



INITIAL ENGINEERING SUBMITTALS

Installation: Wildcat

Location: Snowbasin Resort Company

Type: 6-CLD

Job #: SAA0002518

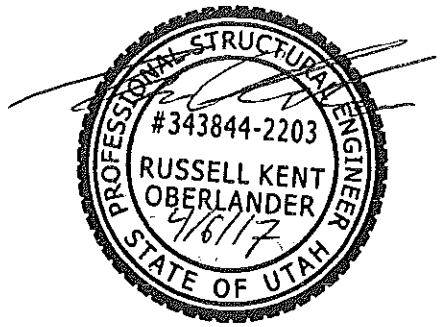
Date: April 6, 2017

Submittal Number: 1

Purpose: Initial Submittal for Permit

Description	ID#	Drawing #
Data Sheet	4-5-2017	
Calculations	2017-04-06	
Profile		SAA0002518
Bottom foundation layout	55051666	90007819NAD005100
Rear mast foundation (bottom)	55051667	90007820NAD005100
Front mast foundation (bottom)	55051668	90007821NAD005100
Parking foundation schedule	55053056	90007974NAD005102
Park footer	55027756	90004948NAD005102.a
Top foundation layout	55051669	90007822NAD005101
Front mast foundation (top)	55051670	90007823NAD005101
Rear mast foundation (top)	55051671	90007824NAD005101
Tower foundation schedule	55051672	90007825NAD005102
Tower footer, 42rnd, 0 tilt	55029780	90005283NAD005102.a
Tower footer, 42rnd, 6 tilt,	55029784	90005284NAD005102.a
Tower footer, 48rnd, 12 tilt	55037145	90005837NAD005102
Tower footer, 42rnd, 12tilt	55029788	90005285NAD005102.a
Tie off foundation layout	55051673	90007826NAD005102
Tie off foundation detail	55053051	90001467NAD005102.b
Tie off foundation detail	55019640	90001468NAD005102.b
Bottom terminal	55051985	90006280NAE001100.a
General specification	55052020	90001186NAD005103.a

FINAL LIFT EQUIPMENT DATA SHEET



LIFT ID:	SAA0002518	LICENSEE:	Snowbasin
MANUFACTURER:	Doppelmayr	AREA ID:	
YEAR MANUFACTURED:	2017	ENTRY DATE:	4/5/2017
LIFT DESCRIPTION:	Detachable Grip 6-Seat	LIFT NAME:	Wildcat
LIFT CODE:	6-CLD-245 UNIG	YEAR RELOCATED:	N/A
LIFT MODEL:	UNI-G 5.6	OLD AREA ID:	
ACTIVE LIFT:	Yes	PUBLIC LAND:	Yes

GENERAL SPECIFICATIONS

CAPACITY (PRES):	2400	PPH	SPEED:	1000	(FPM)
CAPACITY (INT):	N/A	PPH	OVERHAULING:	No	
CAPACITY (ULT):	2400	PPH	LINE GAUGE:	5.6	M
VERTICAL RISE:	1395	FT.	CARRIER SPACING:	150	FT.
HORIZONTAL LENGTH:	4832	FT.	DRIVE LOCATION:	Top	
SLOPE LENGTH:	5056	FT.	TENSION LOCATION:	Bottom	
LOAD INTERVAL:	9	SEC.	ROTATION:	RHU(CCW)	
CARRIER No.:	71		DOWNHILL LOAD:	25%	CARRIERS (OR %)

ROPE SPECIFICATIONS

MAIN HAUL ROPE			
HAUL ROPE DIA:	43mm	HAUL ROPE MFG:	Redaelli
HAUL ROPE SPECS:	6 X 25	HAUL ROPE WGHT:	6.72 Kg/m
NOMINAL BREAK:	1293 kN	MAX UPHILL	30.2°
		ROPE ANGLE:	
CALC SF:	4.56		

DRIVE EQUIPMENT

DRIVE 'A' (MAIN DRIVE)

MAIN DRIVE (ELEC/GAS/DIESEL):	Electric		
DRIVE BW DIA:	5.6 M (FT/M)	GEARBOX MDL:	GPW 245
DRIVE BW MFG:	Doppelmayr	GEARBOX RATIO:	78.24
GEARBOX MFG:	Lohmann	MAIN DRV. LINE CONN:	Direct thru U-Shaft
		DRIVE LINE MFG:	Doppelmayr

DRIVE 'B' (AUX DRIVE)

DRIVE 'B' (GAS/D/ELEC):	Diesel	DRIVE 'B' (TC/FC):	TC
DRIVE 'B' MFG:	CATERPILLAR	DRIVE 'B' LINE CONN:	Belt
DRIVE 'B' MDL:	C18	DRIVE 'B' FUEL TANK:	300 Gallon
DRIVE 'B' HP:	600	DRV. LINE RATIO:	550/400
DRIVE 'B' (FT/EVAC):	FT		

