT	29	ALL	13.9	60	75	1,923	1,831	4.7	19.7	20.7	5.6	251.8
ALL	LIVE	CUT	104	ALL	11.2	52	64	8,665	8,333	3.8	140.8	96.7	28.4	1,145.7
ALL	ALL	ALL	104	ALL	11.2	52	64	8,665	8,333	3.8	140.8	96.7	28.4	1,145.7

Cruise Unit Report Q FRESH START U3

Unit Sale Notice Volume (MBF): Q FRESH START U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WL	11.9			75	6	40	27	2
GF	11.0			53		27	22	4
LP	10.6			44		23	20	1
DF	12.9			26	6	12	8	0
ES	10.1			8		8		0
ALL	11.4			206	12	108	77	8

Unit Cruise Design: Q FRESH START U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	26.5	27.4	16	16	1

Unit Cruise Summary: Q FRESH START U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
PP		1	0.1	0
WL	12	17	1.1	0
DF	5	16	1.0	0
GF	11	14	0.9	0
LP	7	7	0.4	0
ES	1	1	0.1	0
ALL	36	56	3.5	0

Unit Cruise Statistics: Q FRESH START U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
PP	2.5	400.0	100.0						
WL	42.5	121.4	30.3	94.5	17.7	5.1	4,017	122.6	30.8
DF	40.0	121.1	30.3	78.8	31.4	14.0	3,150	125.1	33.4
GF	35.0	131.1	32.8	72.4	31.3	9.4	2,532	134.8	34.1
LP	17.5	203.9	51.0	94.9	19.1	7.2	1,661	204.8	51.5
ES	2.5	400.0	100.0	120.4	0.0	0.0	301	400.0	100.0

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
ALL	140.0	65.2	16.3	84.8	26.4	4.4	11,874	70.3	16.9

Unit Summary: Q FRESH START U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	5	ALL	12.9	53	65	1,005	984	2.0	13.8	12.5	3.5	26.1
ES	LIVE	CUT	1	ALL	10.1	64	80	301	301	0.0	4.5	2.5	0.8	8.0
GF	LIVE	CUT	11	ALL	11.0	44	54	2,011	1,990	1.0	41.7	27.5	8.3	52.7
LP	LIVE	CUT	7	ALL	10.6	53	66	1,685	1,661	1.4	28.6	17.5	5.4	44.0
WL	LIVE	CUT	12	ALL	11.9	57	71	2,861	2,836	0.9	38.8	30.0	8.7	75.1
ALL	LIVE	CUT	36	ALL	11.4	52	64	7,862	7,772	1.2	127.4	90.0	26.6	206.0
ALL	ALL	ALL	36	ALL	11.4	52	64	7,862	7,772	1.2	127.4	90.0	26.6	206.0

Cruise Unit Report Q FRESH START U4

Unit Sale Notice Volume (MBF): Q FRESH START U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
GF	9.9			193	13	59	113	8
DF	11.9			62	11	29	21	2
WL	15.5			44	6	26	11	1
ES	9.9			44	10	3	29	1
LP	11.8			25		16	8	0
ALL	10.6			368	40	134	182	12

Unit Cruise Design: Q FRESH START U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	46.6	46.6	28	28	0

Unit Cruise Summary: Q FRESH START U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
AF		1	0.0	0
PP		4	0.1	0
GF	36	57	2.0	0
DF	11	30	1.1	0
ES	7	11	0.4	0
WL	7	10	0.4	0
LP	4	4	0.1	0
ALL	65	117	4.2	0

Unit Cruise Statistics: Q FRESH START U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
AF	1.4	529.2	100.0						
PP	5.7	313.9	59.3						
GF	81.4	73.8	13.9	80.4	28.5	4.8	6,550	79.1	14.7
DF	42.9	119.0	22.5	84.8	24.3	7.3	3,635	121.4	23.6
ES	15.7	233.3	44.1	94.1	56.0	21.2	1,479	239.9	48.9

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WL	14.3	231.3	43.7	94.8	29.5	11.2	1,354	233.2	45.1
LP	5.7	249.4	47.1	93.5	43.8	21.9	534	253.3	52.0
ALL	167.1	52.5	9.9	84.7	33.4	4.1	14,156	62.3	10.8

Unit Summary: Q FRESH START U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	11	ALL	11.9	50	61	1,355	1,333	1.7	20.3	15.7	4.6	62.1
ES	LIVE	CUT	7	ALL	9.9	45	56	954	941	1.4	18.7	10.0	3.2	43.8
GF	LIVE	CUT	36	ALL	9.9	44	54	4,329	4,137	4.4	96.2	51.4	16.3	192.8
LP	LIVE	CUT	4	ALL	11.8	51	63	598	534	10.7	7.5	5.7	1.7	24.9
WL	LIVE	CUT	7	ALL	15.5	62	77	987	948	3.9	7.6	10.0	2.5	44.2
ALL	LIVE	CUT	65	ALL	10.6	46	57	8,223	7,892	4.0	150.3	92.9	28.3	367.8
ALL	ALL	ALL	65	ALL	10.6	46	57	8,223	7,892	4.0	150.3	92.9	28.3	367.8

Cruise Unit Report Unit ROW

Unit Sale Notice Volume (MBF): Unit ROW

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
GF	10.4			4		2	2	0
ES	12.8			1	0	0	0	0
WL	13.8			1		1	0	0
DF	11.3			0		0	0	0
LP	11.0			0		0	0	0
ALL	11.2			7	0	4	2	0

Unit Cruise Design: Unit ROW

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
ST: Strip/Percent Sample (1 tree expansion)	0.5		1	1	0

Unit Cruise Summary: Unit ROW

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
GF	3	67	67.0	0
ES	3	11	11.0	0
WL	2	10	10.0	0
DF	2	3	3.0	0
LP	1	2	2.0	0
ALL	11	93	93.0	0

Unit Cruise Statistics: Unit ROW

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
GF	79.2	0.0	0.0	104.2	10.5	6.1	8,252	10.5	6.1
ES	19.8	0.0	0.0	114.8	21.9	12.7	2,268	21.9	12.7
WL	20.7	0.0	0.0	109.4	2.4	1.7	2,264	2.4	1.7
DF	4.2	0.0	0.0	100.7	6.5	4.6	422	6.5	4.6
LP	2.6	0.0	0.0	142.4	0.0	0.0	376	0.0	0.0
ALL	126.5	0.0	0.0	107.4	15.7	4.7	13,582	15.7	4.7

Unit Summary: Unit ROW

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	11.3	59	74	422	422	0.0	6.0	4.2	1.2	0.2
ES	LIVE	CUT	3	ALL	12.8	58	73	2,268	2,268	0.0	22.1	19.8	5.5	1.1
GF	LIVE	CUT	3	ALL	10.4	59	73	8,306	8,252	0.7	134.3	79.2	24.6	4.1
LP	LIVE	CUT	1	ALL	11.0	70	88	376	376	0.0	4.0	2.6	0.8	0.2
WL	LIVE	CUT	2	ALL	13.8	77	97	2,264	2,264	0.0	19.9	20.7	5.6	1.1
ALL	LIVE	CUT	11	ALL	11.2	61	76	13,636	13,582	0.4	186.3	126.5	37.7	6.8
ALL	ALL	ALL	11	ALL	11.2	61	76	13,636	13,582	0.4	186.3	126.5	37.7	6.8

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Q FRESH START TIMBER SALE ROAD PLAN
YAKIMA COUNTY
SOUTHEAST REGION

AGREEMENT NO.: 30-106696

STAFF ENGINEER: JOE SMITH

DATE: 05/15/2024

COMPILED BY: JOE SMITH

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

Clauses in this road plan apply to all road related work, including landings and rock source development, unless otherwise noted.

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
A2050	0+00 to 180+60	Pre-haul Maintenance
A2052	0+00 to 120+10	Pre-haul Maintenance
A2052B	0+00 to 26+50	Pre-Haul Maintenance
A2052C	0+00 to 3+15	Pre-haul Maintenance
	3+15 to 27+15	Construction
A2057	0+00 to 17+30	Pre-haul Maintenance
A2058	0+00 to 34+60	Pre-haul Maintenance
	34+60 to 65+85	Construction

0-3 OPTIONAL ROADS

The specified work on the following roads is not required. Any optional roads built by the Purchaser must meet all the specifications in this road plan.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
A2052C	27+15 to 40+05	Construction
A2058	65+85 to 72+35	Construction
A2058B	0+00 to 3+30	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to:

- clearing;
- grubbing;
- right-of way debris disposal;
- excavation and/or embankment to subgrade, including ditches;
- subgrade compaction;
- landing construction;
- acquisition and installation of drainage structures as specified;
- acquisition and application of rock as specified.

0-6 PRE-HAUL MAINTENANCE

This project includes, but is not limited to the following pre-haul maintenance requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
A2050	0+00 to 180+60	Spot grade/blade as needed for haul.
A2052	0+00 to 120+10	Spot grade/blade as needed for haul.
A2052B	0+00 to 26+50	Spot grade/blade as needed for haul.
A2052C	0+00 to 3+15	Brush as indicated in 3-1 BRUSHING. Spot grade/blade as needed for haul.
A2057	0+00 to 17+30	Spot grade/blade as needed for haul.
A2058	0+00 to 34+60	Spot grade/blade as needed for haul.

0-7 POST-HAUL MAINTENANCE

This project includes post-haul road maintenance listed in Clause 9-5 POST HAUL MAINTENANCE.

0-9 DECOMMISSIONING

This project includes decommissioning listed in Clause 9-20 ROAD DECOMMISSIONING.

0-10 ABANDONMENT

This project includes abandonment listed in Clause 9-22 ROAD ABANDONMENT.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

If the Purchaser desires a change from this road plan including, but not limited to, relocation, extension, change in design, or adding roads; a revised road plan must be submitted in writing to the Contract Administrator for consideration. Before work begins, Purchaser shall obtain approval from the State for any submitted plan that changes the scope of work or environmental condition from the original road plan.

1-2 UNFORESEEN CONDITIONS

Quantities established in this road plan are minimum acceptable values. Additional quantities required by the state due to unforeseen conditions, or Purchaser's choice of construction season or techniques will be at the Purchaser's expense. Unforeseen conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

1-3 ROAD DIMENSIONS

Purchaser shall perform road work in accordance with the dimensions shown on the TYPICAL SECTION SHEET and the specifications within this road plan.

1-4 ROAD TOLERANCES

Purchaser shall perform road work within the tolerances listed below. The tolerance class for each road is listed on the TYPICAL SECTION SHEET.

<u>Tolerance Class</u>	<u>A</u>	<u>B</u>	<u>C</u>
Road and Subgrade Width (feet)	+1.5	+1.5	+2.0
Subgrade Elevation (feet +/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0

1-5 DESIGN DATA

Road construction design data is available upon request at the Department of Natural Resources Southeast Region Office in Ellensburg, WA.

1-6 ORDER OF PRECEDENCE

Any conflict or inconsistency in the road plan will be resolved by giving the documents precedence in the following order:

1. Addenda.
2. Designs or Plans. On designs and plans, figured dimensions shall take precedence over scaled dimensions.
3. Road Plan Clauses.
4. TYPICAL SECTION SHEET.
5. Standard Lists.
6. Standard Details.
7. Road Plan/Work maps.

In case of any ambiguity or dispute over interpreting the road plan, the Contract Administrator's, or designee's decision will be final.

1-7 TEMPORARY ROAD CLOSURE

Purchaser shall notify the Contract Administrator a minimum of 14 calendar days before the closure of any road.

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

Purchaser shall repair or replace all materials, roadway infrastructure, and road components damaged during road work or operation activities. The Contract Administrator will direct repairs and replacements. Repairs to structural materials must be made in accordance with the manufacturer's recommendation, and may not begin without written approval from the Contract Administrator.

1-9 DAMAGED METALLIC COATING

Any cut ends, or damaged galvanized or aluminized coating on existing or new bridge components, culverts, downspouts, and flumes must be cleaned and treated with a minimum of two coats of zinc rich paint or cold galvanizing compound.

1-15 ROAD MARKING

Purchaser shall perform road work in accordance with the state's marked location. Road centerline location for new construction is marked with orange flagging.

1-21 HAUL APPROVAL

Purchaser shall not use roads under this road plan for any hauling other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1-23 ROAD WORK PHASE APPROVAL

Purchaser shall obtain written approval from the Contract Administrator upon completion of each of the following phases of road work:

- Subgrade construction
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

1-25 ACTIVITY TIMING RESTRICTION

The operation of road construction equipment is not allowed between November 1 to April 30, or on weekends or state recognized holidays, unless authorized in writing by the Contract Administrator.

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION or Contract Clause H-130 HAULING SCHEDULE, Purchaser shall provide a maintenance plan to include further protection of state resources. Purchaser shall obtain written approval from the Contract Administrator for the maintenance plan, and shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

Purchaser shall not allow silt-bearing runoff to enter any streams.

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220 STATE SUSPENDS OPERATION, the Contract Administrator will suspend road work or hauling right-of-way timber, forest products, or rock under the following conditions:

- Wheel track rutting exceeds 4 inches on any roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

Operations must stop unless authority to continue working or hauling is granted in writing by the Contract Administrator. In the event that surface or base stability problems persist, Purchaser shall cease operations, or perform corrective maintenance or repairs, subject to specifications within this road plan. Before and during any suspension, Purchaser shall protect the work from damage or deterioration.

1-32 BRIDGE OR ASPHALT SURFACE RESTRICTION

The use of metal tracked equipment is not allowed on bridges or asphalt surfaces at any time. If Purchaser must run equipment on bridges or asphalt surfaces, then rubber-tired equipment or other methods, approved in writing by Contract Administrator, must be used.

If tracked equipment is used on bridges or asphalt surfaces, Purchaser shall immediately cease all road construction and hauling operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the bridge or asphalt surfaces and have surfaces evaluated by the District Engineer or their designee for any damage caused by equipment. Any damage to the surfaces will be repaired, at the Purchaser's expense, as directed by the Contract Administrator.

If damage has occurred from Purchaser activity, Purchaser shall have asphalt surfaces reviewed by a third party, specializing in asphalt construction and repair. The third party's scope of the damage and repairs must be agreed upon between the Purchaser and the Contract Administrator. Damage to the asphalt will be repaired at the Purchaser's expense.

1-33 SNOW PLOWING RESTRICTION

Snowplowing will be allowed after the execution of a SNOW PLOWING AGREEMENT, which is available from the Contract Administrator upon request. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

1-40 ROAD APPROACHES TO PAVED ROADS, COUNTY ROADS AND STATE HIGHWAYS

Purchaser shall immediately remove any mud, dirt, rock, or other material tracked or spilled on to paved roads, county roads and state highways.

