LOGGING FEASIBILITY REPORT

Soda CS Timber Sale

Cool Soda E. A.

Prepared by Joanie Schmidgall Date January 30, 2016

Reviewed by Ken Loree Date January 30, 2016

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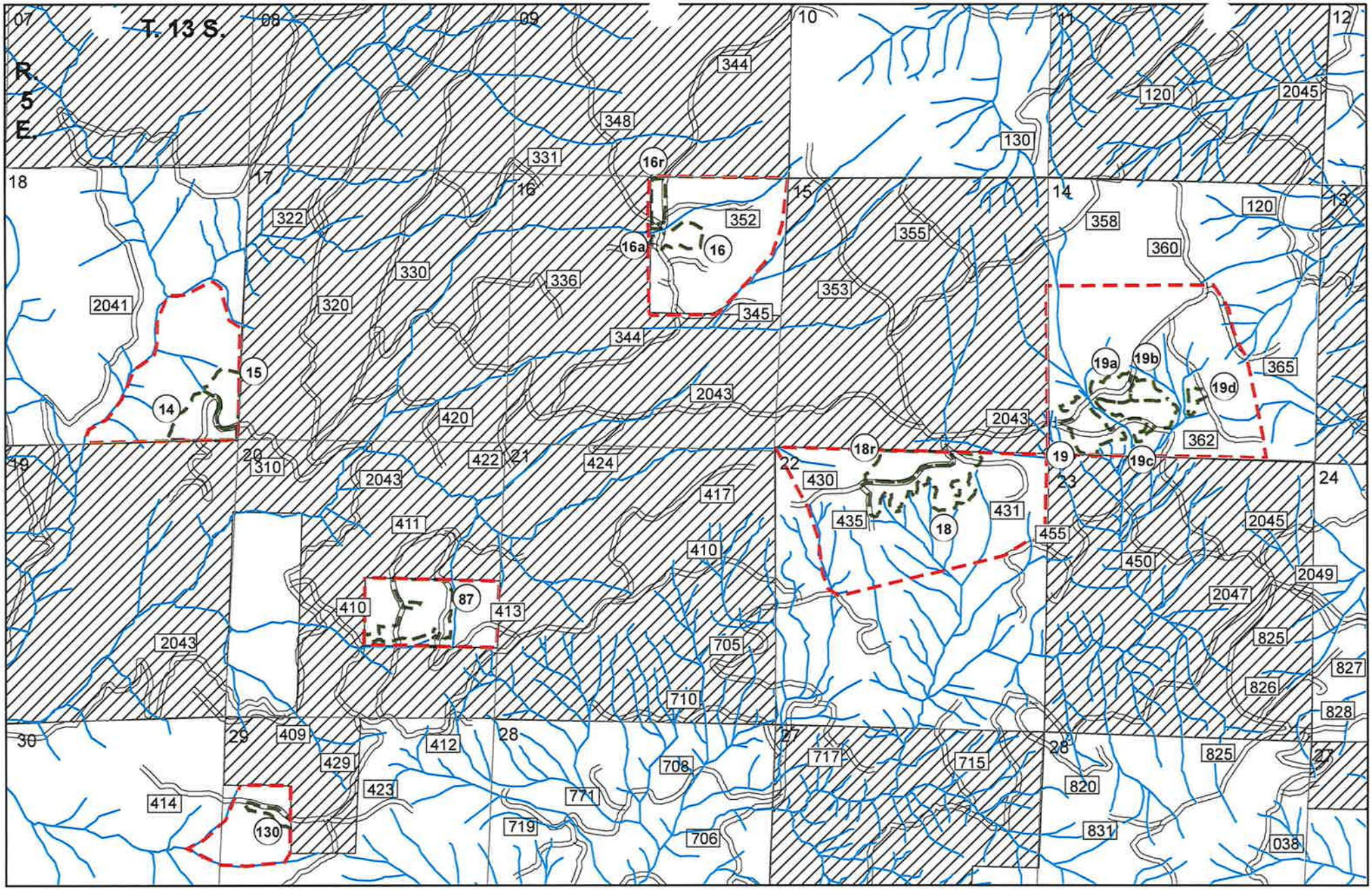


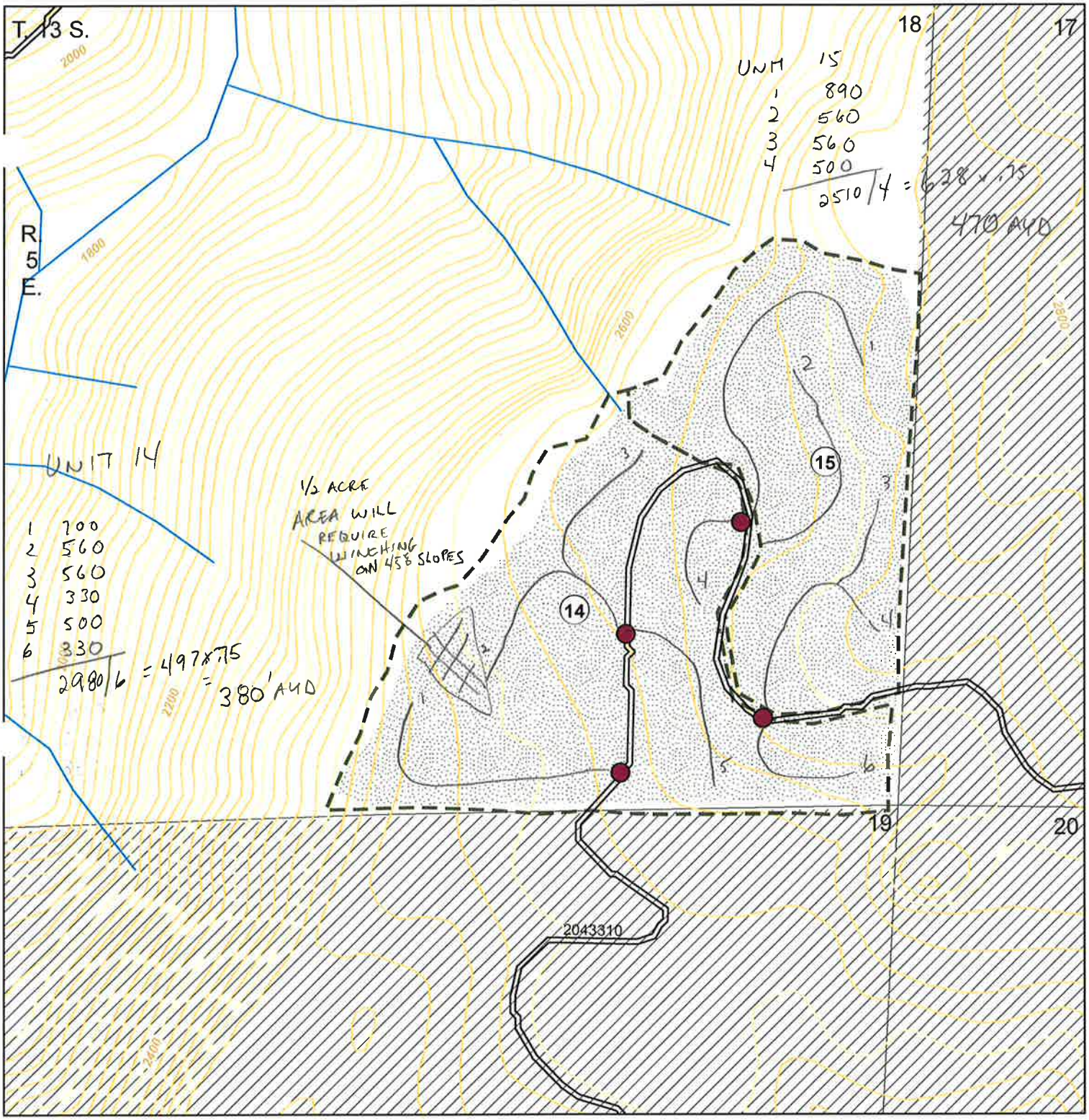
JS 1/16

N

Vicinity Map
Soda CS Timber Sale
Sweet Home Ranger District
Willamette National Forest