DRIVE 'C' (EVACUATION)

DRIVE 'C' (GAS/D/ELEC):	Diesel	DRIVE 'C' (TC/FC):	Hydrostatic
DRIVE 'C' MFG:	CATERPILLAR	DRIVE 'C' LINE CONN:	Belt
DRIVE 'C' MDL:	C4.4	DRIVE 'C' FUEL TANK:	60 Gallon
DRIVE 'C' HP:	142	DRV. LINE RATIO:	550/400
DRIVE 'C' (FT/EVAC):	Evac		

FINAL LIFT EQUIPMENT DATA SHEET

Lift ID: SAA0002604

BRAKING SYSTEMS

SERVICE BRAKE:	Doppelmayr Disc Brake	OVERSPEED 110%:	Electric
DRIVE TRAIN BACKSTOP:	N/A	OVERSPEED 115%:	Electric
DRIVE SHEAVE BRAKE:	Doppelmayr Caliper Brake	BRAKE TEST TORQUE:	
ROLLBACK DEVICE:	Doppelmayr Caliper Brake		

ELECTRICAL SYSTEM

DRIVE SYSTEM

DRIVE MFG:	ABB	ELECTRIC MTR MFG:	ABB/Baldor
MODEL:	ACS 880	ELECTRIC MTR MDL:	RDL2514
AC OR DC:	AC	ELECTRIC MTR RPM:	1356
YEAR MFG:	2017	ELECTRIC MTR HP:	542
CONTROLLER	VFD	REGEN DRIVE:	Yes
(SCR/DRUM/SOFT START/ VFD/FULL VOLTAGE):			

CONTROL SYSTEM

CONTROL MFG:	Doppelmayr	ANTICOLLISION MFG:	Doppelmayr
MODEL:	Pilz PSS3000	ANTICOLLISION YR MFG:	2017
YEAR MFG:	2017	DEROPEMENT CIRCUIT #1	Brittle Bar
		(RPD,BRITTLE BAR,WIRE.):	
PLC CONTROLLED (Y/N):	Yes	DEROPEMENT CIRCUIT #2	RPD
		(RPD,BRITTLE BAR,WIRE.):	

TOWERS, GRIPS, LINE EQUIPMENT, CARRIERS

TOWERS

NO. OF TOWERS: 17

LINE EQUIPMENT, CARRIERS

SHEAVE TRAIN MFG:	Doppelmayr
SHEAVE TRAIN MDL:	Type 401.1
SHEAVE LINER:	Rubber

CARRIERS

CARRIER MFG:	Doppelmayr
CARRIER MDL:	E95
CARRIER YR MFG:	2017
TOTAL WEIGHT	
CARRIER,GRIP,HANGER):	987 LBS.
RESTBAR (Y/N):	Yes
FOOTREST (Y/N):	Yes

GRIPS

GRIP MFG:	Doppelmayr
GRIP MDL:	AGA 108
GRIP YR MFG:	2017
GRIP SPRING TYPE:	Coil
GRIP SPRING QTY:	2
GRIP SLIP TEST:	LBS.

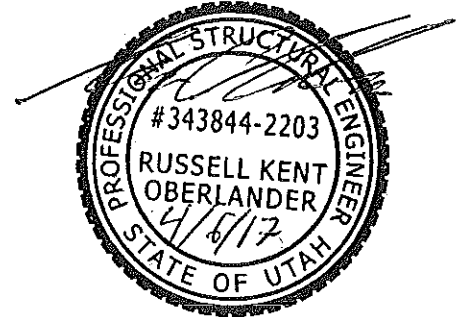
TENSIONING EQUIPMENT

TOTAL TENSION FORCE:	67,443	LBS.		
TOP TENSION:	110,814	LBS.	BOTTOM TENSION:	67,443
CWT ROPE MFG:	N/A		No. OF CYLINDERS:	2
CWT ROPE SPEC:	N/A		NOMINAL PRESSURE:	107 Bar
CWT ROPE SF:	N/A		MAXIMUM PRESSURE:	115 Bar
REEVE:	N/A		MINIMUM PRESSURE:	98 Bar
RATIO:	N/A		ROD DIA:	3"
CWT MATERIAL:	N/A		CYLINDER BORE:	6"

Ropeline calculation

Wildcat

6-CLD



Project no.: SAA0002518

Profile drawing no.: SAA0002518-PROF

b Moved towers 3, 4 & 5.
a New survey, complete revision.
Index Text

2017-03-20 OBR
2017-03-07 OBR
Date Name

created: 2017-03-07 OBR

vis.:

Project [-no.]: 6-CLD Wildcat [SAA0002518]

