



**TIMBER NOTICE OF SALE**

**SALE NAME:** DODGE CITY

**AGREEMENT NO:** 30-107463

**AUCTION:** December 19, 2024 starting at 10:00 a.m., **COUNTY:** Pacific  
Pacific Cascade Region Office, Castle Rock, WA

**SALE LOCATION:** Sale located approximately 26 miles east of Raymond, WA

**PRODUCTS SOLD AND SALE AREA:** All timber, except leave trees bound by yellow "Leave Tree Area" tags, leave trees marked with blue paint, all down timber greater than 55 inches diameter, all timber 60 inches DBH and greater, and snags bound by the following;

Unit 1, white "Timber Sale Boundary" tags, pink flagging, RCP Mainline and the RCP 100;

Unit 2, white "Timber Sale Boundary" tags, pink flagging, RCP Mainline and the RCP 900;

Unit 3, white "Timber Sale Boundary" tags with pink flagging;

Unit 4 (ROW), orange "Right-of-Way" tags and orange flagging;

All forest products above located on part(s) of Sections 3 all in Township 12 North, Range 6 West, Sections 23, 25, 26, 34, 35 and 36 all in Township 13 North, Range 6 West, W.M., containing 188 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:**

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	17.6	7	4,492						2,081	2,005	380	26
Hemlock	17.9		76						47	22	7	
Red alder	13.9		73						14	17	42	
Maple	13		7							3	4	
Sale Total			4,648									

**MINIMUM BID:** \$1,459,000.00 **BID METHOD:** Sealed Bids

**PERFORMANCE SECURITY:** \$100,000.00 **SALE TYPE:** Lump Sum

**EXPIRATION DATE:** October 31, 2026 **ALLOCATION:** Export Restricted

**BID DEPOSIT:** \$145,900.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** Cable, Cable-Assist, Shovel, and Track skidder. This sale is estimated to be 30 percent cable, 70 percent ground based harvest systems. Ground based harvesting is restricted to sustained slopes of 50 percent or less, self-leveling equipment to 70 percent or less.



## TIMBER NOTICE OF SALE

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**ROADS:** 16.38 stations of required construction. 1.20 stations of required reconstruction. 9.50 stations of optional construction. 14.00 stations of optional reconstruction. 395.19 stations of required prehaul maintenance. 16.66 stations of abandonment.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the Walville Quarry located in Section 23, T13N, R6W, W.M. on state land at no charge to the Purchaser.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the Walville Quarry existing stockpile(s) located in Section 23, T13N, R6W W.M. on state land at no charge to the Purchaser.

Rock used in accordance with the RCP ML BRIDGE BACKWALL DETAIL and PLANS sheets shall be obtained from any commercial source at the Purchaser's expense. Rock used in accordance with the quantities on the ROCK LIST may be obtained from any commercial source at the Purchaser's expense.

Purchaser shall conduct rock source development and use at the Walville Quarry located in Section 23, T13N, R6W, W.M., in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan.

Purchaser shall provide an excavator and rock drill with operator for up to 10 hours each of exploration of rock and other related work as directed by the Contract Administrator at the Walville Quarry in Section 23, T13N, R6W, W.M.

See road plan for further details. The hauling of forest products will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator.

### ACREAGE DETERMINATION

**CRUISE METHOD:** The sale acres were determined by GPS delineation. Cruise was completed using variable plot cruise methods.

**FEES:** \$79,000.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** This sale contains approximately 506 MBF High Quality 2 saw DF, 238 MBF High Quality 3 saw DF. See Cruise for additional information.

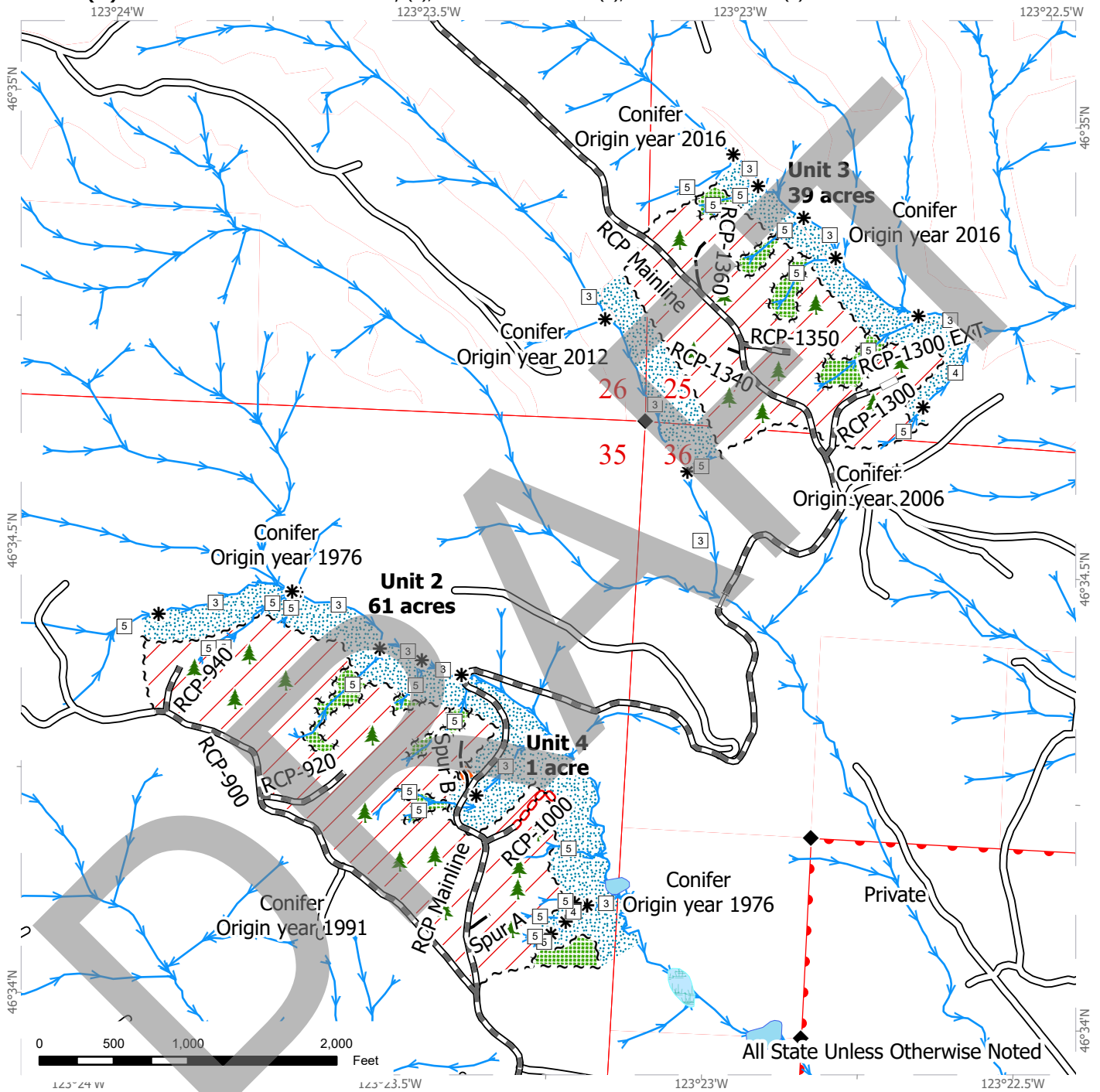
Backwall replacement on the RCP ML bridge will be required in accordance with the design in the road plan.



# TIMBER SALE MAP

**SALE NAME:** DODGE CITY  
**AGREEMENT #:** 30-107463  
**TOWNSHIP(S):** T12R6W, T13R6W  
**TRUST(S):** Common School and Indemnity (3), State Forest Purchase (2), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Pacific  
**ELEVATION RGE:** 680-1160

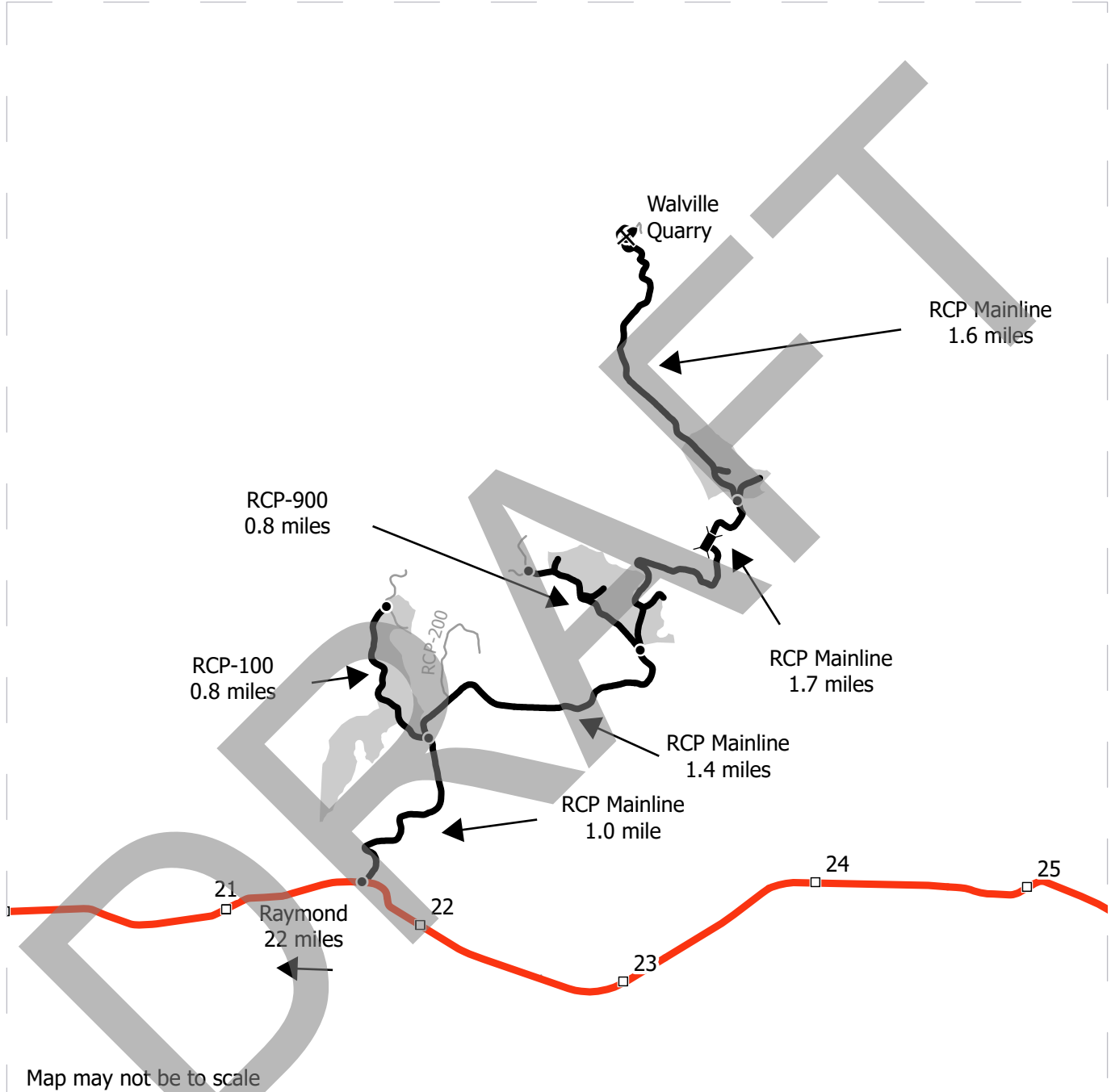


	Variable Retention Harvest		Existing Roads		Streams
	Right-of-Way Harvest		Required Pre-Haul Maintenance		Stream Type
	Leave Tree Area		Required Reconstruction		Stream Break
	Riparian Mgt Zone		Optional Construction		Leave Tree Area <1/4-acre
	Sale Boundary Tags		Optional Reconstruction		Survey Monument
	Leave Tree Tags		Required Abandonment		
	Right of Way Tags				

# DRIVING MAP

**SALE NAME:** DODGE CITY  
**AGREEMENT#:** 30-107463  
**TOWNSHIP(S):** T12R6W, T13R6W  
**TRUST(S):** Common School and Indemnity (3), State Forest Purchase (2), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Pacific  
**ELEVATION RGE:** 680-1160



- Harvest Unit
- Highway
- Haul Route
- Other Route
- Milepost Marker
- Distance Indicator
- Bridge
- Rock Pit

**DRIVING DIRECTIONS:**

Units: Between milepost 21 and 22 on SR 6, turn north on to the RCP Mainline. Continue on for 1.0 mile and turn left on to the RCP-100 to arrive at Unit 1. Continue on the RCP Mainline for 1.4 miles and turn left on to the RCP-900 to arrive at Unit 2. Continue on the RCP Mainline for 1.7 miles to arrive at Unit 3.  
 Rock Quarry: From Unit 3 continue on RCP Mainline for 1.6 mile to the Walville Quarry.



## Timber Sale Cruise Report Dodge City

**Sale Name:** DODGE CITY

**Sale Type:** LUMP SUM

**Region:** PACIFIC CASC

**District:** LEWIS

**Lead Cruiser:** Dylan Buchanan

**Other Cruisers:** Blake Warnstadt, Dillon Adair

**Cruise Narrative:**

Location: Dodge City can be accessed off of the RCP mainline which is located 22 miles east of Raymond on highway 6. turn north on to the RCP Mainline. Continue on for 1.0 mile and turn left on to the RCP-100 to arrive at Unit 1. Continue on the RCP Mainline for 1.4 miles and turn left on to the RCP-900 to arrive at Unit 2. Continue on the RCP Mainline for 1.7 miles to arrive at Unit 3.

Cruise Design: Units 1, 2 and 3 were cruised using variable radius plots. Units 1 and 2 were measured with a measure to count plot ratio of 1:2 using a 40.00 BAF sighted at 4.5 feet, while unit 3 was 1:1 measure to count plot ratio using a 54.44 BAF sighted at 4.5 feet. Unit 4 right of way was cruised using 1/20 acre fixed radius plots. Boles were measured at a fixed break point of 40% or up to fixed diameter of 5 inches. Preferred log lengths are 40' for conifers and 30' for hardwoods.

Timber Quality: Dodge City is a Douglas fir dominant timber sale with a small amount of western hemlock and red alder, and a trace amount of maple. The DF is comprised of mostly Domestic logs with some High Quality B and a small amount of High Quality A logs available.

Boles are mostly straight with frequent spike knots and a moderate amount of top storm damage with regenerated tops. Units 1 and 2 have been thinned previously. There is a small amount of mechanical damage scaring from thinning. Unit 2 has a small amount of conks on life DF stems. Average DBH for the timber sale is DF 17.6", WH is 17.9", RA is 13.9" and maple is 13". Observed a small amount of root disease in unit 3 with few small open mortality pockets.

Logging and Stand Conditions: The Dodge City sale has moderate to gentle slopes and is estimated to be 70% ground based logging and 30% uphill cable. The previously thinned units 1 and 2 have heavy veg cover throughout.

General Remarks:

### Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
DF	17.6	7.0		4,492	2,081	2,005	380	26
WH	17.9			76	47	22	7	
RA	13.9			73	14	17	42	
MA	13.0			6		3	4	
ALL	17.1	7.0		4,648	2,142	2,047	433	26

**Timber Sale Notice Weight (tons)**

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
DF	37,806	16,100	17,717	3,796	193
WH	770	387	261	122	
RA	617	106	137	375	
MA	74		15	58	
ALL	39,267	16,593	18,130	4,351	193

**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 (%)
194.4	3.3	128.3	1.4	24,722	3.6

**Timber Sale Unit Cruise Design**

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
DODGE CITY U1	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	87.0	94.9	85	30	0
DODGE CITY U2	B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	61.0	68.4	66	25	2
DODGE CITY U3	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	39.0	45.6	39	20	1
DODGE CITY U4	FX: FR plots (20 tree / acre expansion)	1.0	0.2	2	2	0
All		188.0	209.0	192	77	3

**Timber Sale Log Grade x Sort Summary**

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	13.9	40	9,003	8,377	7.0	12,319.3	1,574.9
DF	LIVE	2 SAW	HQ-A	13.4	40	1,548	1,514	2.2	2,155.9	284.7
DF	LIVE	2 SAW	HQ-B	13.9	40	1,194	1,177	1.4	1,625.3	221.3
DF	LIVE	3 SAW	Domestic	8.6	39	9,995	9,397	6.0	15,946.0	1,766.6
DF	LIVE	3 SAW	HQ-B	10.0	40	1,298	1,267	2.3	1,771.0	238.3
DF	LIVE	4 SAW	Domestic	5.5	29	2,177	2,022	7.1	3,796.1	380.2
DF	LIVE	CULL	Cull	6.1	6	202	0	100.0	0.0	0.0
DF	LIVE	UTILITY	Pulp	6.4	15	139	138	0.8	192.8	25.9
MA	LIVE	3 SAW	Domestic	10.0	18	15	14	6.3	15.3	2.7

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
MA	LIVE	4 SAW	Domestic	5.0	32	24	20	16.4	58.3	3.8
RA	LIVE	2 SAW	Domestic	13.0	30	82	75	8.3	105.7	14.2
RA	LIVE	3 SAW	Domestic	10.9	32	93	90	3.1	136.6	16.9
RA	LIVE	4 SAW	Domestic	6.1	29	235	223	5.0	374.9	41.9
RA	LIVE	CULL	Cull	12.9	8	14	0	100.0	0.0	0.0
WH	LIVE	2 SAW	Domestic	15.7	40	271	250	8.0	386.8	46.9
WH	LIVE	3 SAW	Domestic	8.6	39	124	119	4.1	261.4	22.3
WH	LIVE	4 SAW	Domestic	5.6	33	46	38	15.6	121.5	7.2
WH	LIVE	CULL	Cull	6.0	4	3	0	100.0	0.0	0.0

### Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 7	LIVE	Cull	6.0	6	0	100.0	0.0	0.0
DF	5 - 7	LIVE	Domestic	6.0	33	4,557	4.9	8,601.4	856.7
DF	5 - 7	LIVE	Pulp	6.2	17	120	0.9	166.9	22.6
DF	8 - 11	LIVE	Cull	9.0	11	0	100.0	0.0	0.0
DF	8 - 11	LIVE	Pulp	9.2	14	17	0.0	25.9	3.2
DF	8 - 11	LIVE	Domestic	9.8	39	6,839	6.7	11,060.7	1,285.8
DF	8 - 11	LIVE	HQ-B	10.1	40	1,267	2.3	1,771.0	238.3
DF	12 - 15	LIVE	HQ-A	13.4	40	1,514	2.2	2,155.9	284.7
DF	12 - 15	LIVE	HQ-B	13.4	40	1,025	1.4	1,432.8	192.6
DF	12 - 15	LIVE	Domestic	13.5	40	6,955	7.7	10,585.0	1,307.6
DF	16+	LIVE	Domestic	17.0	40	1,445	4.7	1,814.3	271.6
DF	16+	LIVE	HQ-B	17.0	40	153	1.3	192.5	28.7
MA	5 - 7	LIVE	Domestic	5.0	32	20	16.4	58.3	3.8
MA	8 - 11	LIVE	Domestic	10.0	18	14	6.3	15.3	2.7
RA	5 - 7	LIVE	Domestic	5.2	27	144	5.3	246.0	27.1
RA	8 - 11	LIVE	Cull	10.0	5	0	100.0	0.0	0.0
RA	8 - 11	LIVE	Domestic	10.0	31	155	3.0	244.3	29.1
RA	12 - 15	LIVE	Domestic	13.1	29	89	8.9	126.8	16.7
RA	16+	LIVE	Cull	16.9	12	0	100.0	0.0	0.0
WH	5 - 7	LIVE	Cull	5.3	4	0	100.0	0.0	0.0
WH	5 - 7	LIVE	Domestic	6.0	34	76	11.2	223.9	14.3
WH	8 - 11	LIVE	Cull	8.9	4	0	100.0	0.0	0.0
WH	8 - 11	LIVE	Domestic	10.3	40	81	3.1	159.0	15.3
WH	12 - 15	LIVE	Domestic	13.6	40	130	10.4	233.7	24.4
WH	16+	LIVE	Domestic	20.9	40	120	5.2	153.2	22.6



## Cruise Unit Report DODGE CITY U1

### Unit Sale Notice Volume (MBF): DODGE CITY U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
DF	17.5			1,995	917	906	165	8
RA	14.7			64	14	17	33	
WH	17.6			18	11	4	2	
MA	13.0			6		3	4	
ALL	16.9			2,084	942	929	204	8

### Unit Cruise Design: DODGE CITY U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	87.0	94.9	85	30	0

### Unit Cruise Summary: DODGE CITY U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	127	383	4.5	0
RA	17	17	0.2	0
WH	3	3	0.0	0
MA	4	4	0.0	0
ALL	151	407	4.8	0

### Unit Cruise Statistics: DODGE CITY 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 (%)
DF	180.2	52.2	5.7	127.2	21.1	1.9	22,934	56.3	6.0
RA	8.0	351.9	38.2	92.3	31.5	7.6	739	353.3	38.9
WH	1.4	525.9	57.0	144.4	80.8	46.7	204	532.1	73.7
MA	1.9	726.3	78.8	39.4	53.3	26.6	74	728.2	83.2
ALL	191.5	46.8	5.1	125.1	27.9	2.3	23,951	54.5	5.6

## Unit Summary: DODGE CITY U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	127	ALL	17.5	75	97	24,677	22,934	7.1	107.9	180.2	43.1	1,995.3
MA	LIVE	CUT	4	ALL	13.0	29	41	85	74	12.5	2.0	1.9	0.5	6.5
RA	LIVE	CUT	17	ALL	14.7	55	72	816	739	9.4	6.8	8.0	2.1	64.3
WH	LIVE	CUT	3	ALL	17.6	59	74	223	204	8.4	0.8	1.4	0.3	17.7
ALL	LIVE	CUT	151	ALL	17.3	73	94	25,800	23,951	7.2	117.5	191.5	46.0	2,083.7
ALL	ALL	ALL	151	ALL	17.3	73	94	25,800	23,951	7.2	117.5	191.5	46.0	2,083.7

## Cruise Unit Report DODGE CITY U2

### Unit Sale Notice Volume (MBF): DODGE CITY U2

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
DF	18.7	7.0		1,233	687	465	73	8
WH	18.7			43	30	9	3	
RA	8.0			4			4	
ALL	18.0	7.0		1,280	718	474	80	8

### Unit Cruise Design: DODGE CITY U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	61.0	68.3	66	25	2

### Unit Cruise Summary: DODGE CITY U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	92	240	3.6	1
WH	9	11	0.2	0
RA	2	2	0.0	0
ALL	103	253	3.8	1

### Unit Cruise Statistics: DODGE CITY 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	145.5	49.3	6.1	139.0	19.7	2.1	20,215	53.1	6.4
WH	6.7	289.8	35.7	104.7	51.3	17.1	698	294.3	39.6
RA	1.2	570.0	70.2	60.2	26.9	19.0	73	570.7	72.7
ALL	153.3	43.8	5.4	136.9	24.3	2.4	20,986	50.1	5.9

### Unit Summary: DODGE CITY U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	92	ALL	18.7	80	103	21,314	20,215	5.2	76.3	145.5	33.6	1,233.1
RA	LIVE	CUT	2	ALL	8.0	21	28	73	73	0.0	3.5	1.2	0.4	4.4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	9	ALL	18.7	59	73	758	698	7.9	3.5	6.7	1.5	42.6
ALL	LIVE	CUT	103	ALL	18.4	76	98	22,144	20,986	5.2	83.3	153.3	35.6	1,280.1
ALL	ALL	ALL	103	ALL	18.4	76	98	22,144	20,986	5.2	83.3	153.3	35.6	1,280.1

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## Cruise Unit Report DODGE CITY U3

### Unit Sale Notice Volume (MBF): DODGE CITY U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
DF	16.5	7.0		1,232	454	626	142	10
WH	16.3			16	5	9	2	
RA	8.0			4			4	
ALL	16.2	7.0		1,253	459	636	148	10

### Unit Cruise Design: DODGE CITY U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	39.0	45.6	39	20	1

### Unit Cruise Summary: DODGE CITY U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	95	186	4.8	1
WH	3	3	0.1	0
RA	1	1	0.0	0
ALL	99	190	4.9	1

### Unit Cruise Statistics: DODGE CITY 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 (%)
DF	259.6	46.0	7.4	121.7	16.4	1.7	31,596	48.8	7.6
WH	4.2	460.5	73.7	99.1	29.8	17.2	415	461.5	75.7
RA	1.4	624.5	100.0	77.3	0.0	0.0	108	624.5	100.0
ALL	265.2	42.9	6.9	121.1	17.2	1.7	32,119	46.3	7.1

### Unit Summary: DODGE CITY U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	95	ALL	16.5	73	97	33,967	31,596	7.0	174.9	259.6	63.9	1,232.3
RA	LIVE	CUT	1	ALL	8.0	34	40	108	108	0.0	4.0	1.4	0.5	4.2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	3	ALL	16.3	56	70	458	415	9.4	2.9	4.2	1.0	16.2
ALL	LIVE	CUT	99	ALL	16.4	72	95	34,534	32,119	7.0	181.8	265.2	65.4	1,252.7
ALL	ALL	ALL	99	ALL	16.4	72	95	34,534	32,119	7.0	181.8	265.2	65.4	1,252.7

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## Cruise Unit Report DODGE CITY U4

### Unit Sale Notice Volume (MBF): DODGE CITY U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
DF	22.7			31	23	8	1
ALL	22.7			31	23	8	1

### Unit Cruise Design: DODGE CITY U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
FX: FR plots (20 tree / acre expansion)	1.0	0.2	2	2	0

### Unit Cruise Summary: DODGE CITY U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	7	7	3.5	0
ALL	7	7	3.5	0

### Unit Cruise Statistics: DODGE CITY 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 (%)
DF	196.1	75.3	53.2	159.0	20.9	7.9	31,180	78.1	53.8
ALL	196.1	75.3	53.2	159.0	20.9	7.9	31,180	78.1	53.8

### Unit Summary: DODGE CITY U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	7	ALL	22.7	88	111	32,470	31,180	4.0	69.8	196.1	41.2	31.2
ALL	LIVE	CUT	7	ALL	22.7	88	111	32,470	31,180	4.0	69.8	196.1	41.2	31.2
ALL	ALL	ALL	7	ALL	22.7	88	111	32,470	31,180	4.0	69.8	196.1	41.2	31.2

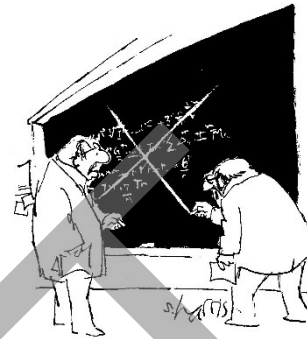
# FPHP NEEDED (Y/N) N

Is abandonment of existing road required? (Y/N) Y

PACIFIC CASCADE REGION - ENGINEERING

## ROAD PLAN PEER REVIEW CHECKLIST

PROJECT: DODGE CITY



This project has been reviewed for the following:

Initials:

JM

**CONTRACT CLAUSES** – Selection of proper clauses. Clauses adequately describe desired work. Clauses do not conflict with maps, details, pit plans, etc. Punctuation, syntax, grammar and organization is correct.

JM

**TYPICAL SECTION SHEET, ROCK LIST, & CULVERT LIST** – Sheets match clauses and maps. Requirements and quantities make sense. Rock List adds up correctly.