If additional damage to the surface, signs, guardrails, etc. occurs then the damage will be repaired, at the Purchaser's expense, as directed by the Contract Administrator when authorized by the road controller, county or WSDOT.

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

Purchaser shall maintain all roads used under this contract in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS for the entire term of this contract. Maintenance is required even during periods of inactivity.

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

Purchaser shall perform maintenance on roads listed in Contract Clause C-050 PURCHASER ROAD MAINTENANCE AND REPAIR in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

Purchaser may be required to perform maintenance on roads listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER as directed by the Contract Administrator. Purchaser shall maintain roads in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-4 PASSAGE OF LIGHT VEHICLES

Purchaser shall maintain all roads in a condition that will allow the passage of light administrative vehicles.

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following roads, Purchaser shall use a grader or dozer to shape the existing surface before timber haul.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
A2050	0+00 to 180+60	Spot grade/blade as needed for haul.
A2052	0+00 to 120+10	Spot grade/blade as needed for haul.
A2052B	0+00 to 26+50	Spot grade/blade as needed for haul.
A2052C	0+00 to 3+15	Spot grade/blade as needed for haul.
A2057	0+00 to 17+30	Spot grade/blade as needed for haul.
A2058	0+00 to 34+60	Spot grade/blade as needed for haul.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following road, Purchaser shall cut vegetative material up to 5 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by manual or mechanical cutting, pulling, or breaking of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
A2052C	0+00 to 3+15

3-5 CLEARING

Purchaser shall fell all vegetative material larger than 2 inches DBH or over 5 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

Purchaser shall deck all right-of-way timber. Decks must be parallel to the road centerline and placed within the cleared right-of-way. Decks must be free of dirt, limbs, and other right-of-way debris, and removable by standard log loading equipment from the roadbed.

3-8 PROHIBITED DECKING AREAS

Purchaser shall not deck right-of-way timber in the following areas:

- Within the grubbing limits.
- Within 100 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 40%.
- Against live standing trees.

3-10 GRUBBING

Purchaser shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET. Purchaser shall also remove stumps with undercut roots outside the grubbing limits. Stumps over 24 inches in diameter must be split. Stumps over 40 inches must be quartered. Grubbing must be completed before starting excavation and embankment.

3-12 STUMP PLACEMENT

Purchaser shall place grubbed stumps outside of the clearing limits and in compliance with all other clauses in this road plan. Stumps must be positioned upright, with root wads in contact with the forest floor on stable locations.

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clause G-010 PRODUCTS SOLD AND SALE AREA or G-011 RIGHT TO REMOVE FOREST PRODUCTS AND CONTRACT AREA, that is larger than one cubic foot in volume within the grubbing clearing brushing area limits as shown on the TYPICAL SECTION SHEET or BRUSHING DETAIL.

3-21 DISPOSAL COMPLETION

Purchaser shall remove organic debris from the road surface, ditchlines, and drainage inlets and outlets. Purchaser shall complete all disposal of organic debris before timber haul.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 50%.
- Within the operational area for landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

Purchaser shall not bury organic debris unless otherwise stated in this plan.

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the clearing limits in natural openings unless otherwise detailed in this road plan. Where natural openings are unavailable or restrictive, alternate debris disposal methods are subject to the written approval of the Contract Administrator.

SECTION 4 – EXCAVATION

4-2 PIONEERING

Pioneering may not extend past construction that will be completed during the current construction season. In addition, the following actions must be taken as pioneering progresses:

- Drainage must be provided on all uncompleted construction.
- Road pioneering operations may not undercut the final cut slope or restrict drainage.
- Culverts at live stream crossings must be installed during pioneering operations prior to embankment.

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall adhere to the following standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 6% in 100 feet.
- Maximum grade change for crest vertical curves is 5% in 100 feet.

4-5 CUT SLOPE RATIO

Purchaser shall construct excavation slopes no steeper than shown on the following table:

<u>Material Type</u>	<u>Excavation Slope Ratio</u>	<u>Excavation Slope Percent</u>
Common Earth (on side slopes up to 50%)	1:1	100
Common Earth (50% to 70% side slopes)	¾:1	133
Common Earth (on slopes over 70%)	½:1	200
Fractured or loose rock	½:1	200
Hardpan or solid rock	¼:1	400

4-6 EMBANKMENT SLOPE RATIO

Purchaser shall construct embankment slopes no steeper than shown on the following table:

<u>Material Type</u>	<u>Embankment Slope Ratio</u>	<u>Embankment Slope Percent</u>
Sandy Soils	2:1	50
Common Earth and Rounded Gravel	1½:1	67
Angular Rock	1¼:1	80

4-7 SHAPING CUT AND FILL SLOPE

Purchaser shall construct excavation and embankment slopes to a uniform line and left rough for easier revegetation.

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

- 6 feet for curves of 50 to 79 feet radius.
- 4 feet for curves of 80 to 100 feet radius.

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

- 2 feet for embankment heights at centerline of 2 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

Purchaser shall apply embankment widening equally to both sides of the road to achieve the required width.

4-21 TURNOUTS

Purchaser shall construct turnout as designated below. Locations changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

<u>Road</u>	<u>Turnout Location</u>	<u>Comments</u>
A2052C	23+35 to 23+95	Utilize excess cut material from excavation to create turnout right.

4-22 TURNAROUNDS

If necessary, turnarounds must be no larger than 30 feet long and 30 feet wide. Locations are subject to written approval by the Contract Administrator.

4-28 DITCH DRAINAGE

Ditches must drain to cross drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as needed. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio. Locations must have written approval from the Contract Administrator.

4-35 WASTE MATERIAL DEFINITION

Waste material is defined as all dirt, rock, mud, or related material that is extraneous or unsuitable for construction material. Waste material, as used in Section 4 EXCAVATION, is not organic debris.

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 45% if the waste material is compacted and free of organic debris and meets the conditions of Clause 4-38 PROHIBITED WASTE DISPOSAL AREAS. Waste material may be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION. Other areas for waste material require approval, in writing, prior to use by the Contract Administrator.

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in the listed designated areas. Additional waste areas may also be identified or approved by the Contract Administrator. The amount of material allowed in a waste area is as listed.

<u>Road</u>	<u>Waste Area Location</u>	<u>Comments</u>	<u>Estimated Volume</u>
A2052C	18+00, 21+00	Place excess material adjacent to switchback as directed by the Contract Administrator.	250 CY
	26+50	Sidecast excess waste.	400 CY

4-38 PROHIBITED WASTE DISPOSAL AREAS

Purchaser shall not deposit waste material in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland unless otherwise specified herein.
- Within a riparian management zone.
- Within a wetland management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for landings.
- Against standing timber.

4-48 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris and trash.

4-49 BORROW SOURCE

Purchaser shall obtain borrow material from the listed borrow sources or borrow sources identified and approved in writing by the Contract Administrator.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>	<u>Type</u>
A2052C	16+15 to 27+15	Utilize excess material from excavation to grade for fills and embankments.	Native

4-50 BORROW APPLICATION

Purchaser shall apply borrow in accordance with quantities shown below. Borrow must be spread, shaped, and compacted full width concurrent with hauling operations.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>	<u>Estimated Volume</u>
A2052C	18+00 to 20+70	Utilize excess cut material from road construction for curve widening and embankment to grade in switch back.	250 CY

4-55 ROAD SHAPING

Purchaser shall shape the subgrade and surface as shown on the TYPICAL SECTION SHEET. The subgrade and surface shape must ensure runoff in an even, un-concentrated manner, and must be uniform, firm, and rut-free.

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material in accordance with the COMPACTION LIST by routing equipment over the entire width of each lift.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed subgrades in accordance with the COMPACTION LIST by routing equipment over the entire width. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before timber haul.

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

Purchaser shall remove berms from road shoulders as shown in the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS. The construction of ditchouts, as described in Clause 4-29 DITCHOUTS, is required where ponding could result from the effects of sidecast debris.

5-5 CULVERTS

Purchaser shall supply and install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the CULVERT AND DRAINAGE LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts must be new, or used material as indicated in 5-7 USED CULVERT MATERIAL, and must meet the specifications in Clauses 10-15 through 10-24.

5-6 CULVERT TYPE

Purchaser shall install metal or plastic culverts in accordance with Clauses 10-15 through 10-24.

5-7 USED CULVERT MATERIAL

On the following road, Purchaser may install used culverts. All other roads must have new culverts installed. Purchaser shall obtain approval from the Contract Administrator for the quality of the used culverts before installation. Culverts must meet the specifications in Clauses 10-15 through 10-24.

<u>Road</u>	<u>Station</u>
A2052C	24+65 to 40+05

5-8 TEMPORARY STREAM CULVERT INSTALLATION

Purchaser shall install temporary culverts as shown in the TEMPORARY CULVERT DETAIL. Temporary stream culverts must be located in the natural channel of the stream. Temporary culverts must be removed as indicated below. Geotextile fabric must meet the specifications in Clause 10-2 GEOTEXTILE FOR SEPARATION.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
A2052C	24+65	Install temporary culvert in existing stream channel.
	32+35	Install temporary culvert in existing stream channel.

5-11 STATE SUPPLIED CULVERTS

The following culvert will be supplied by the state and is available at the junction of the A2050 and A2051 roads.

<u>Road</u>	<u>Station</u>	<u>Size</u>
A2052C	24+65	96" x 66" Pipe Arch, 20' and 24' segments including band.

5-12 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the CULVERT AND DRAINAGE LIST that are not installed will become the property of the state. Purchaser shall deliver materials to 713 Bowers Road, Ellensburg, WA as directed by the Contract Administrator.

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and, the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures" or the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer's recommendations. Culverts over 15 inches in diameter shall be banded using segments of no less than 10 feet, and no more than one segment less than 16 feet unless otherwise specified herein. The shorter segment of banded culvert shall be installed at the inlet end.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts Over 36 inches in diameter before backfilling.

5-18 CULVERT DEPTH OF COVER

All culverts must be installed with a depth of cover of not less than 1 foot of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover recommended by the culvert manufacturer for the type and size of the pipe.

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all crossdrain culverts. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the ROCK LIST. Energy dissipaters must extend a minimum of 1 foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet. Placement must with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed.

5-25 CATCH BASINS

Purchaser shall construct catch basins in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions of catch basins are 2 feet wide and 5 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT AND DRAINAGE LIST that specify the placement of rock. Rock used for headwalls must meet the specifications of clause 6-43 QUARRY SPALLS. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert inlet, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be with a zero-drop-height only.

5-27 ARMORING FOR CULVERTS

Purchaser shall place culvert armor as shown on the ROCK LIST in conjunction with or immediately following construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the CULVERT AND DRAINAGE LIST. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed.

5-30 DRIVABLE WATERBAR CONSTRUCTION

Purchaser shall construct drivable waterbars in accordance with the DRIVABLE WATERBAR DETAIL and as specified on the CULVERT AND DRAINAGE LIST. Drivable waterbars must be installed concurrently with construction of the subgrade and must be maintained in an operable condition. Purchaser shall install drivable waterbars using a crawler tractor. Use of any other equipment is not allowed without written approval from the Contract Administrator.

5-31 ROLLING DIP CONSTRUCTION

Purchaser shall construct rolling dips in accordance with the ROLLING DIP DETAIL and as specified on the CULVERT AND DRAINAGE LIST. Rolling dips must be installed concurrently with construction of the subgrade and must be maintained in an operable condition. Purchaser shall install rolling dips using a crawler tractor. Use of other equipment is not allowed without written approval of the Contract Administrator.

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be waterbarred by November 1. Purchaser shall construct waterbars according to the attached DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical distance of no more than 10 feet between waterbars or between natural drainage paths, and with a maximum spacing of 300 feet.

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following sources on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock sources, a joint operating plan must be developed. All parties shall follow this plan. Purchaser shall notify the Contract Administrator a minimum of 7 calendar days before starting any operations in the listed locations.

<u>Road</u>	<u>Locations</u>	<u>Type</u>
A2007	9+25	Pit Run, Quarry Spalls, Rip Rap
A2400	8+90	Pit Run, Quarry Spalls, Rip Rap

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source use in accordance with a written ROCK SOURCE USE PLAN to be prepared by the Purchaser. The plan is subject to written approval by the Contract Administrator before any rock source operations. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE USE PLAN, and approved in writing by the Contract Administrator.

6-23 ROCK GRADATION TYPES

Purchaser shall provide rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

6-41 SELECT PIT RUN ROCK

No more than 20 percent of the rock may be larger than 4 inches in any dimension and no rock may be larger than 8 inches in any dimension. Select Pit Run rock may not contain more than 5 percent by weight of organic debris, dirt, and trash. Rock may require processing to meet this specification.

6-43 QUARRY SPALLS

% Passing 8" square sieve	100%
% Passing 3" square sieve	20% maximum
% Passing 3/4" square sieve	5% maximum

Rock may not contain more than 5 percent vegetative debris or trash. All percentages are by weight.

6-50 LIGHT LOOSE RIP RAP

Light loose rip rap must consist of angular, hard, sound, and durable stone. It must be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather. Light loose rip rap must be free of rock fines, soil, organic debris or other extraneous material, and must meet the following requirements:

<u>Quantity</u>	<u>Approximate Size Range</u>
20% to 90%	500 lbs. to 1 ton (18" - 28")
15% to 80%	50 lbs. to 500 lbs. (8" - 18")
10% to 20%	3 inch to 50 lbs. (3" - 8")

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths are defined as the compacted depths using the compaction methods required in this road plan. Estimated quantities specified in the ROCK LIST are compacted yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for subgrade before rock application.

6-71 ROCK APPLICATION

Purchaser shall apply rock in accordance with the specifications and quantities shown on the TYPICAL SECTION SHEET and the ROCK LIST. Rock must be spread, shaped, and compacted full width concurrent with rock hauling operations. Road surfaces must be compacted in accordance with the COMPACTION LIST by routing equipment over the entire width.

6-80 WATERING FOR DUST ABATEMENT

Purchaser shall use water for dust abatement as directed by the Contract Administrator.

SECTION 7 – STRUCTURES

7-1 SIGN INSTALLATION

Purchaser shall supply, install, and maintain the following road signs. Signs must be installed a minimum of 7 days before work begins. Signs must comply with the Federal Highway Administration’s Manual on Uniform Traffic Control Devices. Sign wording other than as specified below must be approved, in writing, by the Contract Administrator prior to installation.