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Project [-no.]: 6-CLD Wildcat [SAA0002518]

Key to symbols and abbreviations

Alpha	Deflection angle
Ao	Suspension above
Au	Suspension below
BW	Bullwheel
D	Tower load (more exact: resulting force in the rope point)
DCG	Distance CTF to ground
DS	Load per sheave
EB	Entrance beam
Eps	Tower angle
F2	Distance sheave assembly main axle - rope point
HA	Suspension height of sheave assembly
HC	Distance bottom of yoke to bottom of connection plate
HG	Grout (more exact: distance bottom of shaft to CTF)
HS	Shaft length
HY	Yoke height
IO	In Operation
Lc	Load configuration
OO	Out of Operation
Phi	Rope angle
PhiH	Horizontal lead-on/lead-off angle
Psi	Tower load reaction angle
Q	Cross inclination
RP	Rope point
T	Rope tension
T0	Basic tension force
T0+	Basic tension force with overtension
T0-	Basic tension force with undertension
W	Wind
WS	Wind load per sheave
XA,ZA	Coordinates of sheave assembly main axle
XF,ZF	Coordinates CTF
XR,ZR	Rope point coordinates
f	Sag
fy	Horizontal rope deflection
h	Elevation difference
l	Horizontal length
l*	Inclined length
q	Wind pressure
r	Rope radius

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Location: Utah
Client: Snowbasin**Main data**

Installation type:	6-CLD
Direction of rotation:	Counter-clockwise
Uphill transportation side:	Right
Uphill capacity:	100 %
Downhill capacity:	25 %
Drive location:	Top
Tension location:	Bottom
Tensioning type:	Hydraulic tensioning
Tensioning force:	67443 lb
Basic tension force:	33721 lb
Regulation:	US design parameters <modified>
Haul rope:	43 mm 6x25 FW 1860 Redaelli
Carriers:	6 EC RBFR BS STJ DT108
Number of carriers:	71 (on line: 67.4; in stations: 4.6)
Spacing:	150.00 ft

Geometrical data

Horizontal length:	4832.08 ft
Vertical rise:	1395.01 ft
Average grade:	28.87 %
Inclined length:	5055.75 ft
Transportation length:	5161.45 ft
Spliced rope length:	10284.59 ft
Rope gauge:	18.37 ft

Speed/Capacity

Main drive:	Rope speed:	1000 fpm	(backwards: -984 fpm)
	Capacity:	2400 persons/h	
	Interval:	9.00 s	
	Trip time:	5.40 min	
Evac drive:	Rope speed:	197 fpm	
	Capacity:	472 persons/h	
	Interval:	45.72 s	
	Trip time:	27.42 min	

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Carrier

Manufacturer: STJ
Type: 6 EC RBFR BS
Dead weight: 988 lb
Pay load: 1019 lb or 6 persons
Total weight: 2006 lb
Length (L): 3.61 ft
Dist. CL rope to top of seat (HS): 10.14 ft
Dist. CL rope to bottom of carrier (H0): 10.14 ft
Dist. CL rope to bottom of carrier (Hmax): 10.14 ft
Projection area empty, perpendicular: 7.5 sqft (Cf: 1.20)
Projection area loaded, perpendicular: 10.2 sqft (Cf: 1.20)
Side swing 0.00 rad: Yi0 / Yo0: 5.74 / 5.22 ft
Side swing 0.20 rad: Yi20 / Yo20: 7.19 / 6.63 ft
Side swing 0.34 rad: Yi34 / Yo34: 8.76 / 8.20 ft
Grip: DT108
Grip pulling force: 5845.0 lb

Haul rope data

Manufacturer: Redaelli
Rope construction: 6x25 FW
Diameter: 1.69 in
Dia. outer wire: 0.109 in
Metallic area: 1.175 sqin
Rope weight: 4.52 lb/ft
Tensile strength: 269770 psi
Calculated breaking strength: 316756 lb
Minimum breaking strength: 290678 lb
Elastic modulus: 1450368 psi
Thermal expansion factor: 1.2e-05 1/K
Permanent elongation: 1.50 %
Stranding formula: FEC + 6 x (1 + 6 + [6] + 12)
Spliced rope length: 10284.6 ft
Order length: 10554 ft (incl. Splice length: 169 ft; Surcharge: 98 ft)

Rope sheaves

Sheave	Side plate diameter	Base of Groove diameter
401	412 mm	382 mm
403	430 mm	400 mm