JM

**MAPS** – All roads listed in Section 1 are shown on maps. Maps identify locations of all culverts, landings, waste areas, endhaul/overhaul areas, etc. Legend, north arrow and scale are shown. Line types are easy to identify. Map is at a legible scale.

JM

**DETAIL SHEETS** – All detail sheets referred to in the clauses are included. Detail sheets have been edited as necessary.

JM

**PIT PLANS** – Selection of proper clauses. Map clearly shows all areas of development, wasting, stockpiling, reclamation, etc. Development plan appears logical for long term use of pit. Development plan allows for safe operation in the pit.

JM

**ROAD COST SPREADSHEET** – All cost elements captured. Material costs used are current. Summary cells are adding correctly. No conflicts exist between pages. Stationing, culverts and rock volume match the road plan.

JM

**EXCISE TAX SHEET** – Totals match road plan.

JM

**LOGGING PLAN** – Plan matches road plan clauses and maps.

I certify that I have reviewed this project for the elements initialed above and have found that it meets or exceeds Department and Regional Standards to the best of my knowledge.

GRANT GERRITSEN

Originator of Project

06/12/2024

Date

Jerry Mizar

Peer Reviewer

6/16/2024

Date

Comments:







# ROAD PLAN MAP

**SALE NAME:** DODGE CITY  
**AGREEMENT#:** 30-107463  
**TOWNSHIP(S):** T12R6W, T13R6W  
**TRUST(S):** Common School and Indemnity (3), State Forest Purchase (2), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Pacific  
**ELEVATION RGE:** 680-1160



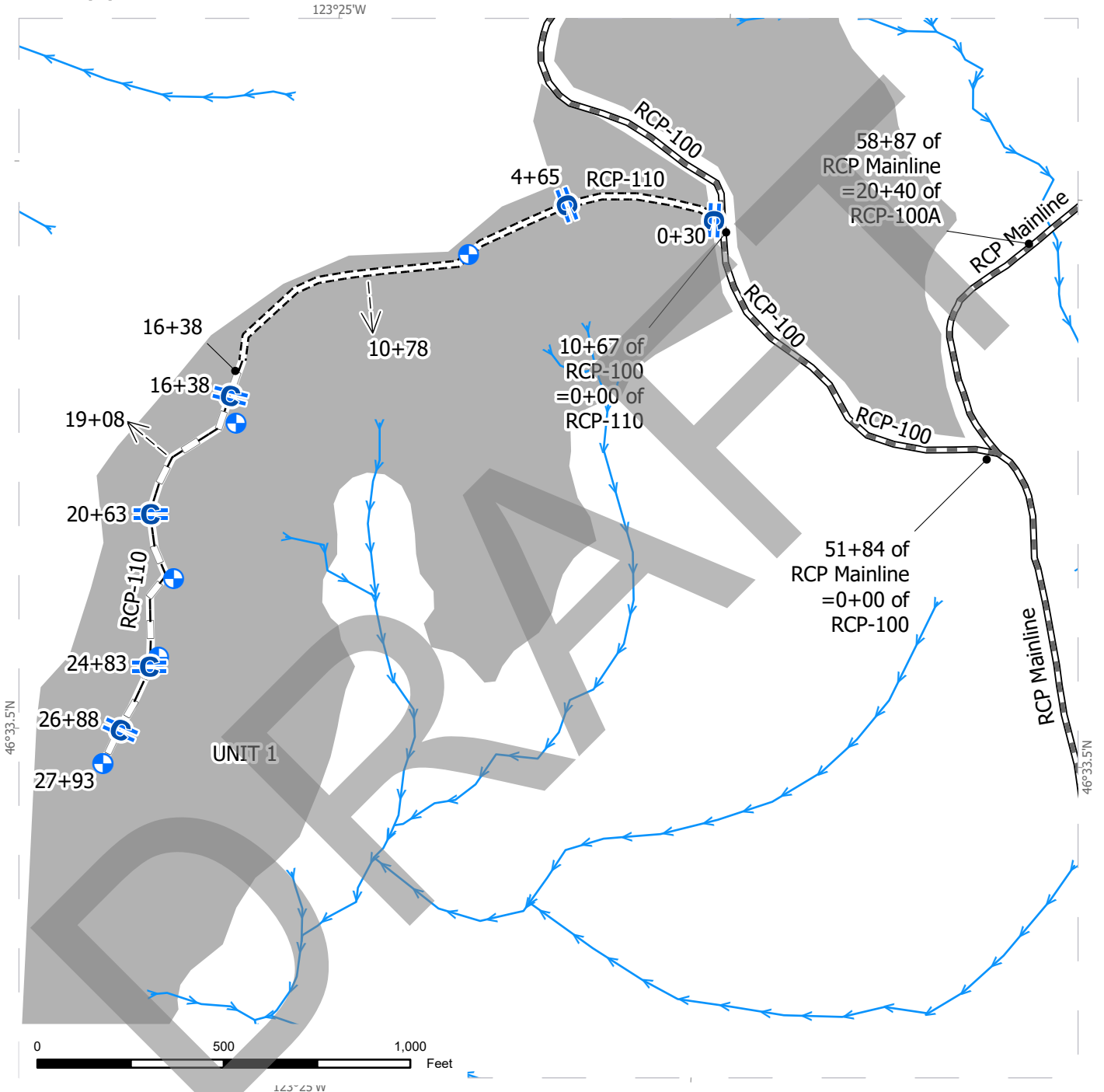
 County Road	 Streams
 Existing Roads	
 Required Pre-Haul Maintenance	



# ROAD PLAN MAP

**SALE NAME:** DODGE CITY  
**AGREEMENT #:** 30-107463  
**TOWNSHIP(S):** T12R6W, T13R6W  
**TRUST(S):** Common School and Indemnity (3), State Forest Purchase (2), State Forest Transfer (1)

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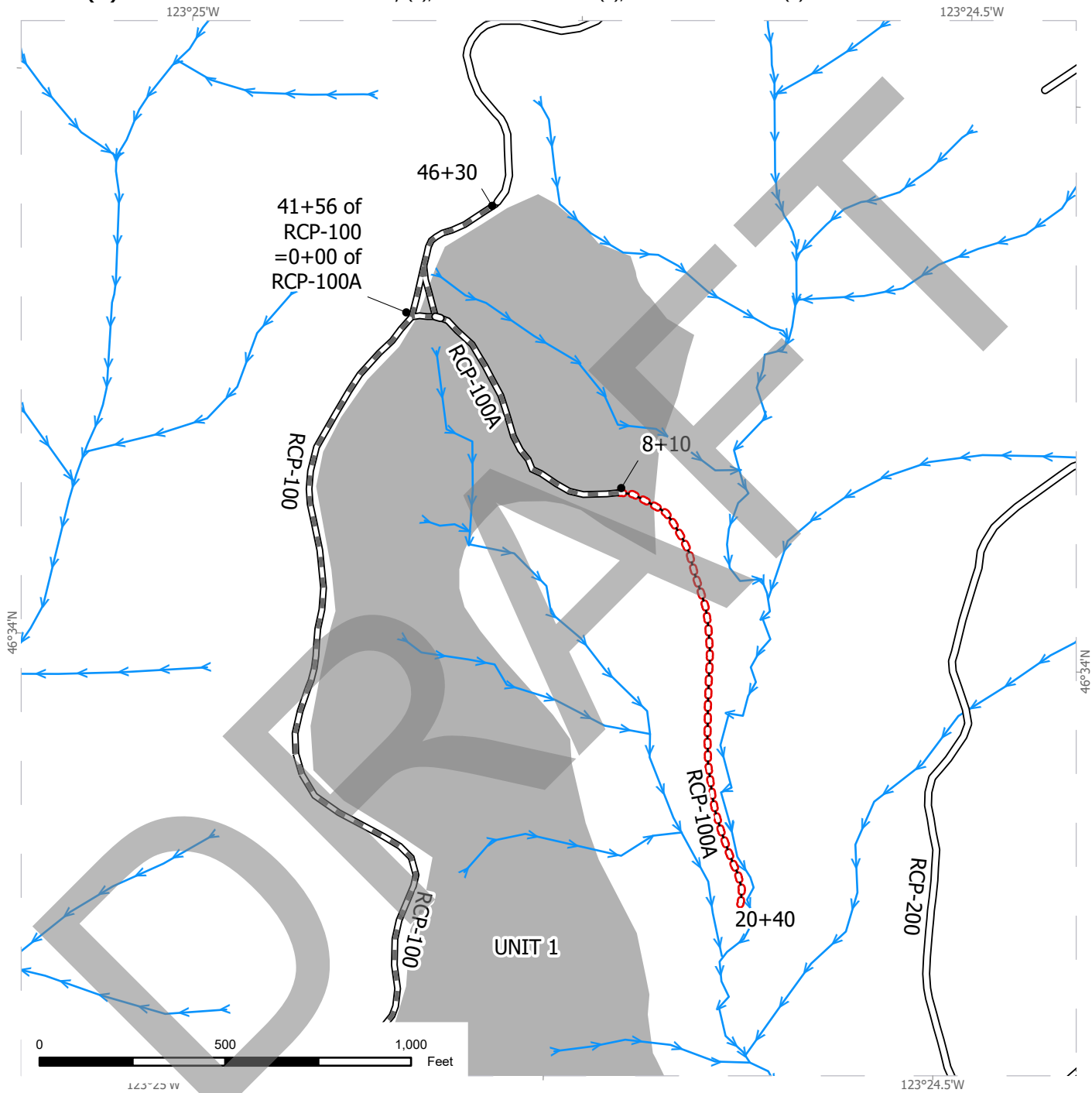
Existing Roads	Cross-drain Culvert	Harvest Unit
Required Pre-Haul Maintenance	Ditchout	Streams
Required Construction	Landing - Proposed	
Optional Reconstruction		



# ROAD PLAN MAP

**SALE NAME:** DODGE CITY  
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- |                               |              |
|-------------------------------|--------------|
| Existing Roads                | Harvest Unit |
| Required Pre-Haul Maintenance | Streams      |
| Required Abandonment          |              |

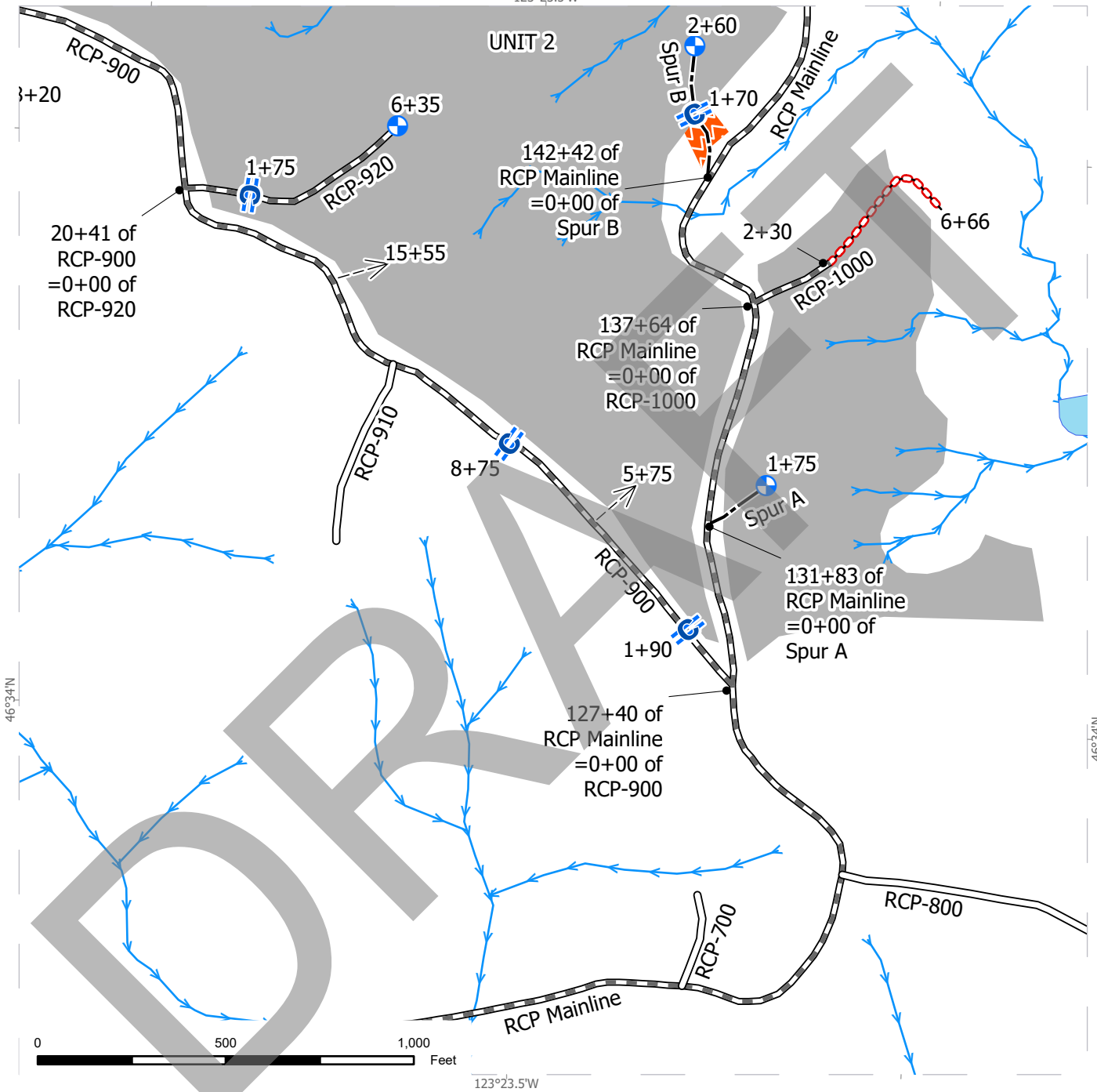


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**REGION:** Pacific Cascade Region  
**COUNTY(S):** Pacific  
**ELEVATION RGE:** 680-1160

123°23.5'W



Existing Roads	Cross-drain Culvert	Harvest Unit
Required Pre-Haul Maintenance	Ditchout	Right-of-Way Harvest
Optional Construction	Landing - Proposed	Streams
Required Abandonment		

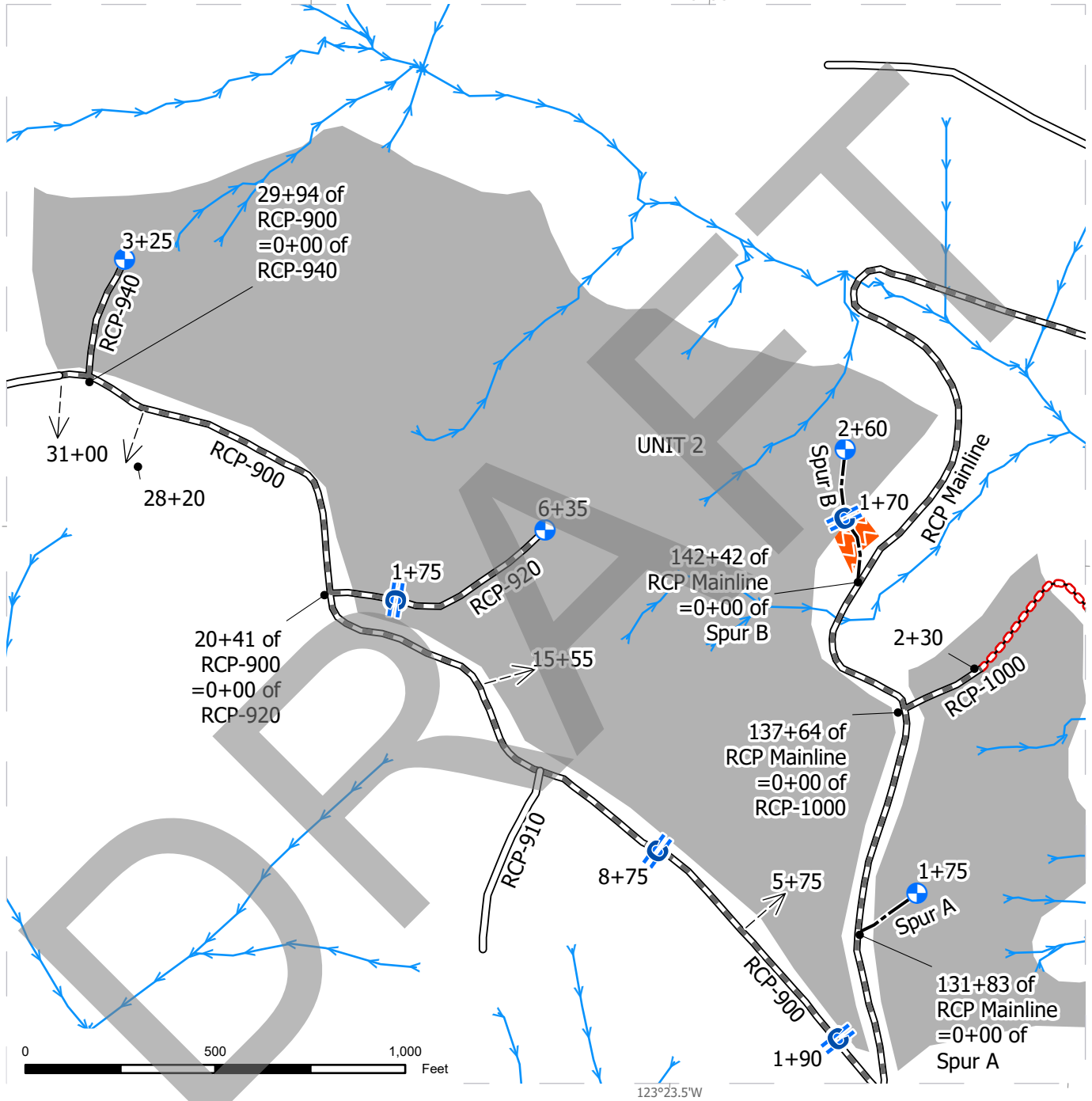


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**TOWNSHIP(S):** T12R6W, T13R6W  
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**REGION:** Pacific Cascade Region  
**COUNTY(S):** Pacific  
**ELEVATION RGE:** 680-1160

123°23.5'W

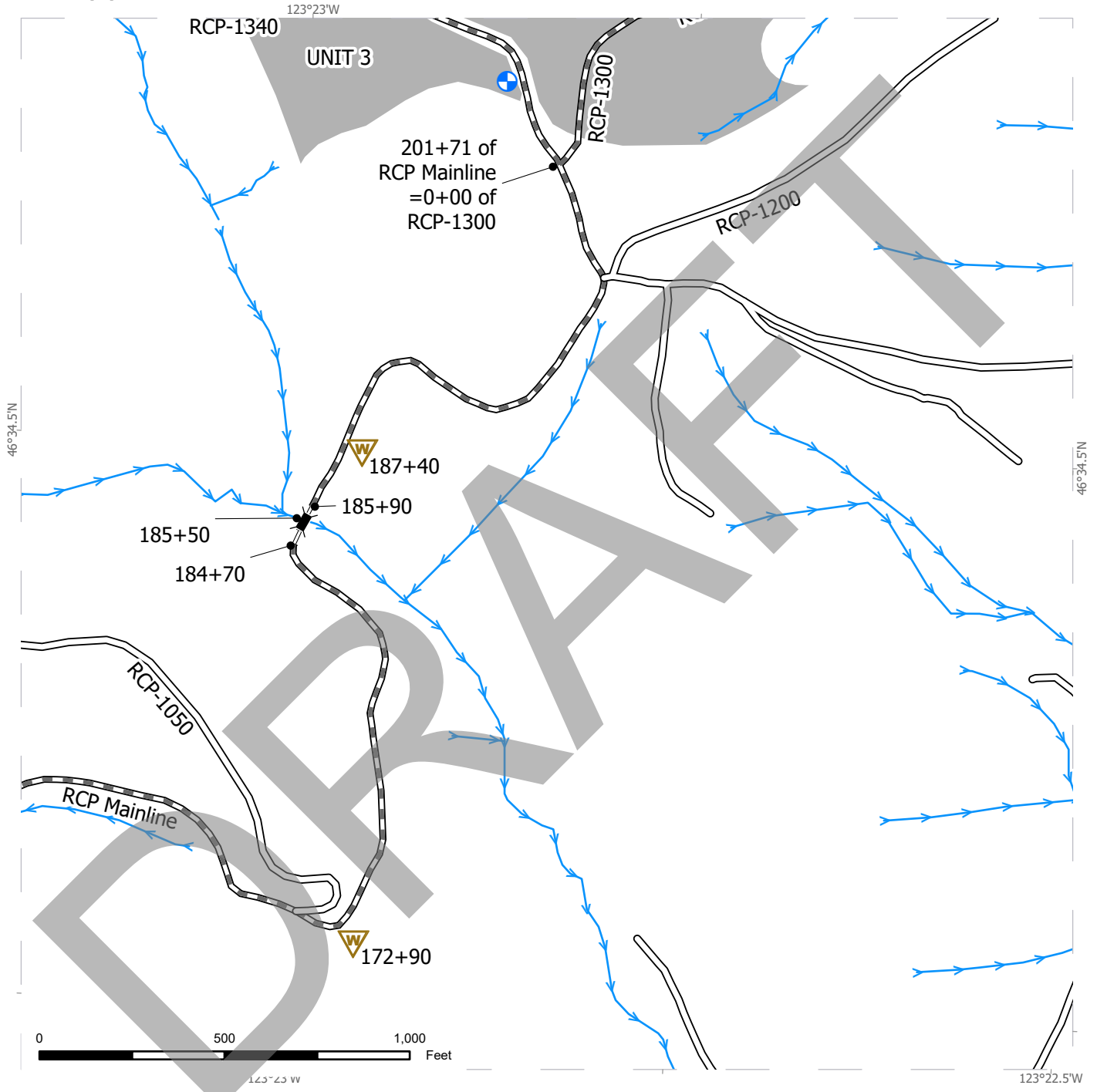


- |                               |                     |                      |
|-------------------------------|---------------------|----------------------|
| Existing Roads                | Cross-drain Culvert | Harvest Unit         |
| Required Pre-Haul Maintenance | Ditchout            | Right-of-Way Harvest |
| Optional Construction         | Landing - Proposed  | Streams              |
| Required Abandonment          |                     |                      |

# ROAD PLAN MAP

**SALE NAME:** DODGE CITY  
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**TOWNSHIP(S):** T12R6W, T13R6W  
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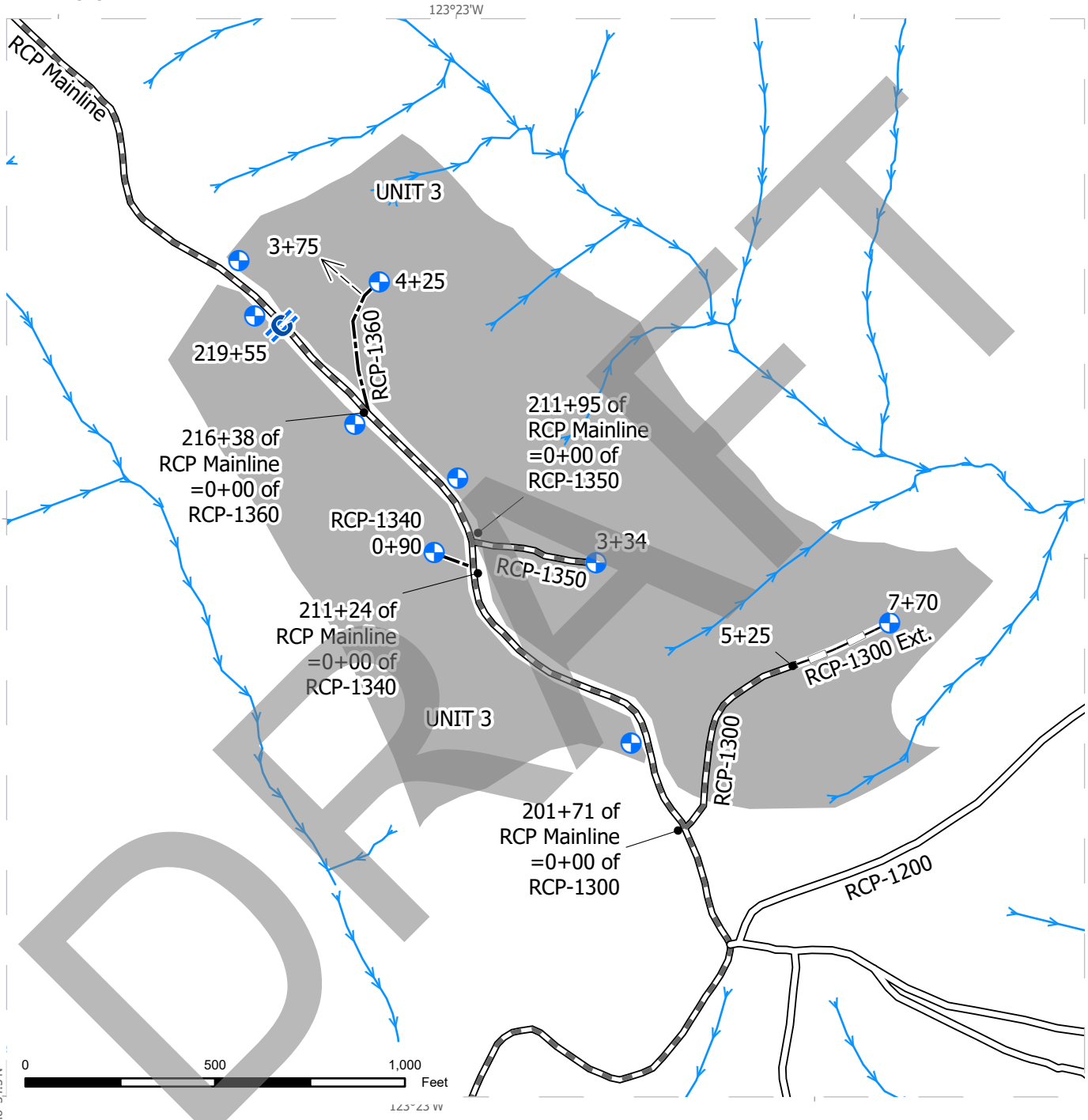
Existing Roads	Bridge	Harvest Unit
Required Pre-Haul Maintenance	Landing - Proposed	Streams
Required Reconstruction	Waste Area	
Optional Reconstruction		



# ROAD PLAN MAP

**SALE NAME:** DODGE CITY  
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**TOWNSHIP(S):** T12R6W, T13R6W  
**TRUST(S):** Common School and Indemnity (3), State Forest Purchase (2), State Forest Transfer (1)