1 inch = 2,500 feet

Feet
0 1,250 2,500 5,000 7,500



Legend

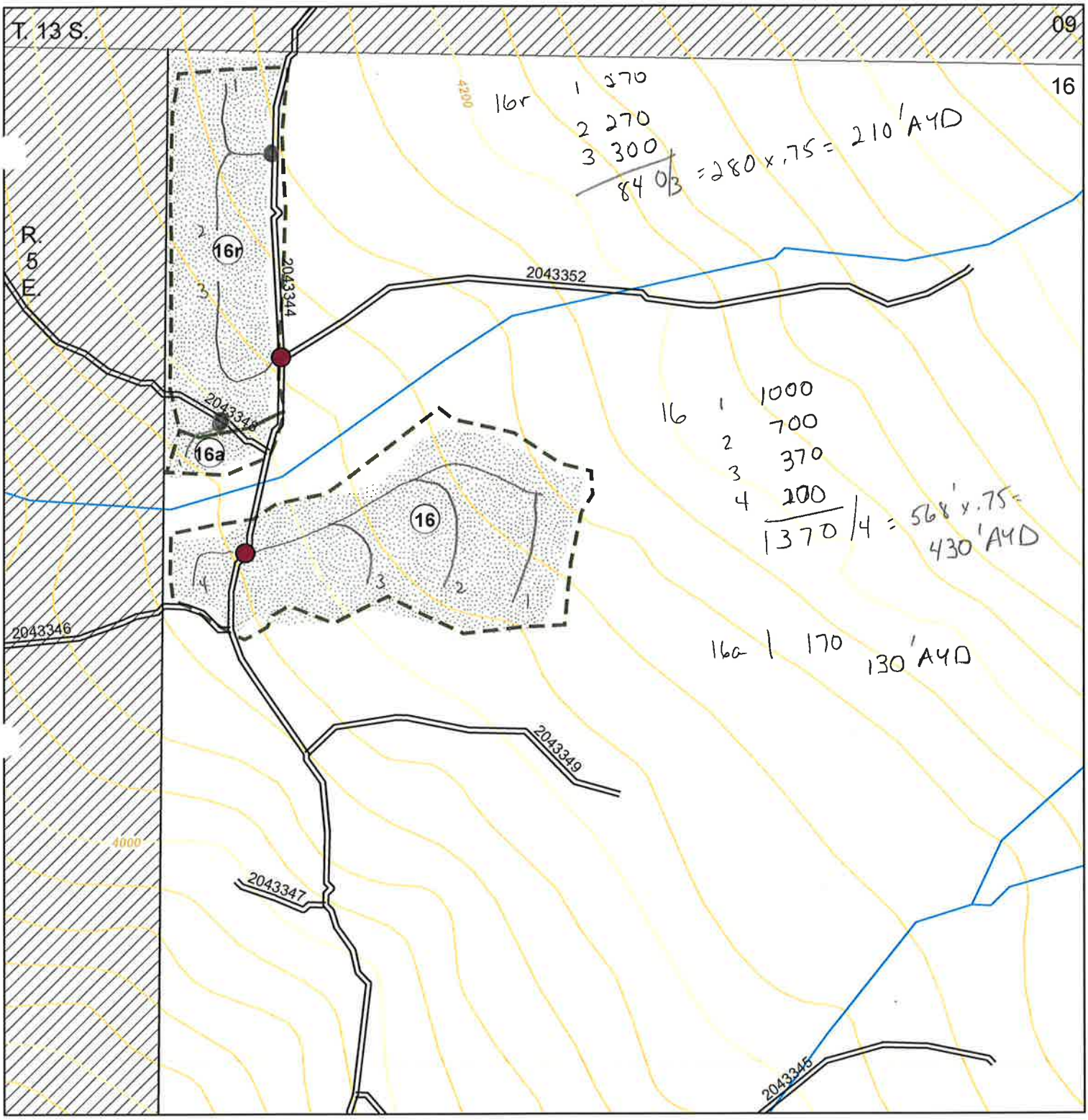
- Landings
- Logging_systems_break
- New_temp_spur
- Open_existing_temp_spur_rd
- Skyline_corr
- Final_units
- Ground_based
- Road
- Stream
- Private Land

Unit 14 and 15
Soda CS
Logging Systems Map

N

1 inch = 330 feet

0 165 330 660 990 Feet



Legend

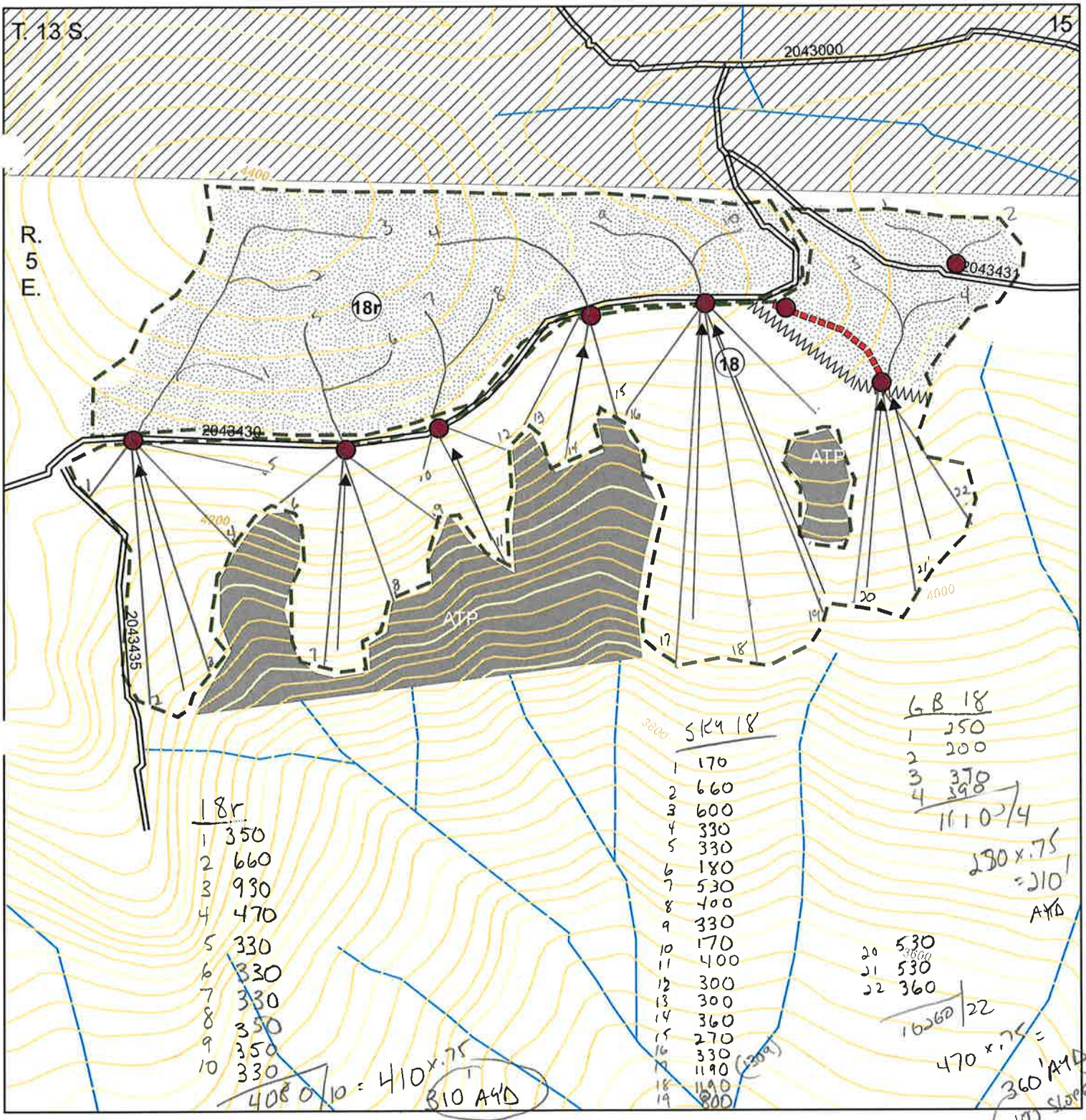
- Landings
- Logging_systems_break
- New_temp_spur
- Open_existing_temp_spur_rd
- Skyline_corr
- Final_units
- Ground_based
- Road
- Stream
- Private Land

Unit 16
Soda CS
Logging Systems Map

N

1 inch = 330 feet

0 165 330 660 990 Feet



Legend

- Landings
- Logging_systems_break
- New_temp_spur
- Open_existing_temp_spur_rd
- Skyline_corr
- Road
- Final_units
- ATP
- Stream
- Private Land
- Ground_based