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Station: Bottom station

Type: 6-CLD UNIGS M Return movable
Entrance beam: XR: 175.14 ft ZR: 6545.47 ft
Gauge at entrance beam: 18.37 ft
Rope angle at entrance beam: 0.00 °
Distance EB to loading/unloading: 58.10 ft
Rope length in station: 95.80 ft
Distance EB to grip checking: 0.46 ft
Min. distance EB to mid 1. line sheave T; N; T/N: 17.06 ft; 13.78 ft; 17.06 ft
Driving speed: 196.85 fpm
Deceleration anti-collision monitoring: 3.28 ft/s²
Station dwell time: 22.54 s (377 Impulses)
Tire conveyor friction: 224.8 lb
Rope deflections per side: 5.00° vertical, 4 Sheaves (501C.1)
Return bullwheel: Ø = 18.37 ft; I = 19700 kgm²
Tmax: 35700 lb (Lc: 3+)
Tmin: 30083 lb (Lc: 4-)

Station: Top station

Type: 6-CLD UNIGS S Drive fixed
Entrance beam: XR: 5007.22 ft ZR: 7940.48 ft
Gauge at entrance beam: 18.37 ft
Rope angle at entrance beam: 0.00 °
Distance EB to loading/unloading: 47.60 ft
Rope length in station: 77.36 ft
Distance EB to grip checking: 0.46 ft
Min. distance EB to mid 1. line sheave T; N; T/N: 17.06 ft; 13.78 ft; 17.06 ft
Driving speed: 196.85 fpm
Deceleration anti-collision monitoring: 3.28 ft/s²
Station dwell time: 18.53 s (310 Impulses)
Tire conveyor friction: 179.8 lb
Rope deflections per side: 5.00° vertical, 4 Sheaves (501C.1)
Min. wrap angle: 180.00 °
Drive bullwheel: Ø = 18.37 ft; I = 19700 kgm²
Tmax: 63722 lb (Lc: 3+)
Tmin: 38061 lb (Lc: 1)

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Main drive:

Total inertia: 510.20 lbft²
Acceleration: 0.49 ft/s²
Deceleration: -2.62 ft/s² Reverse deceleration: -1.31 ft/s²

Gearbox:

Manufacturer: Doppelmayr-Lohmann
Type: GPW 245 III S
Nominal torque: 150831.5 ftlb
Max. torque: 211164.0 ftlb
Ratio: 78.24
Efficiency: 0.93
Inertia: 11.87 lbft²
Req. input speed: 1356 rpm
Utilisation: 96 %
Req. torque continuous: 145140.5 ftlb (Lc: 100% UH Load, 0% DH Load; Forward operation (5.1m/s); T0+; IO)
Req. torque maximum: 145840.5 ftlb (Lc: 100% UH+DH Load, 2 Spans Rope Only; Forward operation (5.1m/s);

Electric motor:

Manufacturer: ABB
Type: AC
Rating: 542 HP
Speed: 1356 rpm
Inertia: 23.73 lbft²
Req. power continuous: 515 HP (Lc: 100% UH Load, 0% DH Load; Forward operation (5.1m/s); T0+; IO)

Service brake(s):

Inertia: 474.61 lbft²
Max. braking torque: 1145.07 ftlb (4.14 kN @ 0.75 m)
Req. braking torque: 854.17 ftlb (Lc: 0% UH Load, 100% DH Load; Braking (0.50m/s²); T0)

Emergency brake(s):

Max. braking torque: 88507.5 ftlb (50.00 kN @ 4.80 m)
Req. braking torque: 66830.5 ftlb (Lc: 0% UH Load, 100% DH Load; Braking (0.50m/s²); T0)

Evac drive:

System: auxiliary input on gearbox mechanic
Diesel engine:
Efficiency: continuous, starting: 0.80 braking: 1.00
Req. power continuous: 127 HP (Lc: 100% UH Load, 0% DH Load; Forward operation (1.0m/s); T0+; IO)
Req. power braking: 0 HP (Lc:)
Req. M_{dmax} bullwheel: 0.0 ftlb (Lc:)

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Tower geometry

Tower#	XF[ft]	ZF[ft]	DCG[ft]	HS[ft]	Eps[°]	HG[in]
B						
1	199.00	6530.00	-5.89	19.28	0	3.00
2	338.00	6558.80	0.59	31.50	6	2.00
3	654.00	6616.50	0.56	44.50	6	2.00
4	1000.00	6690.80	0.53	43.40	6	2.00
5	1278.00	6761.10	0.54	40.10	6	2.00
6	1650.00	6874.80	0.58	42.60	12	2.00
7	1990.00	7038.50	0.54	42.90	12	2.00
8	2344.00	7169.50	0.58	51.40	12	2.00
9	2545.00	7246.90	0.57	43.80	12	2.00
10	2955.00	7354.60	0.50	48.70	12	2.00
11	3291.00	7511.00	0.58	33.20	12	2.00
12	3581.00	7609.20	0.59	48.15	12	2.00
13	3785.00	7665.70	0.59	52.00	6	2.00
14	4345.00	7817.20	0.52	44.95	6	2.00
15	4575.00	7876.80	0.65	37.70	0	2.00
16	4700.00	7895.60	0.55	34.50	0	2.00
17	4966.00	7909.70	0.53	29.95	0	3.00
T						