**REGION:** Pacific Cascade Region  
**COUNTY(S):** Pacific  
**ELEVATION RGE:** 680-1160



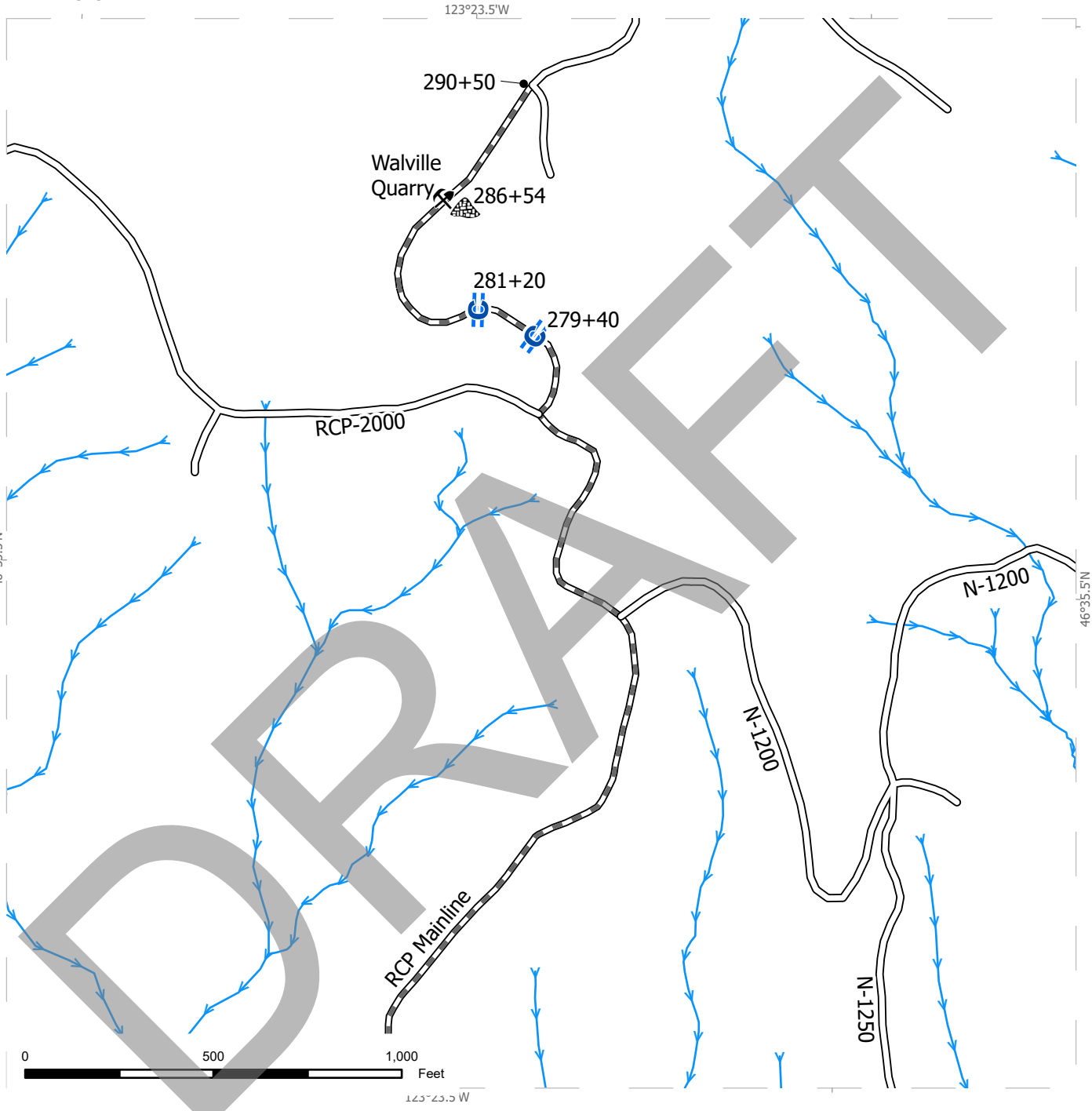
Existing Roads	Cross-drain Culvert	Harvest Unit
Required Pre-Haul Maintenance	Ditchout	Streams
Optional Construction	Landing - Proposed	
Optional Reconstruction		



# ROAD PLAN MAP

**SALE NAME:** DODGE CITY  
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**TOWNSHIP(S):** T12R6W, T13R6W  
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Existing Roads	Cross-drain Culvert	Streams
Required Pre-Haul Maintenance	Rock Pit	Stockpile





STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

DODGE CITY TIMBER SALE ROAD PLAN  
LEWIS COUNTY  
LEWIS DISTRICT  
PACIFIC CASCADE REGION

AGREEMENT NO.: 30-107463

STAFF ENGINEER: GRANT GERRITSEN

DRAWN & COMPILED BY: ALICIA COMPTON

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>
RCP-Mainline	0+00 to 184+70	Pre-Haul Maintenance
	184+70 to 185+90	Reconstruction
	185+90 to 290+50	Pre-Haul Maintenance
RCP-100	0+00 to 46+30	Pre-Haul Maintenance
RCP-100A	0+00 to 8+10	Pre-Haul Maintenance
	8+10 to 20+40	Abandonment
RCP-110	0+00 to 16+38	Construction
RCP-900	0+00 to 31+00	Pre-Haul Maintenance
RCP-920	0+00 to 6+35	Pre-Haul Maintenance
RCP-940	0+00 to 3+25	Pre-Haul Maintenance
RCP-1000	0+00 to 2+30	Pre-Haul Maintenance
	2+30 to 6+66	Abandonment
RCP-1300	0+00 to 5+25	Pre-Haul Maintenance
RCP-1350	0+00 to 3+34	Pre-Haul Maintenance

### 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 the road plan.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
Spur A	0+00 to 1+75	Construction
Spur B	0+00 to 2+60	Construction
RCP-110	16+38 to 27+93	Reconstruction
RCP-1300 Ext.	5+25 to 7+70	Reconstruction
RCP-1340	0+00 to 0+90	Construction
RCP-1360	0+00 to 4+25	Construction

### 0-4 CONSTRUCTION

Construction includes, but is not limited to: clearing; grubbing; right-of-way debris disposal; excavation and/or embankment to and compaction of subgrade; construction and compaction of waste areas; end haul and compaction of waste; landing construction; acquisition and installation of drainage structures; manufacture, application and compaction of rock.

### 0-5 RECONSTRUCTION

This project includes, but is not limited to the following reconstruction requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
RCP-Mainline	184+70 to 185+90	Bridge repair in accordance with the RCP ML BRIDGE BACKWALL DETAIL and PLANS sheets.
RCP-110	16+38 to 27+93	Clear and grub, grade shape and compact prior to rock application, apply and compact rock, install culverts.
RCP-1300 Ext.	5+25 to 7+70	

### 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>
RCP-Mainline	0+00 to 290+50	Maintenance grading, clean culverts, clean ditches, apply and compact rock, install culverts.
RCP-100	0+00 to 46+30	Maintenance grading, clean culverts, clean ditches, brushing, apply and compact rock, construct ditchouts, install culverts.
RCP-100A	0+00 to 8+10	Maintenance grading, apply and compact rock.
RCP-900	0+00 to 31+00	Maintenance grading, clean ditches, apply and compact rock, construct ditchouts, install culverts.

**0-6 PRE-HAUL MAINTENANCE CONTINUED**

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
RCP-920	0+00 to 6+35	Maintenance grading, clean ditches, apply and compact rock.
RCP-940	0+00 to 3+25	
RCP-1000	0+00 to 2+30	
RCP-1300	0+00 to 5+25	
RCP-1350	0+00 to 3+34	Maintenance grading, apply and compact rock.

**0-7 POST-HAUL MAINTENANCE**

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

**0-10 ABANDONMENT**

This project includes abandonment listed in Clause 9-21 ROAD ABANDONMENT.

**0-12 DEVELOP ROCK SOURCE**

Purchaser may develop an existing rock source. Rock source development will involve clearing, stripping, end haul and compaction of waste, drilling, shooting and manufacture of rock. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING and is subject to the requirements of the ROCK SOURCE DEVELOPMENT PLAN.

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 the submitted 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, unless controlled by construction stakes or design data (plan, profile, and cross-sections).

**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

**1-6 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 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 10 business days before the closure of the following road(s). Construction may not close the following roads for more than the specified number of days.

<u>Road</u>	<u>Number of Allowable Closed Days</u>
RCP-Mainline	21

**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.

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

References in this road plan to “WSDOT Standard Specifications” mean the Washington State Department of Transportation’s Standard Specifications for Road, Bridge, and Municipal Construction 2023 (M41-10).

**1-15 ROAD MARKING**

Purchaser shall perform road work in accordance with the state’s marked location. All road work is marked as follows:

- Road centerline marked with construction stakes, orange flagging, orange paint and RPs for new construction and reconstruction.
- Pre-haul maintenance marked with wooden stakes and/or painted trees, orange flagging and orange paint.
- Abandonment marked with orange flagging and orange painted trees.

**1-18 REFERENCE POINT DAMAGE**

Purchaser shall reset reference points (RPs) that were moved or damaged at any time during construction to their original locations. Excavation and embankment may not proceed on road segments controlled by said RPs until Purchaser resets all moved or damaged RPs.

**1-21 HAUL APPROVAL**

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

**1-22 WORK NOTIFICATIONS**

On the following road(s), Purchaser shall notify the Contract Administrator a minimum of 10 business days before work begins.

<u>Road</u>	<u>Stations</u>
RCP-Mainline	185+50

In addition, on the following road(s), Purchaser shall notify the Contract Administrator a minimum of 3 business days before work begins.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
RCP-Mainline	290+50	Walville Quarry Rock Exploration

**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 and subgrade compaction;
- Concrete Block Wall placement;
- Structural Backfill and Drain Pipe installation;
- Rock application and compaction;
- Completion of pit operations.

**1-25 ACTIVITY TIMING RESTRICTION**

The specified activities are not allowed during the listed closure period(s) unless authorized in writing by the Contract Administrator.

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
All Roads	All Stations	Road Work	November 1 <sup>st</sup> through April 30 <sup>th</sup>

**1-26 OPERATING DURING CLOSURE PERIOD**

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, Purchaser shall comply with a maintenance plan to include further protection of state resources. Purchaser shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense. If other operators are using, or desire to use these 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 6 inches on jaw run, pit run or native surface roads.
- Wheel track rutting exceeds 2 inches on crushed rock roads.
- Surface or base stability problems persist.
- 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 SURFACE RESTRICTION**

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

If tracked equipment is used on bridge 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 surface(s) and have surface(s) evaluated by the Region Engineer or their designee for any damage caused by transporting equipment. Any damage to the surface(s) will be repaired, at the Purchaser’s expense, as directed by the Contract Administrator.

Purchaser shall have bridges load rated by a Registered Professional Engineer licensed in the State of Washington. All load rating reports, calculations, or drawings must be stamped by the licensed engineer and submitted to the Contract Administrator prior to allowing any work to continue. All damage to the bridge from transporting equipment 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 Contact Administrator upon request. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

**1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS**

Purchaser shall immediately remove any mud, dirt, rock, or other material tracked or spilled on to 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 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 road(s) in a condition that will allow the passage of light administrative vehicles.

**2-5 MAINTENANCE GRADING – EXISTING ROAD**

On the following road(s), Purchaser shall use a grader to shape the existing surface before timber haul. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
RCP-Mainline	0+00 to 24+20	Grade and shape prior to rock application
	12+40 to 21+55	
	32+90 to 38+30	
	61+60 to 77+25	
	93+30 to 98+90	
	195+20 to 198+80	Grade and shape
	203+30 to 229+55	
	244+60 to 269+50	
	269+50 to 283+50	Grade and shape prior to rock application
RCP-100	0+00 to 46+30	Grade and shape
	20+00 to 22+50	Rip, grade and shape prior to rock application
RCP-100A	0+00 to 8+05	Grade and shape
RCP-900	1+35 to 2+35	Grade and shape prior to rock application
RCP-920	0+00 to 6+35	Grade and shape
RCP-940	0+00 to 3+25	
RCP-1000	0+00 to 2+30	Grade and shape prior to rock application
RCP-1300	0+00 to 5+25	Grade and shape prior to rock application
RCP-1350	0+00 to 3+34	Grade and shape prior to rock application

**2-6 CLEANING CULVERTS**

On the following road(s), Purchaser shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before timber haul.

<u>Road</u>	<u>Stations</u>
RCP-Mainline	115+20, 150+30, 153+85, 290+50
RCP-100	41+50, 43+25



**2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS**

On the following road(s), Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before timber haul and must be done in accordance with the TYPICAL SECTION SHEET and DITCH CLEANING DETAIL. Pulling ditch material across the road or mixing in with the road surface is not allowed.

<u>Road</u>	<u>Stations</u>
RCP-Mainline	76+35 to 84+60
	115+20 to 112+30
	160+55 to 163+35
	172+50 to 176+70
	190+70 to 198+75
	198+75 to 200+60
	208+25 to 211+45
	277+30 to 283+30
RCP-100	23+10 to 24+85
RCP-900	0+00 to 31+00
RCP-920	0+00 to 6+35
RCP-940	0+00 to 3+25
RCP-1000	0+00 to 2+30
RCP-1300	0+00 to 5+25

**SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL**

**3-1 BRUSHING**

On the following road(s), Purchaser shall cut vegetative material up to 5 inches in diameter, including limbs, as shown on the ROADSIDE BRUSHING DETAIL. Brushing must be achieved by mechanical cutting 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>
RCP-Mainline	145+00 to 176+70
	189+90 to 203+30
	258+85 to 269+70
RCP-100	0+00 to 46+30

**3-2 BRUSHING RESTRICTION**

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing.

**3-5 CLEARING**

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 4 feet high between the marked right-of-way boundaries and within waste and debris areas, 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.

### **3-8 PROHIBITED DECKING AREAS**

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 45%.
- Against standing trees, unless approved by the contract administrator.

### **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. Grubbing must be completed before starting excavation and embankment.

### **3-12 STUMP PLACEMENT**

Purchaser shall place grubbed stumps adjacent to the road shoulder and in compliance with all other clauses in this road plan.

### **3-14 STUMPS WITHIN DESIGNATED WASTE AREAS**

Purchaser is not required to remove stumps within waste areas if they are cut flush with the ground.

### **3-20 ORGANIC DEBRIS DEFINITION**

Organic debris is defined as all components of a tree that remain as by-products after the manufacture of logs, including but not limited to tree tops, branches, limbs, needles, leaves, and stumps that are larger than one cubic foot in volume within the grubbing and brushing area limits as shown on the TYPICAL SECTION SHEET and ROADSIDE BRUSHING DETAIL.

### **3-21 DISPOSAL COMPLETION**

Purchaser shall remove organic debris from the road surface, ditchlines, and culvert inlets and outlets. Purchaser shall complete all disposal of organic debris, before subgrade compaction, application of rock, and timber haul.

### **3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS**

Waste areas for organic debris are located within the cleared right-of-way or in natural openings as designated or at areas approved in writing by the Contract Administrator.

### **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 45%.
- Within the operational area for cable 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 grubbing limits and 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.

**3-32 END HAULING ORGANIC DEBRIS**

On slopes greater than 45%, Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS or to a waste area located by 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 follow these standards for road grade and alignment, except as designed:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 15 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

**4-5 CUT SLOPE RATIO**

Purchaser shall construct excavation slopes no steeper than shown on the following table, unless construction staked or designed:

<u>Material Type</u>	<u>Excavation Slope Ratio</u>	<u>Excavation Slope Percent</u>
Common Earth (on side slopes up to 70%)	1:1	100
Common Earth (on slopes over 70%)	¾:1	133
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, unless construction staked or designed:

<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 turnouts as designated on the ROCK LIST. Location changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

**4-22 TURNAROUNDS**

Purchaser shall construct turnarounds as designated on the ROCK LIST. Turnarounds must be no larger than 30 feet long and 30 feet wide. Location changes are subject to written approval by the Contract Administrator.

**4-25 DITCH CONSTRUCTION AND RECONSTRUCTION**

Purchaser shall construct and reconstruct ditches into the subgrade as specified on the TYPICAL SECTION SHEET. Ditches must be constructed concurrently with construction of the subgrade.

**4-27 DITCH WORK – MATERIAL USE PROHIBITED**

Purchaser shall not pull ditch material across the road or mix in with the road surface. Excavated material must be disposed of as specified in Clause 4-36 DISPOSAL OF WASTE MATERIAL.

**4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

**4-29 DITCHOUTS**

Purchaser shall construct ditchouts as identified in the CULVERT LIST, as needed, and as directed by the Contract Administrator. 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.

**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. On side slopes greater than 45%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

**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 at the discretion of the Contract Administrator.

<u>Waste Area Location</u>	<u>Comments</u>
RCP-Mainline	Sta. 172+90, right side of road, outside of the road prism
	Sta. 187+40, right side of road, outside of the road prism
Walville Quarry	See ROCK SOURCE DEVELOPMENT PLAN for location

**4-38 PROHIBITED WASTE DISPOSAL AREAS**

Purchaser shall not deposit waste material in the following areas:

- Within 25 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- 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 cable landings.
- Against standing timber.

**4-48 NATIVE MATERIAL**

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 4 inches in any dimension.

**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.

**4-56 DRY WEATHER SHAPING**

The Contract Administrator may require the application of water to facilitate shaping activities. The method of water application is subject to written approval by the Contract Administrator.

**4-57 EXISTING ROAD RIPPING AND BLADING**

On the following road(s), Purchaser shall rip the surface to a depth of 4 inches and reshape. During the reshaping process, rocks over 8 inches in diameter must be sidecast except on slopes over 45 percent where rocks must be placed in a location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Stations</u>
RCP-100	20+00 to 22+50

**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. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

**4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed subgrades in accordance with the COMPACTION LIST by routing equipment over the entire width except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before rock application.

**4-62 DRY WEATHER COMPACTION**

The Contract Administrator may require the application of water to facilitate compaction activities. The method of water application is subject to written approval by the Contract Administrator.

**4-63 EXISTING SURFACE COMPACTION**

Purchaser shall compact maintained road surfaces in accordance with the COMPACTION LIST by routing equipment over the entire width.

## SECTION 5 – DRAINAGE

### 5-1 REMOVAL OF SHOULDER BERMS

Purchaser shall remove berms from road shoulders, except as directed by the Contract Administrator. The construction of ditchouts is required where ponding could result from the effects of sidecast debris.

### 5-5 CULVERTS

Purchaser shall 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 material and meet the specifications in Clauses 10-15 through 10-24.

### 5-6 CULVERT TYPE

Purchaser shall install culverts made of plastic in accordance with Clauses 10-15 through 10-24.

### 5-10 CULVERT MARKER INSTALLATION

At all new culverts, Purchaser shall provide and install culvert markers at the inlet in accordance with the CULVERT MARKER INSTALLATION DETAIL.

### 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 stockpile materials 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 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 shall be banded using lengths of no less than 10 feet, and no more than one length less than 20 feet. Shorter section of banded culvert shall be installed at the inlet end.

### 5-17 CROSS DRAIN SKEW AND SLOPE

Cross drains, on road grades in excess of 3%, must be skewed at least 30 degrees from perpendicular to the road centerline, except where the cross drain is at the low point in the road culverts will not be skewed. Cross drain culverts must be installed at a slope steeper than the incoming ditch grade, but not less than 3% or more than 10%.

### 5-18 CULVERT DEPTH OF COVER

Cross drain 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.

**5-20 ENERGY DISSIPATERS**

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE LIST. No placement by end dumping or dropping of rock is allowed. Energy dissipater installation is subject to approval by the Contract Administrator.

**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 4 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 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 opening, 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. No placement by end dumping or dropping of rock is allowed.

**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 source(s) 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 source(s), a joint operating plan must be developed. All parties shall follow this plan. Purchaser shall notify the Contract Administrator a minimum of 5 business days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Walville Quarry	T13R06W Section 23	Select Pit Run, Quarry Spalls, Light Loose Rip Rap

**6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE**

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall not remove additional yardage without prior written approval from the Contract Administrator. Other stockpiles may not be used.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>	<u>Quantity</u>
Walville Quarry	T13R06W Section 23	2 ½ Inch Minus Rock	1,000cy



**6-5 ROCK FROM COMMERCIAL SOURCE**

Rock used in accordance with the RCP ML BRIDGE BACKWALL DETAIL and PLANS sheets shall be obtained from any commercial source at the Purchaser’s expense. Rock used in accordance with the quantities on the ROCK LIST may be obtained from any commercial source at the Purchaser’s expense. Rock sources are subject to written approval by the Contract Administrator before their use.

**6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE**

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN and approved in writing by the Contract Administrator. Purchaser shall notify the Contract Administrator a minimum of 5 business days before starting any operations in the rock source.

<u>Source</u>	<u>Rock Type</u>
Walville Quarry	Select Pit Run, Quarry Spalls

**6-13 ROCK EXPLORATION**

Purchaser shall provide an excavator and rock drill with operator for up to 10 hours each of exploration of rock and other related work as directed by the Contract Administrator at the following site(s).

<u>Site</u>	<u>Location</u>	<u>Comment</u>
Walville Quarry	T13R06W Section 23	See ROCK SOURCE DEVELOPMENT PLAN for drilling locations

**6-22 FRACTURE REQUIREMENT FOR ROCK**

A minimum of 50% by visual inspection of coarse aggregate must have at least one fractured face. Coarse aggregate is the material greater than 1/4-inch in size.

**6-23 ROCK GRADATION TYPES**

Purchaser shall provide or manufacture 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. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

**6-28 1 ¼-INCH MINUS CRUSHED ROCK**

% Passing 1 ¼" square sieve	100%
% Passing 5/8" square sieve	50 - 80%
% Passing U.S. #4 sieve	35 - 50%
% Passing U.S. #40 sieve	3 - 18%
% Passing U.S. #200 sieve	7.5% maximum
Sand Equivalent	40 minimum

The portion of aggregate retained on the No. 4 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

**6-32 2 ½-INCH MINUS CRUSHED ROCK**

% Passing 2 ½" square sieve	100%
% Passing 2" square sieve	65 - 95%
% Passing 1" square sieve	50 – 80%
% Passing U.S. #4 sieve	30 – 50%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	8% maximum

The portion of aggregate retained on the No. 4 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

**6-41 SELECT PIT RUN ROCK**

No more than 50 percent of the rock may be larger than 6 inches in any dimension and no rock may be larger than 12 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	40% maximum
% Passing 3/4" square sieve	10% 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%	18" - 28"
15% to 80%	8" - 18"
10% to 20%	3" - 8"

**6-52 DRAIN ROCK**

% Passing 1" square sieve	100%
% Passing U.S. #4 sieve	16%
% Passing U.S. #200 sieve	5% maximum

The portion of aggregate retained on the No. 4 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

**6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH**

Measurement of specified rock depths, are defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the ROCK LIST are loose yards. Contractor shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction. Unless otherwise stated in Clause 6-75 OPTIONAL ROCK EXCEPTION.

**6-56 ROCK MEASUREMENT BY TRUCK VOLUME**

Measurement of spot rock, energy dissipaters, culvert backfill, drain rock, 1 ¼ inch minus rock and landing rock is on a cubic yard truck measure basis. Contractor shall measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Contractor shall maintain load tally sheets for each truck and shall give them to the Contract Administrator on a weekly basis during rocking operations.

**6-70 APPROVAL BEFORE ROCK APPLICATION**

Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction and drainage installation before rock application.

**6-71 ROCK APPLICATION**

Purchaser shall apply rock in accordance with the specifications and quantities shown on 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.

**6-73 ROCK FOR WIDENED PORTIONS**

Purchaser shall apply rock to turnarounds, turnouts, and areas with curve widening to the same depth and specifications as the traveled way, unless otherwise specified in the ROCK LIST.

**6-75 OPTIONAL ROCK EXCEPTION**

On the following roads, if hauling takes place from June 1 to September 30, Purchaser may provide and place less rock than shown on the ROCK LIST, when approved in writing by the Contract Administrator.

If less rock is applied, Purchaser shall submit a written plan, for approval, describing how these roads will be constructed, used, maintained, and treated post-haul. Purchaser shall meet post-haul specifications in Section 9 POST-HAUL ROAD WORK, the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, or other conditions of the approved plan.

<u>Road</u>	<u>Stations</u>	<u>Options</u>
Spur A	0+00 to 1+75	Select Pit Run
Spur B	0+00 to 2+60	
RCP-1340	0+00 to 0+90	
RCP-1360	0+00 to 4+25	

## SECTION 7 – STRUCTURES

### 7-5 STRUCTURE DEBRIS

Purchaser shall not allow debris from the installation or removal of structures to enter any stream. Components removed from existing structures(s) must be placed at designated site(s). Purchaser shall maintain a clean jobsite, with all materials stored away from the high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream must be removed immediately, and placed in the site(s) designated for stockpiling or disposal. Purchaser shall retrieve all material carried downstream from the jobsite.

### 7-39 BRIDGE REPAIR

Purchaser shall conduct bridge repairs as specified on the RCP ML BRIDGE BACKWALL DETAIL and PLANS sheets.

## SECTION 8 – EROSION CONTROL

### 8-1 SEDIMENT CONTROL STRUCTURES

Sediment control shall be accomplished using sediment traps, silt fences, settling ponds, or other methods as approved in writing by the Contract Administrator.

### 8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 50 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

**8-15 REVEGETATION**

On the following road(s) and waste areas, Purchaser shall spread seed on all exposed soils resulting from road work activities using manual dispersion. 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>Qty (lbs)*</u>	<u>Type</u>	<u>Comments</u>
RCP-Mainline	184+70 to 185+90	10	Grass Seed	Immediately following Reconstruction
RCP-100A	8+10 to 20+40	45		Immediately following Abandonment
RCP-110	0+00 to 16+38	42		Immediately following Construction
	16+38 to 27+93	11		Immediately following Reconstruction
Spur A	0+00 to 1+75	4		Immediately following Construction
Spur B	0+00 to 2+60	7		Immediately following Reconstruction
RCP-1300 EXT	5+25 to 7+70	2		Immediately following Reconstruction
RCP-1340	0+00 to 0+90	2		Immediately following Construction
RCP-1360	0+00 to 4+25	11		Immediately following Abandonment
RCP-1000	2+30 to 6+66	16		Immediately following Embankment
Waste Areas	Walville Quarry	50		

\*Quantities are estimates only. Actual quantities may vary and are the responsibility of the Purchaser.

**8-16 REVEGETATION SUPPLY**

The Purchaser shall provide the grass seed.

**8-17 REVEGETATION TIMING**

Purchaser shall revegetate after road work is completed. Soils may not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator.

**8-19 ASSURANCE FOR SEEDED AREA**

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 2-inch tall grass. Purchaser shall reapply the grass seed in areas that have failed to germinate or have been damaged through any cause, restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the grass seed at no additional cost to the state.

**8-25 GRASS SEED**

Purchaser shall evenly spread the seed mixture listed below on all exposed soil at a rate of 50 pounds per acre of exposed soil. 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>
Perennial Rye	35-45
Red Fescue	30-40
Highland Bent	5-15
White Clover	10-20
Inert and Other Crop	0.5

**SECTION 9 – POST-HAUL ROAD WORK**

**9-1 EARTHEN BARRICADES**

Purchaser shall construct barricades in accordance with the EARTHEN BARRICADE DETAIL.

<u>Road</u>	<u>Stations</u>
RCP-100A	8+10
RCP-1000	2+30

**9-3 CULVERT MATERIAL REMOVED FROM STATE LAND**

Culverts removed from roads become the property of the Purchaser and must be removed from state land.

**9-5 POST-HAUL MAINTENANCE**

Purchaser shall perform post-haul maintenance in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

**9-10 LANDING DRAINAGE**

Purchaser shall provide for drainage of the landing surface.

**9-11 LANDING EMBANKMENT**

Purchaser shall slope landing embankments to the original construction specifications.

**9-21 ROAD ABANDONMENT**

Purchaser shall abandon the following roads before the termination of this contract.