<u>Road</u>	<u>Station</u>	<u>Sign</u>
A2000	0+00	Caution Logging Activity Ahead
A2050	0+00	Caution Logging Activity Ahead

SECTION 8 – EROSION CONTROL

8-15 REVEGETATION

On the following roads, Purchaser shall supply and spread grass seed as indicated in CLAUSE 10-14 GRASS SEED at a rate of 50 pounds per acre, and a 3-inch-deep layer of straw as indicated in CLAUSE 10-13 STRAW FOR EROSION CONTROL, on all exposed soils resulting from road work activities that are within 50 feet of live water. Other methods of covering must be approved in writing by the Contract Administrator. Required seed not spread by the termination of this contract will become the property of the state.

<u>Road</u>	<u>Location</u>	<u>Grass Seed Qty</u>	<u>Straw Qty</u>
A2052C	23+95 to 25+35	20 lbs	10 bales
	31+85 to 32+85	5 lbs	2 bales

Quantities are minimum acceptable values. Actual quantities may vary and are the responsibility of the Purchaser.

8-17 REVEGETATION TIMING

Purchaser shall revegetate between April 15 and June 1 or September 15 and November 15. Soils may not be allowed to sit exposed for longer than one month, or during storm events, without receiving revegetation treatment or other protection unless otherwise approved in writing by the Contract Administrator.

8-20 SILT FENCING FOR EROSION CONTROL

On the following road, Purchaser shall install silt fencing as shown in Clause 10-6 GEOTEXTILE FOR TEMPORAY SILT FENCE. Silt fence shall be a minimum of 3 feet tall and shall be installed as per manufacturer’s recommendations.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
A2052C	24+40 to 24+90	Install at upstream and downstream toe of embankment for culvert install. Tie to culvert armor

SECTION 9 – POST-HAUL ROAD WORK

9-1 EARTHEN BARRICADES

On the following road at the specified location, Purchaser shall construct barricade in accordance with the EARTHEN BARRICADE DETAIL.

<u>Road</u>	<u>Station</u>
A2052C	23+95

9-2 CULVERT REMOVAL

On the following roads, Purchaser shall remove existing culverts from roads and leave the resulting channel open with excavation slopes and excavated channel widths as specified. Culvert removals must be in accordance with the associated Forest Practice Hydraulic Permit (FPH), the CULVERT REMOVAL PROCEDURE, the STREAM CROSSING AND CROSS DRAIN REMOVAL DETAIL, and the A2052C 24+65 CULVERT REMOVAL PLAN VIEW.

<u>Road</u>	<u>Station</u>	<u>Excavated Channel Width</u>	<u>Average Fill Depth</u>	<u>Water Type</u>	<u>Approximate Stream Gradient</u>	<u>Slope Ratio</u>
A2052C	24+65	10'	9'	F	16%	Return to pre-installation conditions.
	32+35	2'	2'	Np	5%	2:1 or natural ground line, return to pre-installation condition.

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

Culverts removed from roads, other than those supplied by DNR, shall become the property of the Purchaser and must be removed from state land. Culverts supplied by DNR shall be returned to original stockpile location or as otherwise approved, in writing, by the Contract Administrator.

9-4 POST-HAUL MAINTENANCE

Purchaser shall perform post-haul maintenance in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS on all roads used for this project. In addition, the following post haul maintenance is required.

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
A2050	0+00 to 180+60	Return all pre-existing drainage structures to functional condition.
A2052	0+00 to 120+10	Return all pre-existing drainage structures to functional condition.
A2052B	0+00 to 26+50	Return all pre-existing drainage structures to functional condition.
A2052C	0+0 to 23+95	Return all pre-existing drainage structures to functional condition. Create turnaround at 23+95.
A2057	0+00 to 17+30	Return all pre-existing drainage structures to functional condition.
A2058	0+00 to 72+35	Return all pre-existing drainage structures to functional condition.
A2058B	0+00 to 3+30	Return all pre-existing drainage structures to functional condition.

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of all landing surfaces.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

9-22 ROAD ABANDONMENT

Purchaser shall abandon the following roads as indicated below.

<u>Road</u>	<u>Stations</u>	<u>Type</u>	<u>Complete By/Comments</u>
A2052C	23+95 to 40+05	Light	Between August 1 and September 30 of the calendar year.

9-23 LIGHT ABANDONMENT

- Remove road shoulder berms except as directed.
- Outslope roads at a minimum of 10% or natural ground.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 300 feet, or as marked in the field.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Remove culverts in accordance with Clause 9-2 CULVERT REMOVAL.
 - Culverts removed from live streams shall follow the Culvert Removal Procedure.
 - Type "F" culvert removals shall only be removed between August 1 and September 30 of any calendar year, unless otherwise approved, in writing, by the Contract Administrator.
 - Type "F" streams shall have a minimum of 5 pieces of woody debris with a small end diameter of 6" and a length of not less than 15' evenly distributed along channel. Larger rocks found during fill excavation shall be placed in channels as available.
 - Type "N" culvert removals shall have slash, woody debris, and rocks placed in channel as available on site.
- Excavate stream channels to match existing stream profile.
- Excavate backslopes to the specification in CLAUSE 9-2 CULVERT REMOVALS
- Cover, concurrently with abandonment, all exposed soils created from excavation work within 50 feet of any live stream, with grass seed and straw and in accordance with Section 8 EROSION CONTROL, then slash and woody debris.
- Scatter woody debris onto at least 25 percent of abandoned road surfaces.
- Block roads with earthen barricades in accordance with the attached EARTHEN BARRICADE DETAIL and Clause 9-1 EARTHEN BARRICADES.

SECTION 10 MATERIALS

10-2 GEOTEXTILE FOR SEPARATION

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for separation. Material must be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Non-woven
Apparent opening size	D 4751	No. 30 max
Water permittivity	D 4491	0.02 sec ⁻¹
Grab tensile strength	D 4632	160 lb
Grab tensile elongation	D 4632	>= 50%
Puncture strength	D 6241	310 lb
Tear strength	D 4533	50 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for filtration. Woven slit-film geotextiles are not allowed. Material must be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Unsupported between posts
Apparent opening size	D 4751	No. 30 max., No. 100 min.
Water permittivity	D 4491	0.02 sec ⁻¹
Grab tensile strength	D 4632	180 lb in machine direction, 100lb in cross-machine direction
Grab tensile elongation	D 4632	30% max. at 180 lb or more
Ultraviolet stability	D 4355	70% retained after 500 hours of exposure

10-13 STRAW FOR EROSION CONTROL

Straw used for erosion control shall be certified weed free.

10-14 GRASS SEED

Grass seed must meet the following specifications:

1. Weed seed may not exceed 0.5% by weight.
2. All seed species must have a minimum 90% germination rate, unless otherwise specified.
3. Seed must be certified.
4. Seed must be furnished in standard containers showing the following information:
 - a. Common name of seed
 - b. Net weight
 - c. Percent of purity
 - d. Percentage of germination
 - e. Percentage of weed seed and inert material
5. Seed must conform to the following mixture unless a comparable mix is approved in writing by the Contract Administrator.

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>	<u>Minimum % pure seed</u>	<u>Minimum % germination</u>
Perennial Rye	35-45	95	90
Red Fescue	30-40	95	90
Highland Bent	5-15	95	90
White Clover	10-20	95	90
Inert and Other Crop	0.5		NA

10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be galvanized (zinc coated meeting AASHTO M-218).

10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts must meet AASHTO M-294 specifications, or ASTM F-2648 specifications for recycled polyethylene. Culverts must be Type S – double walled with a corrugated exterior and smooth interior.

10-20 FLUME AND DOWNSPOUT

Downspouts and flumes must meet the AASHTO specification designated for the culvert.

10-21 METAL BAND

Metal coupling and end bands must meet the AASHTO specification designated for the culvert and must have matching corrugations. Culverts 24 inches and smaller must have bands with a minimum width of 12 inches. Culverts over 24 inches must have bands with a minimum width of 24 inches.

10-22 PLASTIC BAND

Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used. Couplings must be split coupling band. Split coupling bands must have a minimum of four corrugations, two on each side of the pipe joint.

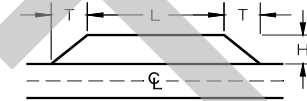
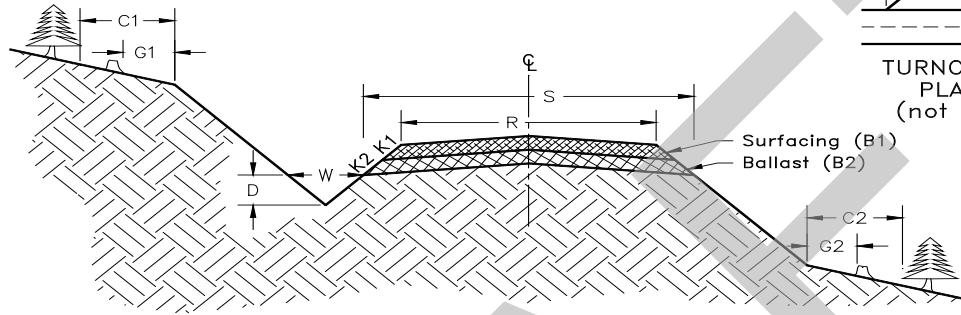
10-24 GAUGE AND CORRUGATION

Metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

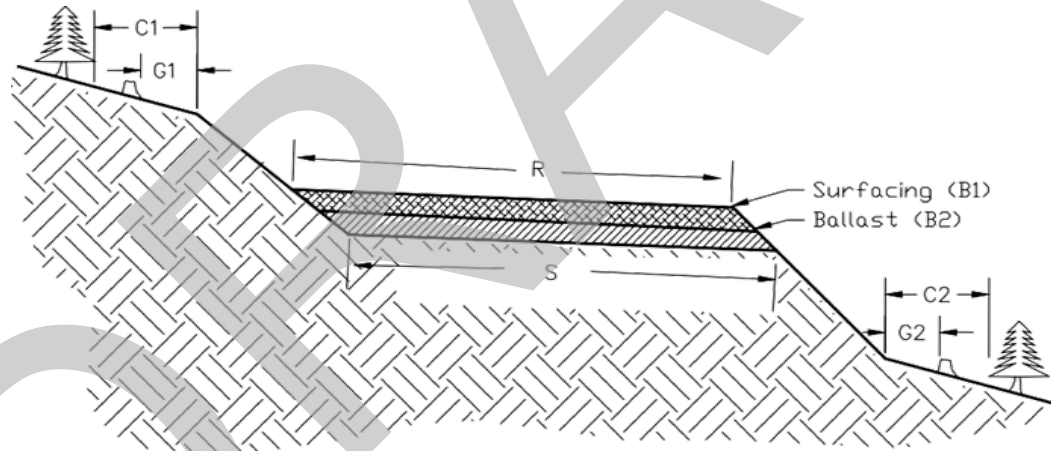
<u>Diameter</u>	<u>Gauge</u>	<u>Corrugation</u>
18"	16 (0.064")	2 ² / ₃ " X 1/2"
24" to 48"	14 (0.079")	2 ² / ₃ " X 1/2"

TYPICAL SECTION SHEET

ROAD CROSS-SECTION
(not to scale)



TURNOUT DETAIL
PLAN VIEW
(not to scale)



NOTE: GRUBBING LIMITS FOR CONSTRUCTION ARE 1' BEYOND EDGE OF ROAD. CLEARING LIMITS, SEE RIGHT-OF-WAY SPECIFICATION SHEET.

TYPICAL SECTION SHEET (continued)

ROAD	PRE-HAUL, RECONSTRUCTION, CONSTRUCTION	FROM STATION	TO STATION	TOL. CLASS	SUBGRADE WIDTH S	CROWN INCHES AT CENTER LINE	INSLOPE/OUT SLOPE INCHES IN 10 FEET	ROAD WIDTH R	DITCH		GRUBBING LIMITS		CLEARING LIMITS	
									W	D	G1	G2	C1	C2
A2050	Pre-Haul	0+00	180+60	C	12'	4"	4"	12'	-	-	See Note 1		See Note 1	
A2052	Pre-Haul	0+00	120+10	C	12'	-	4"	12'	-	-	-		-	
A2052B	Pre-Haul	0+00	26+50	C	12'	-	4"	12'	-	-	-		-	
A2052C	Pre-Haul	0+00	3+15	C	14'	-	4"	12'	-	-	-		-	
	Construction	3+15	17+70	C	14'	-	4"	14'	-	-	See Note 2		See Note 2	
	Construction	17+70	20+45	C	14'	4"	-	14'	2'	1'	See Note 2		See Note 2	
	Construction	20+45	27+15	C	14'	-	4"	14'	-	-	See Note 2		See Note 2	
	Construction	27+15	40+05	C	12'	-	4"	12'	-	-	See Note 2		See Note 2	
A2057	Pre-Haul	0+00	17+30	C	12'	-	4"	12'	-	-	-		-	
A2058	Pre-Haul	0+00	34+60	C	12'	-	4"	12'	-	-	-		-	
	Construction	34+60	72+35	C	12'	-	4"	12'	-	-	See Note 2		See Note 2	
A2058B	Construction	0+00	3+30	C	12'	-	4"	12'	-	-	See Note 2		See Note 2	

NOTE 1: Roads with data in columns for both Crowned or In/Outsloped vary from ditched with crown to out or in sloped. Maintenance should match existing road conditions.