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Rope point coordinates - UH

Rope point	XR[ft]	ZR[ft]	Psi[°]	Alpha[°]	F2[ft]
BEB	175.14	6545.47	-0.2	0.3	0.00
1	199.49	6545.43	8.6	16.7	-3.31
2	334.42	6590.93	14.8	10.0	1.31
3	649.17	6661.37	12.1	6.3	1.09
4	995.29	6734.48	12.9	4.3	0.99
5	1273.86	6800.53	15.0	1.6	0.00
6	1641.24	6916.03	21.8	2.6	0.00
7	1980.66	7081.19	23.7	9.4	1.28
8	2333.02	7220.35	20.8	6.3	1.09
9	2535.65	7290.43	16.5	8.0	1.19
10	2944.97	7401.79	19.2	2.5	0.00
11	3283.80	7543.98	22.3	5.2	1.03
12	3570.66	7657.06	19.1	8.2	1.29
13	3779.32	7718.09	14.3	6.4	1.16
14	4340.06	7862.58	14.5	6.4	1.16
15	4574.79	7915.23	10.2	7.6	1.21
16	4699.91	7930.82	4.2	7.3	1.19
17	4965.97	7940.28	1.8	3.5	1.01
TEB	5007.22	7940.48	0.3	0.5	0.00

Rope point coordinates - DH

Rope point	XR[ft]	ZR[ft]	Psi[°]	Alpha[°]	F2[ft]
BEB	175.14	6545.47	-0.1	0.3	0.00
1	199.49	6545.43	8.6	17.0	-3.31
2	334.46	6590.76	15.0	9.1	1.14
3	649.17	6661.35	12.2	5.3	1.07
4	995.29	6734.46	12.9	3.3	0.97
5	1273.86	6800.53	15.1	0.7	0.00
6	1641.24	6916.03	21.8	3.4	0.00
7	1980.70	7081.10	23.7	8.7	1.18
8	2333.03	7220.32	20.8	5.9	1.07
9	2535.66	7290.40	16.5	7.5	1.15
10	2944.97	7401.79	19.2	3.0	0.00
11	3283.81	7543.95	22.3	4.8	1.00
12	3570.70	7656.97	19.1	7.9	1.18
13	3779.34	7718.01	14.4	6.1	1.08
14	4340.08	7862.48	14.4	6.0	1.07
15	4574.80	7915.17	10.2	7.5	1.15
16	4699.92	7930.72	4.2	7.1	1.09
17	4965.97	7940.24	1.8	3.4	0.96
TEB	5007.22	7940.48	0.3	0.5	0.00

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Span geometry - UH

Span	l[ft]	h[ft]	l*[ft]	Chord angle[°]	Chord angle[%]
BEB - 1	24.35	-0.04	24.35	-0.09	-0.16
1 - 2	134.93	45.50	142.40	18.64	33.72
2 - 3	314.75	70.44	322.53	12.61	22.38
3 - 4	346.12	73.11	353.76	11.93	21.12
4 - 5	278.57	66.05	286.29	13.34	23.71
5 - 6	367.38	115.50	385.11	17.45	31.44
6 - 7	339.42	165.16	377.47	25.95	48.66
7 - 8	352.36	139.17	378.85	21.55	39.50
8 - 9	202.63	70.08	214.41	19.08	34.58
9 - 10	409.32	111.36	424.19	15.22	27.21
10 - 11	338.83	142.19	367.46	22.77	41.97
11 - 12	286.86	113.08	308.34	21.51	39.42
12 - 13	208.66	61.03	217.40	16.30	29.25
13 - 14	560.73	144.49	579.05	14.45	25.77
14 - 15	234.73	52.65	240.56	12.64	22.43
15 - 16	125.13	15.59	126.09	7.10	12.46
16 - 17	266.06	9.46	266.23	2.04	3.56
17 - TEB	41.25	0.20	41.25	0.28	0.49