<u>Road</u>	<u>Stations</u>
RCP-100A	8+10 to 20+40
RCP-1000	2+30 to 6+66

**9-22 ABANDONMENT**

- Remove road shoulder berms except as directed.
- 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 100 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.
- Block roads with earthen barricades in accordance with the attached EARTHEN BARRICADE DETAIL.
- Remove ditch cross drain culverts and leave the resulting trench open.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Apply grass seed concurrently with abandonment and in accordance with Section 8 EROSION CONTROL.
- Cover, concurrently with abandonment, all exposed soils within 100 feet of any live stream, with an 8-inch deep layer of straw.

SECTION 10 MATERIALS

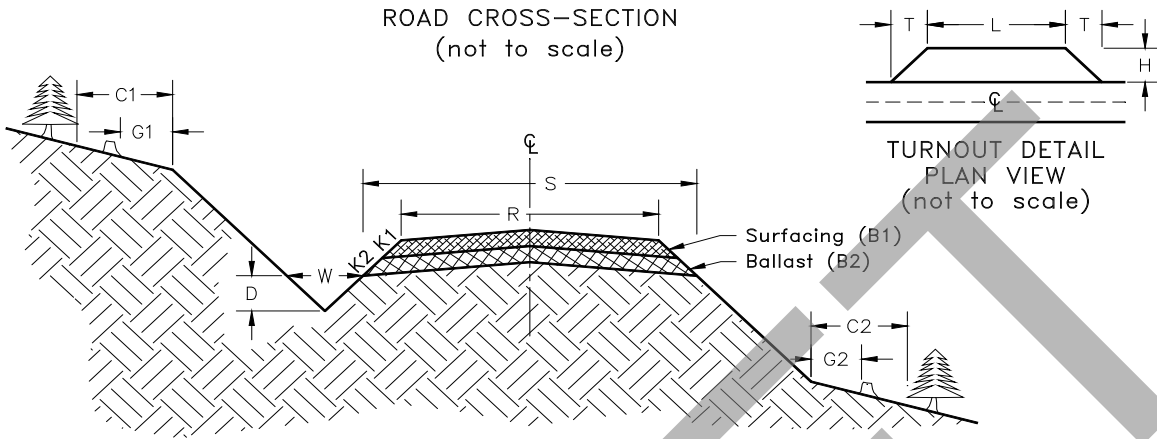
**10-17 CORRUGATED PLASTIC CULVERT**

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.

**10-22 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.

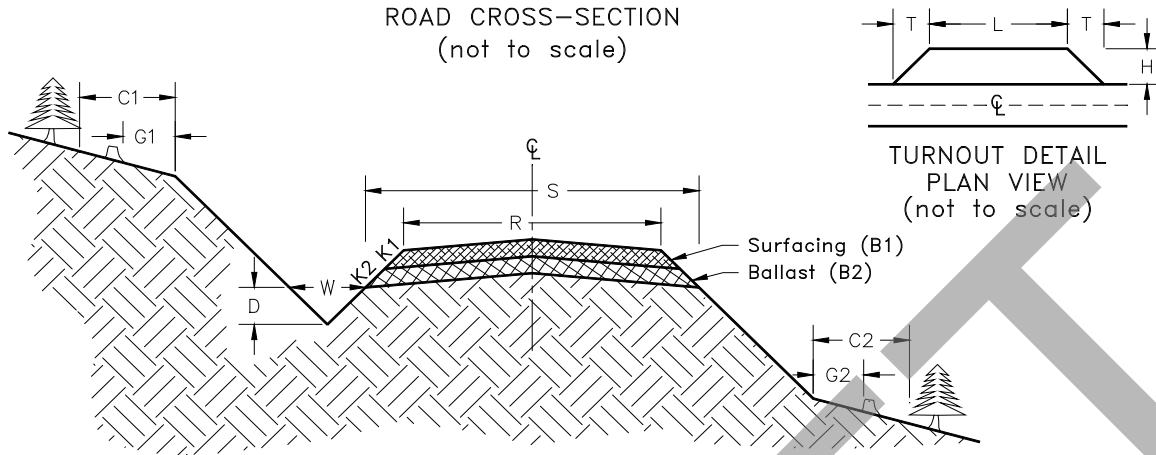
# TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width ft	Road Width ft	Ditch Width ft	Ditch Depth ft	Crown @ CL in	Grubbing Limits ft		Clearing Limits ft	
									G1	G2	C1	C2
				S	R	W	D					
RCP-Mainline	0+00	184+70	A	21	16	3	1	4	0	0	0	0
	184+70	185+90	A	23	18	3	1	4	0	0	0	0
	185+90	290+50	A	21	16	3	1	4	0	0	0	0
RCP-100	0+00	46+30	B	16	12	3	1	4	0	0	0	0
RCP-100A	0+00	20+40	B	16	12	3	1	4	0	0	0	0
RCP-110	0+00	16+38	C	16	12	3	1	4	5	5	10	10
RCP-110	16+38	27+93	C	16	12	3	1	4	5	5	10	10
RCP-900	0+00	31+00	B	16	12	3	1	4	0	0	0	0
RCP-920	0+00	6+35	B	16	12	3	1	4	0	0	0	0
RCP-940	0+00	3+25	B	16	12	3	1	4	0	0	0	0
Spur A	0+00	1+75	C	16	12	3	1	4	5	5	10	10
Spur B	0+00	2+60	C	16	12	3	1	4	5	5	10	10
RCP-1300	0+00	5+25	B	16	12	3	1	4	0	0	0	0
RCP-1300 Ext	5+25	7+70	C	16	12	3	1	4	5	5	10	10
RCP-1340	0+00	0+90	B	16	12	3	1	4	5	5	10	10
RCP-1350	0+00	3+34	B	16	12	3	1	4	0	0	0	0
RCP-1360	0+00	4+25	B	16	12	3	1	4	5	5	10	10
RCP-1000	0+00	6+66	B	16	12	3	1	4	0	0	0	0



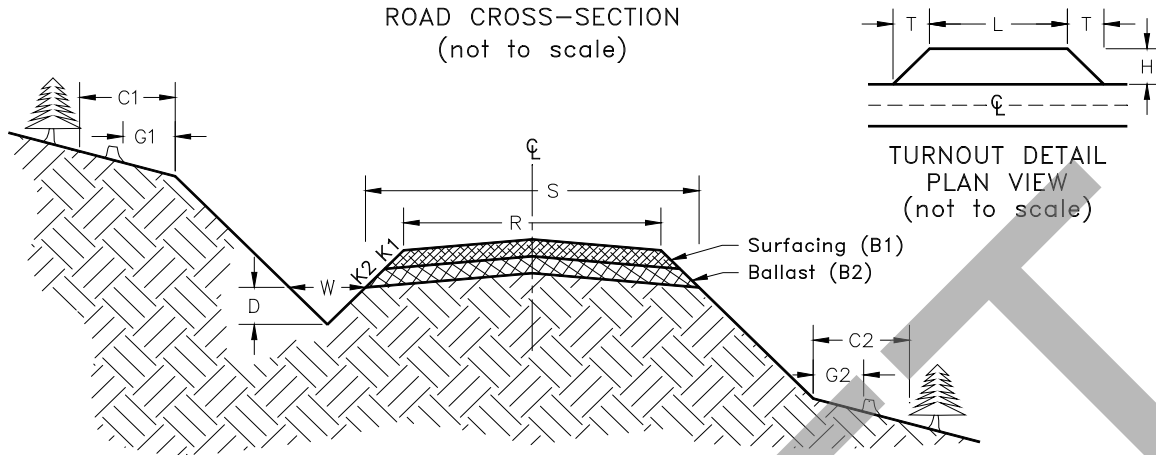
# ROCK LIST



## SELECT PIT RUN 1 OF 2

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2				Walville Quarry or Commercial Source	L	H	T
RCP ML BRIDGE BACKWALL REPAIR RCP-Mainline											
	Ballast Road Rock		1 1/2:1	12	85	1	85				
	Landings				67	5	336				
RCP-110	0+00	16+38	1 1/2:1	15	81	16.38	1327				
	Turnarounds				43	1	43				
	Turnouts				38	2	76	40	10	25	
	Curve Widening						46				
	Landings				68	1	68				
RCP-110	16+38	27+93	1 1/2:1	15	81	11.55	936				
	Turnarounds		1 1/2:1	15	43.5	2	87				
	Turnouts				38	1	38	40	10	25	
	Curve Widening						33				
	Landings				67.25	4	269				
RCP-920	0+00	6+35	1 1/2:1	12	63	6.35	400				
	Landings				54	1	54				
RCP-940	0+00	3+25	1 1/2:1	12	63	3.25	205				
	Landings				54	1	54				
Spur A	* 0+00	* 1+75	1 1/2:1	15	81	1.75	142				
	* Landings				68	1	68				
Spur B	* 0+00	* 2+60	1 1/2:1	15	81	2.60	211				
	* Curve Widening						7				
	* Landings				68	1	68				
RCP-1300 Ext	5+25	7+70	1 1/2:1	15	81	2.45	198				
	Landings				68	1	68				

# ROCK LIST



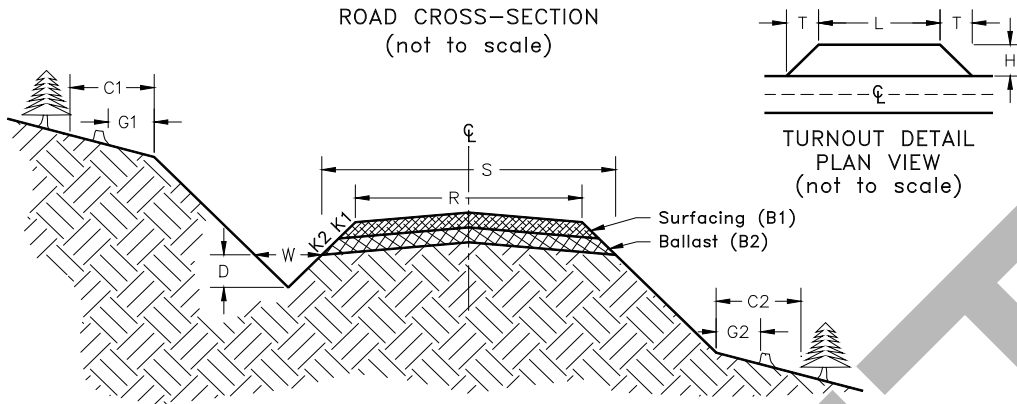
## SELECT PIT RUN 2 OF 2

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2				Walville Quarry or Commercial Source	L	H	T
RCP-1340	0+00	0+90	1 1/2:1	15	81	0.90	73				
	Landings				68	1	68				
RCP-1350					68	1	68				
	Landings										
RCP-1360	0+00	4+25	1 1/2:1	15	81	4.25	344				
	Curve Widening						12				
	Landings				68	1	68				

\*Optional Rock in accordance with 6-75

REQUIRED SELECT PIT RUN: 4956 CY  
 OPTIONAL SELECT PIT RUN: 496 CY  
 TOTAL SELECT PIT RUN: 5452 CY

# ROCK LIST

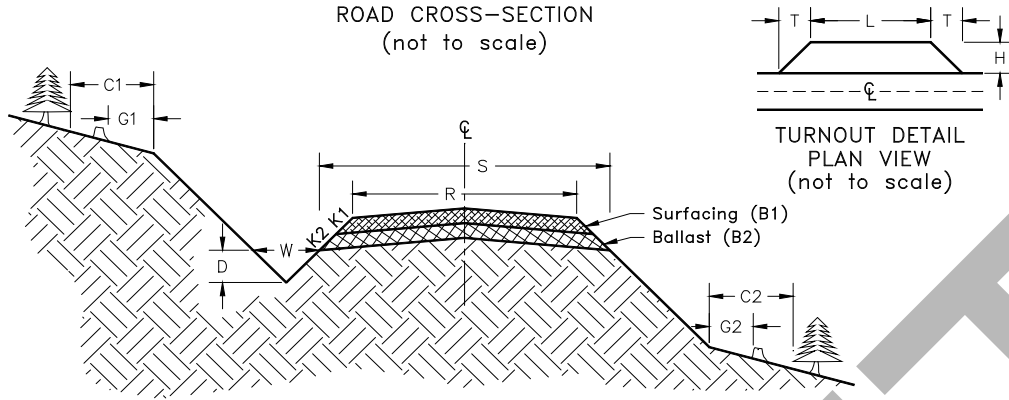


## 2 1/2 INCH MINUS CRUSHED ROCK

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K1	B1				Walville Quarry Stockpile or Commercial Source	L	H	T
RCP-Mainline	0+00	290+50	1 1/2:1	4	26	23.76	618				
	Spot Rock	0+00   290+50					40				
	Culvert	0+00   290+50									
	Backfill/Bedding				20	3	60				
RCP-100	0+00	46+30		4	20	2.50	50				
	Spot Rock	0+00   46+30					90				
RCP-100A	0+00	8+10					50				
	Spot Rock	0+00   8+10					50				
RCP-900	1+00	3+00					50				
	Culvert	1+00   3+00									
	Backfill/Bedding				20	2	40				
RCP-1300	0+00	5+25	1 1/2:1	6	30	5.25	158				
	Turnarounds				16	1	16				

REQUIRED 2 1/2-INCH MINUS CRUSHED ROCK: 1172 CY

# ROCK LIST

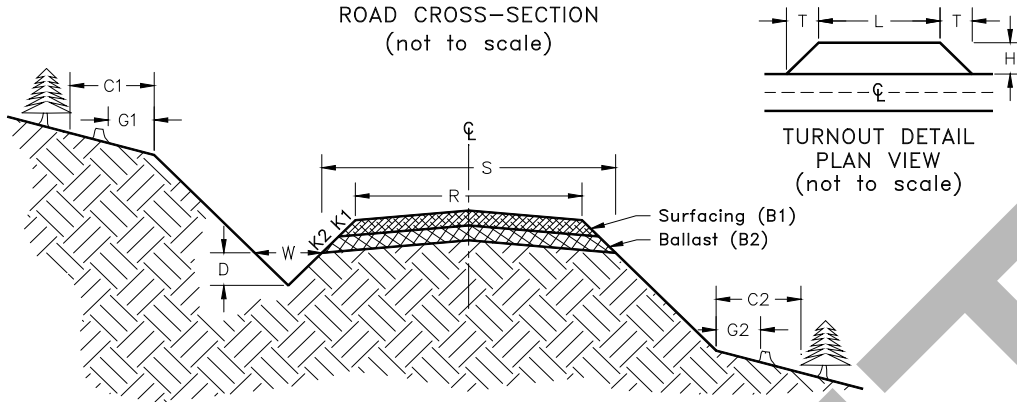


## QUARRY SPALLS

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source
			K2	B2				Walville Quarry or Commercial Source
RCP-Mainline	Inlet Armoring				0.5	3	1.5	
					Energy Dissipaters		0.5	
RCP-110 Construction	Inlet Armoring				0.5	3	1.5	
					Energy Dissipaters		0.5	
RCP-110 Reconstruction	Inlet Armoring				0.5	4	2	
					Energy Dissipaters		0.5	
RCP-900	Inlet Armoring				0.5	2	1.0	
					Energy Dissipaters		0.5	
Spur B	Inlet Armoring				0.5	1	0.5	
					Energy Dissipaters		0.5	

REQUIRED QUARRY SPALLS: 12.5 CY

# ROCK LIST

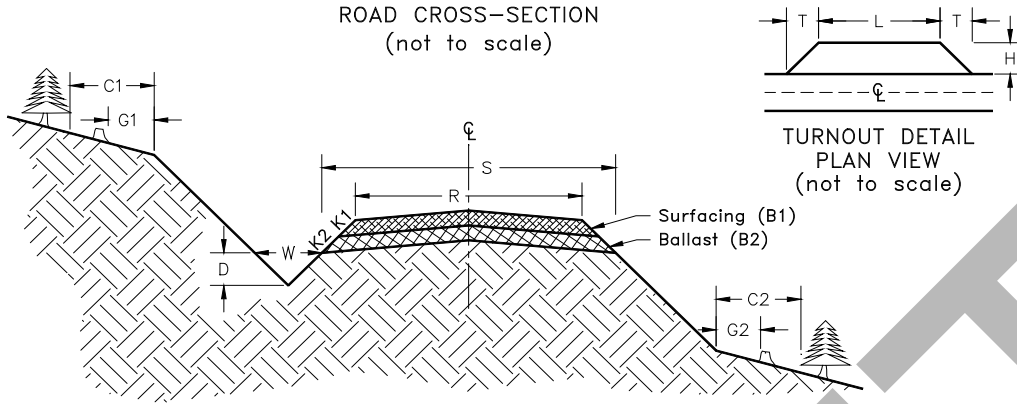


## 1 1/4 INCH MINUS CRUSHED ROCK

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source
			K1	B1				Commercial Source
RCP ML BRIDGE BACKWALL REPAIR	Concrete Block Wall Base Rock			6	6	1	6	
	Structural Backfill		See Plans		1300	1	1300	
	Surfacing	1 1/2:1		6	40	1	40	

REQUIRED 1 1/4-INCH MINUS CRUSHED ROCK: 1346 CY

# ROCK LIST



## DRAIN ROCK

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source
			K1	B1				Commercial Source
RCP ML BRIDGE BACKWALL REPAIR	Drain Rock		See Plans		60	1	60	

REQUIRED DRAIN ROCK: 60 CY

### CULVERT LIST

Road Number	Location	Culvert			Armoring (C.Y.)			Backfill Material	Bedding Material	Inlet Marker	Remarks
		Dia (In)	Length	Type	Inlet	Outlet	Type				
RCP-Mainline	219+55	18	30	PD	0.5	0.5	QS	CR	CR	Y	
RCP-Mainline	279+40	18	40	PD	0.5	0.5	QS	CR	CR	Y	
RCP-Mainline	281+20	18	30	PD	0.5	0.5	QS	CR	CR	Y	
RCP-110	0+30	18	60	PD	0.5	0.0	QS	NT	NT	Y	Ditch continuity
RCP-110	4+65	18	30	PD	0.5	0.5	QS	NT	NT	Y	
RCP-110	10+78			DO							Ditchout Left
RCP-110	16+38	18	30	PD	0.5	0.5	QS	NT	NT	Y	
RCP-110	19+08			DO							Ditchout Right
RCP-110	20+63	18	30	PD	0.5	0.5	QS	NT	NT	Y	
RCP-110	24+83	18	30	PD	0.5	0.5	QS	NT	NT	Y	
RCP-110	26+88	18	30	PD	0.5	0.5	QS	CR	CR	Y	
RCP-900	1+90	18	30	PD	0.5	0.5	QS	CR	CR	Y	
RCP-900	5+75			DO							Ditchout Right
RCP-900	8+75	18	30	PD	0.5	0.5	QS	CR	CR	Y	
RCP-900	15+55			DO							Ditchout Right
RCP-900	28+20			DO							Ditchout Left
RCP-900	31+00			DO							Ditchout Left
RCP-920	1+75	18	30	PD	0.5	0.5	QS	CR	CR	Y	
Spur B	1+70	18	30	PD	0.5	0.5	QS	NT	NT	Y	
RCP-1360	3+75			DO							Ditchout Left

**Key:**

- QS - Quarry Spalls
- NT - Native Material
- CR - 2 1/2 Inch Minus Crushed Rock
- PD - Polyethylene Pipe Double Wall
- DO - Ditchout

## COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Minimum Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)	Maximum Amount of Deflection (inches)
All Roads			Subgrade	12	Vibratory Smooth Drum	14,000	4	3	2
All Roads			Fill	12	Vibratory Smooth Drum	14,000	4	3	2
All Roads			Waste Area	24	Excavation	28,000	-	-	4
All Roads			Pre-haul Surface	6	Vibratory Smooth Drum	14,000	5	3	1
All Roads			Rock	12	Vibratory Smooth Drum	14,000	3	3	1

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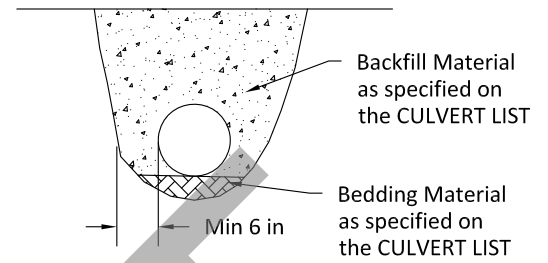
**CULVERT AND DRAINAGE SPECIFICATION DETAIL**  
PAGE 1 OF 2

**INSTALLATION REQUIREMENTS:**

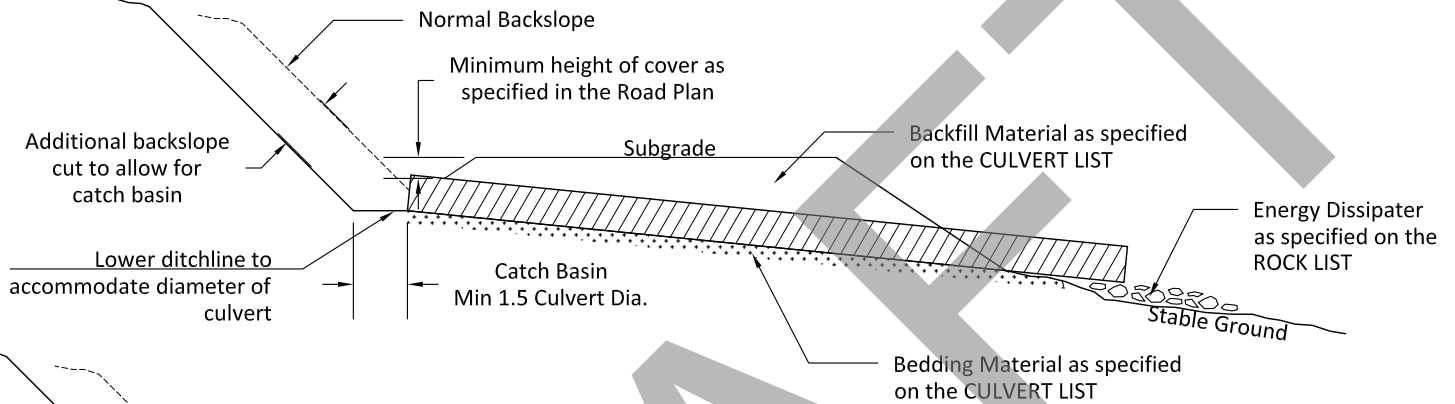
1. Proper preparation of foundation and placement of any required bedding material shall precede the installation of all culverts. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform, dense, unyielding base. The pipe must be uniformly supported along the barrel.
2. Backfill material shall be compacted under the culvert haunches, around the sides, and above the culvert in accordance with the COMPACTION LIST.

ALL DRAWINGS ARE NOT TO SCALE

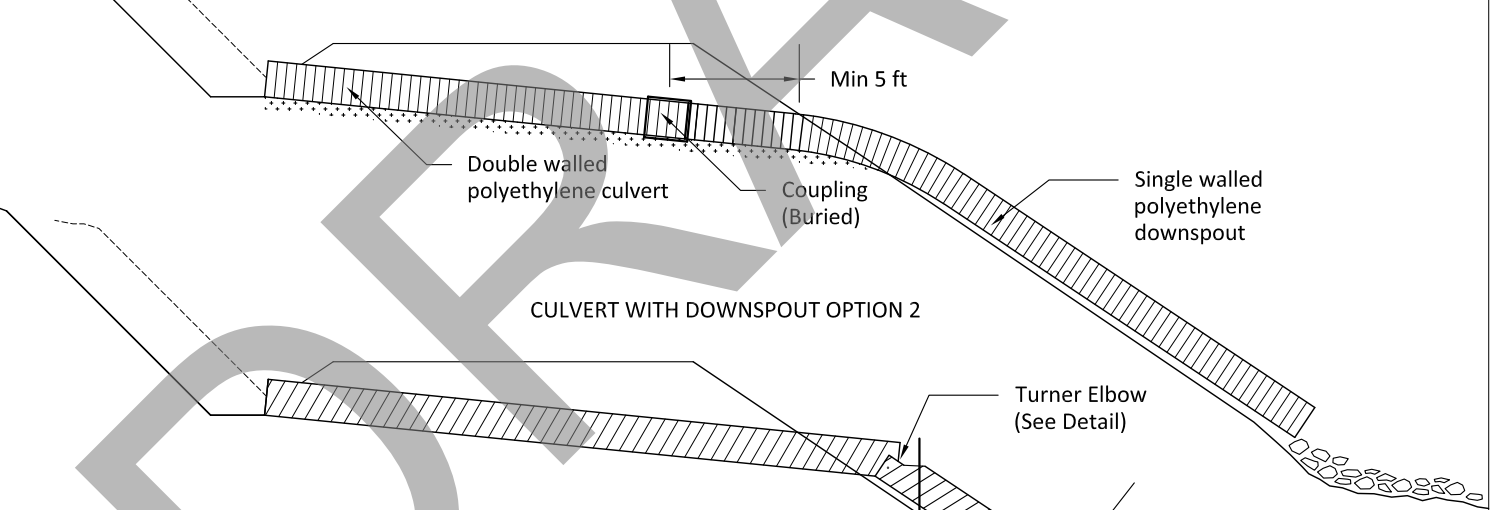
**CROSS SECTION**



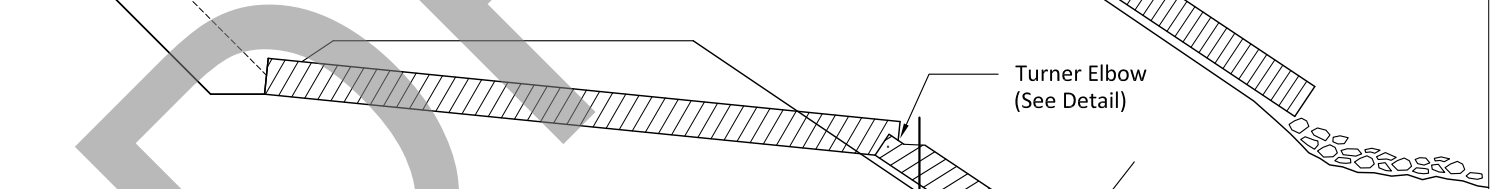
**CULVERT PROFILE (TYPICAL)**



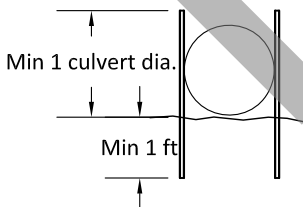
**CULVERT WITH DOWNSPOUT OPTION 1**



**CULVERT WITH DOWNSPOUT OPTION 2**

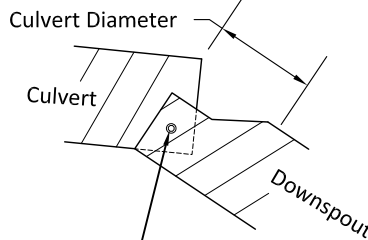


**SUPPORT STAKES**



Stake Material: T-post with rust protection coating.  
Connections: Bolt support stakes to the culvert with  $\frac{5}{8}$ " u-bolts, with washers on both the inside and outside of the culvert.  
Alternative staking methods may be approved, in writing, by the Contract Administrator.