NOTE 2: Grubbing limits for construction are 1' beyond edge of ditch. Clearing limits, see RIGHT-OF-WAY SPECIFICATION SHEET

ROCK LIST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	Type	CY/ Station	# of Stations	CY Subtotal	Rock Source/ Comment
			K2	B2					
A2052C	24+15	25+15	1 ½:1	8"	SPR	60	1	60	A2007/A2400. Includes embankment widening.
		24+65	-	-	LL	-	-	20	Culvert and Fill Armor.
	32+10	32+60	1 ½:1	8"	SPR	60	.5	30	A2007/A2400
		32+35	-	-	QS	-	-	.5	Culvert and Fill Armor

SPR - Select Pit Run Rock TOTAL 90 CY

QS - Quarry Spalls TOTAL 5 CY

LL - Light Loose Rip Rap TOTAL 20 CY

COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
A2052C	0+00	40+05	Subgrade/Rock	12/4	Vibratory Smooth Drum	16,000	3	3
A2058	34+60	72+35	Subgrade	12	Vibratory Smooth Drum	16,000	3	3
A2058B	0+00	3+30	Subgrade	12	Vibratory Smooth Drum	16,000	3	3

POST HAUL TYPICAL SECTION SHEET

ROAD	MAINTENANCE, DECOMMISSION, ABANDON	FROM STATION	TO STATION	CROWN INCHES @ CL	OUT/IN SLOPE INCHES IN 10 FEET	ROAD WIDTH R	DITCH		NOTES
							WIDTH W	DEPTH D	
A2050	Maintenance	0+00	180+60	4	4	12'	2'	1'	Road varies from outsloped to crowned w/ditch
A2052	Maintenance	0+00	120+10	-	4	12'	-	-	
A2052B	Maintenance	0+00	26+50	-	4	12'	-	-	
A2052C	Maintenance	0+00	24+30	4	4	14'	2'	1'	Road varies from outsloped to crowned w/ditch
	Abandon	24+30	40+05	-	4	14'	-	-	
A2057	Maintenance	0+00	17+30	-	4	12'	-	-	
A2058	Maintenance	0+00	72+35	-	4	12'	-	-	
A2058B	Maintenance	0+00	3+30	-	4	12'	-	-	

CULVERT AND DRAINAGE LIST

Road	Station	Type	Diam. (Inches)	Length (Feet)	Comment
A2052C	6+40	Rolling Dip	-	-	Install
	11+40	Rolling Dip	-	-	Install
	14+20	Rolling Dip	-	-	Install
	17+70	Rolling Dip	-	-	Install
	20+45	Crossdrain	18	30	Install
	24+15	Rolling Dip	-	-	Install
	24+65	Culvert	96x66	44	Install temporary pipe arch in live stream (type F). Remove after harvest.
	25+15	Rolling Dip	-	-	Install
	26+55	Rolling Dip	-	-	Install
	29+05	Rolling Dip	-	-	Install
	32+10	Drivable Waterbar	-	-	Install
	32+35	Culvert	24	30	Install temporary culvert in live stream (type Np). Remove after harvest.
	32+60	Drivable Waterbar	-	-	Install
	36+70	Rolling Dip	-	-	Install
A2058	34+60	Rolling Dip	-	-	Install
	39+10	Rolling Dip	-	-	Install
	43+50	Rolling Dip	-	-	Install
	47+25	Rolling Dip	-	-	Install
	49+35	Rolling Dip	-	-	Install
	52+45	Rolling Dip	-	-	Install
	54+75	Rolling Dip	-	-	Install
	61+70	Rolling Dip	-	-	Install
	67+65	Rolling Dip	-	-	Install
	71+85	Rolling Dip	-	-	Install
A2058B	1+90	Rolling Dip	-	-	Install

F – Fish bearing stream
Np – Perennial Stream

RIGHT-OF-WAY SPECIFICATION SHEET

Based on a 12' road width. All clearing distances are measured horizontally from the centerline of the road. All ditches are 1' deep. Ditched roads are crowned 4" at the centerline. Roads with no ditch are outsloped 4" in 10'.

CROWNED ROAD WITH DITCH RIGHT

<u>Sideslope</u>	<u>Clearing Left</u>	<u>Clearing Right</u>
0-10%	16'	14'
10-20%	17'	15'
20-30%	19'	17'
30-40%	22'	18'
40-50%	27'	22'

OUTSLOPE LEFT ROAD

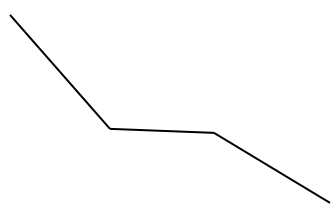
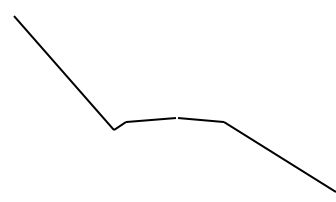
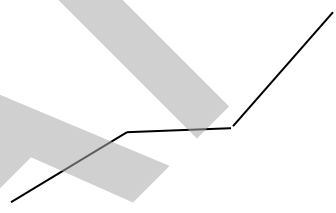
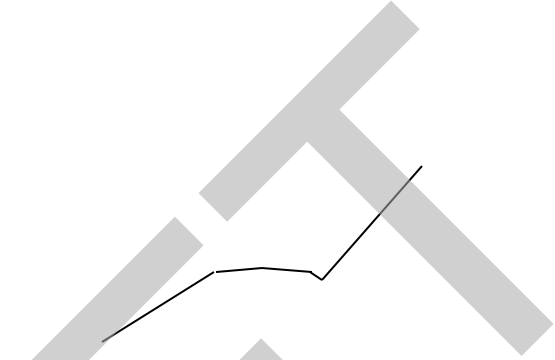
<u>Sideslope</u>	<u>Clearing Left</u>	<u>Clearing Right</u>
0-10%	16'	11'
10-20%	17'	12'
20-30%	19'	13'
30-40%	22'	15'
40-50%	27'	17'

CROWNED ROAD WITH DITCH LEFT

<u>Sideslope</u>	<u>Clearing Left</u>	<u>Clearing Right</u>
0-10%	14'	16'
10-20%	15'	17'
20-30%	17'	19'
30-40%	18'	22'
40-50%	22'	27'

OUTSLOPE RIGHT ROAD

<u>Sideslope</u>	<u>Clearing Left</u>	<u>Clearing Right</u>
0-10%	11'	16'
10-20%	12'	17'
20-30%	13'	19'
30-40%	15'	22'
40-50%	17'	27'



FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

- Maintain slope lines as constructed. Remove slides from ditches and the roadway. Repair fill-failures, in accordance with Clause 4-6 EMBANKMENT SLOPE RATIO, with selected material or material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

- Grade and shape the road surface, turnouts, and shoulders to the original shape as directed, to provide a smooth, rut-free traveled surface and maintain surface water runoff in an even, unconcentrated manner.
- Blading shall not undercut the backslope or cut into geotextile fabric on the road.
- If required by the Contract Administrator, water shall be applied as necessary to control dust and retain fine surface rock.
- Surface material shall not be bladed off the roadway. Replace surface material when lost or worn away.
- Remove shoulder berms to facilitate drainage, except as marked or directed by the Contract Administrator.
- For roads with geotextile fabric: spread surface aggregate to fill in soft spots and wheel ruts (barrel spread) to prevent damage to the geotextile fabric.

Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain headwalls to the road shoulder level with material that will resist erosion.
- Maintain energy dissipaters at culvert outlets with non-erodible material or rock.
- Keep ditches and culverts clear of obstructions and functioning as intended.
- Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This shall be done even during periods of inactivity.

Structures

- Repair culverts, bridges, gates, fences, cattle guards, signs, and other road structures as required because of purchaser use.

Preventative Maintenance

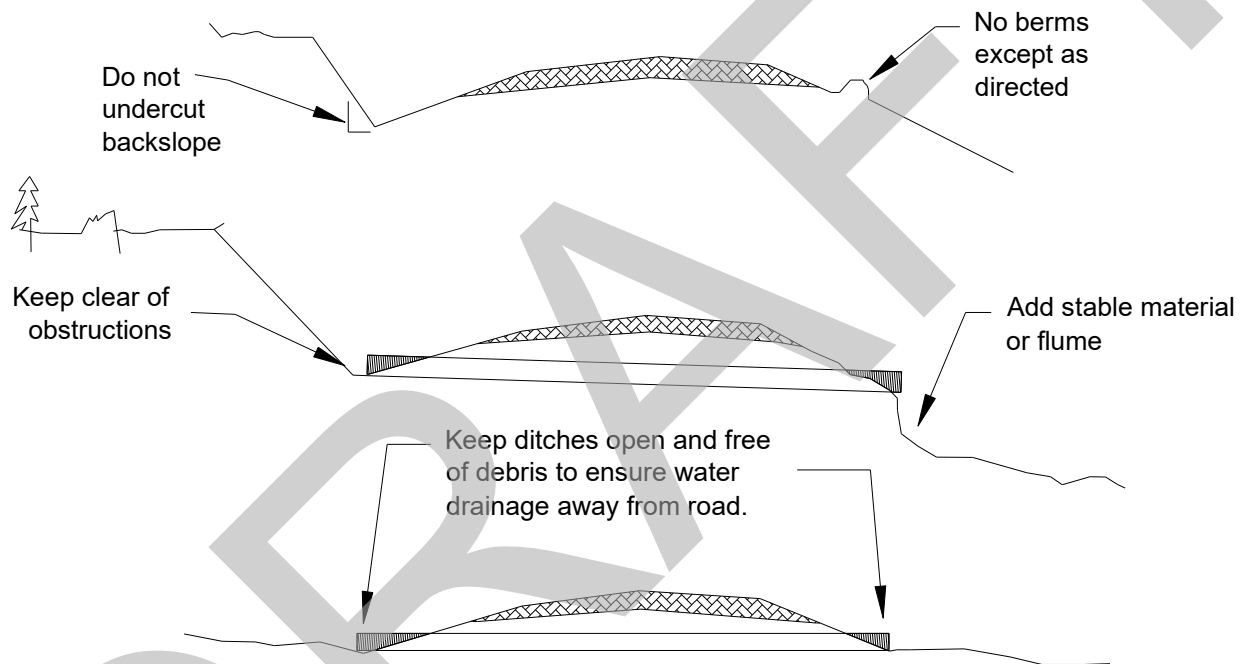
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

- Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



CULVERT REMOVAL PROCEDURE

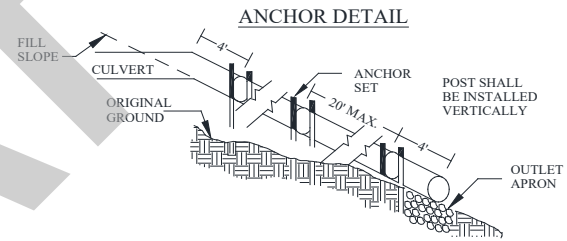
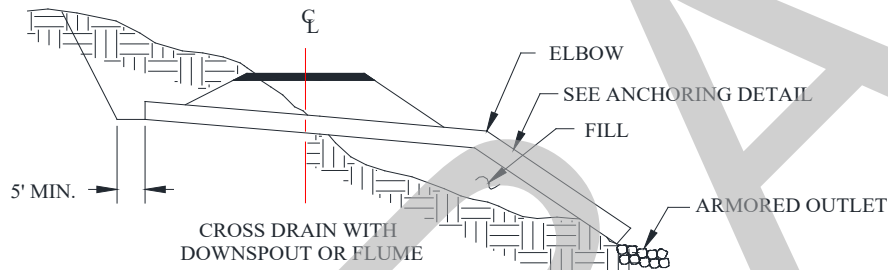
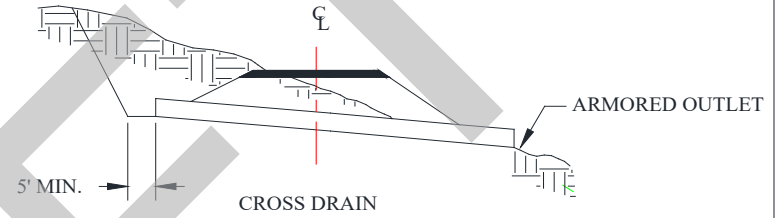
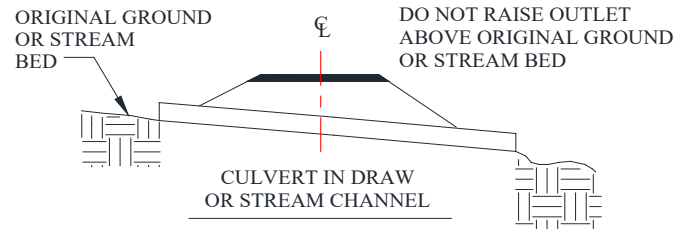
Order of work is as follows, deviations from this procedure require approval from Contract Administrator, in writing, before work commences.

1. Purchaser shall notify the State of intent to start project, and a pre-work conference shall be held before move in of equipment.
2. Culvert removal should not start during rain or threat of rain. Remove 95% of fill (see STREAM CROSSING AND CROSSDRAIN REMOVAL DETAIL) and place in road prism on either side of the culvert in stable locations where there is no potential for sediment delivery or as otherwise specified herein.
3. For culverts with live water:
 - a. Assemble the items on the Estimated Materials List onsite before proceeding.
 - b. Set up pumps.
 - c. Dam up stream with sandbags and line floor of dam with plastic (to prevent sub-surface water flow), place rock on plastic to hold in place, and key leading edge of plastic into channel bottom. Build a settling pond at culvert outlet. Fill may need to be removed before the settling pond installation due to space limitations. Pump clean water at catch basin around work site and back into stream. Dirty water shall be pumped away from site and onto a stable location on the forest floor where no potential for sediment delivery can occur.
4. Remove remainder of fill and culvert.
5. Restore channel as indicated in 9-2 CULVERT REMOVAL.
6. Backfill settling pond.
7. Cover exposed soils within 50 feet of all typed water with grass seed, then straw, then woody debris.

Estimated Materials List:

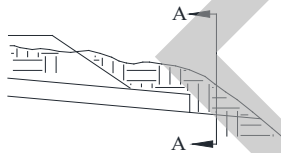
1. 2 pumps, (dam at culvert catch basin) pumps shall have a minimum capacity to adequately remove all water from stream,
 - a. For type "F" stream, pump intake shall be screened to prevent fish intake. Screen shall be woven wire with a maximum opening in the shortest direction of .087 inches (2.38 mm, 6-14 mesh);
2. Plastic sheeting as needed;
3. Grass seed;
4. Weed free straw bales;
5. Woody Debris (utilize onsite material as available).

CULVERT AND DRAINAGE SPECIFICATION DETAIL

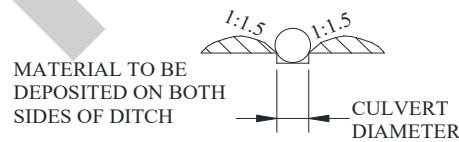


NOTE: MINIMUM COVER OVER CULVERT AT SHOULDER AT INLET SHALL BE 18" OR 1/2 THE CULVERT DIAMETER, WHICHEVER IS GREATER.
 CATCH BASINS SHALL BE MINIMUM 5' WIDE BY 6' LONG.
 CUT SLOPES AT CATCH BASINS SHALL BE AS SPECIFIED IN CLAUSE 5.25.