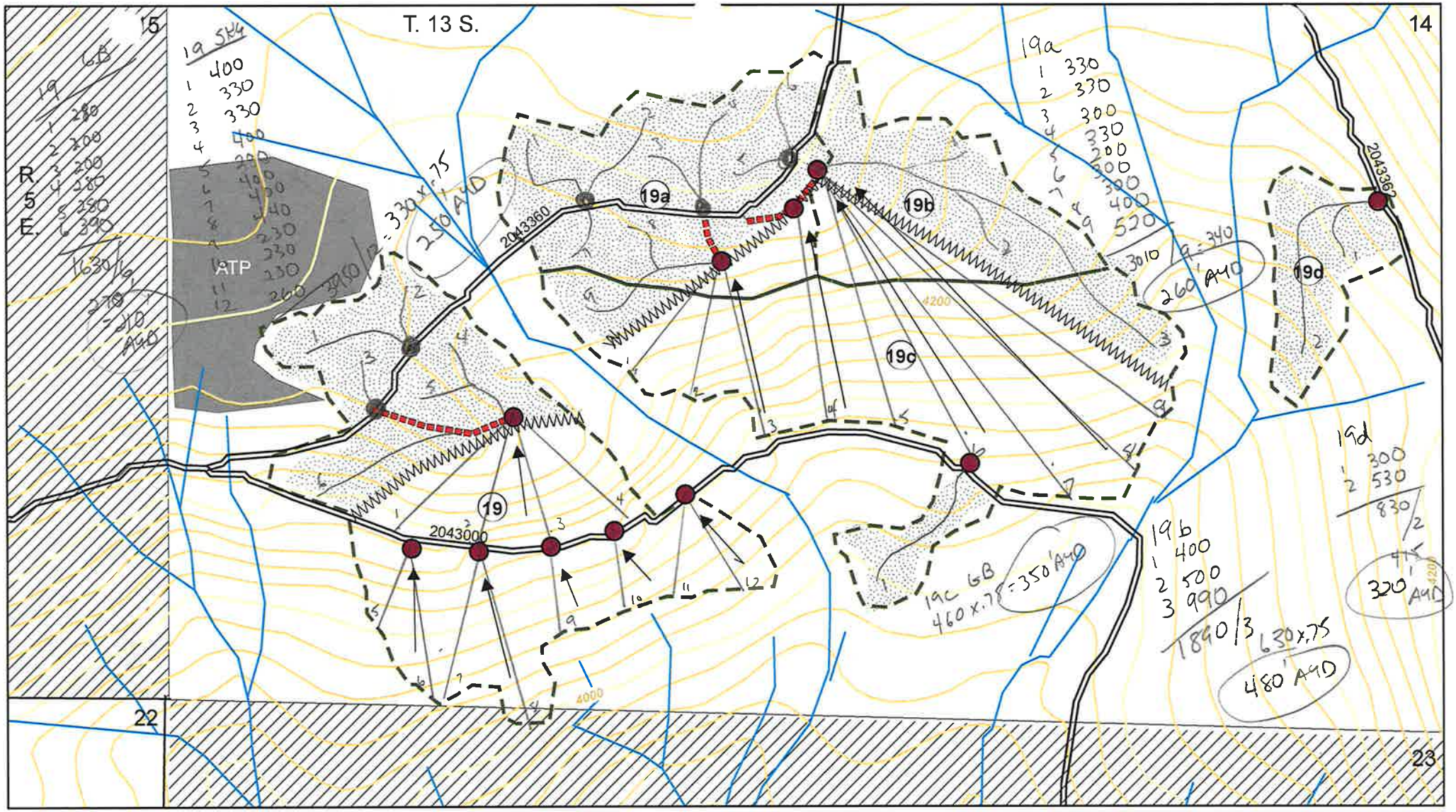
Unit 18
Soda CS
Logging Systems Map

SKY TOTAL 22

N

1 inch = 330 feet

0 165 330 660 990 Feet



Legend

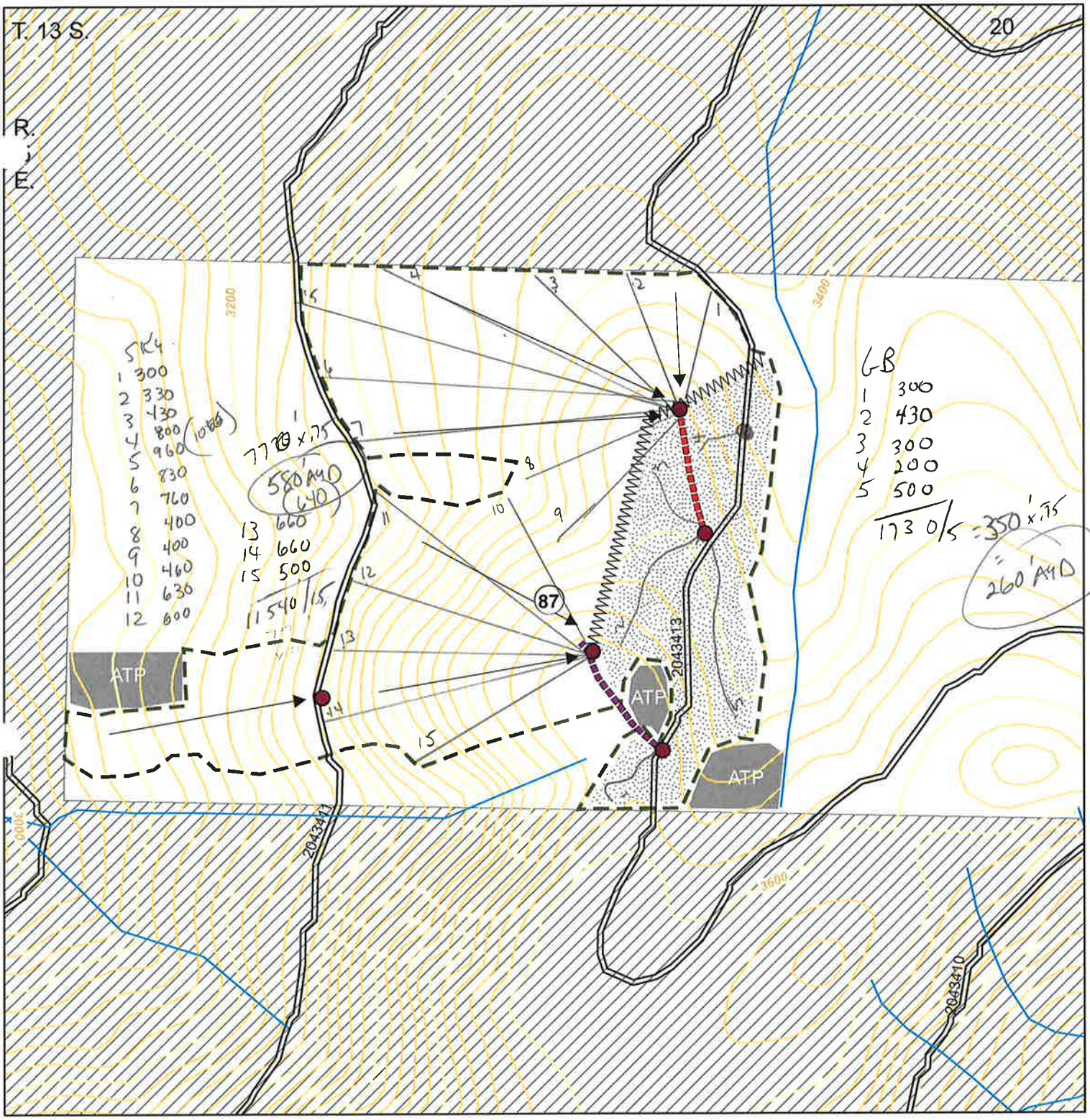
- Landings
- Logging_systems_break
- New_temp_spur
- Open_existing_temp_spur_rd
- Skyline_corr
- Road
- Stream
- Final_units
- ATP
- Private Land
- Ground_based