**TURNER ELBOW**

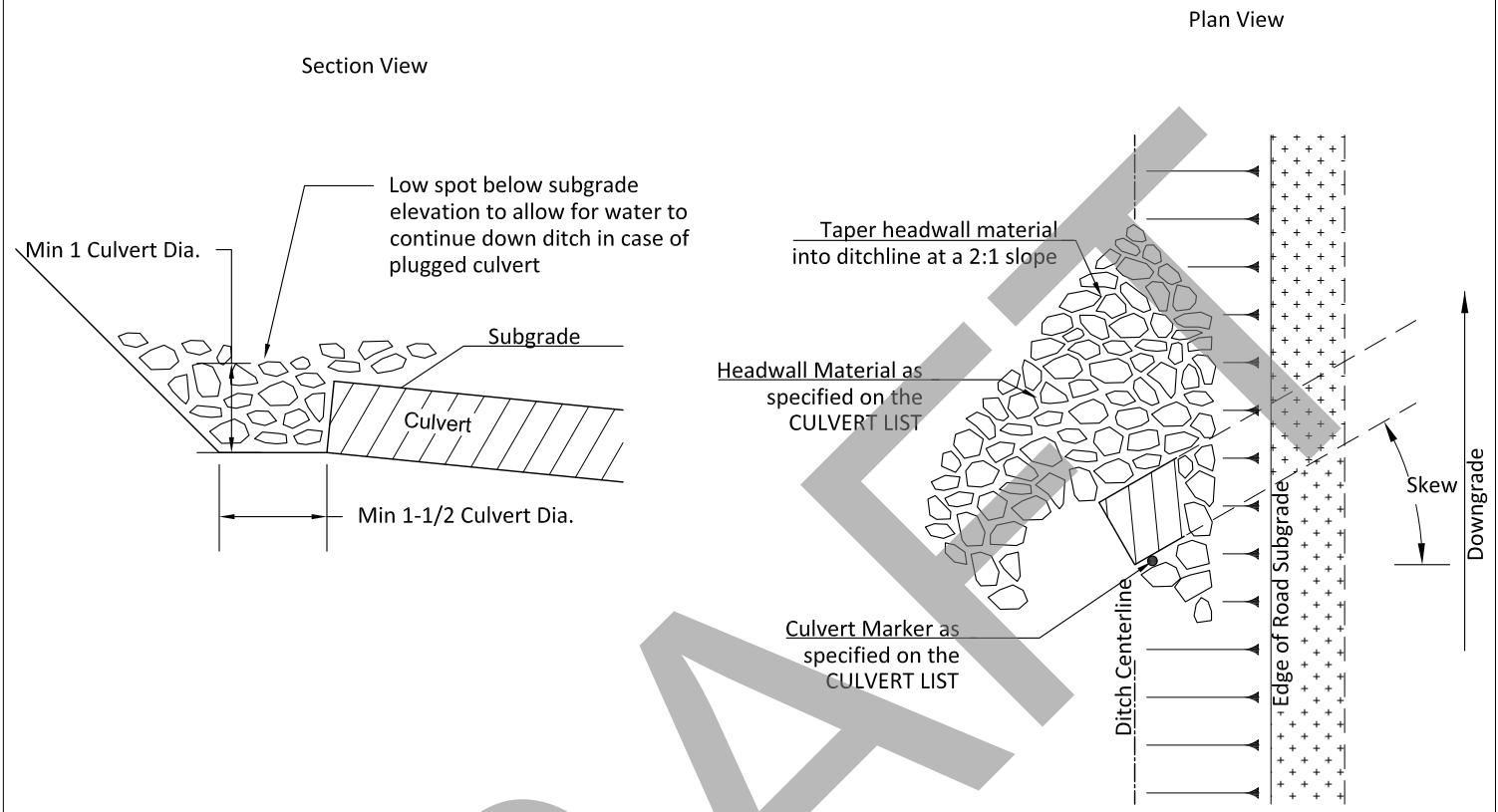


Bolted with  $\frac{5}{8}$ " galvanized bolts and washers (both sides)  
Downspout must be 6 inches larger in diameter than the culvert.

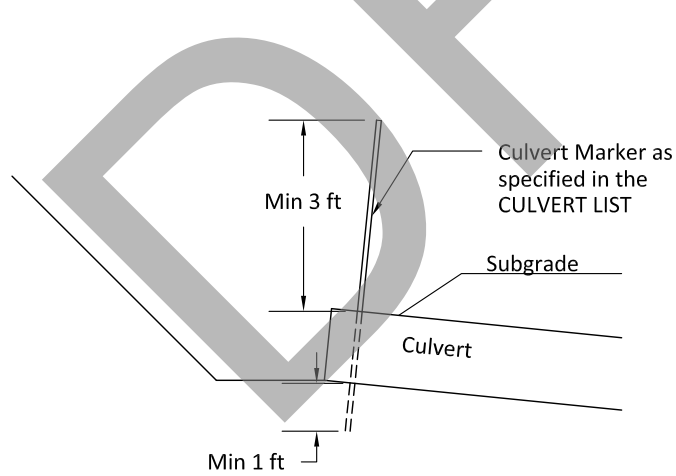
Support Stakes (See Detail)

**CULVERT AND DRAINAGE SPECIFICATION DETAIL**  
**PAGE 2 OF 2**

**HEADWALLS**

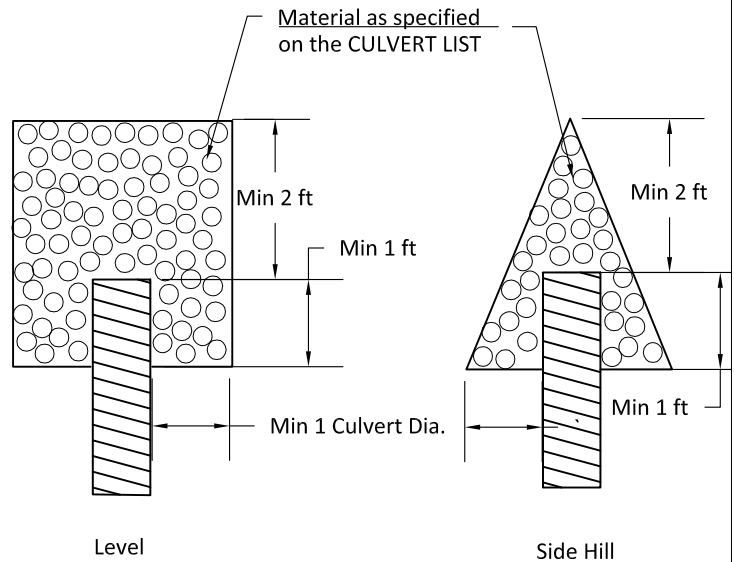


**CULVERT MARKERS**



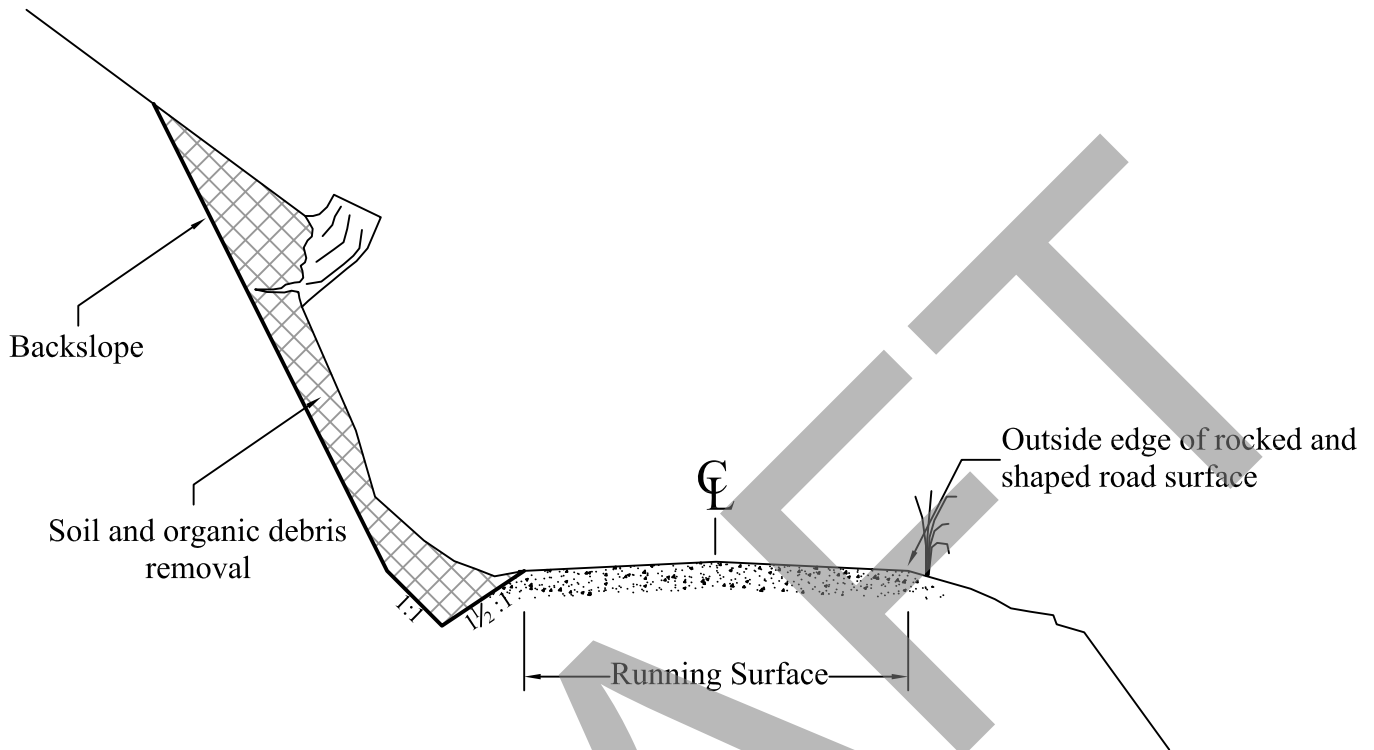
Culvert Marker Material: 1 Inch I.D., Schedule 40 PVC Pipe, White. Marker must be capped on the top.  
 Culvert Marker Placement: Place on uphill side of culvert, between corrugations if possible.  
 Alternative culvert marker types may be approved, in writing, by the Contract Administrator.

**ENERGY DISSIPATORS**



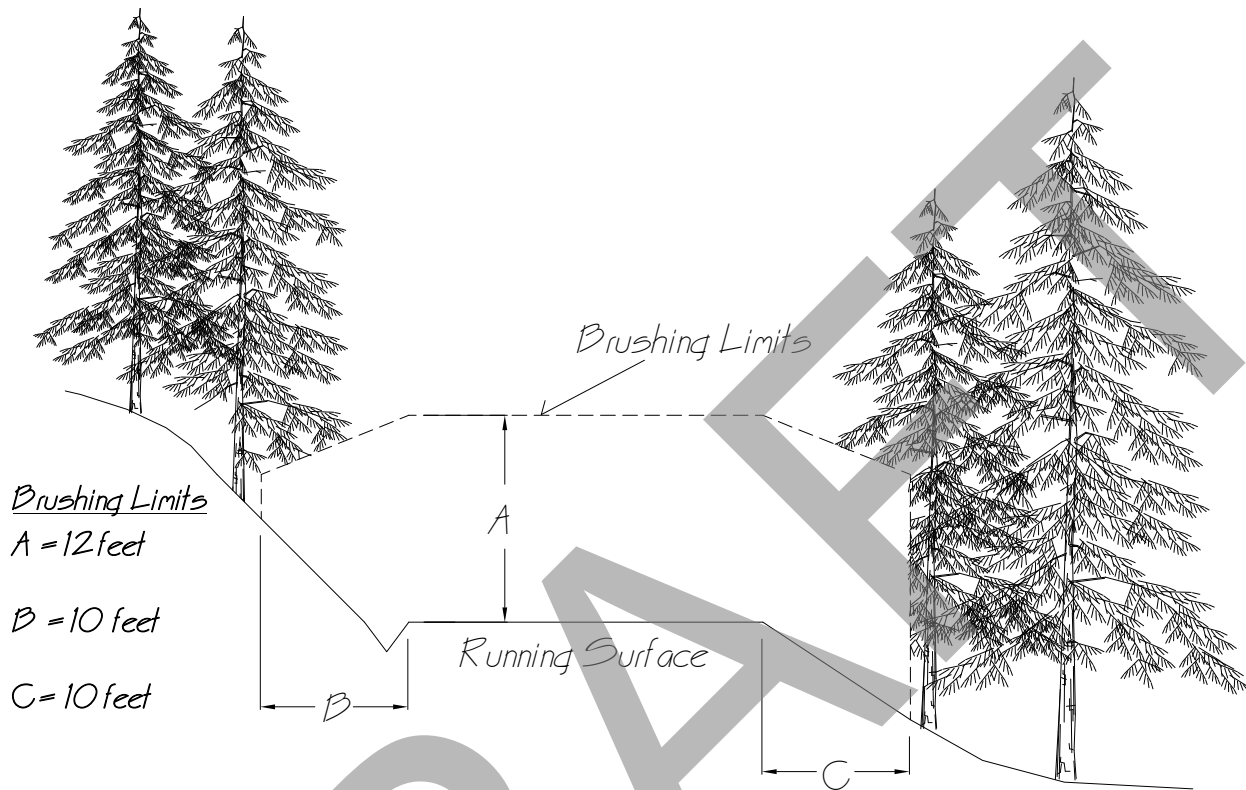
Min Energy Dissipater Depth: 1 Culvert Dia.

## Ditch Cleaning Detail



1. The backslope shall be no steeper than 1/2:1, unless the material is hardpan or solid rock, in which case it may be 1/4:1.
2. If there is sufficient width for the ditch without affecting the cut bank, then removing bank material is not required.
3. If there is insufficient width to clean or construct a ditch without disturbing more than 15 vertical feet of bank, the Contract Administrator may authorize changes to this plan in order to still meet the intent of having a ditch, while staying within the excavation limits already set.
4. Ditch cleaning or construction shall not shrink the running surface of the road.

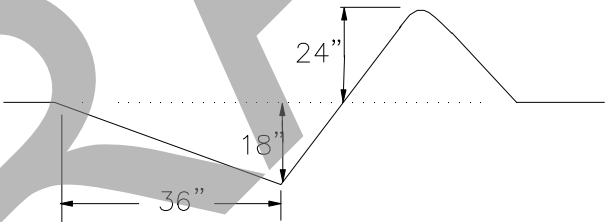
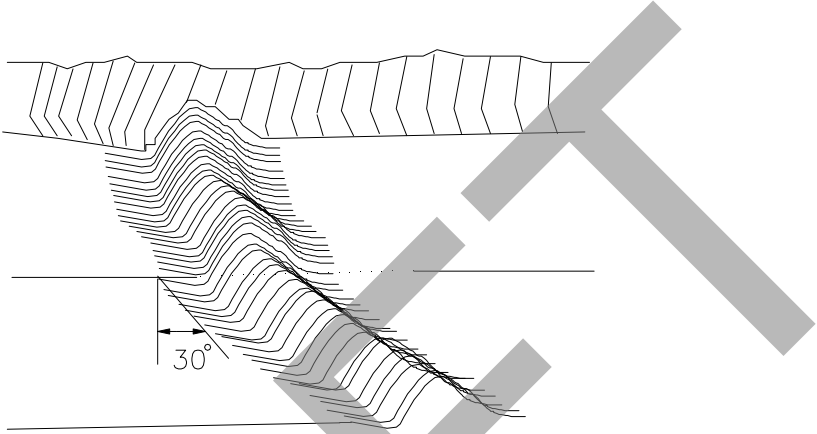
# ROADSIDE BRUSHING DETAIL



## GENERAL NOTES

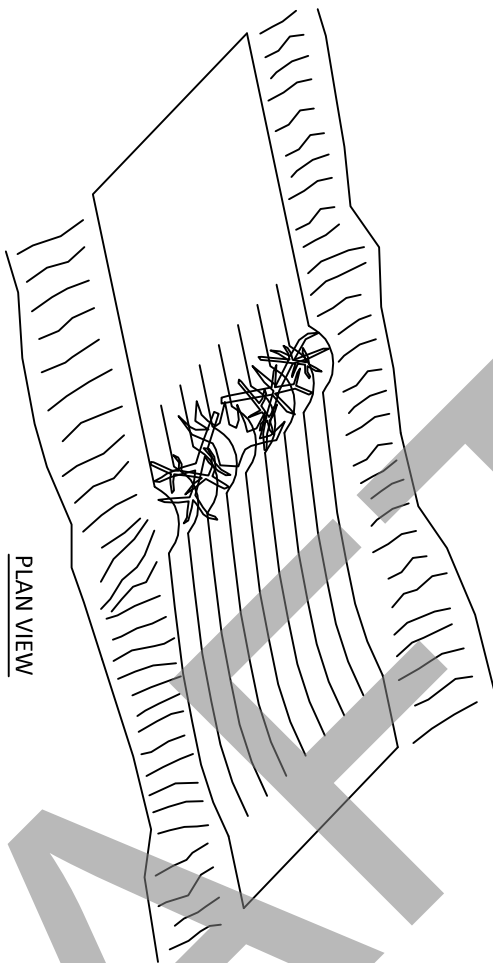
- 1) Vegetative material, including limbs, up to 4 inches in diameter shall be cut within the brushing limits shown on the drawing above. This includes vegetative material growing on the running surface.
- 2) Vegetative material shall be cut as near flush with the ground as possible, but shall not extend more than 6 inches above the ground.
- 3) Brushing Limit C may be increased on the inside of curves to improve sight distance if approved by the Contract Administrator

NON-DRIVABLE WATER BAR DETAIL

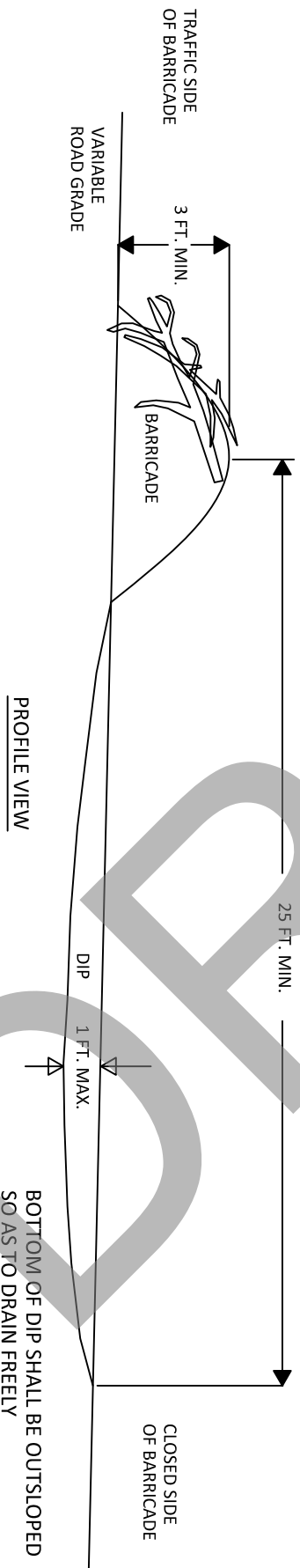


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# EARTHEN BARRICADE DETAIL



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



STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
PACIFIC CASCADE REGION

**WALVILLE QUARRY DEVELOPMENT PLAN**

Section 23, Township 13 North, Range 06 West, W.M.

Page 1 of 3

1. Development shall occur in Area A. Development may proceed to Area B once the elevation of Area A has been reduced to the elevation of the Upper Pit Floor. Development in any other area must be approved in writing by the Contract Administrator.
2. Trees shall be cleared to a minimum of  $\frac{3}{4}$  of the height of the tallest tree adjacent to the working face. All vegetation including stumps shall be cleared a minimum of 20 feet beyond the top of all working faces.
3. Overburden shall be end hauled to the designated waste area and compacted. Minimal acceptable compaction is achieved as detailed in the COMPACTION LIST.
4. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in a designated vegetative waste area.
5. Pit faces shall not exceed 25 feet in height; solid rock faces shall be sloped no steeper than  $\frac{1}{4}$ :1, diggable rock faces shall be sloped no steeper than  $\frac{1}{2}$ :1.
6. Working bench width shall be a minimum of 20 feet.
7. The pit floor shall have continuity of slope, providing drainage to the Southwest at a minimum of 2 percent, unless otherwise approved in writing by Contract Administrator.
8. The location and amount of material to be placed in a stockpile are subject to approval of the Contract Administrator.
9. Oversize material remaining in the rock source at the conclusion of use shall not exceed 5 percent of the total volume mined during that operation. Oversize material is defined as rock fragments larger than two feet in any direction. At the conclusion of operations, oversize material shall be placed in the designated Oversize Stockpile area.

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES  
PACIFIC CASCADE REGION

**P&E RIDGE QUARRY DEVELOPMENT PLAN**

Section 24, Township 13 North, Range 07 West, W.M.

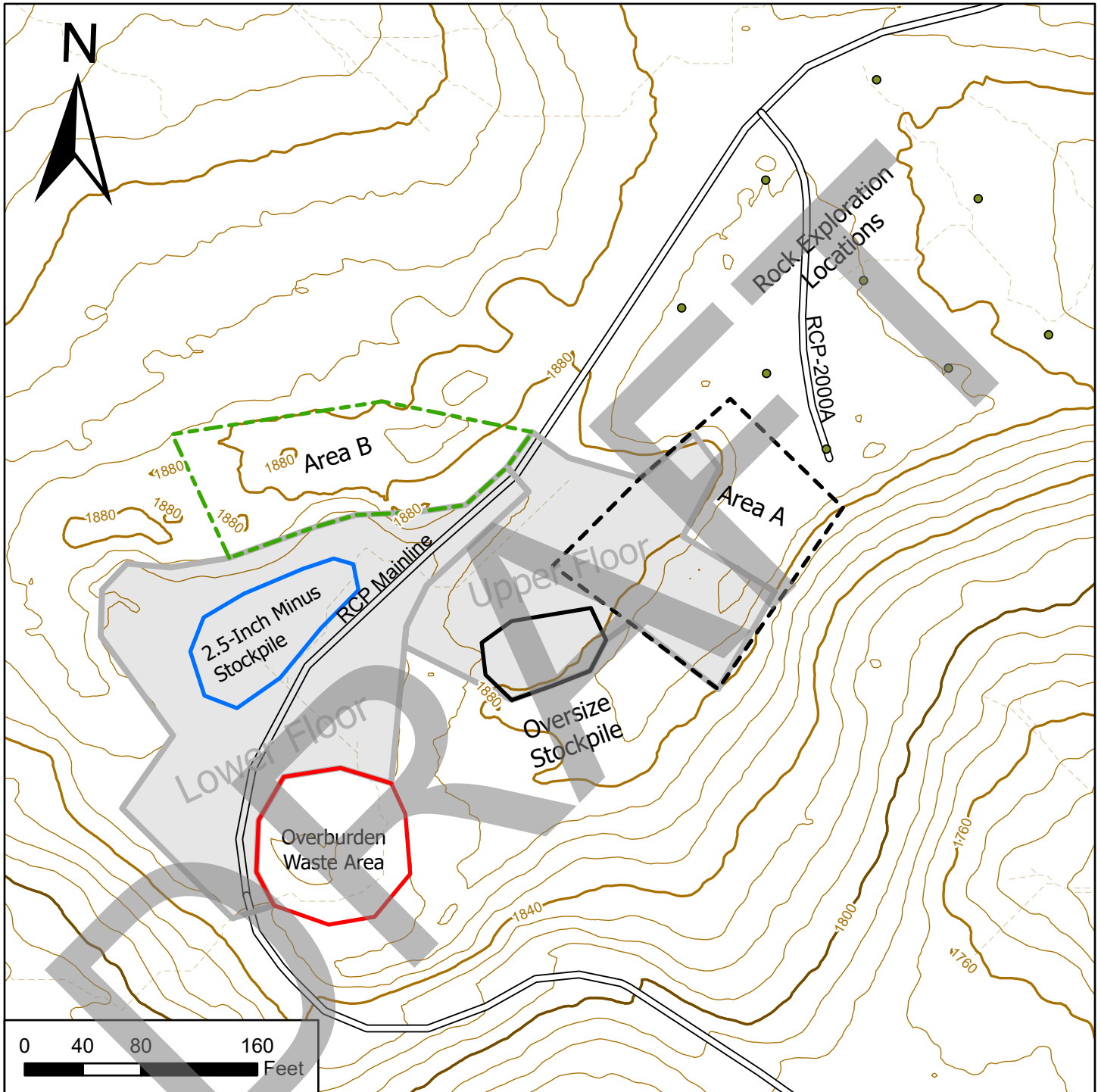
Page 2 of 3

10. All operations shall be carried out in compliance with all regulations of:
  - a. Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
  - b. Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
  
11. Upon completion of pit operations:
  - a. The pit floor shall be left in a smooth and neat condition. The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.
  - b. All exposed soil in the waste area shall be grass seeded in accordance with Road Plan Clauses 8-15 REVEGETATION and 8-25 GRASS SEED.
  - c. Pit faces and walls shall be scaled and cleared of loose and overhanging material.
  - d. Benches and faces shall have safety berms constructed or access blocked to highway vehicles.
  - e. The area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The site shall be cleared of all temporary structures, equipment and rubbish, and shall be left in a neat and presentable condition.
  - f. Prior to termination of the contract, quarry condition and compliance with all terms of the contract shall be approved in writing by the Contract Administrator.
  
12. Reclamation will not be required following use.



# Walville Quarry Development Plan Pg. 3 of 3

T13R06W Section 23



## Legend

- |                              |                        |                           |
|------------------------------|------------------------|---------------------------|
| ● Rock Exploration Locations | — Existing Roads       | ▭ Oversize Stockpile Area |
| — Contours 10 ft             | - - - Area A           | ▭ 2.5-Inch Stockpile Area |
| — Contours 40 ft             | - · - · Area B         | ▭ Upper Floor             |
| — Contours 200 ft            | ▭ Overburden Stockpile | ▭ Lower Floor             |

# RCP ML BRIDGE BACKWALL DETAIL

## EXISTING BRIDGE APPROACH EXCAVATION

Excavation shall consist of removal of all materials required to install the concrete block backwall as shown on the RCP MAINLINE BRIDGE BACKWALL (PLANS) and described in this road plan. Purchaser is required to remove all brush and objects not part of the natural soils within the limits of the new embankment. Excavated material shall be hauled to the waste disposal area, in accordance with Clause 4-37 WASTE AREA LOCATION. Purchaser shall pump dry any water encountered during excavation before installation of the concrete block backwall. Pumped water shall be diverted onto the forest floor and not directed into live water.

## CONCRETE BLOCK WALL BASE COMPACTION

Compaction of Concrete Block Wall base shall be accomplished by use of a powered mechanical tamper, or vibrating plate attachment to excavator. Three full passes with compaction equipment shall be made over entire base area.

## CONCRETE BLOCK WALL BASE ROCK

Concrete Block Wall Base rock, in accordance with Clause 6-28 1 1/4-INCH MINUS CRUSHED ROCK, shall be applied full depth and width in accordance with the RCP MAINLINE BRIDGE BACKWALL (PLANS). Three full passes with compaction equipment shall be made for each lift, where individual lifts shall not exceed 4 inches.

## CONCRETE BLOCK PLACEMENT

Concrete Block Wall shall be installed in accordance with the RCP MAINLINE BRIDGE BACKWALL (PLANS) and to the following tolerance.

Dimension	Tolerance
Wall Face Horizontal (inch)	+ 2.0
Wall Face Vertical (inch)	± 1.0

## STRUCTURAL BACKFILL INSTALLATION

Structural Backfill placement shall closely follow the erection of each course of the Concrete Blocks. Maximum loose lifts shall not exceed 10 inches. Purchaser shall compact the zone up to the wall blocks without causing damage or distortion of the wall facing. Compact the materials to 90 percent of modified proctor (AASHTO T180) with moisture content of the material within plus or minus 3 percent of optimum.