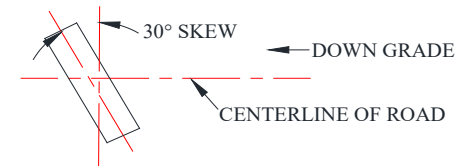
OUTLET DITCH



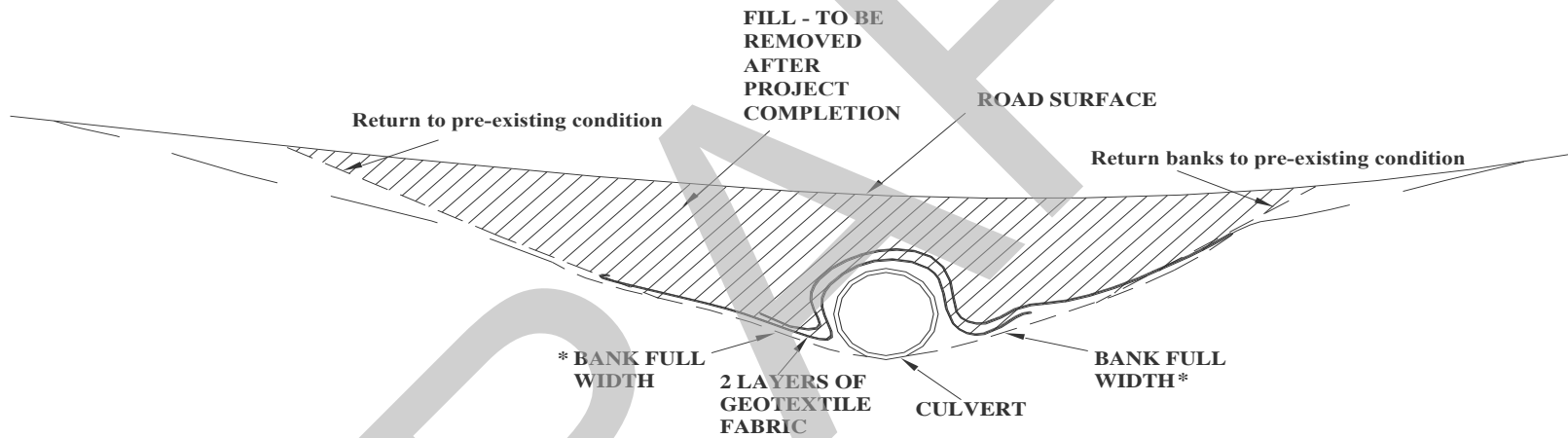
SECTION A-A



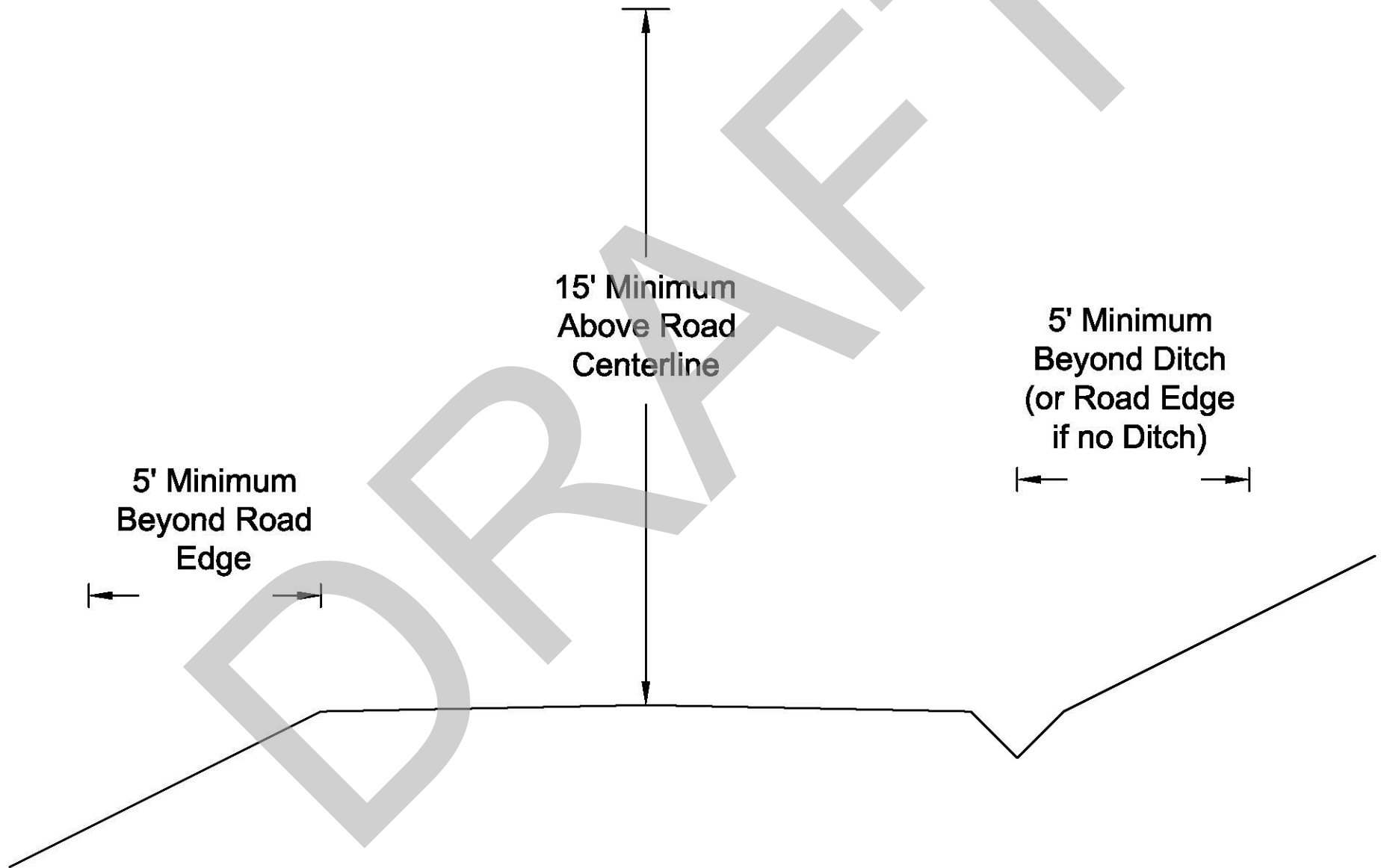
SKEW DIAGRAM



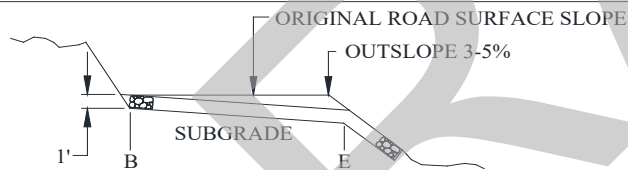
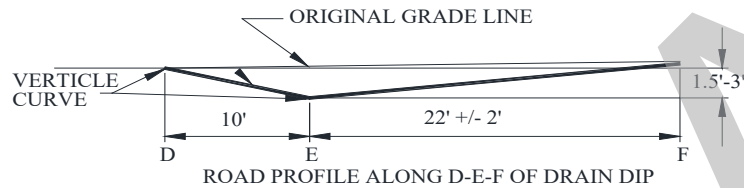
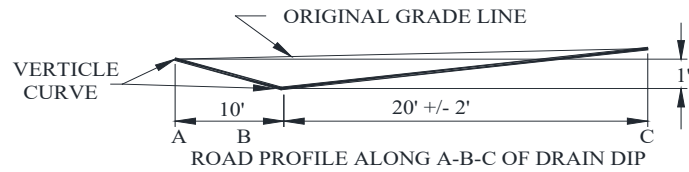
TEMPORARY CULVERT DETAIL



BRUSHING DETAIL

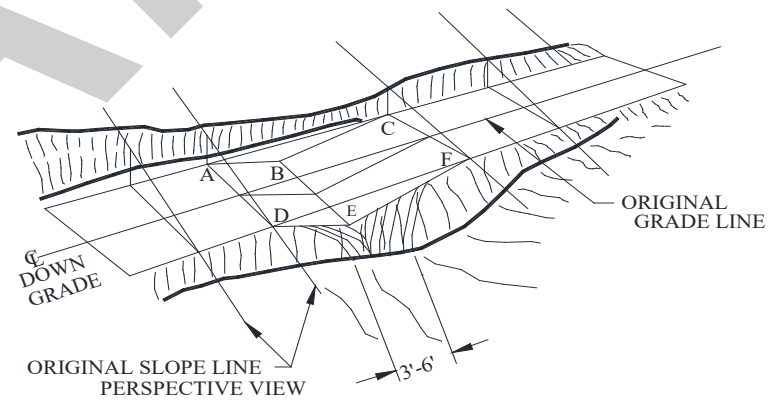


ROLLING DIP DETAIL



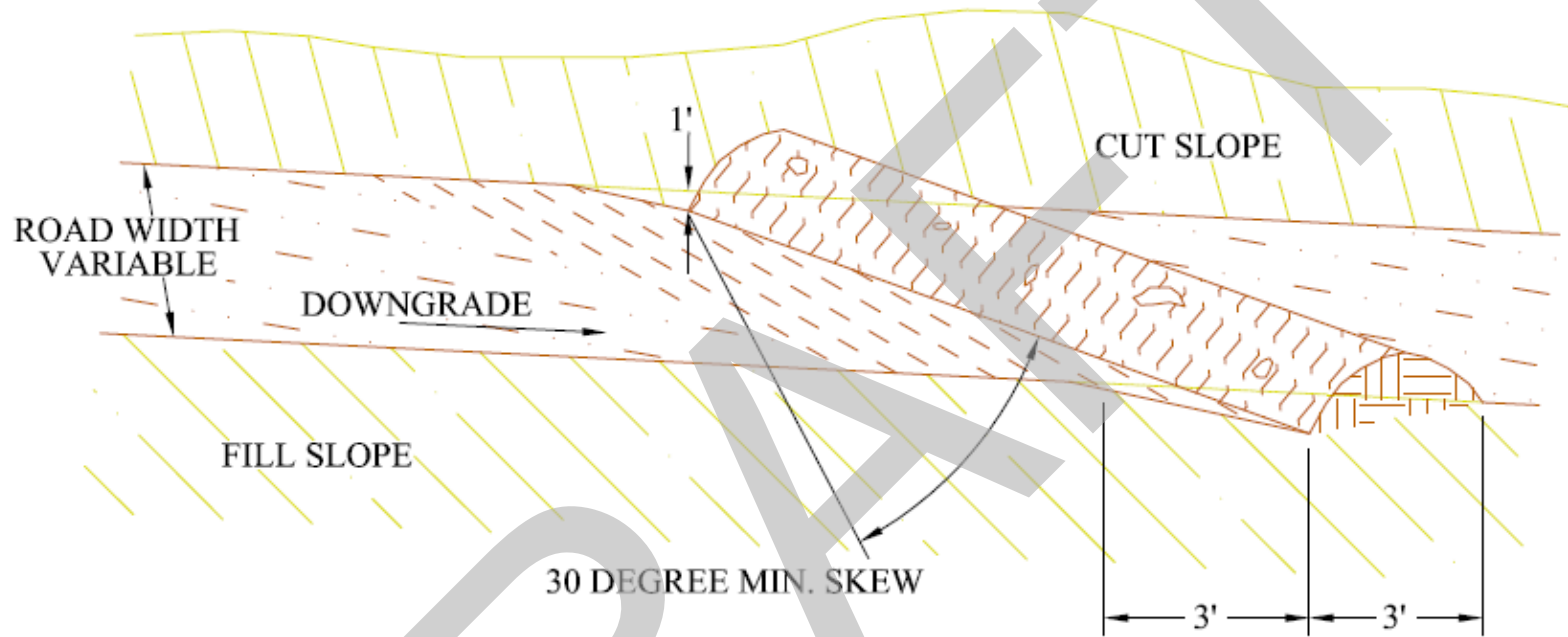
OUTLET OF DIP TO BE CLEAR OF OBSTRUCUTIONS TO ALLOW WATER TO FLOW FREELY. IF SOILS ARE ERODABLE, TOE OF DIP TO BE ARMORED WITH NATIVE ROCK.

NOTE: PLAN OF DIP SHOWN IS FOR OUTSLOPED ROLLING DIP. DIPS MAY BE EITHER INSLOPED OR OUTSLOPED. WHEN INSLOPED, DIPS SHALL DRAIN FREELY INTO DITCHES OR CULVERT INLETS. WHEN OUTSLOPED, THEY SHALL DRAIN FREELY ONTO NATURAL GROUND. WHERE SOILS ARE ERODABLE, OUTLET SHALL BE ARMORED WITH NATIVE ROCK. THE MINIMUM CROSS GRADE FROM "B" TO "E" IS 4% GREATER THAN THE ROAD SURFACE SLOPE. SKEW LINE B-E TO FIT LOW POINT IN DRAW, IF LOCATED IN NATURAL DRAIN.



DRIVABLE WATER BAR DETAIL

SCALE: NTS



NOTES:

1. ALL WATER BARS SHALL BEGIN AT THE INTERSECTION OF THE ROADBED AND CUT SLOPE AND RUN ACROSS THE ENTIRE WIDTH OF THE ROADBED.
2. ALL WATER BARS SHALL HAVE FREE FLOWING OUTLETS.