Unit 19
Soda CS
Logging Systems Map

1 inch = 330 feet

Feet
0 165 330 660 990

N



Legend

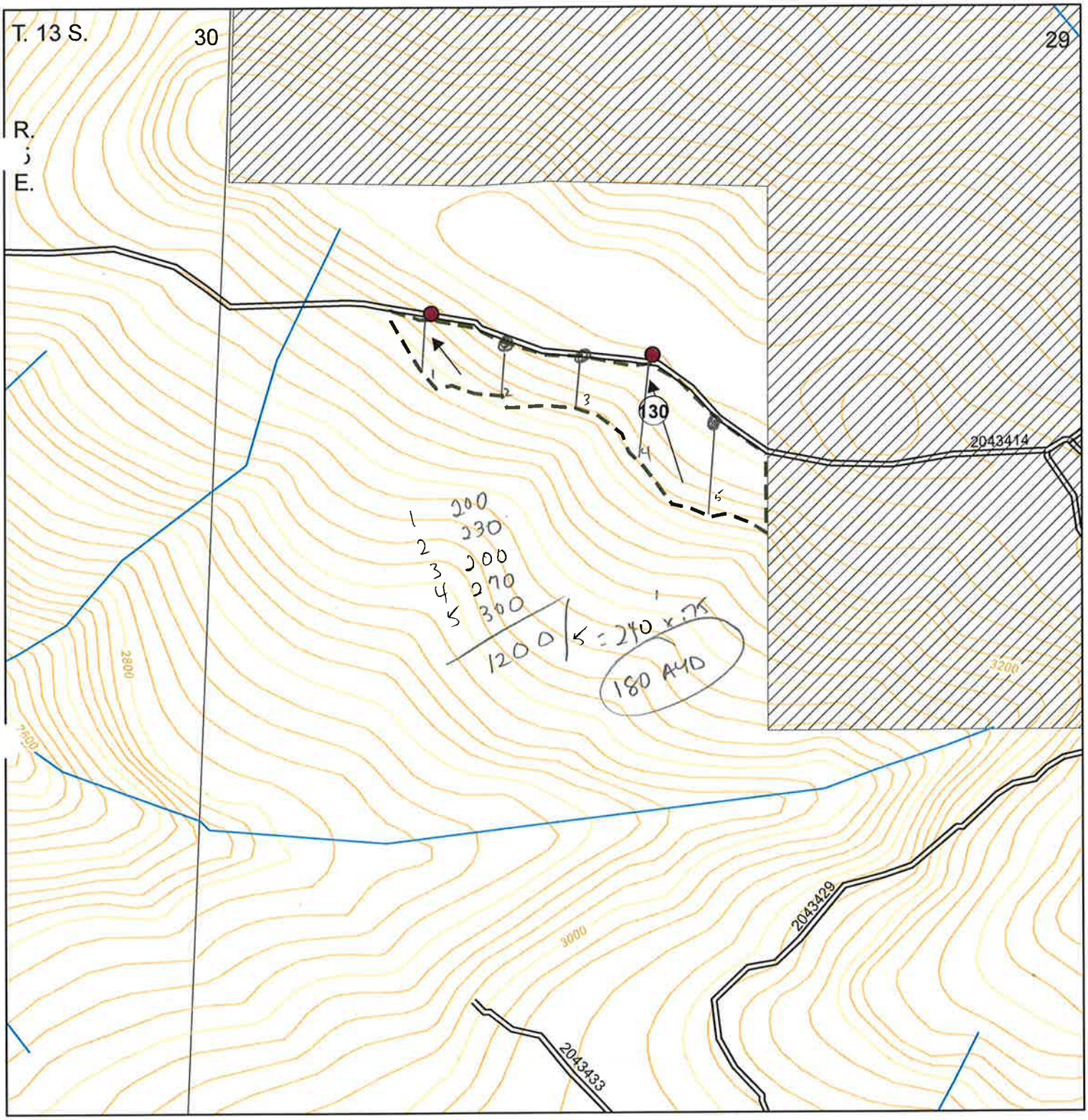
- Landings
- Logging_systems_break
- New_temp_spur
- Open_existing_temp_spur_rd
- Skyline_corr
- Ground_based
- Final_units
- Stream
- Road
- ATP
- Private Land

Unit 87
Soda CS
Logging Systems Map

N

1 inch = 330 feet

0 162.5 325 650 975 Feet



Legend

- Landings
- Logging_systems_break
- New_temp_spur
- Open_existing_temp_spur_rd
- Skyline_corr
- Final_units
- Road
- Stream
- Private Land
- Sections

Unit 130
Soda CS
Logging Systems Map

N

1 inch = 330 feet

0 162.5 325 650 975 Feet

UNIT LOGGING SUMMARY

UNIT NUMBER	EST. ACRES	EST. CCF VOLUME	SILV. PRESC.	LOGGING SYSTEM	SUSPENSION REQUIRED	AVE SLOPE	(SLOPE) MAX. YARD DT.	(SLOPE) AVERAGE YARD DT.	SLOPE DT. SKL RIGGING LENGTH (FT)
14	17	749	50-70 LT	GB	One End	20	730	380	
15	11	280	90-110 LT	GB	One End	-20	890	470	
16	8	263	70-90 LT	GB	One End	10	300	210	
16a	1	33	70-90 LT	GB	One End	20	170	130	
16r	5	286	5 LT	GB	One End	-10	1000	430	
18	22	740	70-90 LT	SKY	One End	50	1310	400	1310
	4	134	70-90 LT	GB	One End	-20	390	210	
18r	15	859	5 LT	GB	One End	-25	930	310	
19	10	329	70-90 LT	SKY	One End	40	490	280	500
	5	165	70-90 LT	GB	One End	15	390	210	
19a	2	51	90-110 LT	SKY	One End	40	300	200	300
	6	152	90-110 LT	GB	One End	-15	520	260	
19b	1	44	30-50 LT	SKY	One End	40	300	200	300
	4	176	30-50 LT	GB	One End	-15	520	260	
19c	11	485	50-70 LT	SKY	One End	40	1090	590	1090
	3	132	50-70 LT	GB	One End	-15	300	200	
19d	3	99	70-90 LT	GB	One End	30	550	330	
87	21	705	70-90 LT	SKY	One End	50	1060	580	1100
	8	269	70-90 LT	GB	One End	25	430	260	
130	4	276	70-90 LT	SKY	One End	35	320	180	350
TOTAL	**161**	**6227**							

S - Skyline
C - Cable
GB - Ground Based
H - Helicopter

C - No Suspension
PS - Partial Suspension (one end)
FS - Full Suspension

HCR - Clearcut w/Reserves
CT - Commercial Thin

Estimated Sale Volume Net Scale CCF - 6227

Volume of Skyline CCF - 2630

Volume of Ground Based CCF - 3597

Both acres and volume are estimates at this time.

Longest Yarding distance 1310 feet (Mainline)

Longest Rigging Distance 1310 feet (Skyline)

EQUIPMENT SUMMARY

SALE NAME : NTLJ TIMBER SALE PAYMENT UNITS - ALL

SKYLINE VOLUME 2630 CCF

ESTIMATED WEIGHT LARGEST TREE – 22" x 41' for 4166 LBS

YARDER – MADILL 071 - YARDER

TOWER - 47 FEET DELIMBER – DANZCO PULL THROUGH DELIMBER

CARRIAGE – EAGLE VI Motorized LOADER – AVE MEDIUM LOADER

TRACTOR – D7

SINGLE-DRUM ( ) SPOOL TRUCK ( ) BANJO FAIRLEAD ( )
STUMP ANCHOR HARDWARE ( ) TAILTREE HARDWARE (X) SKIDDER ( )
5TH WHEEL DOLLY ( ) RADIO (X) LANDING CAT (X)
INT. SUPPORT RIGGING (X) CHOKERS: LENGTH 20' DIA 1/2"

LINE CAPACITIES OF YARDER AND CARRIAGE PROPOSED:

LINE	DIAMETER	DRUM CAPACITY	TAG LENGTH NEEDED
SKYLINE	1	1930'	n/a
MAINLINE	7/8	1600'	
HAULBACK	3/4	3045'	
STRAWLINE	5/16	4000'	
TONGLINE	n/a		
GUYLINE	7/8	3 X 145' = 435'	

YARDING LABOR	NUMBER
HOOKTENDER	1
RIGGING SLINGER	1
CHOKER SETTER W / RADIO	1
CHASER	1
CHOKER SETTER	2
YARDER ENGINEER	1
LOADER OPERATOR	1

SkylineXL 15.0 Skyline Analysis - Yarder and Carriage Selections

Yarder...

Units: English

Select a Yarder
Madill 071, tower

Tower height (ft)	Yarder (HP)
47	284

Max brake torque	Mainline (lb-ft)	Haulback (lb-ft)
torque		

Operating line	Line Dia (in)	Line type	Weight (lb/ft)	Design tension (lbs)	Line length (ft)	Empty drum dia (in)	Empty drum width (in)
skyline	1.0000	Swaged	2.22	40,400	1,930		
mainline	0.8750	Swaged	1.70	31,600	1,600		
haulback	0.7500	EIPS	1.04	19,600	3,045		
slackpulling							

Carriage...

Units: English

Select a Carriage
Eagle VI, motorized

Weight (lbs)	Carriage (HP)	Skyline clamp	Slack pull method	Multispan capable	# drums required
2,650	28	yes	carriage	yes	

Line	Min Dia (in)	Max Dia (in)	Length (ft)	Dia (in)
skyline	0.8750	1.3750		
mainline	0.6250	0.8750		
dropline				