## DRAIN PIPE

Purchaser shall install a drainage collection pipe as shown on the plans. The pipe shall be a perforated or slotted, corrugated High Density Polyethylene (HDPE) pipe. The pipe shall be wrapped in a filter fabric sock. The pipe shall be manufactured in accordance with ASTM D3034.

**DRAIN ROCK**

Drain Rock shall consist of free-draining granular material, essentially free of wood or other deleterious materials or objectionable materials. Material shall meet the following requirements for grading and quality:

Sieve Size	Percent Passing by Weight
1 inch	100
No.4	16
NO 200	5.0 max

It shall be the Purchaser's responsibility to find commercial sources for Drain Rock and purchase at Purchaser's expense.

**STRUCTURAL BACKFILL**

Structural backfill shall consist of 1 ¼ Inch Minus Crushed Rock meeting the following grading and quality.

Sieve Size	Percent Passing by Weight
1 ¼ inch square	100%
5/8 inch square	50 - 80
No. 4	35- 50
No. 40	3 - 18
No. 200	7.5 max.
Sand Equivalent	40 min

The portion of aggregate retained on or above the No. 4 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

It shall be the Purchaser's responsibility to find commercial sources for the Structural backfill and purchase at Purchaser's expense.

**CONCRETE BLOCK**

Concrete blocks shall be new/unused. Full blocks shall weigh a maximum of 4320 lbs, and measure nominally 30" x 30" x 60" long. Half blocks shall have a maximum weight of 2160 lbs and measure nominally 30" x 30" x 30".

Blocks shall be of the interlocking design, with one homogeneous pour having one long and one short face without blemishes or chips. Blocks shall have 3" chamfered edges designed to provide 8 sq inches of drainage area per block (12 sq feet of face).

Blocks shall be designed, with two cross keyways equidistant from the ends and sides to provide maximum shear capacity. The blocks shall have a male/female key combination that allows the blocks to be locked parallel or perpendicular to each other. Keyway shall have + ½" tolerance for easy installation.

Blocks shall be manufactured with a smooth face finish.

Each Block shall be furnished with a 7-strand steel (270 Kpa) loop lifting eye located in the center of the standard block between the two crossed keyways. Steel rebar is unacceptable as a lifting eye. Blocks shall be Ultra Block ®, or equivalent.

Installation shall be in accordance with the manufacturer's installation data guidelines and the RCP MAINLINE BRIDGE BACKWALL (PLANS).

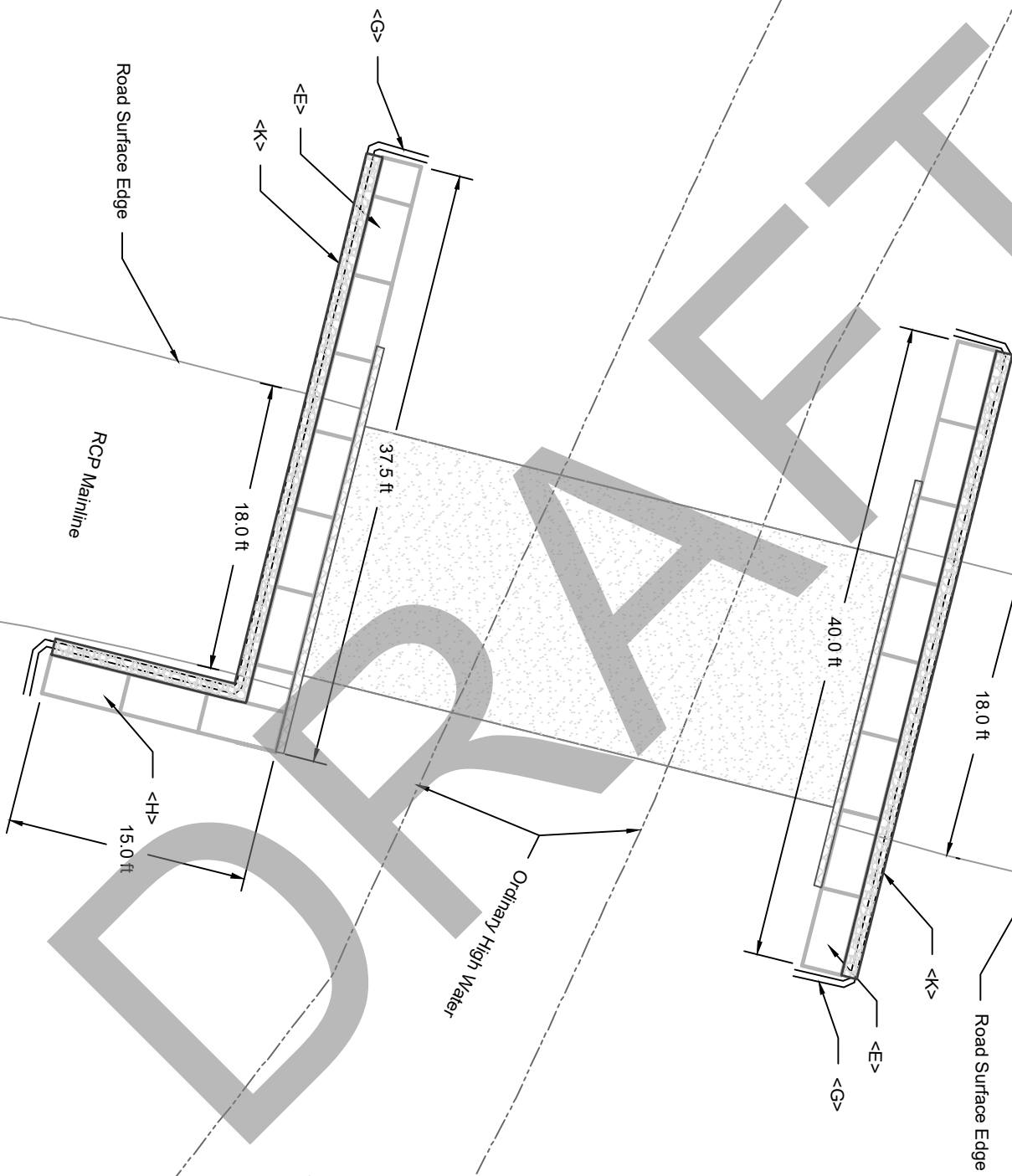
**CONCRETE BLOCK WALL GEOSYNTHETIC**

Concrete Block Wall Geosynthetic shall be a geogrid (Miragrid 5XT), or equivalent. Geosynthetic shall have a ultimate tensile strength greater than 4700 lb/ft in the machine direction (ASTM D4632). Installation shall be in accordance with the manufacturer's installation data guidelines and the RCP MAINLINE BRIDGE BACKWALL (PLANS).

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Plan View



- <E> Concrete blocks, set vertically level and flush against existing bridge backwalls
- <G> 4-inch perforated drain pipe set in drain rock at a 1% crowned at centerline of wall face and daylight on each end.
- <H> Wingwall composed of concrete blocks
- <K> Install 1' of drain rock at back of wall face and along full length of wall.

Sheet

1/4

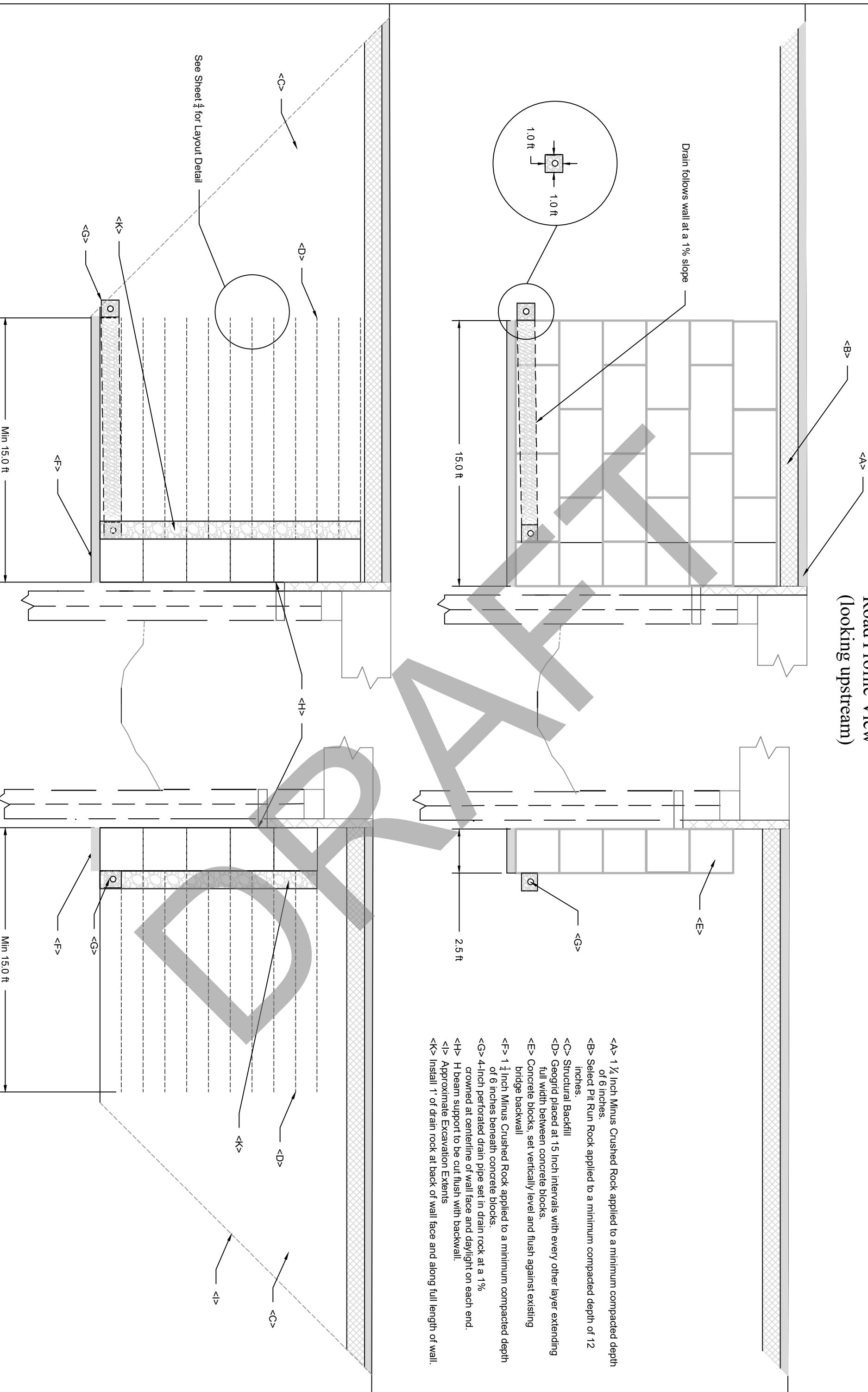
### RCP ML BRIDGE BACKWALL (PLANS)

Designed By: Jerry Mizar

No Scale

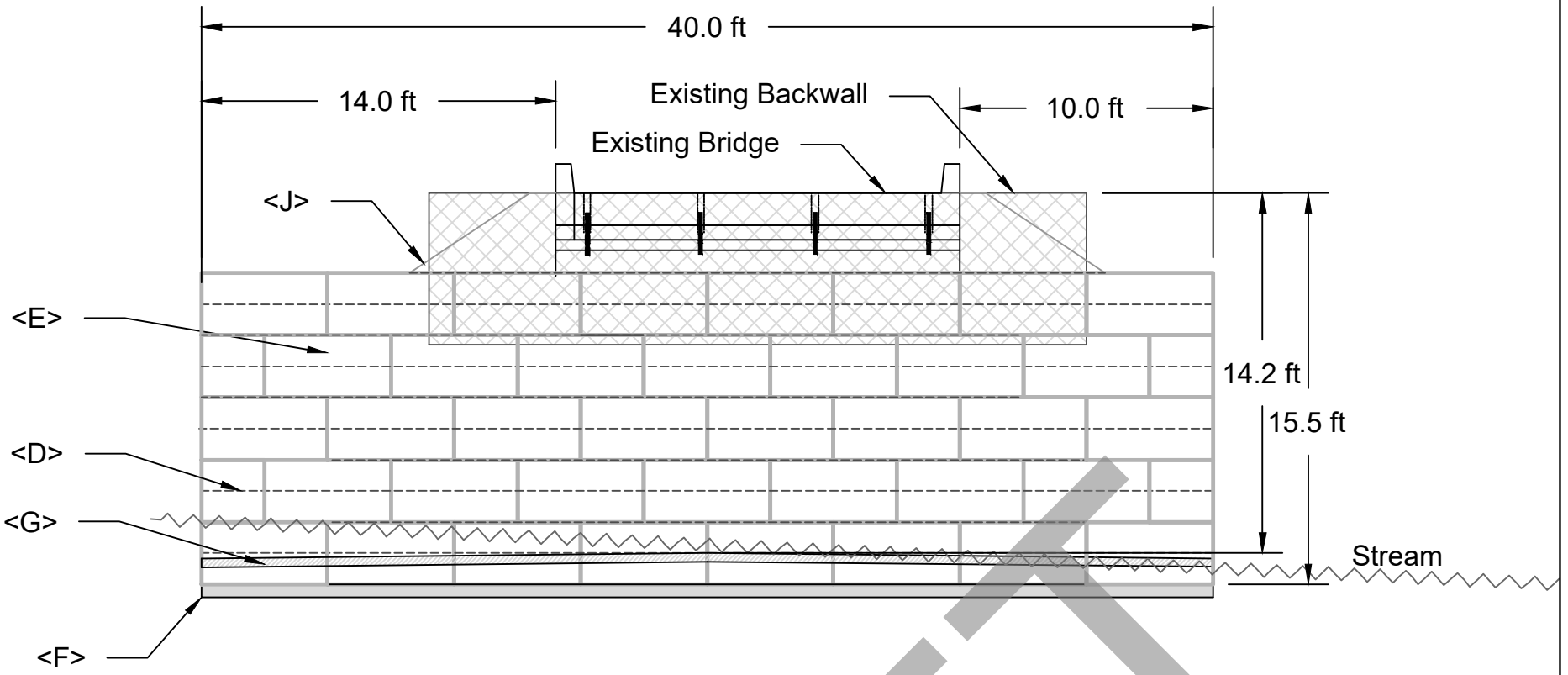
Date: May 21, 2024

Road Profile View  
(looking upstream)



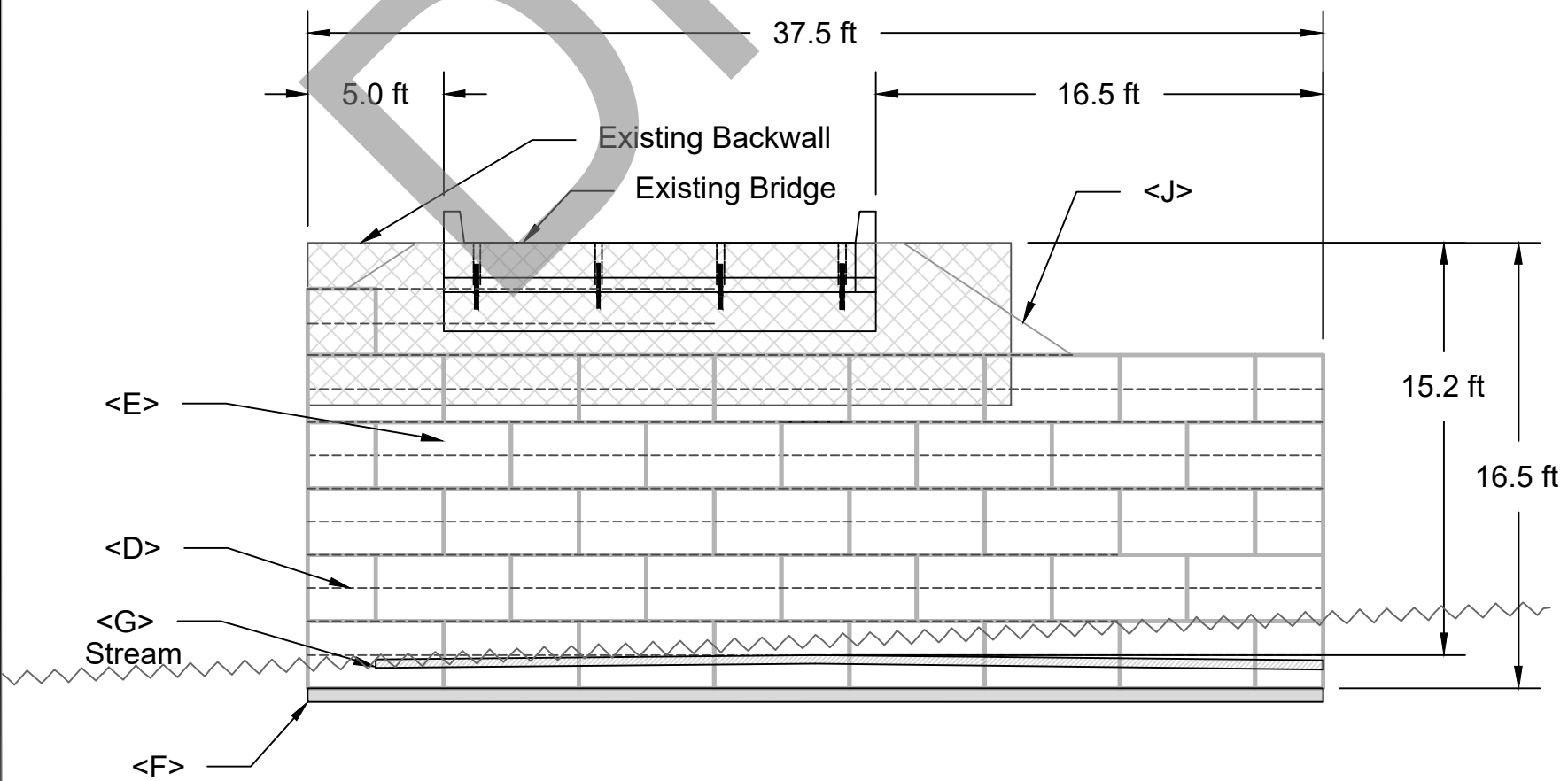
- <A> 1 1/4 Inch Minus Crushed Rock applied to a minimum compacted depth of 6 inches.
- <B> Select Pit Run Rock applied to a minimum compacted depth of 12 inches.
- <C> Structural Backfill
- <D> Geogrid placed at 15 Inch intervals with every other layer extending full width between concrete blocks.
- <E> Concrete blocks, set vertically level and flush against existing bridge backwall
- <F> 1 1/4 Inch Minus Crushed Rock applied to a minimum compacted depth of 6 inches beneath concrete blocks.
- <G> 4-Inch perforated drain pipe set in drain rock at a 1% crown at centerline of wall face and daylight on each end.
- <H> H beam support to be cut flush with backwall.
- <I> Approximate Excavation Extents
- <K> Install 1' of drain rock at back of wall face and along full length of wall.

### Woodside Backwall Stream Profile View

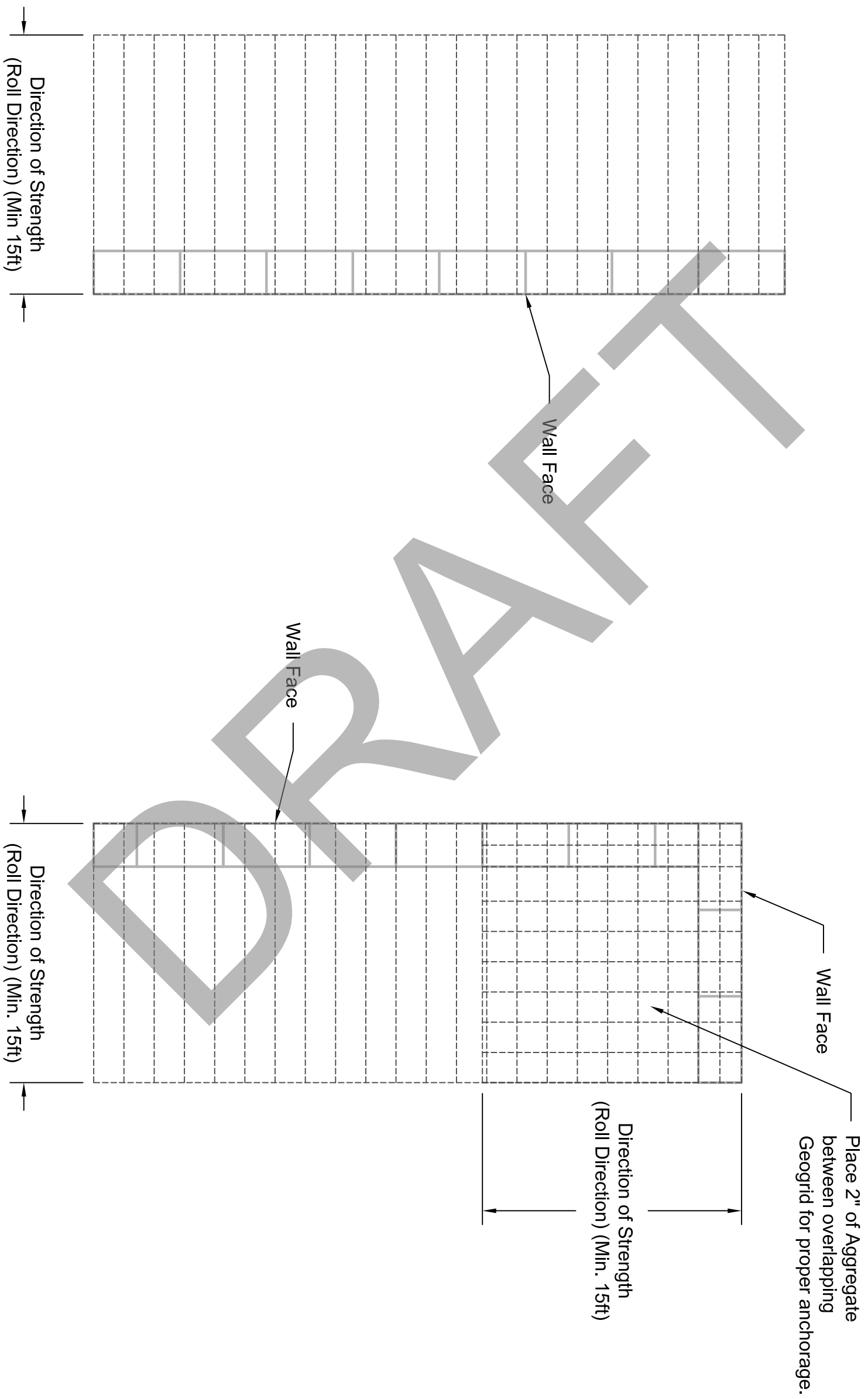


- <D> Geogrid placed at 15 Inch intervals with every other layer extending full width between concrete blocks.
- <E> Concrete blocks, set vertically level and flush against existing bridge backwalls
- <F> 1 1/4 Inch Minus Crushed Rock applied to a minimum compacted depth of 6 inches beneath concrete blocks
- <G> 4-Inch perforated drain pipe set in drain rock at a 1% crowned at centerline of wall face and daylight on each end.
- <J> Road prism. Blend new construction with existing conditions at excavation extents.

### Townside Backwall Stream Profile View



# Geogrid Layout





## SUMMARY - Road Development Costs

REGION: Pacific Cascade

DISTRICT: Lewis

SALE/PROJECT NAME: Dodge City

AGREEMENT #: 30-107463

ROAD NUMBERS:                   Optional: RCP-110, RCP-1300 EXT, RCP-1340, RCP-1360, Spur A, Spur B

  Required: RCP-Mainline, RCP-110, RCP-100 RCP-100A, RCP-900, RCP-920, RCP-940, RCP-1300, RCP-1350

ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	25.88	15.20	395.19
CLEARING & GRUBBING, EXCAVATION AND FILL, MISC.:	\$15,878.36	\$4,238.30	\$25,197.97
ROAD ROCK:			
Optional:	\$13,052.49	\$0.00	\$0.00
Required:	\$29,278.13	\$94,815.71	\$83,119.55
Total:	\$42,330.62	\$94,815.71	\$83,119.55
STOCKPILE:	-	-	-
CULVERTS AND FLUMES:	\$3,230.40	\$5,910.40	\$5,100.80
STRUCTURES:	-	-	\$58,353.68
MOBILIZATION:	\$2,838.26	\$757.60	\$4,504.14
<b>TOTAL COSTS:</b>	<b>\$64,277.64</b>	<b>\$105,722.01</b>	<b>\$176,276.14</b>
COST PER STATION:	\$2,483.68	\$0.00	\$446.05
ROAD DEACTIVATION & ABANDONMENT COSTS:	\$0.00	\$0.00	\$2,724.49

<b>10% OVERHEAD AND GENERAL EXPENSE =</b>	<b>\$34,627.58</b>
<b>TOTAL (All Roads) =</b>	<b>\$383,627.86</b>
<b>TOTAL (Minus Optional Rock) =</b>	<b>\$370,575.37</b>
<b>SALE VOLUME MBF =</b>	<b>4,648</b>
<b>TOTAL \$/MBF =</b>	<b>\$82.54</b>
<b>TOTAL \$/MBF (Minus Optional Rock) =</b>	<b>\$79.73</b>

Profit and Risk costs are accounted on an individual basis.