STREAM CROSSING AND CROSS DRAIN REMOVAL DETAIL

ROAD SURFACE

APPROXIMATE FILL DEPTH
AS NOTED IN PLAN
AT CENTERLINE

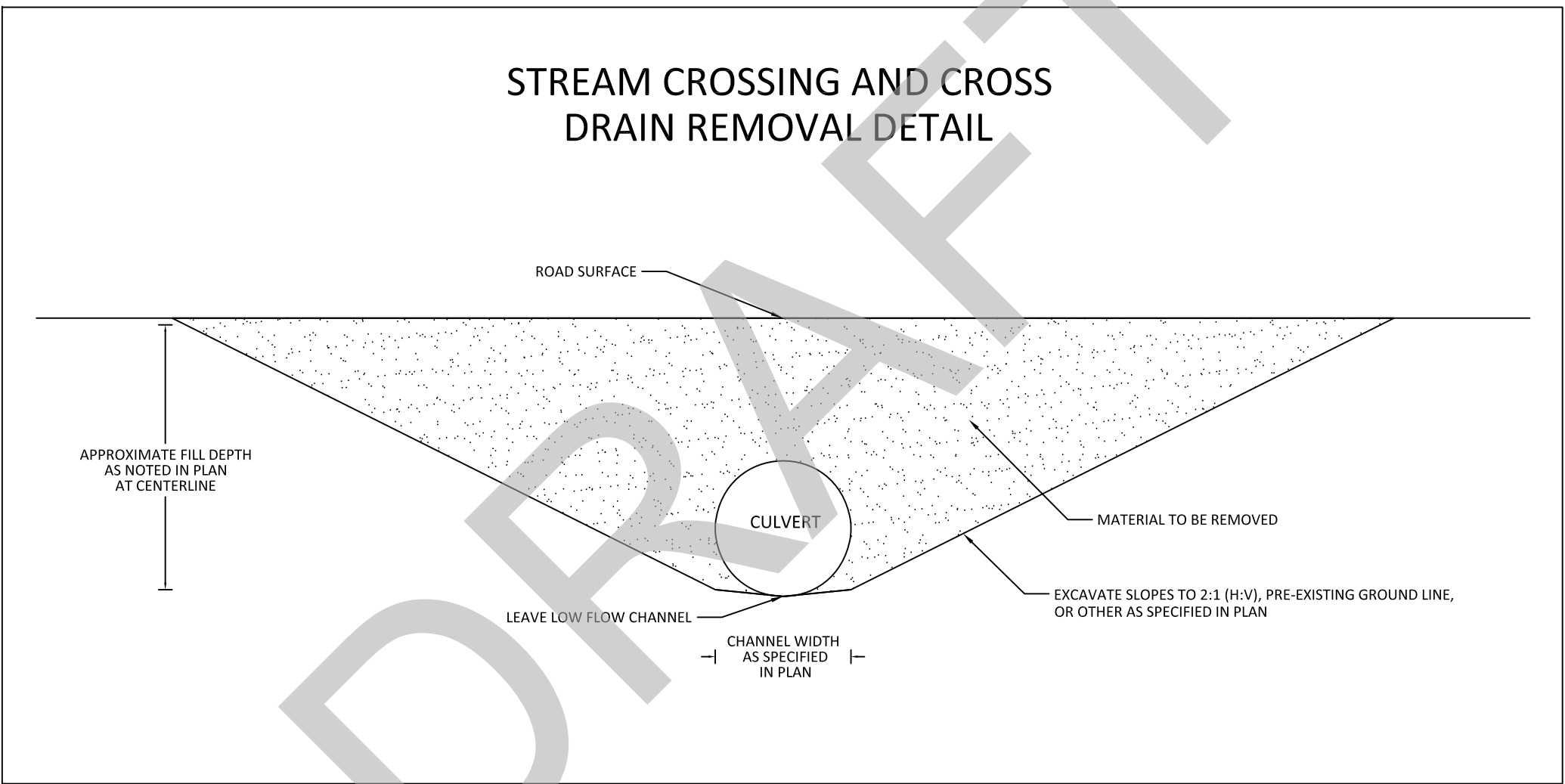
CULVERT

MATERIAL TO BE REMOVED

EXCAVATE SLOPES TO 2:1 (H:V), PRE-EXISTING GROUND LINE,
OR OTHER AS SPECIFIED IN PLAN

LEAVE LOW FLOW CHANNEL

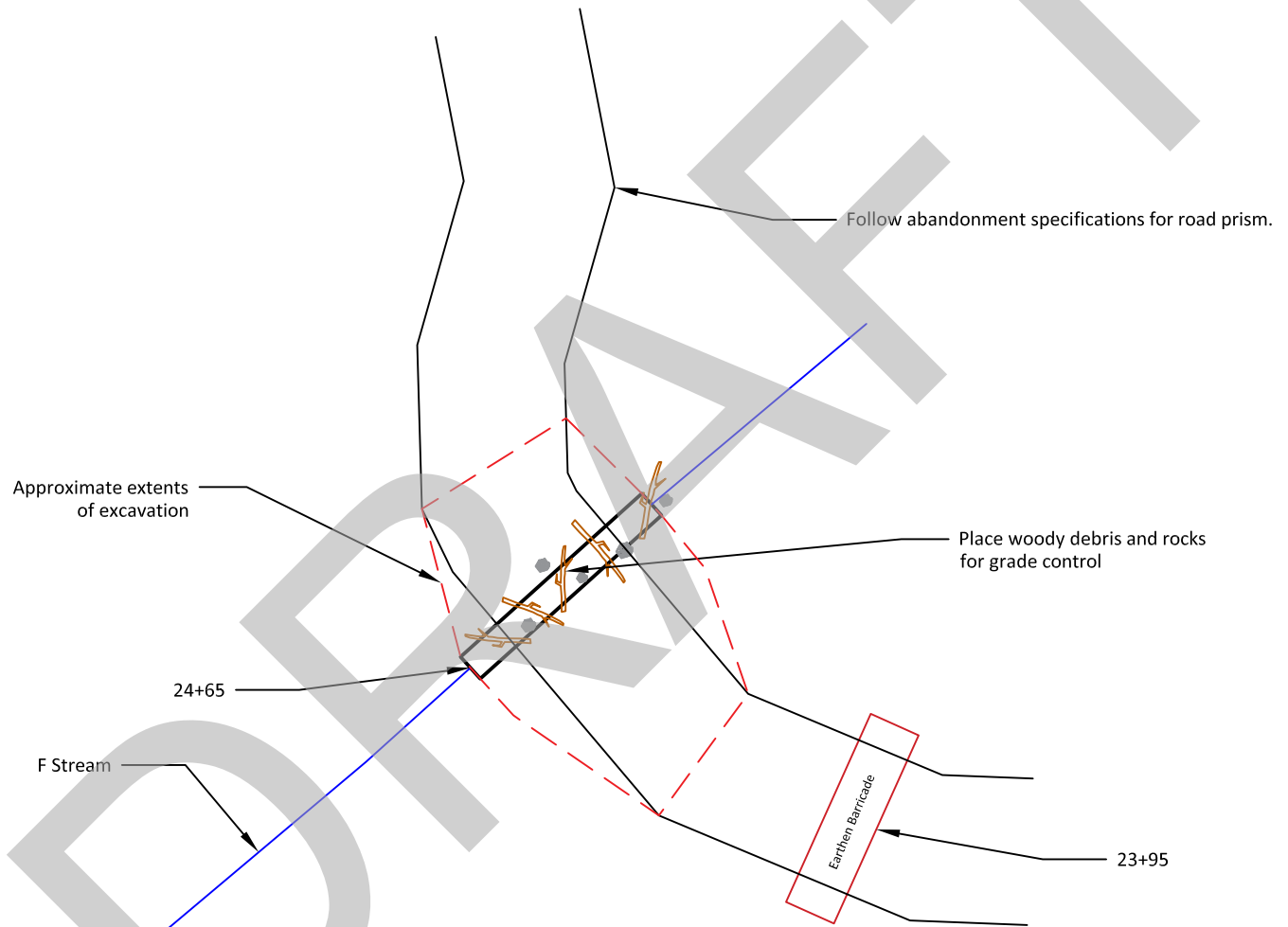
CHANNEL WIDTH
AS SPECIFIED
IN PLAN



A2052C 24+65 Culvert Removal Plan View

Notes:

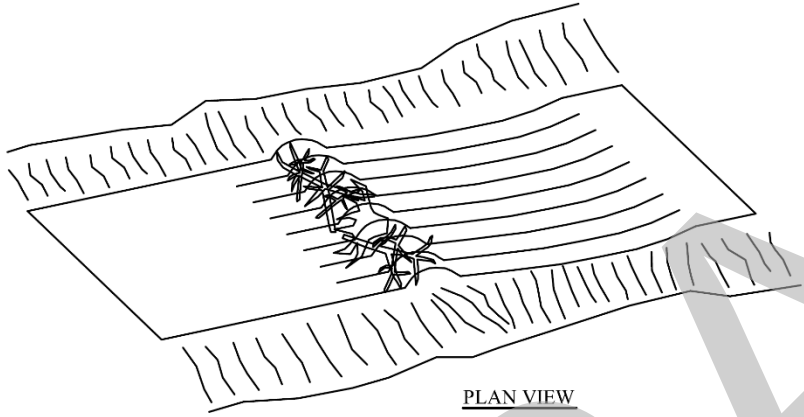
1. Excavation extent upstream road edge approximately 40'
2. Excavation extent downstream road edge approximately 40'
3. Average excavation depth Approximately 8'
4. Not To Scale



Live Stream Culvert Removals

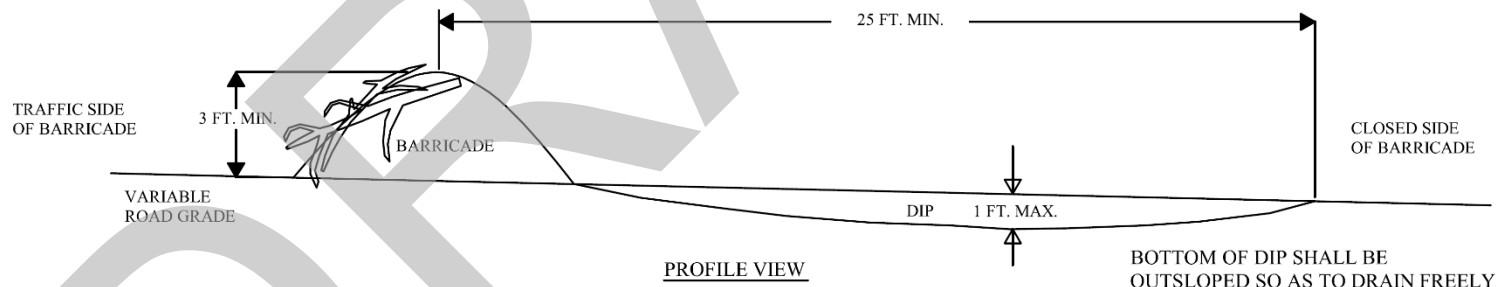
1. Culverts removed from live streams shall follow the Live Stream Culvert Removal Procedure.
 - 1.1. Type "F" culvert removals shall only be allowed between August 1 and September 30 of any calendar year, unless otherwise approved, in writing, by a WDFW Habitat Biologist.
 - 1.2. Type "F" streams shall have a minimum of 5 pieces of woody debris with a small end diameter of 6" and a length of not less than 15', evenly distributed along channel.
2. Larger rocks found during fill excavation shall be placed in channel as available.
3. Excavation backslopes shall be returned to pre-existing conditions
4. Excavate stream channel to match the existing stream profile.
5. Cover, concurrently with abandonment, all exposed soils created from excavation work within 50 feet of any live stream, with grass seed, then straw, then slash and woody debris.

EARTHEN BARRICADE DETAIL



PLAN VIEW

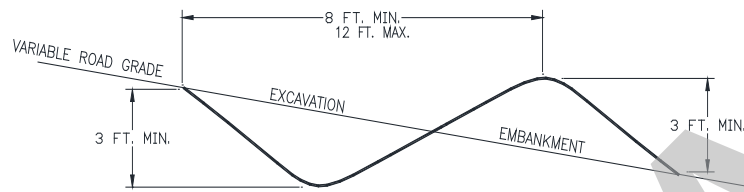
SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.



PROFILE VIEW

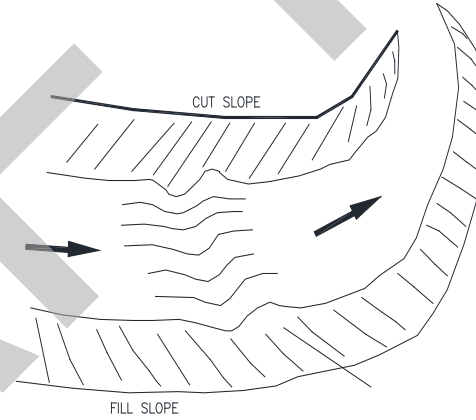
BOTTOM OF DIP SHALL BE OUTSLOPED SO AS TO DRAIN FREELY

NON-DRIVABLE WATER BAR DETAIL



BOTTOM OF EXCAVATION SHALL BE OUTSLOPED SO AS TO DRAIN FREELY.

PROFILE VIEW



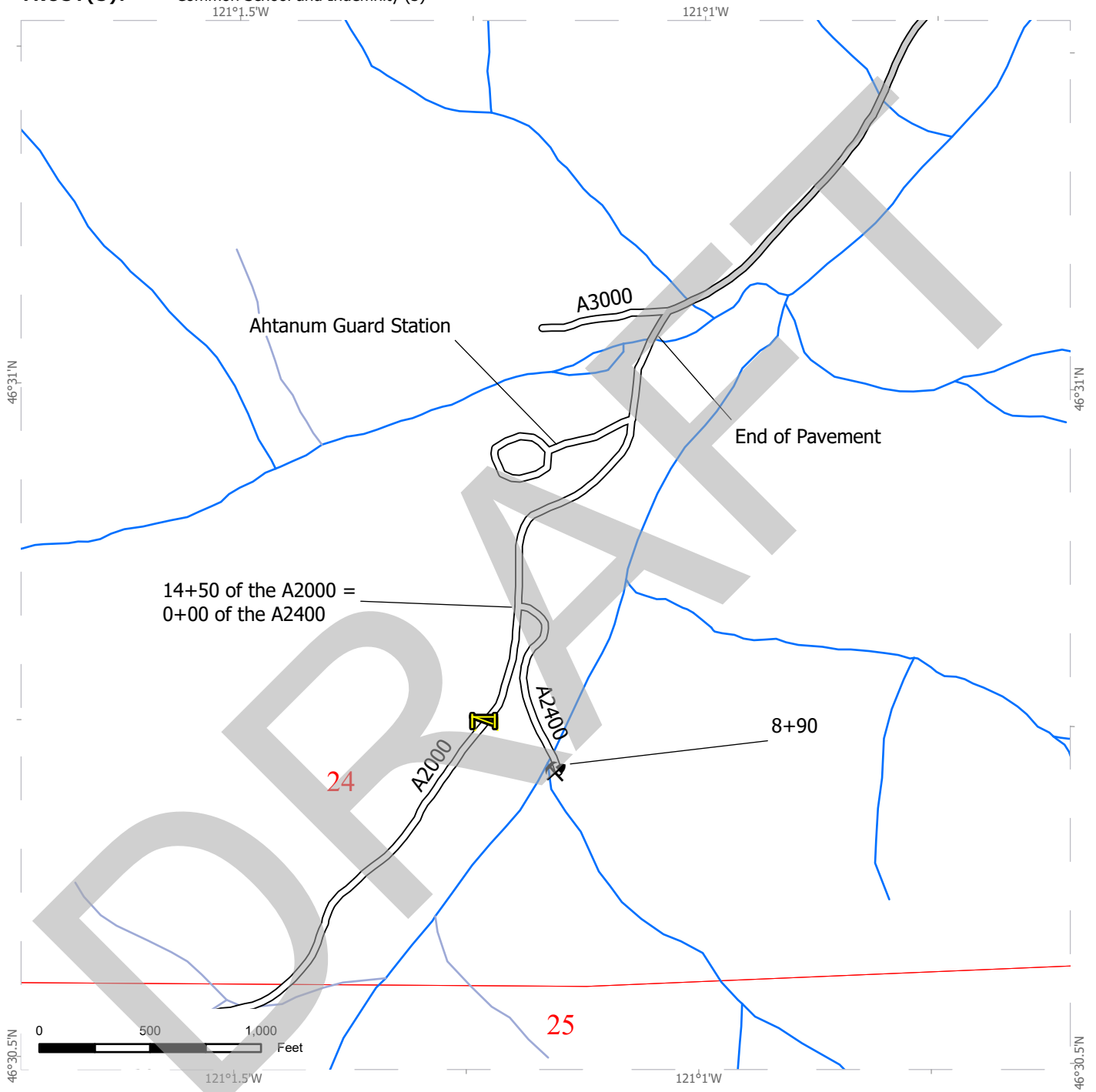
METHOD OF INSTALLATION





NOTE: EMBANKMENT SIDE OF UNDRIVABLE WATER BAR SHALL BE PLACED IN ON SIDE VEHICLE TRAFFIC WILL BE COMING FROM.