Torque

SkylineXL 15.0 Skyline Analysis - Profile Input Table

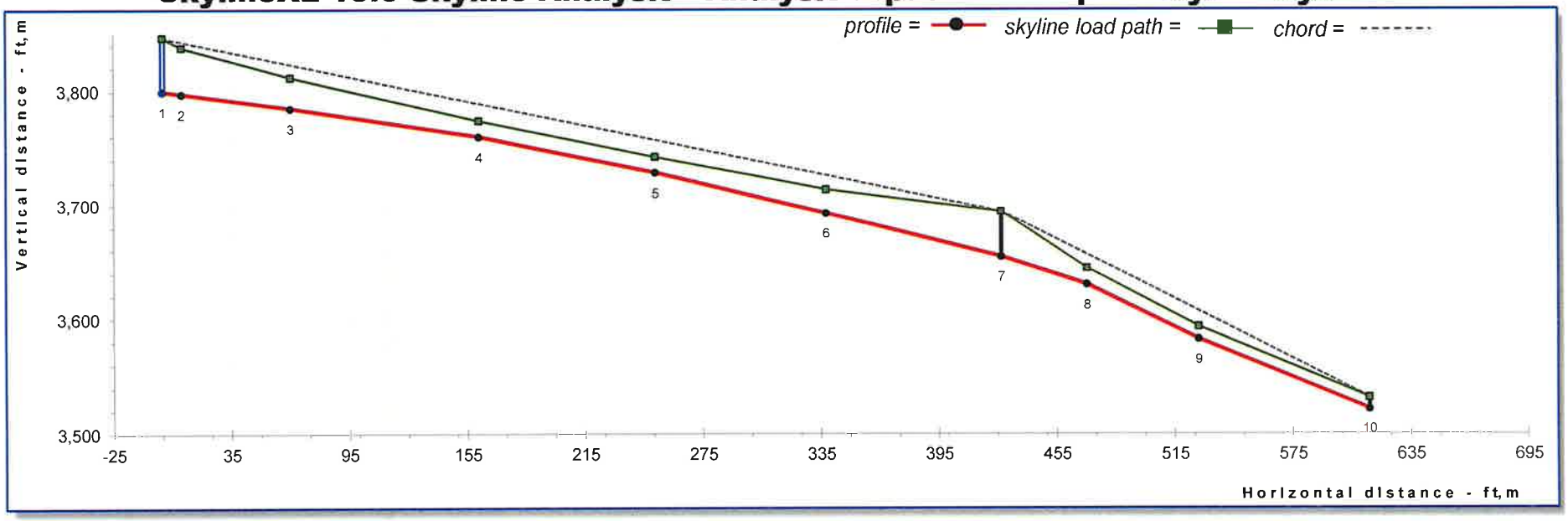
Select measurement type: English

Terrain pt	Slope dist (ft)	% slope (+/-)	Horiz - (ft)	Vert - (ft)	Notes
1			0.0	3,800.0	
	10.0	-23.0%			
2			9.7	3,797.8	
	57.0	-23.0%			
3			65.2	3,785.0	18"DF
	99.0	-26.0%			
4			161.0	3,760.1	
	95.0	-35.0%			
5			250.7	3,728.7	
	94.0	-41.0%			
6			337.7	3,693.0	18"DF
	97.0	-43.0%			
7			426.8	3,654.7	20"DF
	50.0	-56.0%			
8			470.4	3,630.3	
	74.0	-84.0%			
9			527.1	3,582.7	
	106.0	-70.0%			
10			613.9	3,521.9	22" DF 30' inside Unit

Profile name
18-1
Profile azimuth - deg
178
Profile date
10/29/2015
Analyst
Start elevation - (ft)
3,800
Profile data source
Ground

Profile reversed?
no

SkylineXL 15.0 Skyline Analysis - Analysis Input - Multi-span Skyline System



Analysis type	Selected yarder	Selected carriage
Multi-span	Madill 071, tower	Eagle VI, motorized

Log Geometry Table	
tag length - (ft)	15.0
log length - (ft)	41.0
log diameter - (in)	18.00

Min payload-(lbs)	At terrain point
3,996	5

Supports Table	At terrain point	Rigging height (ft)
head spar	1	47
tail spar	10	10
int support 1	7	40
int support 2		
int support 3		

Yarding Parameters Table	Inner dist terrain pt.	Outer dist terrain pt
yarding limits	2	9
landing cut (-) or fill (+) - (ft)		

Susp. type	Log Susp. and Clearance Table	Log clearance (ft)
partial		1.1

Analysis name: Multi
Units: English
Data source: Ground
Analysis phase: 1

Pro date: 10/29/2015
Pro name: 18-1
Analyst:

LIVE sky selections

- ○ Specified clearance
- ◉ Lift only
- ○ Drop only

Lift-drop location at terrain point...

1
2
3
4
5

*The above options for **LIVE** skyline analysis only*

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SkylineXL 15.0 Skyline Analysis - Analysis Results - Multi-span Skyline System

Profile name: 18-1
Analysis name: Multi

Units: English
Analyst:
Data source: Ground

Profile date: 10/29/15

MULTI-SPAN skyline analysis summary table...

Skyline analysis type	Selected yarder	Selected carriage	Minimum payload-(lbs)	At terrain point	Analysis phase
Multi-span	Madill 071, tower, 47-ft twr	Eagle VI, motorized	3,996	5	**1**

MULTI-SPAN skyline rigging lengths table...

Line	Capacity-(ft)	Required-(ft)	Notes
skyline	1,930	800	adequate
mainline	1,600	670	adequate
haulback	3,045		

line capacities based on selected yarder

Chord slope span 1	Chord slope span 2	Chord slope span 3	Chord slope span 4	Average slope yarding dist for this analysis-(ft)
35.7%	87.0%			
Un-stretched skyline line length - (ft)			698.45	341

MULTI-SPAN skyline analysis detail table, PHASE 1 analysis...

TP	Horizontal distance - (ft)	Net payload at TP - (lbs)	Net payload to landing - (lbs)	Skyline tension - (lbs)	Mainline tension - (lbs)	Haulback tension - (lbs)	Skyline clearance - (ft)	Log clearance - (ft)	Full susp. bottom of log above TP-(ft)
2	10	29,384	29,384	40,400	20,483	-	40.6	26.1	-
3	65	8,334	8,334	40,400	6,434	-	27.3	14.1	-
4	161	5,103	5,103	40,400	4,732	-	14.1	3.1	-
5	251	3,996	3,996	40,400	3,898	-	13.9	3.1	-
6	338	5,438	3,996	40,400	4,437	-	21.0	9.1	-
	support loc								
8	470	4,454	3,996	40,400	7,147	-	14.4	4.1	-
9	527	8,618	3,996	40,400	10,182	-	10.8	1.1	-

SkylineXL 15.0 Skyline Analysis - Profile Input Table

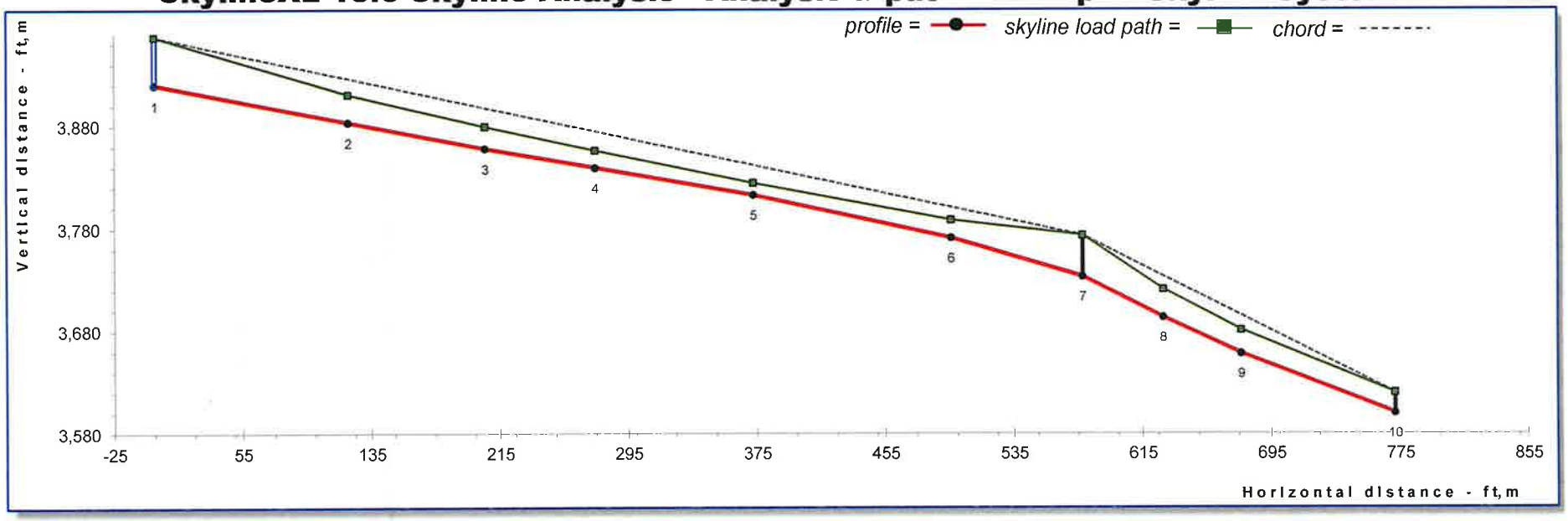
Select measurement type	English

Terrain pt	Slope dist (ft)	% slope (+/-)	Horiz - (ft)	Vert - (ft)	Notes
1			0.0	3,920.0	Landing on Raod 431
	126.0	-30.0%			
2			120.7	3,883.8	
	89.0	-30.0%			
3			205.9	3,858.2	20"DF
	71.0	-27.0%			
4			274.4	3,839.7	20"DF
	102.0	-27.0%			
5			372.9	3,813.1	20"DF
	130.0	-34.0%			
6			496.0	3,771.3	20"DF
	90.0	-46.0%			
7			577.8	3,733.7	20"DF
	64.0	-80.0%			
8			627.8	3,693.7	20"DF
	60.0	-73.0%			
9			676.3	3,658.3	20"DF
	112.0	-61.0%			
10			771.9	3,600.0	24"DF TT