## SUMMARY OF ROAD

Sale: <u>Dodge City</u>		Road: <u>RCP-Mainline</u>
Required Pre-Haul Maintenance - <span style="border: 1px solid black; padding: 2px;">289+30</span> stations <span style="border: 1px solid black; padding: 2px;">5.48</span> miles	Required Reconstruction - <span style="border: 1px solid black; padding: 2px;">1+20</span> stations <span style="border: 1px solid black; padding: 2px;">0.02</span> miles	Required Construction - <span style="border: 1px solid black; padding: 2px;"></span> stations <span style="border: 1px solid black; padding: 2px;">0.00</span> miles
Required Abandonment - <span style="border: 1px solid black; padding: 2px;"></span> stations <span style="border: 1px solid black; padding: 2px;">0.00</span> miles	Optional Reconstruction - <span style="border: 1px solid black; padding: 2px;">0+00</span> stations <span style="border: 1px solid black; padding: 2px;">0.00</span> miles	Optional Construction - <span style="border: 1px solid black; padding: 2px;">0+00</span> stations <span style="border: 1px solid black; padding: 2px;">0.00</span> miles

### PRE-HAUL MAINTENANCE

<b>CLEARING</b>						
Roadside Brushing	0.85	miles @	\$1,170.00	per mile =		\$994.50
<b>EXCAVATION</b>						
Reconstruct ditch	33.40	stations @	\$215.00	per station		\$7,181.00
Clean ditch - sta. 190+70 to 198+75	8.05	stations @	\$39.81	per station		\$320.47
<b>MISC.</b>						
Grade and shape existing road surface -	79.66	stations @	\$18.25	per station		\$1,453.80
Spot grade and shape existing road surface -	49.10	stations @	\$10.95	per station		\$537.65
Roll shaped road surface w/ vibratory roller prior to rocking -	39.41	stations @	\$9.70	per station		\$382.28
Clean culvert inlet and outlet -	4.00	@	\$45.00	each		\$180.00
<b>TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.</b>						<b>\$11,049.70</b>

### RECONSTRUCTION

<b>CLEARING/GRUBBING</b>						
Scattering Organic Debris	0.84	sta @	\$140.00	per sta		\$117.60
<b>EXCAVATION</b>						
Grade and shape subgrade -	0.84	stations @	\$14.60	per station		\$12.26
<b>MISC.</b>						
Roll subgrade w/ vibratory roller prior to rocking -	0.84	stations @	\$12.12	per station		\$10.18
Grass seed and fertilize -	10.00	lbs @	\$15.00	per lbs		\$150.00
<b>TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.</b>						<b>\$290.04</b>

### CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	100	LF of 18"	\$2,672.00	0	LF of 24"	\$0.00
			\$2,672.00			\$0.00
<u>Culvert Stakes &amp; Markers</u>						
3 markers			\$24.00			
<b>TOTAL CULVERTS</b>						<b>\$2,672.00</b>

### ROCK

0+00 to 290+50	618	cy. of	2 1/2 Inch Minus (	@	\$9.07	per c.y.=	\$5,605.26	
Culvert Backfill	0+00	60	cy. of	2 1/2 Inch Minus	@	\$9.07	per c.y.=	\$544.20
Spot Rock	0+00	40	cy. of	Crushed Rock	@	\$9.07	per c.y.=	\$362.80
Inlet Headwall	0+00	1.5	cy. of	Quarry Spalls	@	\$18.66	per c.y.=	\$27.99
Energy Dissipator	0+00	1.5	cy. of	Quarry Spalls	@	\$18.66	per c.y.=	\$27.99
0+00 to 290+50	336	cy. of	Select Pit Run	@	\$14.16	per c.y.=	\$4,757.76	
Structural Backfill and Bedding	0+00	1,306	cy. of	1 1/4 Inch Minus	@	\$38.29	per c.y.=	\$50,006.74
Drain Rock	0+00	60	cy. of	Drain Rock	@	\$43.29	per c.y.=	\$2,597.40
Surfacing	0+00	40	cy. of	1 1/4 Inch Minus	@	\$38.29	per c.y.=	\$1,531.60
Road Ballast	0+00	85	cy. of	Select Pit Run	@	\$14.16	per c.y.=	\$1,203.60
<b>TOTAL ROCK</b>							<b>\$66,665.34</b>	

### ADDITIONAL REQUIREMENTS

Purchase Concrete Blocks	98.00	blocks @	\$157.86	total		\$15,470.28
Purchase Geogrid	11.00	rolls @	\$1,218.00	per roll		\$13,398.00
Purchase Horizontal Drain Pipe	100.00	ft @	\$1.65	per ft		\$165.00
Road Approach Excavation and Endhaul	20.00	hours @	\$430.00	per hour		\$8,600.00
Cutting Existing Backwall Supports	3.00	hours @	\$41.60	per hour		\$124.80
Concrete Block Wall Base Preparation	3.00	hours @	\$327.60	per hour		\$982.80
Concrete Block Wall Placement	12.00	hours @	\$363.20	per hour		\$4,358.40
Horizontal Drain Installation	2.00	hours @	\$363.20	per hour		\$726.40
Geogrid Installation and Backfill	40.00	hours @	\$363.20	per hour		\$14,528.00
<b>TOTAL ADDITIONAL REQUIREMENTS</b>						<b>\$58,353.68</b>

SUBTOTAL **\$139,030.76**

### MOBILIZATION

SUBTOTAL **\$2,026.98**

### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$14,105.77**

**TOTAL \$155,163.51**

Optional Rock? NO

**COST PER STATION \$534.13**

## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-100

Required  
Pre-Haul Maintenance- 46+30 stations  
0.88 miles

Required Abandonment-   stations  
0.00 miles

Required  
Reconstruction -   stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Required  
Construction -   stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### CLEARING

Roadside Brushing 0.88 miles @ \$1,170.00 per mile = \$1,029.60

#### EXCAVATION

Construct ditchouts - 1.00 @ \$71.67 each \$71.67  
Clean ditch - 1.75 stations @ \$39.81 per station \$69.67

#### MISC.

Grade and shape existing road surface - 46.30 stations @ \$18.25 per station \$844.98  
Roll shaped road surface w/ vibratory roller prior to rocking - 5.85 stations @ \$9.70 per station \$56.75  
Maintain turnarounds - 1.00 @ \$134.62 each \$134.62  
Clean culvert inlet and outlet - 2.00 @ \$41.60 each \$83.20  
Maintain ditchouts - 2.00 @ \$47.30 each \$94.60

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$2,385.09**

#### ROCK

0+00 to 46+30 50 cy. of 2 1/2 Inch Mini @ \$13.44 per c.y. = \$672.00  
Spot Rock 0+00 90 cy. of 2 1/2 Inch Mini @ \$13.44 per c.y. = \$1,209.60  
Energy Dissipator 0+00 5.0 cy. of Quarry Spalls @ \$23.53 per c.y. = \$117.65

TOTAL ROCK **\$1,999.25**

SUBTOTAL **\$4,384.34**

#### MOBILIZATION

SUBTOTAL **\$426.34**

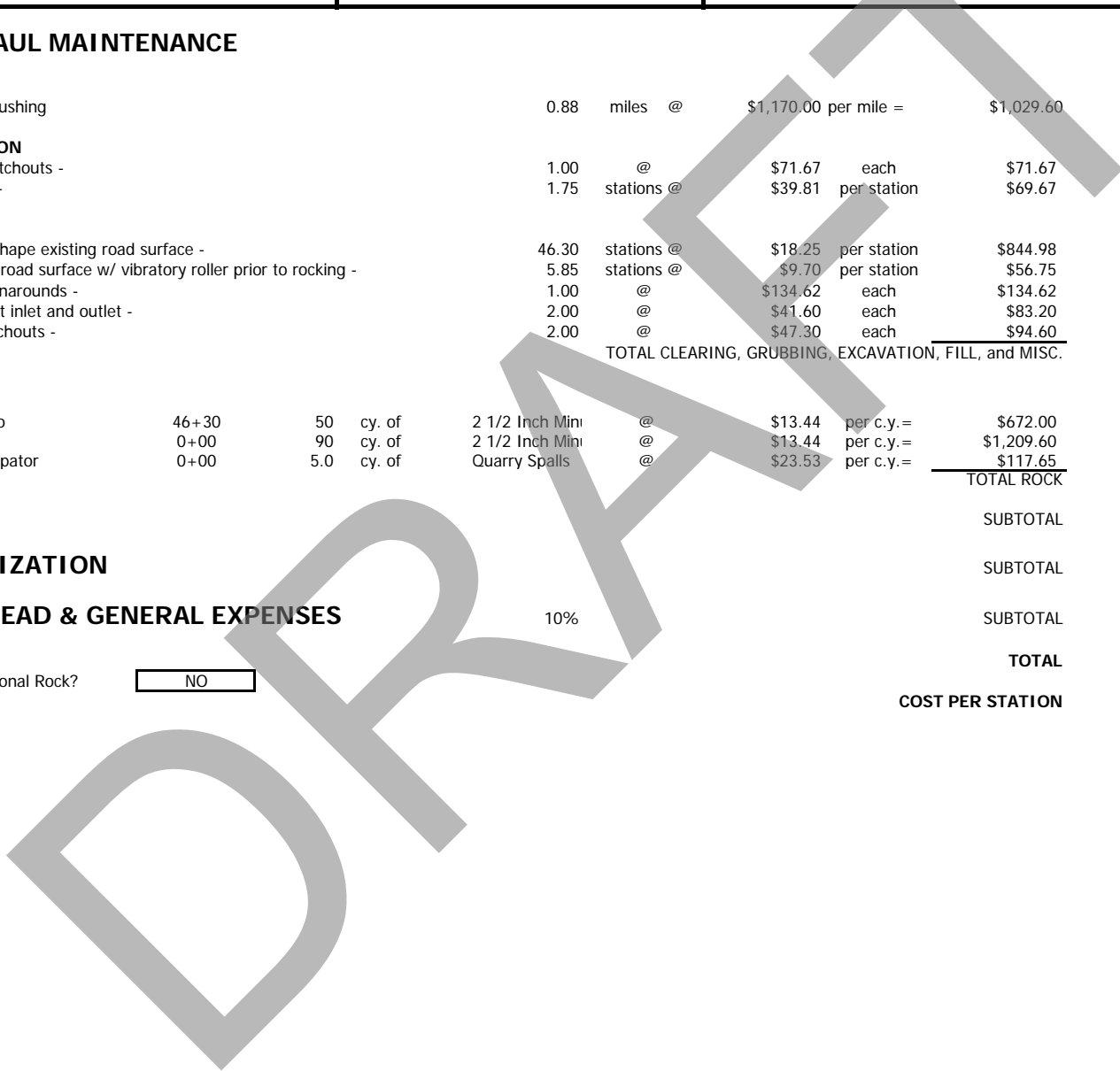
#### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$481.07**

Optional Rock? NO

TOTAL **\$5,291.75**

COST PER STATION **\$114.29**



## SUMMARY OF ROAD

Sale:	<b>Dodge City</b>		Road: <b>RCP-100A</b>		
Required Pre-Haul Maintenance-	<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">8+10</div> stations <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.15</div> miles	Required Reconstruction -	<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.00</div> stations <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.00</div> miles	Required Construction -	<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.00</div> stations <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.00</div> miles
Required Abandonment-	<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">12+30</div> stations <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.23</div> miles	Optional Reconstruction -	<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0+00</div> stations <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.00</div> miles	Optional Construction -	<div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0+00</div> stations <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">0.00</div> miles

### PRE-HAUL MAINTENANCE

<b>MISC.</b>					
Grade and shape existing road surface -	8.10	stations @	\$18.25	per station	\$147.83
Roll shaped road surface w/ vibratory roller prior to rocking -	2.50	stations @	\$9.70	per station	\$24.25
			<b>TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.</b>		<b>\$172.08</b>

### ROCK

Spot Rock	0+00	50	cy. of	2 1/2 Inch Minus Crushed Rock	@	\$14.52	per c.y.=	\$726.00
								<b>TOTAL ROCK</b>
								<b>\$726.00</b>

### ABANDONMENT

Construct waterbar -	12.00	@	\$71.67	each	\$860.04
Construct Spoil Berm -	1.00	@	\$215.00	each	\$215.00
Grass seed and fertilize -	45.20	lbs @	\$15.00	per lbs	\$678.00
			<b>TOTAL ADDITIONAL REQUIREMENTS</b>		<b>\$1,753.04</b>

### MOBILIZATION

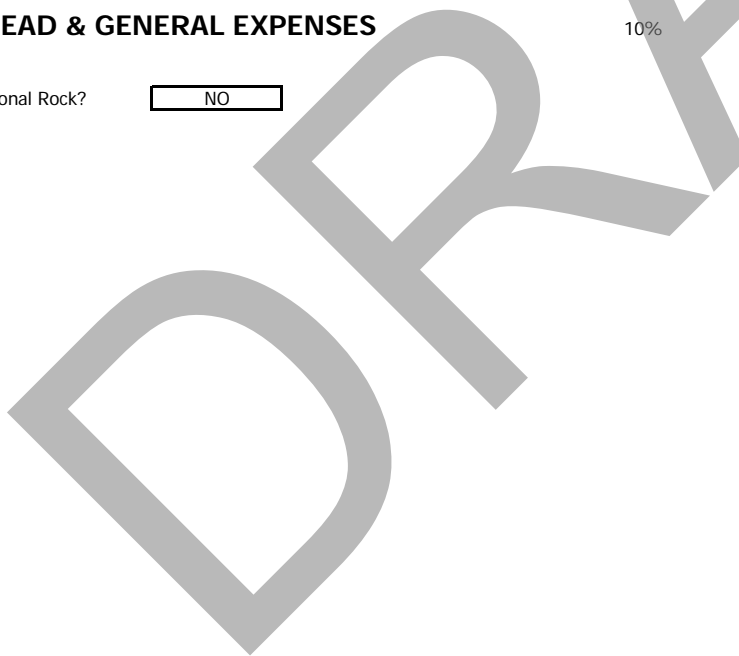
SUBTOTAL	<b>\$2,651.12</b>
SUBTOTAL	<b>\$30.76</b>

### OVERHEAD & GENERAL EXPENSES

10%	<b>\$268.19</b>
<b>TOTAL</b>	<b>\$2,950.07</b>

Optional Rock? NO

**COST PER STATION                    \$364.21**



## SUMMARY OF ROAD

Sale:	<b>Dodge City</b>		Road: <b>RCP-110</b>
Required Pre-Haul Maintenance-	0+00 0.00	stations miles	Required Reconstruction -
			0.00
			stations miles
Required Abandonment-	0.00	stations miles	Optional Reconstruction -
			0+00
			stations miles
			0.00
			stations miles

### CONSTRUCTION

#### CLEARING/GRUBBING

Scattering Organic Debris	16.38	sta @	\$280.00	per sta	\$4,586.40
Remove large stumps -	3.00	@	\$350.00	each	\$1,050.00

#### EXCAVATION

Road Construction Earthwork	16.38	sta @	\$152.17	per sta =	\$2,492.54
Grade and shape subgrade -	16.38	stations @	\$14.60	per station	\$239.15

#### MISC.

Roll subgrade w/ vibratory roller prior to rocking -	16.38	stations @	\$12.12	per station	\$198.53
Grass seed and fertilize -	42.00	lbs @	\$15.00	per lbs	\$630.00

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$9,196.62**

### CULVERTS - MATERIALS & INSTALLATION

<u>Culverts</u>	90	LF of 18"	\$2,404.80		0	LF of 24"	\$0.00
			\$2,404.80				\$0.00
<u>Culvert Stakes &amp; Markers</u>							
2 markers			\$16.00				
			\$16.00				
					TOTAL CULVERTS		<b>\$2,420.80</b>

### ROCK

Inlet Headwall	0+00	1.5	cy. of	Quarry Spalls	@	\$23.73	per c.y. =	\$35.60
Energy Dissipator	0+00	1.0	cy. of	Quarry Spalls	@	\$23.73	per c.y. =	\$23.73
0+00 to	16+38	1,560	cy. of	Select Pit Run	@	\$18.73	per c.y. =	\$29,218.80
								TOTAL ROCK

**\$29,278.13**

SUBTOTAL **\$40,895.55**

### MOBILIZATION

SUBTOTAL **\$1,643.90**

### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$4,253.95**

**TOTAL \$46,793.40**

Optional Rock? NO

**COST PER STATION \$2,856.74**

## SUMMARY OF ROAD

Sale:	<b>Dodge City</b>		Road: <b>RCP-110</b>		
Required Pre-Haul Maintenance-	<div style="border: 1px solid black; padding: 2px; text-align: center;">0+00</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">0.00</div> stations miles	Required Reconstruction -	<div style="border: 1px solid black; padding: 2px; text-align: center;"> </div> <div style="border: 1px solid black; padding: 2px; text-align: center;">0.00</div> stations miles	Required Construction -	<div style="border: 1px solid black; padding: 2px; text-align: center;"> </div> <div style="border: 1px solid black; padding: 2px; text-align: center;"> </div> stations miles
Required Abandonment-	<div style="border: 1px solid black; padding: 2px; text-align: center;"> </div> <div style="border: 1px solid black; padding: 2px; text-align: center;">0.00</div> stations miles	Optional Reconstruction -	<div style="border: 1px solid black; padding: 2px; text-align: center;">11+55</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">0.22</div> stations miles	Optional Construction -	<div style="border: 1px solid black; padding: 2px; text-align: center;">0+00</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">0.00</div> stations miles

### RECONSTRUCTION

#### CLEARING/GRUBBING

Scattering Organic Debris 11.55 sta @ \$140.00 per sta \$1,617.00

#### EXCAVATION

Pull and clean ditch- 11.55 stations @ \$67.19 per station \$776.04  
 Construct ditchouts - 1.00 @ \$71.67 each \$71.67  
 Grade and shape subgrade - 11.55 stations @ \$14.60 per station \$168.63

#### MISC.

Roll subgrade w/ vibratory roller prior to rocking - 11.55 stations @ \$12.12 per station \$139.99  
 Grass seed and fertilize - 10.80 lbs @ \$15.00 per lbs \$162.00

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$2,935.33**

### CULVERTS - MATERIALS & INSTALLATION

#### Culverts

120	LF of 18"	\$3,206.40	0	LF of 24"	\$0.00
			\$0.00		
			\$3,206.40		

#### Culvert Stakes & Markers

4	markers	\$32.00
		\$32.00

TOTAL CULVERTS **\$3,238.40**

### ROCK

Inlet Headwall	0+00	2.0	cy. of	Quarry Spalls	@	\$23.73	per c.y. =	\$47.46
Energy Dissipator	0+00	2.0	cy. of	Quarry Spalls	@	\$23.73	per c.y. =	\$47.46
16+38 to	27+93	1,363	cy. of	Select Pit Run	@	\$18.23	per c.y. =	\$24,847.49

TOTAL ROCK **\$24,942.41**

SUBTOTAL **\$31,135.54**

### MOBILIZATION

SUBTOTAL **\$524.69**

### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$3,166.02**

Optional Rock? NO

**TOTAL \$34,826.25**

**COST PER STATION \$3,015.26**

## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-900

Required  
Pre-Haul Maintenance- 31+00 stations  
0.59 miles

Required  
Reconstruction - 0+00 stations  
0.00 miles

Required  
Construction -  stations  
0.00 miles

Required Abandonment-  stations  
0.00 miles

Optional  
Reconstruction -  stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### EXCAVATION

Construct ditchouts -	4.00	@	\$71.67	each	\$286.68
Pull and clean ditch-	31.00	stations @	\$215.00	per station	\$6,665.00

#### MISC.

Grade and shape existing road surface -	20.25	stations @	\$18.25	per station	\$369.56
Roll shaped road surface w/ vibratory roller prior to rocking -	8.60	stations @	\$9.70	per station	\$83.42

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$7,404.66**

### CULVERTS - MATERIALS & INSTALLATION

#### Culverts

60	LF of 18"	\$1,603.20		0	LF of 24"	\$0.00
		\$1,603.20				\$0.00

#### Culvert Stakes & Markers

2 markers		\$16.00				
		\$16.00				TOTAL CULVERTS

**\$1,619.20**

### ROCK

Culvert Backfill	0+00	40	cy. of	2 1/2 Inch Minus Crushed Rock	@	\$10.04	per c.y.=	\$401.60
Spot Rock	0+00	50	cy. of	2 1/2 Inch Minus Crushed Rock	@	\$10.04	per c.y.=	\$502.00
Inlet Headwall	0+00	1.0	cy. of	Quarry Spalls	@	\$19.63	per c.y.=	\$19.63
Energy Dissipator	0+00	1.0	cy. of	Quarry Spalls	@	\$19.63	per c.y.=	\$19.63

TOTAL ROCK **\$942.86**

SUBTOTAL **\$9,966.72**

### MOBILIZATON

SUBTOTAL **\$1,323.58**

### OVERHEAD & GENERAL EXPENSES

10%

SUBTOTAL **\$1,129.03**

**TOTAL \$12,419.33**

Optional Rock? NO

**COST PER STATION \$400.62**

## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-920

Required  
Pre-Haul Maintenance- 6+35 stations  
0.12 miles

Required Abandonment-  stations  
0.00 miles

Required  
Reconstruction - 0.00 stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Required  
Construction - 0.00 stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### EXCAVATION

Reconstruct ditch- 6.35 stations @ \$215.00 per station \$1,365.25

#### MISC.

Grade and shape existing road surface - 6.35 stations @ \$18.25 per station \$115.89

Roll shaped road surface w/ vibratory roller prior to rocking - 6.35 stations @ \$9.70 per station \$61.60

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$1,542.74**

### CULVERTS - MATERIALS & INSTALLATION

#### Culverts

30 LF of 18" \$801.60      0 LF of 24" \$0.00

\$801.60      \$0.00

#### Culvert Stakes & Markers

1 markers \$8.00

\$8.00

**TOTAL CULVERTS \$809.60**

### ROCK

Inlet Headwall 0+00 0.5 cy. of Quarry Spalls @ \$20.62 per c.y. = \$10.31

Energy Dissipator 0+00 0.5 cy. of Quarry Spalls @ \$20.62 per c.y. = \$10.31

0+00 to 6+35 454 cy. of Select Pit Run @ \$15.12 per c.y. = \$6,864.48

**TOTAL ROCK \$6,885.10**

**SUBTOTAL \$9,237.44**

### MOBILIZATION

**SUBTOTAL \$275.77**

### OVERHEAD & GENERAL EXPENSES

10%

**SUBTOTAL \$951.32**

Optional Rock? NO

**TOTAL \$10,464.53**

**COST PER STATION \$1,647.96**



## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-940

Required  
Pre-Haul Maintenance- 3+25 stations  
0.06 miles

Required  
Reconstruction - 0.00 stations  
0.00 miles

Required  
Construction - 0.00 stations  
0.00 miles

Required Abandonment- 0.00 stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### EXCAVATION

Reconstruct ditch- 3.25 stations @ \$215.00 per station \$698.75

#### MISC.

Grade and shape existing road surface - 3.25 stations @ \$18.25 per station \$59.31  
 Roll shaped road surface w/ vibratory roller prior to rocking - 3.25 stations @ \$9.70 per station \$31.53  
 Construct turnaround - 1.00 @ \$134.62 each \$134.62

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$924.21**

#### ROCK

0+00 to 3+25 259 cy. of Select Pit Run @ \$15.46 per c.y. = \$4,004.14

TOTAL ROCK **\$4,004.14**

SUBTOTAL **\$4,928.35**

#### MOBILIZATION

SUBTOTAL **\$0.00**

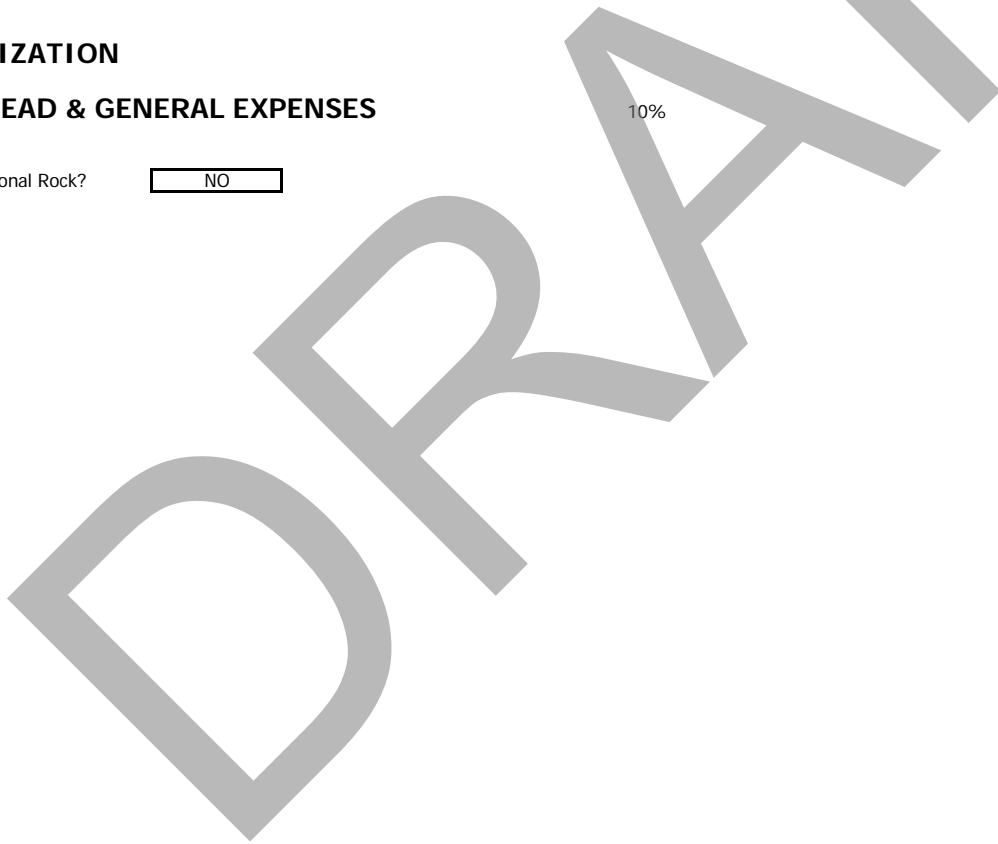
#### OVERHEAD & GENERAL EXPENSES

SUBTOTAL **\$492.84**

Optional Rock? NO

**TOTAL \$5,421.19**

**COST PER STATION \$1,668.06**



## SUMMARY OF ROAD

Sale: Dodge City

Road: Spur A

Required  
Pre-Haul Maintenance- 0+00 stations  
0.00 miles

Required Abandonment-   stations  
0.00 miles

Required  
Reconstruction -   stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Required  
Construction -   stations  
0.00 miles

Optional  
Construction - 1+75 stations  
0.03 miles

### CONSTRUCTION

#### CLEARING/GRUBBING

Scattering Organic Debris 1.75 sta @ \$280.00 per sta \$490.00

#### EXCAVATION

Road Construction Earthwork 1.75 sta. @ \$152.17 per sta. = \$266.30  
Grade and shape subgrade - 1.75 stations @ \$14.60 per station \$25.55

#### MISC.

Roll subgrade w/ vibratory roller prior to rocking - 1.75 stations @ \$12.12 per station \$21.21  
Grass seed and fertilize - 4.40 lbs @ \$15.00 per lbs \$66.00

**TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. \$869.06**

### ROCK

0+00 to 1+75 210 cy. of Select Pit Run @ \$14.67 per c.y. = \$3,080.70

**TOTAL ROCK \$3,080.70**

**SUBTOTAL \$3,949.76**

### MOBILIZATION

**SUBTOTAL \$155.34**

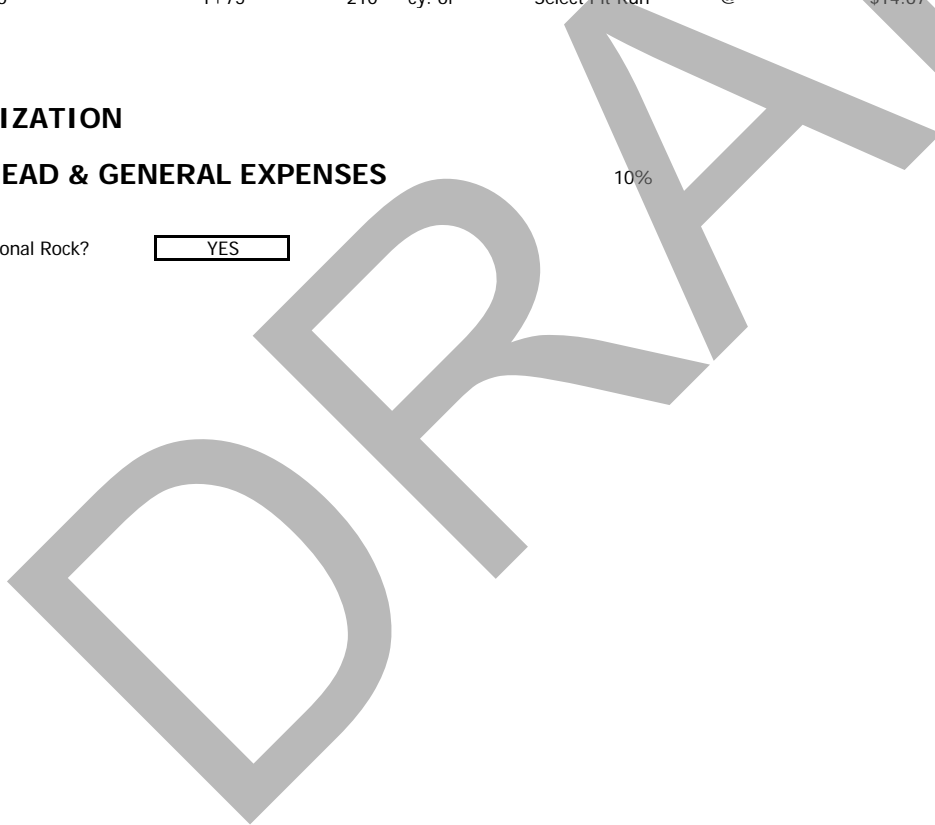
### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$410.51**

**TOTAL \$4,515.61**

Optional Rock? YES

**COST PER STATION \$2,580.35**



## SUMMARY OF ROAD

Sale:	<b>Dodge City</b>		Road: <b>Spur B</b>
Required Pre-Haul Maintenance-	0.00	stations miles	Required Reconstruction -
	0.00		0+00
	0.00		0.00
	0.00		stations miles
Required Abandonment-	0.00	stations miles	Optional Reconstruction -
	0.00		0.00
	0.00		0.00
	0.00		stations miles
	0.00		Required Construction -
	0.00		0.00
	0.00		0.00
	0.00		stations miles
	0.00		Optional Construction -
	0.00		2+60
	0.00		0.05
	0.00		stations miles

### CONSTRUCTION

#### CLEARING/GRUBBING

Scattering Organic Debris 2.60 sta @ \$280.00 per sta \$728.00

#### EXCAVATION

Road Construction Earthwork 2.60 sta. @ \$152.17 per station \$395.64  
 Grade and shape subgrade - 2.60 stations @ \$14.60 per station \$37.96

#### MISC.

Roll subgrade w/ vibratory roller prior to rocking - 2.60 stations @ \$12.12 per station \$31.51  
 Construct turnaround @ sta. - 1.00 @ \$134.62 each \$134.62  
 Construct landing - 1.00 @ \$538.46 each \$538.46  
 Grass seed and fertilize - 6.80 lbs @ \$15.00 per lbs \$102.00

**TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. \$1,968.19**

### CULVERTS - MATERIALS & INSTALLATION

#### Culverts

30	LF of 18"	\$801.60	0	LF of 24"	\$0.00
		\$801.60			\$0.00

#### Culvert Stakes & Markers

1	markers	\$8.00			
		\$8.00			TOTAL CULVERTS

**\$809.60**

### ROCK

Inlet Headwall	0+00	0.5	cy. of	Quarry Spalls	@	\$19.26	per c.y.=	\$9.63
Energy Dissipator	0+00	0.5	cy. of	Quarry Spalls	@	\$19.26	per c.y.=	\$9.63
0+00 to	2+60	286	cy. of	Select Pit Run	@	\$14.26	per c.y.=	\$4,078.36
								TOTAL ROCK

**\$4,097.62**

SUBTOTAL **\$6,875.41**

### MOBILIZATION

SUBTOTAL **\$351.81**

### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$722.72**

**TOTAL \$7,949.94**

Optional Rock?