Span geometry - DH

Span	l[ft]	h[ft]	l*[ft]	Chord angle[°]	Chord angle[%]
BEB - 1	24.35	-0.04	24.35	-0.09	-0.16
1 - 2	134.97	45.33	142.38	18.57	33.59
2 - 3	314.71	70.59	322.53	12.64	22.43
3 - 4	346.12	73.10	353.76	11.93	21.12
4 - 5	278.56	66.07	286.29	13.34	23.72
5 - 6	367.38	115.50	385.11	17.45	31.44
6 - 7	339.46	165.08	377.47	25.93	48.63
7 - 8	352.33	139.22	378.84	21.56	39.51
8 - 9	202.63	70.07	214.41	19.08	34.58
9 - 10	409.31	111.39	424.19	15.22	27.21
10 - 11	338.84	142.16	367.46	22.76	41.96
11 - 12	286.88	113.01	308.34	21.50	39.39
12 - 13	208.64	61.05	217.39	16.31	29.26
13 - 14	560.74	144.47	579.05	14.45	25.76
14 - 15	234.71	52.69	240.55	12.65	22.45
15 - 16	125.12	15.55	126.09	7.08	12.43
16 - 17	266.05	9.53	266.22	2.05	3.58
17 - TEB	41.25	0.24	41.25	0.33	0.57

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Calculation mode and load configurations

Calculation method: Evenly distributed load

Calculated load configurations:

- 1 Rope Only; Forward operation (5.1m/s); T0; IO
- 2 Rope + Empty Carriers; Forward operation (5.1m/s); T0; IO
- 2+ Rope + Empty Carriers; Forward operation (5.1m/s); T0+; IO
- 2- Rope + Empty Carriers; Forward operation (5.1m/s); T0-; IO
- 3 100% UH Load, 0% DH Load; Forward operation (5.1m/s); T0; IO
- 3+ 100% UH Load, 0% DH Load; Forward operation (5.1m/s); T0+; IO
- 3- 100% UH Load, 0% DH Load; Forward operation (5.1m/s); T0-; IO
- 4 100% UH+DH Load; Forward operation (5.1m/s); T0; IO
- 4+ 100% UH+DH Load; Forward operation (5.1m/s); T0+; IO
- 4- 100% UH+DH Load; Forward operation (5.1m/s); T0-; IO
- 5 0% UH Load, 100% DH Load; Forward operation (5.1m/s); T0; IO
- 5+ 0% UH Load, 100% DH Load; Forward operation (5.1m/s); T0+; IO
- 5- 0% UH Load, 100% DH Load; Forward operation (5.1m/s); T0-; IO
- 6 100% UH+DH Load, 2 Spans Rope Only; Forward operation (5.1m/s); T0; IO

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Rope tension extremes, rope design factors, shear ratio

Rope tension extremes at nominal tension without dynamics

Tmax = 61986 lb (Rp: TBW; Lc: 3)

Tmin = 33210 lb (Rp: 1; Lc: 6)

Rope tension extremes at nominal tension with dynamics

Tmax = 61986 lb (Rp: TBW; Lc: 3)

Tmin = 33210 lb (Rp: 1; Lc: 6)

Rope tension extremes without dynamics

Tmax = 63722 lb (Rp: TBW; Lc: 3+)

Tmin = 29889 lb (Rp: 1; Lc: 2-)

Rope tension extremes with dynamics

Tmax = 63722 lb (Rp: TBW; Lc: 3+)

Tmin = 29889 lb (Rp: 1; Lc: 2-)

Rope design factor: min.: 4.56 max.: 9.73

Minimum shear ratio carrier: 16.55

Specific weights: rope only: 4.5156 lb/ft
 rope + empty carriers: 11.1001 lb/ft
 rope + loaded carriers UH: 17.8903 lb/ft
 rope + loaded carriers DH: 12.7977 lb/ft

Max. angle change: 0.0307 rad; 1.76° (Rp: 3; to top; UH)

Greatest rope inclination: 58.15%; 30.18° (Rp: 7; to bottom; UH; Lc: 3-)

Required min. pull force: 3026 lb

Bullwheels - SumTmax and Mdmax, extreme values with dynamic

	SumTmax [lb]	(Lc)	Md [lbft]	Mdmax [lbft]	(Lc)	SumT [lb]
Drive bullwheel	114187	(4+)	124929	145841	(6)	110789
Return bullwheel	70815	(2+)				
	pmax [lb/in ²]	(Lc)				
Drive bullwheel	459	(4+)				
Return bullwheel	285	(2+)				

Bullwheels - SumTmax and Mdmax, values at nominal tension without dynamic

	SumTmax [lb]	(Lc)	Md [lbft]	Mdmax [lbft]	(Lc)	SumT [lb]
Drive bullwheel	110814	(4)	123937	144149	(3)	108607
Return bullwheel	67443	(1)				

Clearance envelope

Required line width: 49.16 ft

Required line width - UH - Right: 24.44 ft (RP: 13; Lc: Rope + Empty Carriers; Forward operation; T0-; IO)

Required line width - DH - Left: 24.72 ft (RP: 13; Lc: 100% UH+DH Load; Forward operation; T0-; IO)

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Circumferential forces, torques, required power