Profile name
18-2
Profile azimuth - deg
340
Profile date
10/29/2015
Analyst
Start elevation - (ft)
3,920
Profile data source
Ground

Profile reversed?
no

SkylineXL 15.0 Skyline Analysis - Analysis Input - Multi-span Skyline System



Analysis type	Selected yarder	Selected carriage
Multi-span	Madill 071, tower	Eagle VI, motorized

Log Geometry Table	
tag length - (ft)	15.0
log length - (ft)	41.0
log diameter - (in)	18.00

Min payload-(lbs)	At terrain point
2,741	4

Supports Table	At terrain point	Rigging height (ft)
head spar	1	47
tail spar	10	20
int support 1	7	40
int support 2		
int support 3		

Yarding Parameters Table	Inner dist terrain pt.	Outer dist terrain pt
yarding limits	2	9
landing cut (-) or fill (+) - (ft)		

Susp. type	Log Susp. and Clearance Table	Log clearance (ft)
partial		1.1

Analysis name: Multi
Units: English
Data source: Ground
Analysis phase: 1

Pro date: 10/29/2015
Pro name: 18-2
Analyst:

LIVE sky selections

- ○ Specified clearance
- ◉ Lift only
- ○ Drop only

Lift-drop location at terrain point...

1
2
3
4
5

*The above options for **LIVE** skyline analysis only*

SkylineXL 15.0 Skyline Analysis - Analysis Results - Multi-span Skyline System

Profile name: 18-2
Analysis name: Multi

Units: English
Analyst:
Data source: Ground

Profile date: 10/29/15

MULTI-SPAN skyline analysis summary table...

Skyline analysis type	Selected yarder	Selected carriage	Minimum payload-(lbs)	At terrain point	Analysis phase
Multi-span	Madill 071, tower, 47-ft twr	Eagle VI, motorized	2,741	4	**1**

MULTI-SPAN skyline rigging lengths table...

Line	Capacity-(ft)	Required-(ft)	Notes
skyline	1,930	980	adequate
mainline	1,600	830	adequate
haulback	3,045		

line capacities based on selected yarder

Chord slope span 1	Chord slope span 2	Chord slope span 3	Chord slope span 4	Average slope yarding dist for this analysis-(ft)
33.5%	79.2%			
Un-stretched skyline line length - (ft)			853.41	422

MULTI-SPAN skyline analysis detail table, PHASE 1 analysis...

TP	Horizontal distance - (ft)	Net payload at TP - (lbs)	Net payload to landing - (lbs)	Skyline tension - (lbs)	Mainline tension - (lbs)	Haulback tension - (lbs)	Skyline clearance - (ft)	Log clearance - (ft)	Full susp. bottom of log above TP-(ft)
2	121	4,720	4,720	40,400	3,994	-	27.2	14.1	-
3	206	3,290	3,290	40,400	3,139	-	21.6	9.1	-
4	274	2,741	2,741	40,400	2,851	-	16.9	5.1	-
5	373	2,854	2,741	40,400	3,055	-	11.7	1.1	-
6	496	4,974	2,741	40,400	4,191	-	17.4	6.1	-
	support loc								
8	628	5,021	2,741	40,400	6,760	-	27.6	15.1	-
9	676	7,516	2,741	40,400	8,200	-	23.0	11.1	-

SkylineXL 15.0 Skyline Analysis - Profile Input Table

Select measurement type	English

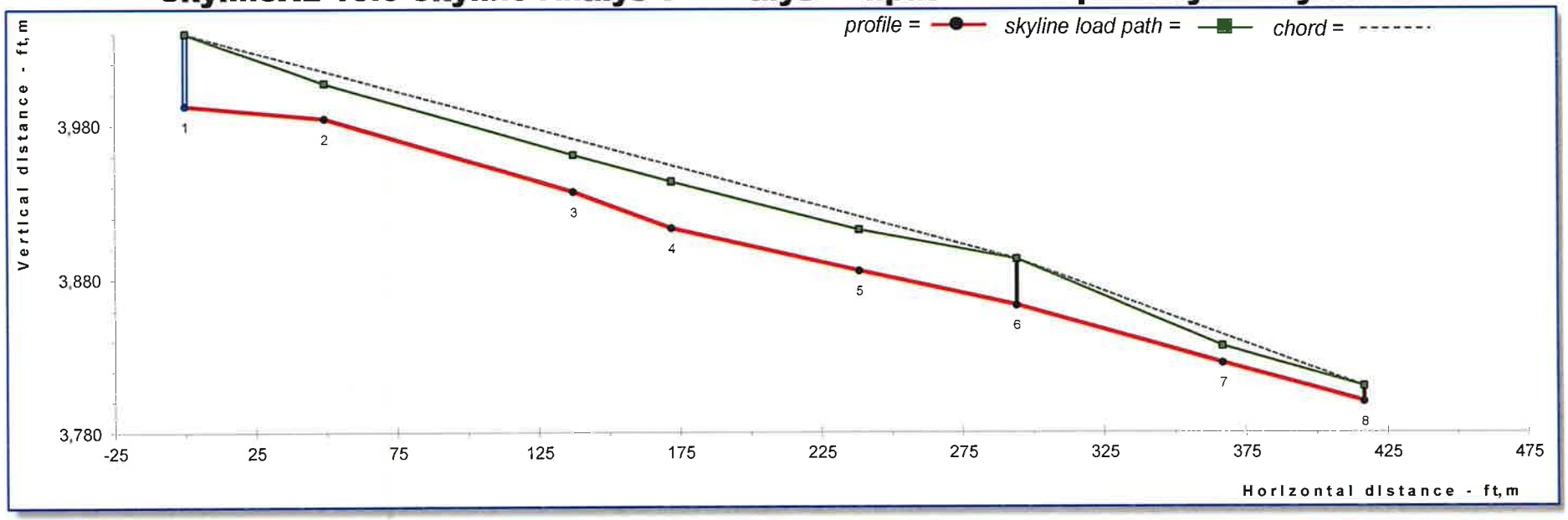
Terrain pt	Slope dist (ft)	% slope (+/-)	Horiz - (ft)	Vert - (ft)	Notes
1			0.0	3,992.9	Landing
	50.0	-17.0%			
2			49.3	3,984.5	18"DF
	100.0	-54.0%			
3			137.3	3,937.0	14"DF
	42.0	-68.0%			
4			172.0	3,913.4	14"DF
	72.0	-42.0%			
5			238.4	3,885.5	16"DF
	60.0	-40.0%			
6			294.1	3,863.2	18"DF
	82.0	-52.0%			
7			366.9	3,825.4	16"DF
	56.0	-51.0%			
8			416.8	3,800.0	16"DF

Profile name
19-1
Profile azimuth - deg
157
Profile date
9/14/2015
Analyst
Start elevation - (ft)
3,993
Profile data source
Ground

Profile reversed?
no

17

SkylineXL 15.0 Skyline Analysis - Analysis Input - Multi-span Skyline System



Analysis type	Selected yarder	Selected carriage
Multi-span	Madill 071, tower	Eagle VI, motorized

Log Geometry Table	
tag length - (ft)	15.0
log length - (ft)	41.0
log diameter - (in)	18.00

Min payload-(lbs)	At terrain point
2,894	3

Supports Table	At terrain point	Rigging height (ft)
head spar	1	47
tail spar	8	10
int support 1	6	30
int support 2		
int support 3		

Yarding Parameters Table	Inner dist terrain pt.	Outer dist terrain pt
yarding limits	2	7
landing cut (-) or fill (+) - (ft)		

Susp. type	Log Susp. and Clearance Table	Log clearance (ft)
partial		1.1

Analysis name: Multi
Units: English
Data source: Ground
Analysis phase: 1

Pro date: 9/14/2015
Pro name: 19-1
Analyst:

LIVE sky selections

- ○ Specified clearance
- ◉ Lift only
- ○ Drop only

Lift-drop location at terrain point...

1
2
3
4
5

The above options for LIVE skyline analysis only

SkylineXL 15.0 Skyline Analysis - Analysis Results - Multi-span Skyline System

Profile name: 19-1
Analysis name: Multi

Units: English
Analyst:
Data source: Ground

Profile date: 9/14/15

MULTI-SPAN skyline analysis summary table...

Skyline analysis type	Selected yarder	Selected carriage	Minimum payload-(lbs)	At terrain point	Analysis phase
Multi-span	Madill 071, tower, 47-ft twr	Eagle VI, motorized	2,894	3	**1**

MULTI-SPAN skyline rigging lengths table...