ROAD PLAN MAP 1 OF 6

SALE NAME: Q FRESH START
AGREEMENT#: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880

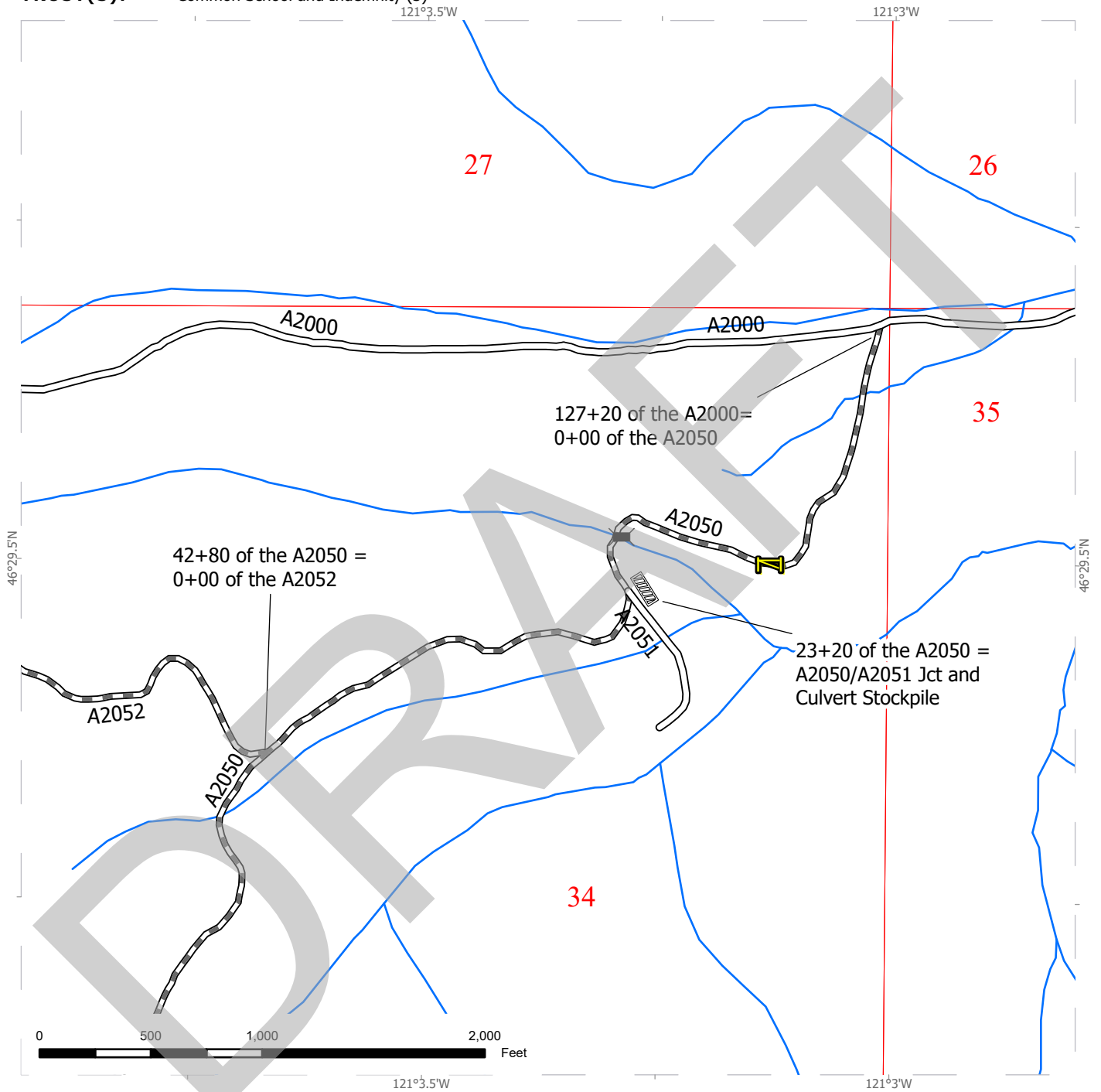







	Rock Source		County Road
	Gate		Existing Roads

ROAD PLAN MAP 2 OF 6

SALE NAME: Q FRESH START
AGREEMENT#: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



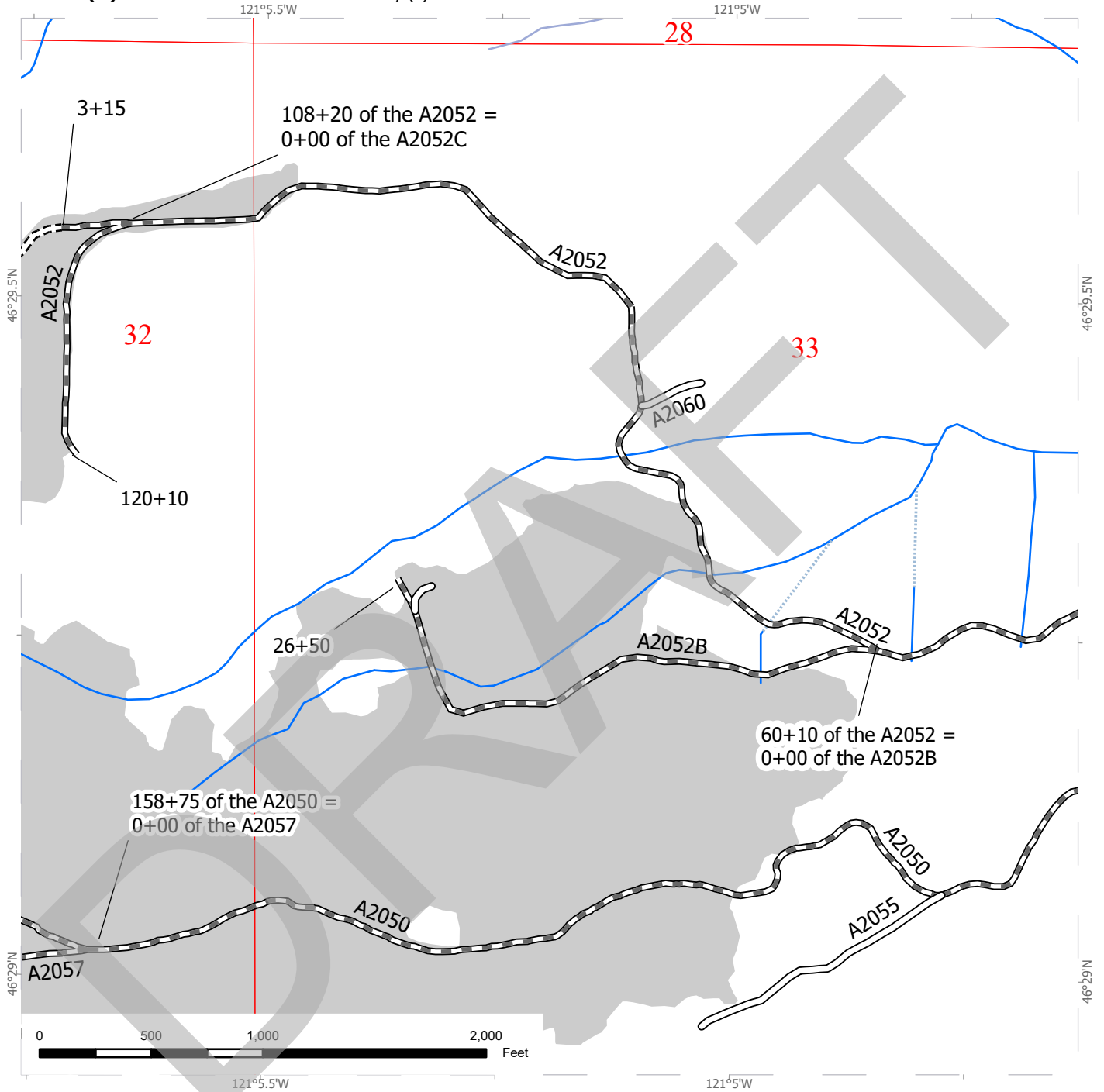
- | | |
|--|---|
|  Stockpiled Culvert |  Existing Roads |
|  Existing Bridge |  Required Pre-Haul Maintenance |
|  Gate | |







ROAD PLAN MAP 3 OF 6

SALE NAME: Q FRESH START
AGREEMENT #: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



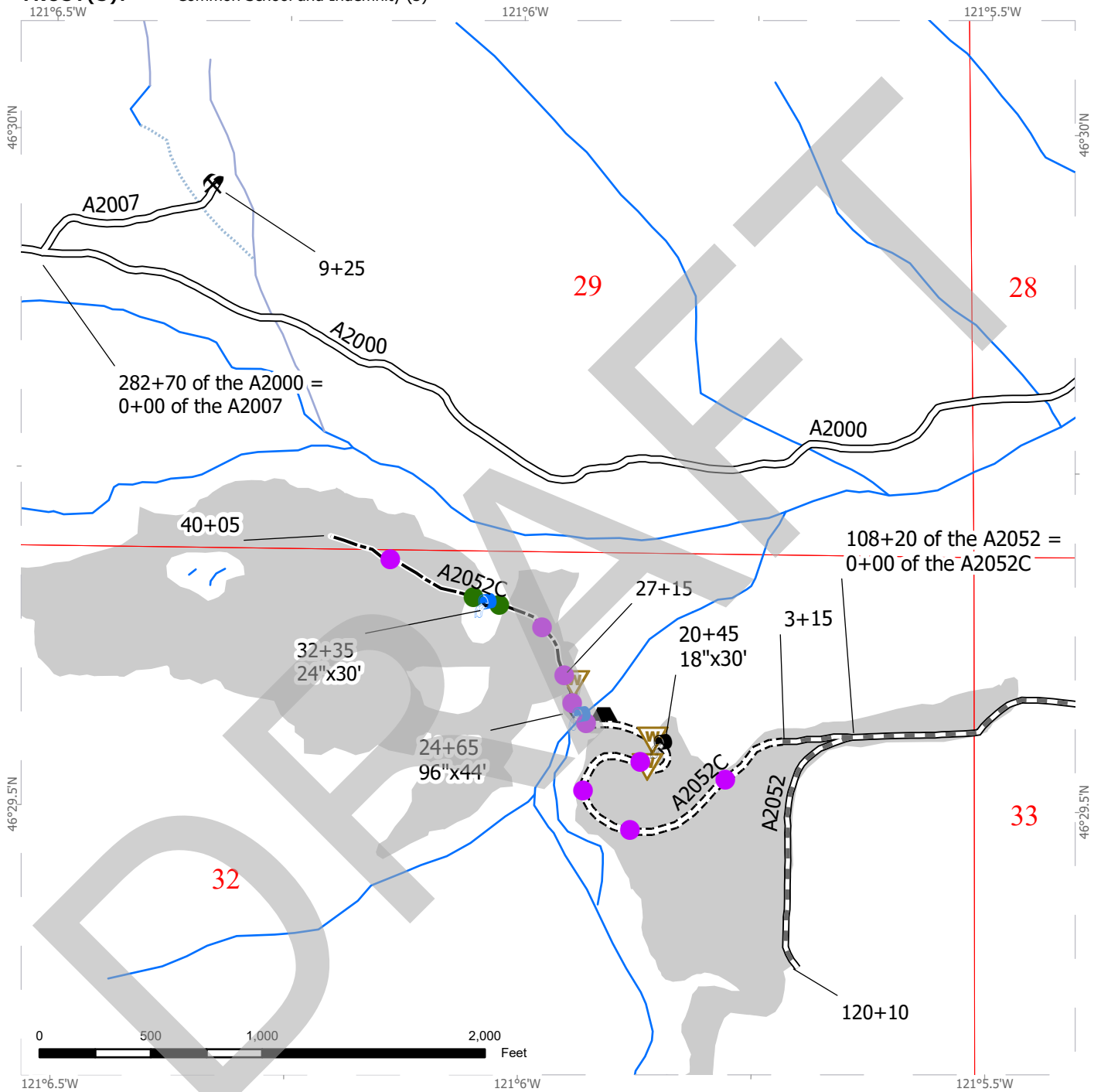
 Unit	 Existing Roads
 Required Pre-Haul Maintenance	 Required Construction



ROAD PLAN MAP 4 OF 6

SALE NAME: Q FRESH START
AGREEMENT #: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