Lc	Circumferential force [lb]	torque [ftlb]	required power [HP]	μ nec
1	3972	38693	137	0.032
2	5236	50817	180	0.034
2+	5334	51808	184	0.033
2-	5041	48837	173	0.035
3	15366	144149	511	0.091
3+	15464	145141	515	0.088
3-	15170	142166	504	0.096
4	13159	123937	439	0.076
4+	13257	124929	443	0.074
4-	12963	121953	432	0.080
5	3030	30605	109	0.019
5+	3127	31596	112	0.019
5-	2834	28624	101	0.019
6	8876 ... 12619 ... 15551	84473 ... 118928 ... 145841	300 ... 422 ... 517	0.092

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Maximum and minimum rope tensions - UH

Rope point	Tmax [lb]	Lc	Tmin [lb]	Lc
BBW	35514	(2+)	30440	(2-)
BEB	35700	(3+)	30611	(2-)
1	35935	(2+)	30615	(2-)
2	36912	(3+)	31321	(2-)
3	38312	(3+)	32230	(2-)
4	39721	(3+)	33130	(2-)
5	41028	(3+)	33922	(2-)
6	43219	(3+)	35328	(2-)
7	46387	(3+)	37064	(1)
8	49033	(3+)	37789	(1)
9	50481	(3+)	38169	(1)
10	52598	(3+)	38759	(1)
11	55291	(3+)	39525	(1)
12	57527	(3+)	40086	(1)
13	58811	(3+)	40467	(1)
14	61595	(3+)	41186	(1)
15	62741	(3+)	41492	(1)
16	63219	(3+)	41668	(1)
17	63492	(3+)	41812	(1)
TEB	63510	(3+)	41856	(1)
TBW	63722	(3+)	42033	(1)

Maximum and minimum rope tensions - DH

Rope point	Tmax [lb]	Lc	Tmin [lb]	Lc
BBW	35301	(2+)	30258	(2-)
BEB	35121	(2+)	30083	(4-)
1	35116	(2+)	29889	(2-)
2	35469	(4+)	30268	(2-)
3	36228	(4+)	30962	(2-)
4	37061	(4+)	31715	(2-)
5	37839	(4+)	32324	(2-)
6	39192	(4+)	33481	(2-)
7	41180	(4+)	35134	(1)
8	42795	(4+)	35701	(1)
9	43573	(4+)	35933	(1)
10	44848	(4+)	36312	(1)
11	46543	(4+)	36905	(1)
12	47879	(4+)	37316	(1)
13	48495	(4+)	37526	(1)
14	50201	(4+)	38113	(1)
15	50729	(4+)	38251	(1)
16	50769	(4+)	38228	(1)
17	50738	(4+)	38230	(1)
TEB	50665	(4+)	38225	(1)
TBW	50465	(4+)	38061	(1)

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Maximum and minimum tower loads - UH

Rope point	Sheave assembly	Dmax Lc [lb]	Psi [°]	Alpha [°]	Dmin Lc [lb]	Psi [°]	Alpha [°]
BEB	3R-403	276 (3+)	-0.22	0.44	110 (1)	-0.09	0.19
1	12N-401	-10787 (2+)	8.78	-17.32	-8591 (3-)	8.35	-16.08
2	8T-401	7869 (3+)	14.38	12.26	4637 (6)	15.29	7.71
3	6T-401	6352 (3+)	12.07	9.53	1910 (1)	12.21	3.14
4	4T-401	4723 (3-)	13.14	7.84	502 (6)	12.75	0.78
5	4T/4N-401	3193 (3-)	14.77	5.10	-1300 (6)	15.25	-1.93
6	4T/4N-401	-4320 (6)	21.75	-6.20	682 (3-)	21.89	1.01
7	8T-401	9714 (3+)	23.69	12.04	4407 (1)	23.73	6.81
8	6T-401	7072 (3+)	21.10	8.28	2887 (1)	20.57	4.37
9	8T-401	8846 (3+)	16.11	10.07	3953 (1)	16.80	5.93
10	4T/4N-401	-4800 (6)	19.09	-5.58	560 (6)	19.38	0.67
11	6T-401	6796 (3+)	22.38	7.05	2277 (1)	22.23	3.30
12	8T-401	9645 (3+)	19.26	9.63	4768 (1)	19.04	6.81
13	8T-401	8758 (3+)	13.85	8.55	3047 (1)	14.82	4.31
14	8T-401	9041 (3+)	14.91	8.43	3096 (1)	14.06	4.30
15	8T-401	9269 (3+)	10.32	8.48	4828 (1)	10.04	6.66
16	8T-401	9073 (3+)	4.00	8.24	4571 (1)	4.35	6.28
17	4T-401	4696 (3+)	2.07	4.24	1978 (1)	1.50	2.71
TEB	3R-403	677 (3+)	0.31	0.61	296 (1)	0.20	0.41