Line	Capacity-(ft)	Required-(ft)	Notes	Chord slope span 1	Chord slope span 2	Chord slope span 3	Chord slope span 4	Average slope yarding dist for this analysis-(ft)
skyline	1,930	580	adequate	49.9%	67.8%			
mainline	1,600	500	adequate					
haulback	3,045			Un-stretched skyline line length - (ft)			474.96	231

line capacities based on selected yarder

MULTI-SPAN skyline analysis detail table, PHASE 1 analysis...

TP	Horizontal distance - (ft)	Net payload at TP - (lbs)	Net payload to landing - (lbs)	Skyline tension - (lbs)	Mainline tension - (lbs)	Haulback tension - (lbs)	Skyline clearance - (ft)	Log clearance - (ft)	Full susp. bottom of log above TP-(ft)
2	49	6,226	6,226	40,400	6,096	-	23.1	11.1	-
3	137	2,894	2,894	40,400	3,433	-	24.1	12.1	-
4	172	3,421	2,894	40,400	3,596	-	30.2	17.1	-
5	238	6,380	2,894	40,400	5,498	-	26.9	14.1	-
	support loc								
7	367	7,110	2,894	40,400	7,911	-	11.1	1.1	-

SkylineXL 15.0 Skyline Analysis - Profile Input Table

Select measurement type	English

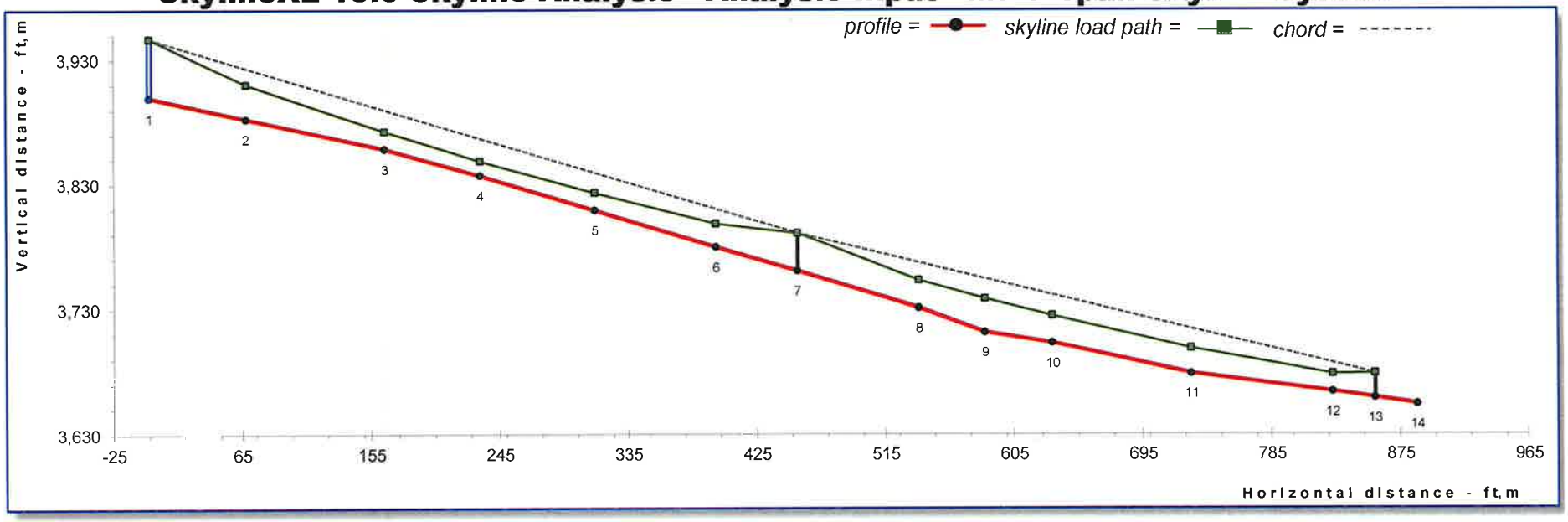
Terrain pt	Slope dist (ft)	% slope (+/-)	Horiz - (ft)	Vert - (ft)	Notes
1			0.0	3,900.0	Landing
	70.0	-25.0%			
2			67.9	3,883.0	18"DF
	100.0	-25.0%			
3			164.9	3,858.7	18"DF
	70.0	-32.0%			
4			231.6	3,837.4	18"DF
	85.0	-35.0%			
5			311.8	3,809.3	18"DF
	90.0	-35.0%			
6			396.7	3,779.6	18"DF
	60.0	-33.0%			
7			453.7	3,760.8	Cat road 16"DF
	90.0	-35.0%			
8			538.6	3,731.1	Cat Road 18"DF
	50.0	-42.0%			
9			584.7	3,711.7	On Cat Road 20"DF
	48.0	-18.0%			
10			631.9	3,703.2	18"DF
	100.0	-25.0%			
11			728.9	3,678.9	18"DF
	100.0	-15.0%			
12			827.8	3,664.1	20"DF
	30.0	-17.0%			
13			857.4	3,659.1	30"DF
	30.0	-17.0%			
14			887.0	3,654.1	30" DF Top of Cutbank

Profile name
19-2
Profile azimuth - deg
136
Profile date
9/14/2015
Analyst
Start elevation - (ft)
3,900
Profile data source
Ground

Profile reversed?
no

10

SkylineXL 15.0 Skyline Analysis - Analysis Input - Multi-span Skyline System



Analysis type	Selected yarder	Selected carriage
Multi-span	Madill 071, tower	Eagle VI, motorized

Log Geometry Table	
tag length - (ft)	15.0
log length - (ft)	41.0
log diameter - (in)	18.00

Min payload-(lbs)	At terrain point
4,703	10

Supports Table	At terrain point	Rigging height (ft)
head spar	1	47
tail spar	13	20
int support 1	7	30
int support 2		
int support 3		

Yarding Parameters Table	Inner dist terrain pt.	Outer dist terrain pt
yarding limits	2	12
landing cut (-) or fill (+) - (ft)		

Susp. type	Log Susp. and Clearance Table	Log clearance (ft)
partial		1.1

Analysis name: Multi
Units: English
Data source: Ground
Analysis phase: 1

Pro date: 9/14/2015
Pro name: 19-2
Analyst:

LIVE sky selections

- ○ Specified clearance
- ◉ Lift only
- ○ Drop only

Lift-drop location at terrain point...

1
2
3
4
5

*The above options for **LIVE** skyline analysis only*

12

SkylineXL 15.0 Skyline Analysis - Analysis Results - Multi-span Skyline System

Profile name: 19-2
Analysis name: Multi

Units: English
Analyst:
Data source: Ground

Profile date: 9/14/15

MULTI-SPAN skyline analysis summary table...

Skyline analysis type	Selected yarder	Selected carriage	Minimum payload-(lbs)	At terrain point	Analysis phase
Multi-span	Madill 071, tower, 47-ft twr	Eagle VI, motorized	4,703	10	**1**

MULTI-SPAN skyline rigging lengths table...

Line	Capacity-(ft)	Required-(ft)	Notes
skyline	1,930	1,030	adequate
mainline	1,600	960	adequate
haulback	3,045		

line capacities based on selected yarder

Chord slope span 1	Chord slope span 2	Chord slope span 3	Chord slope span 4	Average slope yarding dist for this analysis-(ft)
34.4%	27.7%			
Un-stretched skyline line length - (ft)			895.28	447

MULTI-SPAN skyline analysis detail table, PHASE 1 analysis...

TP	Horizontal distance - (ft)	Net payload at TP - (lbs)	Net payload to landing - (lbs)	Skyline tension - (lbs)	Mainline tension - (lbs)	Haulback tension - (lbs)	Skyline clearance - (ft)	Log clearance - (ft)	Full susp. bottom of log above TP-(ft)
2	68	10,050	10,050	40,400	7,491	-	27.4	14.1	-
3	165	6,145	6,145	40,400	5,395	-	14.3	3.1	-
4	232	5,743	5,743	40,400	5,188	-	11.7	1.1	-
5	312	5,702	5,702	40,400	4,918	-	14.1	3.1	-
6	397	10,151	5,702	40,400	7,106	-	19.0	7.1	-
	support loc								
8	539	5,362	5,362	40,400	4,470	-	22.2	10.1	-
9	585	5,439	5,362	40,400	3,947	-	26.6	13.1	-
10	632	4,703	4,703	40,400	3,632	-	21.7	9.1	-
11	729	6,438	4,703	40,400	4,357	-	20.0	7.1	-
12	828	17,225	4,703	40,400	10,008	-	14.5	2.6	-