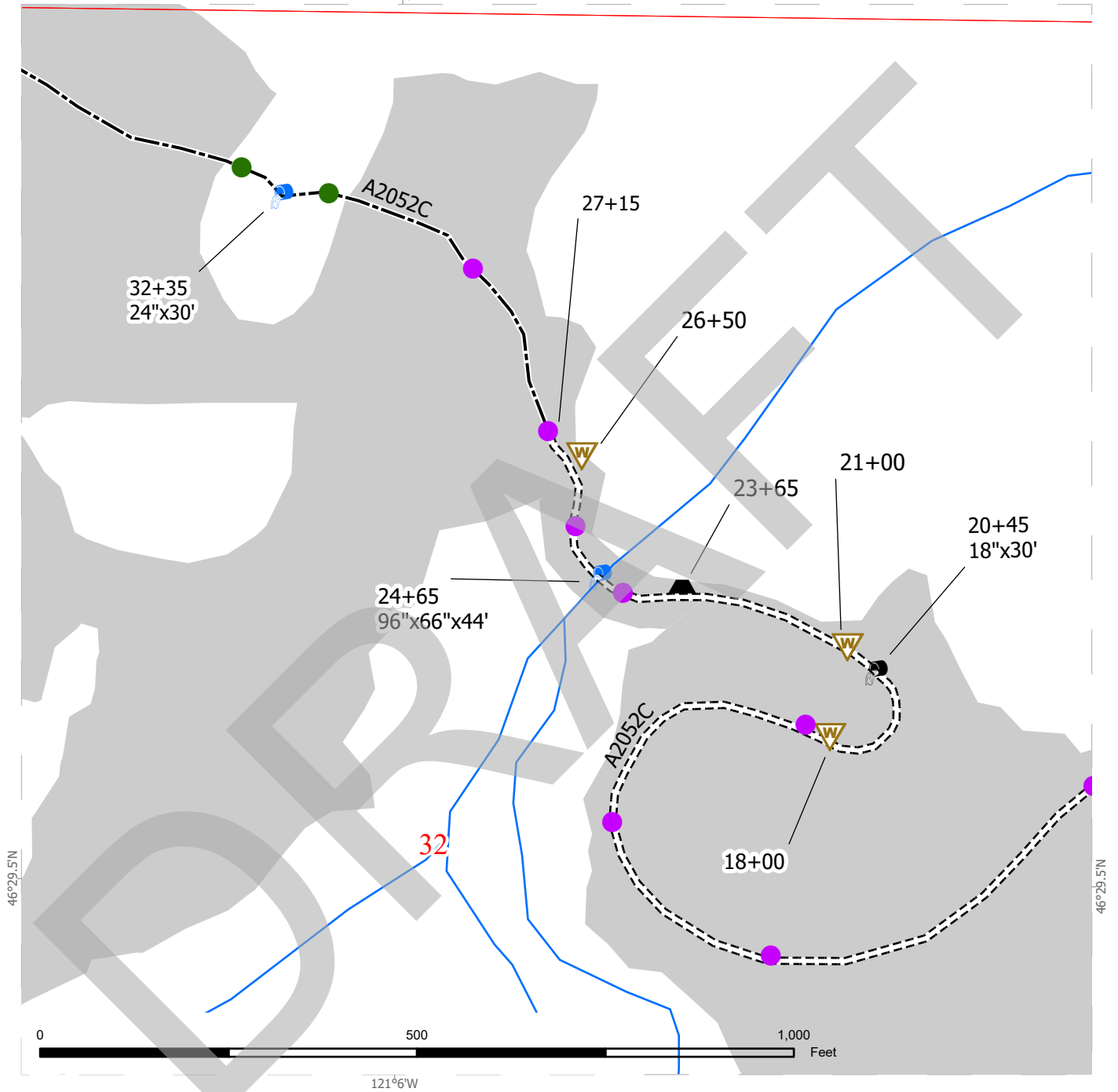
Live Water Culvert	Waste	Existing Roads
Crossdrain	Unit	Required Pre-Haul Maintenance
Drivable Waterbar		Required Construction
Rolling Dip		Optional Construction
Rock Source		
Turnout		



ROAD PLAN MAP 5 OF 6

SALE NAME: Q FRESH START
AGREEMENT #: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



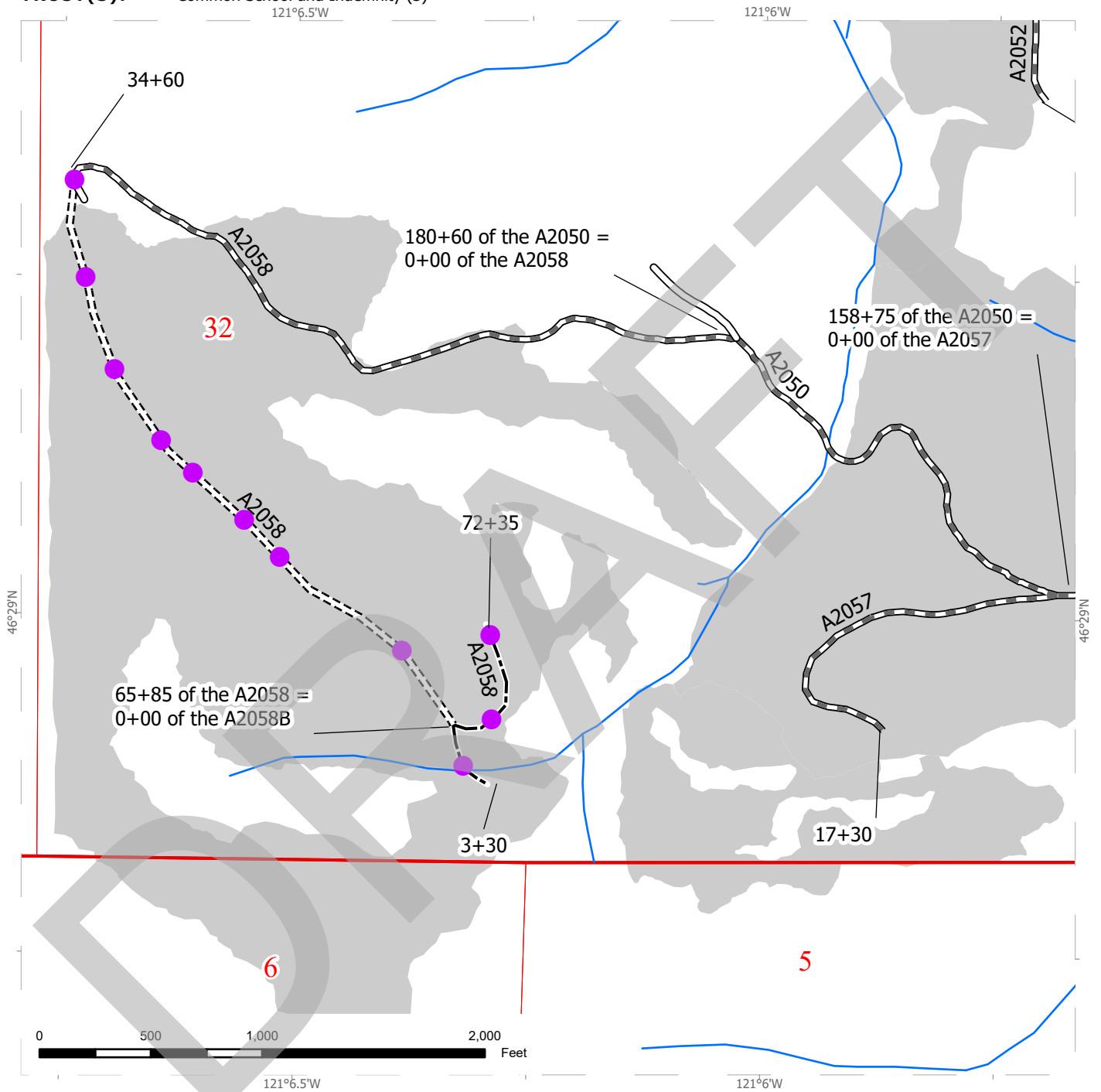
	Live Water Culvert		Unit		Required Construction
	Crossdrain				Optional Construction
	Drivable Waterbar				
	Rolling Dip				
	Turnout				
	Waste				



ROAD PLAN MAP 6 OF 6

SALE NAME: Q FRESH START
AGREEMENT#: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



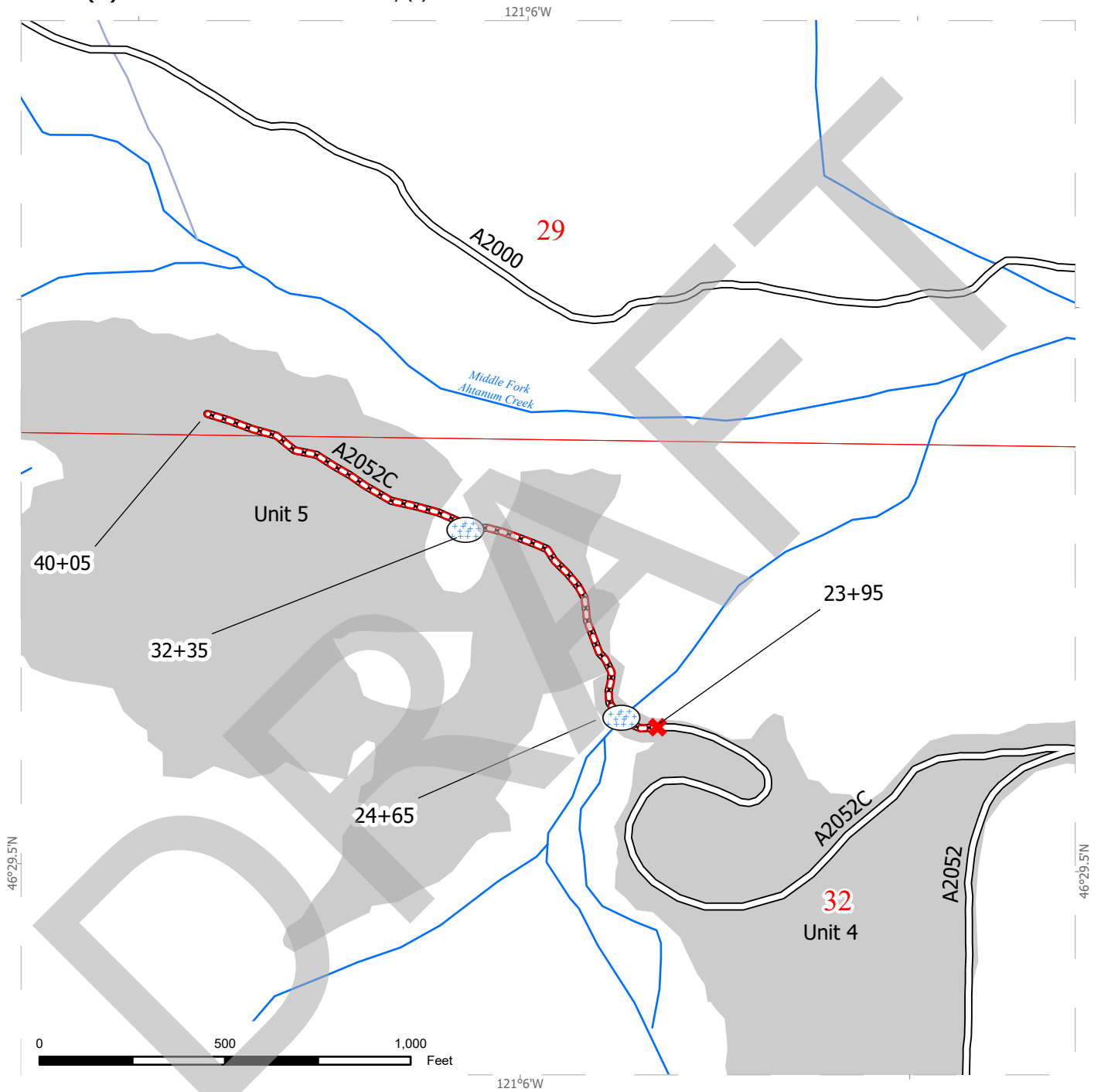
● Rolling Dip	 Unit	Existing Roads
		Required Pre-Haul Maintenance
		Required Construction
		Optional Construction








ROAD PLAN POST HAUL MAP

SALE NAME: Q FRESH START
AGREEMENT #: 30-106696
TOWNSHIP(S): T12R14E
TRUST(S): Common School and Indemnity (3)

REGION: Southeast Region
COUNTY(S): Yakima
ELEVATION RGE: 4480-5880



 Culvert Removal	 Units	 Required Abandonment
 Earthen Barricade		 Existing Roads



SUMMARY - Road Development Costs

SALE/PROJECT NAME: Q FRESH START

Region: Southeast

District: Alpine

AGREEMENT #: 30-106696

ROAD STANDARD:	Construction	Maintenance
NUMBER OF STATIONS:	77.95	382.25
CLEARING & GRUBBING:	\$7,405	-
EXCAVATION AND FILL:	\$27,502	-
MISC. MAINTENANCE:	-	\$5,058
ROAD ROCK:	\$3,129	\$0
STOCKPILE:	-	-
CULVERTS AND FLUMES:	\$5,730	\$0
STRUCTURES:	\$3,043	-
MOBILIZATION:	\$4,160	\$1,040
TOTAL COSTS:	\$50,968	\$6,098
COST PER STATION:	\$654	\$16
		POST HAUL MAINTENANCE COSTS: \$6,971
		ROAD DEACTIVATION & ABANDONMENT COSTS: \$5,634
		POST HAUL MOBILIZATION: \$3,040
		SUBTOTAL \$72,711
		OVERHEAD AND GENERAL EXPENSES: \$7,271
		TOTAL (All Roads) = \$79,982
		SALE VOLUME MBF = 2,572
		TOTAL \$/MBF = \$31.10

SALE/PROJECT NAME: Q FRESH START
 CONTRACT NUMBER: 30-106696
 LEGAL DESCRIPTION: Sec.29, 32, 33 - T12N R14E, Sec.6 - T11N R14E
 DATE: 5/15/2024

ROAD	A2000	A2050	A2052	A2052B	A2052C	A2057	A2058	A2058B	TOTAL	TYPE
TOTAL LENGTH	282.50	180.60	120.10	26.50	40.05	17.30	72.35	3.30	460.20	STA
PRE-HAUL SUMMARY										
DESIGNATED MAIN. STA.	282.30	23.20							305.50	STA
PURCHASER MAINT. STA.		157.40	120.10	26.50	40.05	17.30	72.35	3.30	437.00	STA
PRE-HAUL MAINTENANCE STA.		180.60	120.10	26.50	3.15	17.30	34.60		382.25	STA
REQUIRED CONSTRUCTION STA.					24.00		31.25		55.25	STA
OPTIONAL CONSTRUCTION STA.					12.90		6.50	3.30	22.70	STA
RD INSTALLATIONS					9		10	1	20	EA
DWB INSTALLATIONS					2				2	EA
BRUSHING					3.15				3.15	STA
GRADING STA.		180.60	120.10	26.50	3.15	17.30	34.60		382.25	STA
CULVERT INSTALL CROSSDRAIN LF					30				30	FT
CULVERT INSTALL LIVE WATER LF					74				74	FT
LIGHT LOOSE RIP RAP					20.00				20.00	CY
QUARRY SPALLS YDS					0.50				0.50	CY
SELECT PIT RUN APPLICATION YDS					90.00				90.00	CY
POST HAUL SUMMARY										
FINAL MAINT STA..		180.60	120.10	26.50	23.95	17.30	72.35	3.30	444.10	STA
ABANDONMENT					16.10				16.10	STA
NONDRIVABLE WATERBAR					7				7	EA
EARTHEN BARRICADE					1				1	EA
CULVERT/FILL REMOVALS					2				2	EA
SCATTER SLASH (Y/N)					Y					
GRASS SEED AND STRAW (Y/N)					Y					