**COST PER STATION \$3,057.67**

## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-1300

Required  
Pre-Haul Maintenance- 5+25 stations  
0.10 miles

Required Abandonment-  stations  
0.00 miles

Required  
Reconstruction -  stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Required  
Construction -  stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### EXCAVATION

Construct turnaround -	1.00	@		\$134.62	each				
Reconstruct ditch -	5.25	stations @		\$215.00	per station				\$1,128.75

#### MISC.

Grade and shape existing road surface -	5.25	stations @		\$18.25	per station				
Roll shaped road surface w/ vibratory roller prior to rocking -	5.25	stations @		\$9.70	per station				\$50.93

**TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.      \$1,410.11**

### ROCK

0+00	to	5+25	174	cy. of	2 1/2 Inch	@		\$6.97	per c.y. =				
					Minus Crushed								<u>\$1,212.78</u>

**TOTAL ROCK      \$1,212.78**

**SUBTOTAL      \$2,622.89**

### MOBILIZATION

**SUBTOTAL      \$252.06**

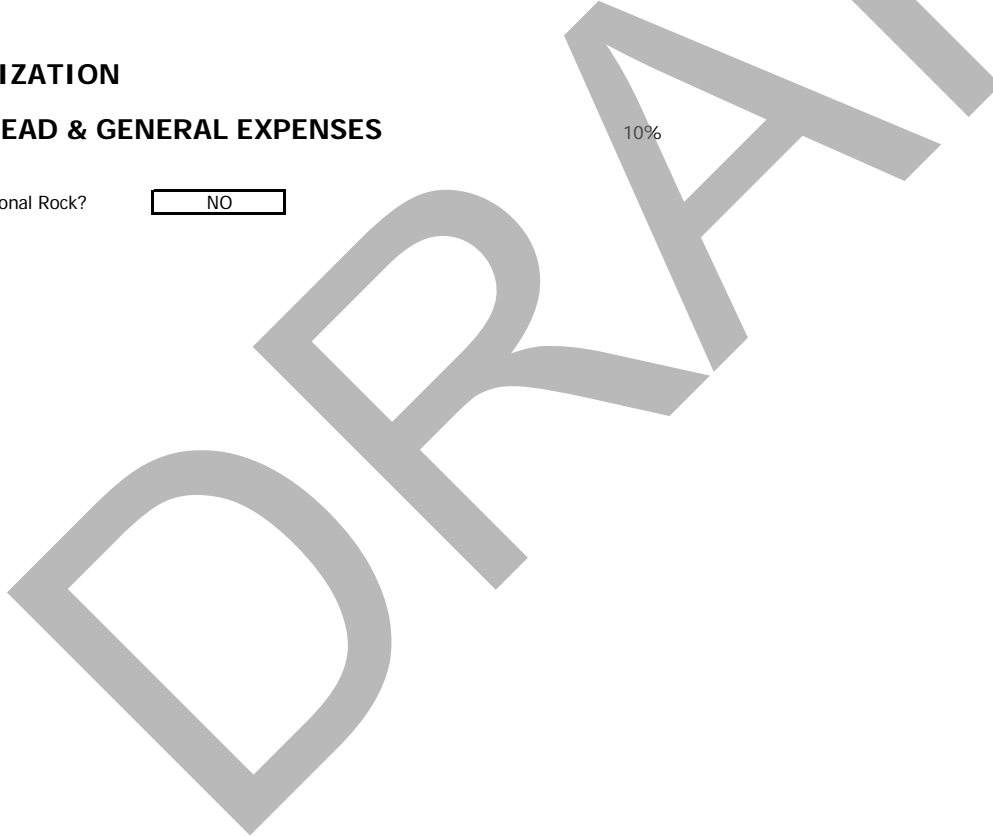
### OVERHEAD & GENERAL EXPENSES

**SUBTOTAL      \$287.50**

Optional Rock? NO

**TOTAL      \$3,162.45**

**COST PER STATION      \$602.37**





## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-1340

Required  
Pre-Haul Maintenance- 0+00 stations  
0.00 miles

Required  
Reconstruction - 0.00 stations  
0.00 miles

Required  
Construction - 0.00 stations  
0.00 miles

Required Abandonment- 0.00 stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Optional  
Construction - 0+90 stations  
0.02 miles

### CONSTRUCTION

#### CLEARING/GRUBBING

Scattering Organic Debris 0.90 sta @ \$280.00 per sta \$252.00

#### EXCAVATION

Road Construction Earthwork 0.90 sta. @ \$152.17 per sta. = \$136.95  
Grade and shape subgrade - 0.90 stations @ \$14.60 per station \$13.14

#### MISC.

Roll subgrade w/ vibratory roller prior to rocking - 0.90 stations @ \$12.12 per station \$10.91  
Construct landing - 1.00 @ \$538.46 each \$538.46  
Grass seed and fertilize - 2.40 lbs @ \$15.00 per lbs \$36.00

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$987.46**

### ROCK

0+00 to 0+90 141 cy. of Select Pit Run @ \$11.65 per c.y. = \$1,642.65

TOTAL ROCK **\$1,642.65**

SUBTOTAL **\$2,630.11**

### MOBILIZATION

SUBTOTAL **\$176.51**

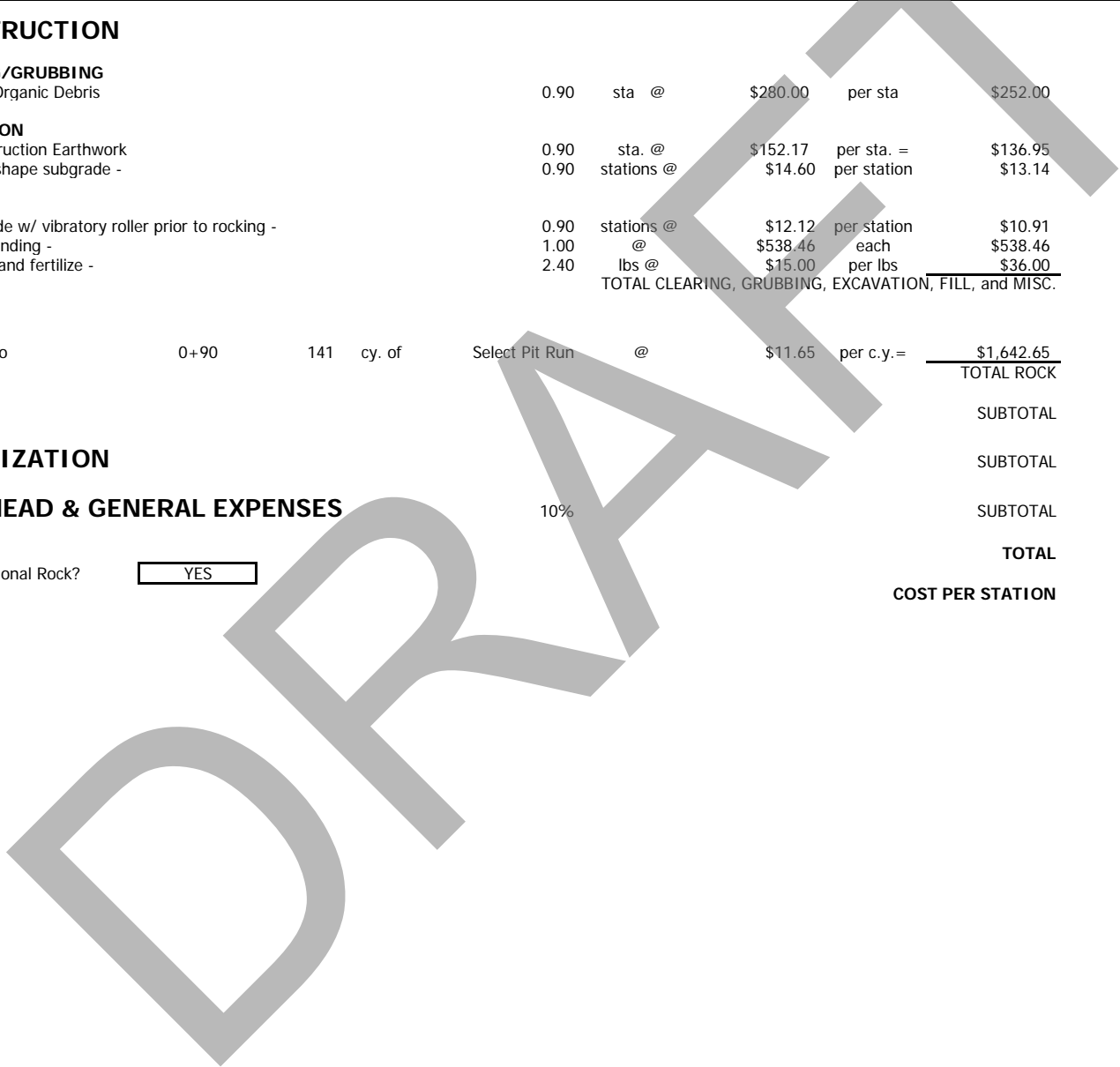
### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$280.66**

Optional Rock? YES

**TOTAL \$3,087.28**

**COST PER STATION \$3,430.31**



## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-1350

Required  
Pre-Haul Maintenance- 3+34 stations  
0.06 miles

Required  
Reconstruction -  stations  
0.00 miles

Required  
Construction -  stations  
0.00 miles

Required Abandonment-  stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### MISC.

Grade and shape existing road surface -	3.34	stations @	\$18.25	per station	\$60.96	
Roll shaped road surface w/ vibratory roller prior to rocking -	3.35	stations @	\$9.70	per station	\$32.50	
<b>TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.</b>						<b>\$93.46</b>

#### ROCK

0+00	to	3+34	68	cy. of	Select Pit Run	@	\$10.06	per c.y. =	<u>\$684.08</u>	
									<b>TOTAL ROCK</b>	<b>\$684.08</b>

#### MOBILIZATION

SUBTOTAL **\$777.54**

#### OVERHEAD & GENERAL EXPENSES

SUBTOTAL **\$16.71**

Optional Rock? NO

SUBTOTAL **\$79.43**

**TOTAL** **\$873.68**

**COST PER STATION** **\$261.58**







## SUMMARY OF ROAD

Sale: Dodge City

Road: RCP-1000

Required  
Pre-Haul Maintenance- 2+30 stations  
0.04 miles

Required Abandonment- 4+36 stations  
0.08 miles

Required  
Reconstruction - 0.00 stations  
0.00 miles

Optional  
Reconstruction - 0+00 stations  
0.00 miles

Required  
Construction - 0.00 stations  
0.00 miles

Optional  
Construction - 0+00 stations  
0.00 miles

### PRE-HAUL MAINTENANCE

#### EXCAVATION

Pull and clean ditch- 2.30 stations @ \$67.19 per station \$154.54

#### MISC.

Grade and shape existing road surface - 2.30 stations @ \$18.25 per station \$41.98

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **\$196.52**

### ABANDONMENT

Construct waterbar - 5.00 @ \$71.67 each \$358.35

Construct Spoil Berm - 1.00 @ \$215.00 each \$215.00

Grass seed and fertilize - 16.00 lbs @ \$15.00 per lbs \$240.00

Remove culverts from state lands - 1.00 @ \$158.10 total \$158.10

TOTAL ADDITIONAL REQUIREMENTS **\$971.45**

SUBTOTAL **\$1,167.97**

### MOBILIZATION

SUBTOTAL **\$35.13**

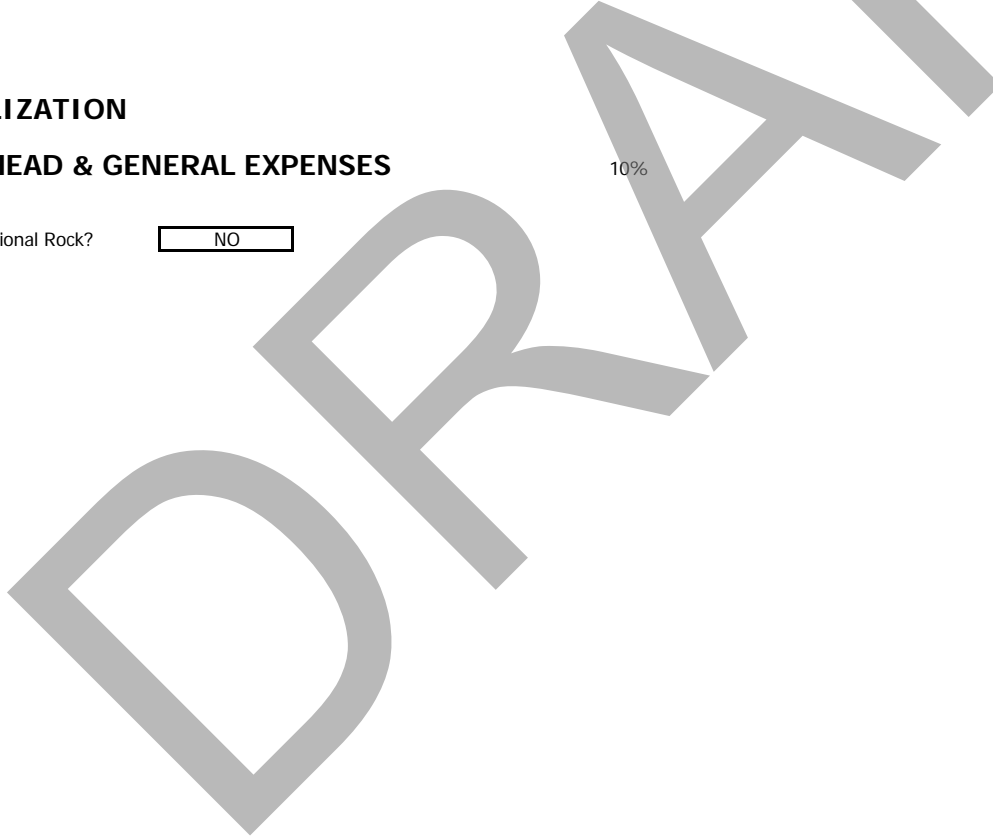
### OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **\$120.31**

Optional Rock? NO

**TOTAL \$1,323.41**

**COST PER STATION \$198.71**



## ROCK DEVELOPMENT COST SUMMARY

Pit:	Walville Quarry	Location:	T13R07W
Sale:	<b>Dodge City</b>	Road:	5474 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage:	1.16	Total Truck Loads:	5474 c.y.
Drill Pct.:	0%	In Place Total:	3910 c.y.

Pit Development & Cleanup including Clearing and grubbing of Waste Area @ adjacent to pit, place overburden in Waste Area, spread and compact.

	\$4.09	/cu.yd x	2222 cu.yds.	\$9,087.98
Rip Rock:	\$2.50	/cu.yd x	3910 cu.yds.	\$9,775.00
Push Rock:	\$0.67	/cu.yd x	5474 cu.yds.	\$3,667.58
Load Dump Truck:	\$1.50	/cu.yd x	5474 cu.yds.	\$8,211.00
			Subtotal	\$30,741.56

Move in Loader	1	@	\$521.67	=	\$521.67
Move in Excavator	1	@	\$716.23	=	\$716.23
					Subtotal \$1,237.90

**TOTAL PRODUCTION COSTS** \$31,979.46

Base Cost= \$5.84 Per Cu.Yd.

Road Segment	Haul Cost /cu.yd.	Application Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	One-Way Dist (ft)	ROCK COST
RCP-Mainline Inlet Headwall	\$6.82	\$6.00	\$5.84	\$18.66	2	25	23400	\$37.32
RCP-Mainline Energy Dissipator	\$6.82	\$6.00	\$5.84	\$18.66	2	25	23400	\$37.32
RCP-Mainline	\$7.32	\$1.00	\$5.84	\$14.16	336	25	23400	\$4,757.76
RCP-Mainline Road Ballast	\$7.32	\$1.00	\$5.84	\$14.16	85	25	23400	\$1,203.60
RCP-100 Energy Dissipator	\$11.69	\$6.00	\$5.84	\$23.53	5	15	25580	\$117.65
RCP-110 Inlet Headwall	\$11.89	\$6.00	\$5.84	\$23.73	2	15	26100	\$47.46
RCP-110 Energy Dissipator	\$11.89	\$6.00	\$5.84	\$23.73	1	15	26100	\$23.73
RCP-110	\$11.89	\$1.00	\$5.84	\$18.73	1560	15	26100	\$29,218.80
RCP-110 Inlet Headwall	\$11.89	\$6.00	\$5.84	\$23.73	2	15	26100	\$47.46
RCP-110 Energy Dissipator	\$11.89	\$6.00	\$5.84	\$23.73	2	15	26100	\$47.46
RCP-110	\$11.39	\$1.00	\$5.84	\$18.23	1363	15	26100	\$24,847.49
RCP-900 Inlet Headwall	\$7.79	\$6.00	\$5.84	\$19.63	1.0	15	16600	\$19.63
RCP-900 Energy Dissipator	\$7.79	\$6.00	\$5.84	\$19.63	1.0	15	16600	\$19.63
RCP-920 Inlet Headwall	\$8.78	\$6.00	\$5.84	\$20.62	1	15	17900	\$20.62
RCP-920 Energy Dissipator	\$8.78	\$6.00	\$5.84	\$20.62	1	15	17900	\$20.62
RCP-920	\$8.28	\$1.00	\$5.84	\$15.12	454	15	17900	\$6,864.48
RCP-940	\$8.62	\$1.00	\$5.84	\$15.46	259	15	18800	\$4,004.14
Spur A	\$7.83	\$1.00	\$5.84	\$14.67	210	15	15400	\$3,080.70
Spur B Inlet Headwall	\$7.42	\$6.00	\$5.84	\$19.26	1	15	14300	\$19.26
Spur B Energy Dissipator	\$7.42	\$6.00	\$5.84	\$19.26	1	15	14300	\$19.26
Spur B	\$7.42	\$1.00	\$5.84	\$14.26	286	15	14300	\$4,078.36
RCP-1300 Ext	\$5.22	\$1.00	\$5.84	\$12.06	266	15	8500	\$3,207.96
RCP-1340	\$4.81	\$1.00	\$5.84	\$11.65	141	15	7430	\$1,642.65
RCP-1350	\$3.22	\$1.00	\$5.84	\$10.06	68	35	7500	\$684.08
RCP-1360	\$3.14	\$1.00	\$5.84	\$9.98	424	35	7000	\$4,231.52
					Total C.Y.		Sub Total	\$88,298.96

**TOTAL ROCKING COSTS** \$88,298.96

## ROCK DEVELOPMENT COST SUMMARY

Pit:	<u>Walville Quarry Stockpile</u>	Location:	<u>T13R06W</u>
Sale:	<u>Dodge City</u>	Road:	<u>1173 c.y.</u>
Swell:	<u>1.40</u>	Stockpile:	<u>c.y.</u>
Shrinkage	<u>1.16</u>	Total Truck Loads:	<u>1173 c.y.</u>
Drill Pct.:	<u>0%</u>	In Place Total:	<u>838 c.y.</u>

Load Dump Truck: \$0.75 /cu.yd x 1173 cu.yds. = \$879.75  
 Subtotal \$879.75

Road Segment	Haul Cost /cu.yd.	Application Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	Dist (ft)	ROCK COST
RCP-Mainline	\$7.32	\$1.00	\$0.75	\$9.07	618	25	23400	\$5,605.26
RCP-Mainline Culvert Backfill	\$7.32	\$1.00	\$0.75	\$9.07	60	25	23400	\$544.20
RCP-Mainline Spot Rock	\$7.32	\$1.00	\$0.75	\$9.07	40	25	23400	\$362.80
RCP-100	\$11.69	\$1.00	\$0.75	\$13.44	50	15	25580	\$672.00
RCP-100 Spot Rock	\$11.69	\$1.00	\$0.75	\$13.44	90	15	25580	\$1,209.60
RCP-100A Spot Rock	\$12.77	\$1.00	\$0.75	\$14.52	50	15	28440	\$726.00
RCP-900 Culvert Backfill	\$8.29	\$1.00	\$0.75	\$10.04	40	15	16600	\$401.60
RCP-900 Spot Rock	\$8.29	\$1.00	\$0.75	\$10.04	50	15	16600	\$502.00
RCP-1300	\$5.22	\$1.00	\$0.75	\$6.97	174	15	8500	\$1,212.78
Total C.Y.					1172		Sub Total	\$11,236.24

TOTAL ROCKING COSTS    \$11,236.24

DRAFT

## ROCK DEVELOPMENT COST SUMMARY

Pit:	Commercial Source	Location:	
Sale:	<b>Dodge City</b>	Road:	1406 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage	1.16	Total Truck Loads:	1406 c.y.

Purchase Drain Rock	\$24.00	/ton	x	9 tons	=	\$216.00
Purchase 1 1/4" Minus Crushed	\$13.50	/ton	x	1884 tons	=	\$25,434.00
				Subtotal		\$25,650.00

Road Segment	Haul Cost /cu.yd.	Application Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	Dist (ft)	ROCK COST
RCP-Mainline Structural Backfill	\$19.05	\$1.00	\$18.24	\$38.29	1306	45	131050	\$50,006.74
RCP-Mainline Drain Rock	\$19.05	\$6.00	\$18.24	\$43.29	60	45	131050	\$2,597.40
RCP-Mainline Surfacing	\$19.05	\$1.00	\$18.24	\$38.29	40	45	131050	\$1,531.60
				Total C.Y.	1406		Sub Total	\$54,135.74

TOTAL ROCKING COSTS \$54,135.74

DRAFT

## Road Building Move-In Calculations

Sale: Dodge City

LOWBOY HAUL (Round Trip)		
DIST. (mi)	ROADWAY	AVE SPEED (mph)
65.0	Highway	50
3.0	County/ Mainline	25
1.0	Steep Grades	10

No.	EQUIPMENT DESCRIPTION	Move in Cost	Pilot Cars	Within Area			Total Miles	Within	
				Move (\$/mile)	Begin Mileage	End Mileage		Area Cost	Total Cost
1	Brush Cutter	\$666.60		\$16.50	0.00	0.00	0	\$0.00	\$666.60
1	Graders	\$646.40		\$16.00	0.00	0.00	0	\$0.00	\$646.40
0	Loader (Small)	\$646.40		\$16.00	0.00	0.00	0	\$0.00	\$0.00
1	Loader (Med. & Large)	\$727.20	2	\$16.00	0.00	0.00	0	\$0.00	\$855.00
1	Rollers & Compactors	\$666.60		\$16.00	0.00	0.00	0	\$0.00	\$666.60
0	Excavators (Small)	\$666.60		\$16.50	0.00	0.00	0	\$0.00	\$0.00
2	Excavators (Med.)	\$646.40		\$16.00	0.00	0.00	0	\$0.00	\$1,292.80
1	Excavators (Large)	\$727.20	2	\$16.00	0.00	0.00	0	\$0.00	\$855.00
0	Tired Backhoes/Skidlers	\$646.40		\$16.50	0.00	0.00	0	\$0.00	\$0.00
1	Tractors (D6)	\$666.60		\$16.50	0.00	0.00	0	\$0.00	\$666.60
0	Tractors (D7)	\$646.40		\$16.00	0.00	0.00	0	\$0.00	\$0.00
1	Tractor (D8)	\$727.20	2	\$16.00	0.00	0.00	0	\$0.00	\$855.00
7	Dump Truck (10 cy +)	\$228.00		\$0.00	0.00	0.00	0	\$0.00	\$1,596.00
0	Dump Truck (Off Hiway)	\$487.40	2	\$16.50	0.00	0.00	0	\$0.00	\$0.00
0	Water Truck (1500 Gal)	\$243.20		\$16.00	0.00	0.00	0	\$0.00	\$0.00
0	Water Truck (2500 Gal)	\$288.80		\$19.00	0.00	0.00	0	\$0.00	\$0.00

	<b>TOTAL MOVE-IN COSTS: \$8,100.00</b>
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## WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

### FOREST EXCISE TAX ROAD SUMMARY SHEET

**Region:**

**Timber Sale Name:**

**Application Number:**

#### EXCISE TAX APPLICABLE ACTIVITIES

**Construction:** linear feet  
*Road to be constructed (optional and required) but not abandoned*

**Reconstruction:** linear feet  
*Road to be reconstructed (optional and required) but not abandoned*

**Abandonment:** linear feet  
*Abandonment of existing roads not reconstructed under the contract*

**Decommission:** linear feet  
*Road to be made undriveable but not officially abandoned.*

**Pre-Haul Maintenance:** linear feet  
*Existing road to receive maintenance work (optional and required) prior to haul*

#### EXCISE TAX EXEMPT ACTIVITIES

**Temporary Construction:** linear feet  
*Roads to be constructed (optional and required) and then abandoned*

**Temporary Reconstruction:** linear feet  
*Roads to be reconstructed (optional and required) and then abandoned*

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.

(Revised 9/18)