SkylineXL 15.0 Skyline Analysis - Profile Input Table

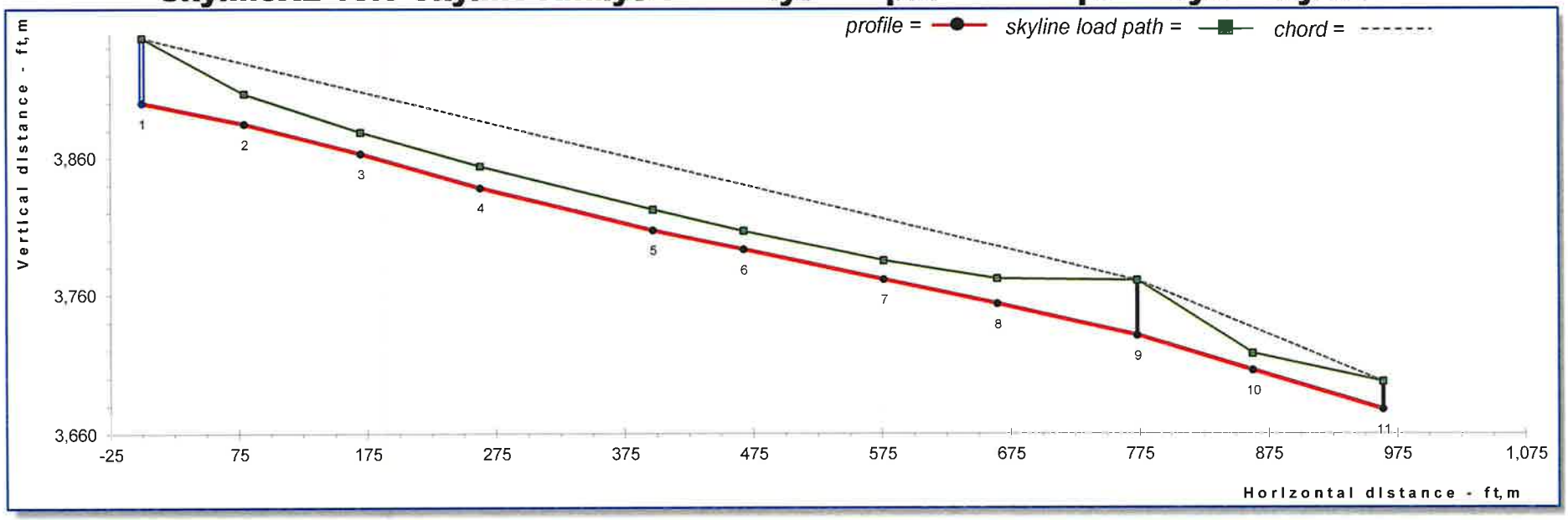
Select measurement type	English

Terrain pt	Slope dist (ft)	% slope (+/-)	Horiz - (ft)	Vert - (ft)	Notes
1			0.0	3,900.0	Landing at End of Spur
	81.0	-19.0%			
2			79.6	3,884.9	16"DF
	93.0	-24.0%			
3			170.0	3,863.2	18"DF
	96.0	-27.0%			
4			262.7	3,838.2	20"DF
	138.0	-23.0%			
5			397.2	3,807.3	20"DF
	72.0	-20.0%			
6			467.8	3,793.2	20" DF Interior Boundary
	111.0	-20.0%			
7			576.6	3,771.4	20"DF
	90.0	-20.0%			
8			664.9	3,753.7	20"DF
	111.0	-21.0%			
9			773.5	3,730.9	20"DF
	93.0	-28.0%			
10			863.1	3,705.8	Cat Road 24"DF
	105.0	-28.0%			
11			964.2	3,677.5	Cat Trough 20"DF

Profile name
19-3
Profile azimuth - deg
124
Profile date
9/14/2015
Analyst
Loree
Start elevation - (ft)
3,900
Profile data source
Ground

Profile reversed?
no

SkylineXL 15.0 Skyline Analysis - Analysis Input - Multi-span Skyline System



Analysis type	Selected yarder	Selected carriage
Multi-span	Madill 071, tower	Eagle VI, motorized

Log Geometry Table	
tag length - (ft)	15.0
log length - (ft)	41.0
log diameter - (in)	18.00

Min payload-(lbs)	At terrain point
6,374	5

Supports Table	At terrain point	Rigging height (ft)
head spar	1	47
tail spar	11	20
int support 1	9	40
int support 2		
int support 3		

Yarding Parameters Table	Inner dist terrain pt.	Outer dist terrain pt
yarding limits	2	10
landing cut (-) or fill (+) - (ft)		

Susp. type	Log Susp. and Clearance Table	Log clearance (ft)
partial		1.1

Analysis name: Multi
Units: English
Data source: Ground
Analysis phase: 1

Pro date: 9/14/2015
Pro name: 19-3
Analyst: Loree

LIVE sky selections

- ○ Specified clearance
- ◉ Lift only
- ○ Drop only

Lift-drop location at terrain point...: 1, 2, 3, 4, 5

*The above options for **LIVE** skyline analysis only*

SkylineXL 15.0 Skyline Analysis - Analysis Results - Multi-span Skyline System

Profile name: 19-3
Analysis name: Multi

Units: English
Analyst: Loree
Data source: Ground

Profile date: 9/14/15

MULTI-SPAN skyline analysis summary table...

Skyline analysis type	Selected yarder	Selected carriage	Minimum payload-(lbs)	At terrain point	Analysis phase
Multi-span	Madill 071, tower, 47-ft twr	Eagle VI, motorized	6,374	5	**1**

MULTI-SPAN skyline rigging lengths table...

Line	Capacity-(ft)	Required-(ft)	Notes
skyline	1,930	1,130	adequate
mainline	1,600	980	adequate
haulback	3,045		

line capacities based on selected yarder

Chord slope span 1	Chord slope span 2	Chord slope span 3	Chord slope span 4	Average slope yarding dist for this analysis-(ft)
22.8%	38.5%			
Un-stretched skyline line length - (ft)			995.38	495

MULTI-SPAN skyline analysis detail table, PHASE 1 analysis...

TP	Horizontal distance - (ft)	Net payload at TP - (lbs)	Net payload to landing - (lbs)	Skyline tension - (lbs)	Mainline tension - (lbs)	Haulback tension - (lbs)	Skyline clearance - (ft)	Log clearance - (ft)	Full susp. bottom of log above TP-(ft)
2	80	17,263	17,263	40,400	11,933	-	21.7	9.1	-
3	170	10,079	10,079	40,400	7,442	-	15.7	4.1	-
4	263	7,468	7,468	40,400	5,480	-	15.9	4.1	-
5	397	6,374	6,374	40,400	4,640	-	14.9	3.1	-
6	468	6,653	6,374	40,400	4,790	-	13.7	2.1	-
7	577	8,542	6,374	40,400	5,723	-	13.7	2.1	-
8	665	10,661	6,374	40,400	6,239	-	18.4	6.1	-
	support loc								
10	863	17,093	6,374	40,400	13,666	-	12.0	1.1	-

SALE ESTIMATED DAILY YARDING PRODUCTION 35 CCF/DAY NET LOG SCALE

Payload Analysis Summary

1. Payload analysis calculations were based on a 1" diameter skyline cable and a 47' tower coupled with the Eagle VI carriage for all tower settings. The Eagle VI motorized slack pulling carriage is multispan compatible, with a yarder controlled mechanical slackline system for lateral yarding purposes.
2. In order to gain adequate deflection, tailtrees were used on most analyzed profiles. Additional lift can be gained in some cases by hanging across draws and up adjacent hill. Individual unit summaries will give further details. In some cases, one or two intermediate supports were necessary to gain adequate payloads.
3. The following table summarizes the SkylineXL 5.0 output of the payload analysis using a mulit span skyline for analysis.

Unit Number	Skyline Number	Skyline Length (ft.)	Multispan Y or N	Payload* (lbs)	Yarding Direction
18	18-1	618	Y	3996	Uphill
18	18-2	772	Y	2741	Uphill
19	19-1	420	Y	2894	Uphill
19	19-2	887	Y	4703	Uphill
19	19-3	965	Y	6374	Uphill

*Payload refers to the weight of one turn of logs that does not exceed the safe working load of the skyline cable and meets the clearance criteria for each terrain point. The largest log expected in unit 18 and 19 is 2640# (18" x 41' from the log weight calculator at wood web for interior west Douglas-fir)

All use 6180 tension lbs for the mainline (average from Skyline XL).

LANDING SUMMARY

Subdivision	Construction		Existing *	
	Ground Based	Skyline	Ground Based	Skyline
14			2	
15			2	
16			1	
16a			1	
16r			1	
18		1	2	5
18r			3	
19		1	2	5
19a		1	3	
19b		2	1	
19c	Landings are in 19a and 19b			
19d			1	
87		2	3	
130				5
		7	27	15

*Landings on existing roads will require surface rock replacement and removal of woody material

There are 44 total landings, 5 will be used for both skyline and ground based systems. Because the logging systems may be done in different years use 49 landings on the erosion control plan.