Maximum and minimum tower loads - DH

Rope point	Sheave assembly	Dmax Lc [lb]	Psi [°]	Alpha [°]	Dmin Lc [lb]	Psi [°]	Alpha [°]
BEB	3R-403	212 (4+)	-0.17	0.35	109 (1)	-0.09	0.19
1	12N-401	-10475 (3+)	8.73	-17.21	-8715 (4-)	8.56	-16.71
2	6T-401	6530 (4+)	14.67	10.58	4463 (6)	15.25	7.67
3	6T-401	4674 (4+)	12.12	7.41	1912 (1)	12.22	3.26
4	4T-401	3198 (4-)	13.02	5.72	549 (6)	12.76	0.90
5	4T/4N-401	1781 (4-)	14.90	3.11	-1101 (6)	15.23	-1.76
6	4T/4N-401	-3809 (6)	21.74	-5.98	-552 (4-)	21.83	-0.90
7	6T-401	7549 (4+)	23.68	10.54	4244 (1)	23.72	6.92
8	6T-401	5399 (4+)	20.96	7.24	2802 (1)	20.59	4.49
9	6T-401	6834 (4+)	16.28	9.01	3800 (1)	16.78	6.05
10	4T/4N-401	-3869 (6)	19.10	-5.25	-474 (4-)	19.31	-0.66
11	4T-401	5022 (4+)	22.33	6.19	2225 (1)	22.22	3.45
12	6T-401	7494 (4+)	19.20	8.99	4503 (1)	19.04	6.91
13	6T-401	6490 (4+)	14.04	7.68	2958 (1)	14.77	4.51
14	6T-401	6648 (4+)	14.73	7.60	2990 (1)	14.10	4.49
15	6T-401	7219 (4+)	10.26	8.17	4533 (1)	10.05	6.78
16	6T-401	6952 (4+)	4.06	7.86	4244 (1)	4.33	6.35
17	4T-401	3491 (4+)	2.00	3.94	1845 (1)	1.57	2.76
TEB	3R-403	553 (4+)	0.31	0.63	311 (1)	0.23	0.47

Project [-no.]: 6-CLD Wildcat [SAA0002518]

Sheave assembly utilisation - maximum and normal use - UH

Rope point	Sheave assembly	DSmax (Lc) [lb]	Maximum		DSmax (Lc) [lb]	Normal use	
			DSadm [lb]	U [%]		DSadm [lb]	U [%]
BEB	3R-403	92 (3+)	1349	6.8	91 (3)	1349	6.8
1	12N-401	-899 (2+)	1349	66.6	-853 (2)	953	89.5
2	8T-401	984 (3+)	1349	72.9	961 (3)	1259	76.3
3	6T-401	1059 (3+)	1349	78.5	1055 (3)	1259	83.8
4	4T-401	1181 (3-)	1349	87.5	1160 (3)	1259	92.2
5	4T/4N-401	798 (3-)	1349	59.2	737 (3)	899	82.0
6	4T/4N-401	-1080 (6)	1349	80.1	-460 (2)	899	51.1
7	8T-401	1214 (3+)	1349	90.0	1198 (3)	1259	95.1
8	6T-401	1179 (3+)	1349	87.4	1166 (3)	1259	92.6
9	8T-401	1106 (3+)	1349	82.0	1091 (3)	1259	86.7
10	4T/4N-401	-1200 (6)	1349	89.0	-436 (2)	899	48.5
11	6T-401	1133 (3+)	1349	84.0	1126 (3)	1259	89.5
12	8T-401	1206 (3+)	1349	89.4	1186 (3)	1259	94.2
13	8T-401	1095 (3+)	1349	81.2	1088 (3)	1259	86.4
14	8T-401	1130 (3+)	1349	83.8	1123 (3)	1259	89.2
15	8T-401	1159 (3+)	1349	86.9	1138 (3)	1259	90.4
16	8T-401	1134 (3+)	1349	84.1	1115 (3)	1259	88.6
17	4T-401	1174 (3+)	1349	87.0	1161 (3)	1259	92.2
TEB	3R-403	226 (3+)	1349	16.7	223 (3)	1349	16.5

Sheave assembly utilisation - maximum and normal use - DH

Rope point	Sheave assembly	DSmax (Lc) [lb]	Maximum		DSmax (Lc) [lb]	Normal use	
			DSadm [lb]	U [%]		DSadm [lb]	U [%]
BEB	3R-403	71 (4+)	1349	5.2	70 (4)	1349	5.2
1	12N-401	-873 (3+)	1349	64.7	-828 (2)	953	86.8
2	6T-401	1088 (4+)	1349	80.7	1060 (4)	1259	84.2
3	6T-401	779 (4+)	1349	57.8	775 (4)	1259	61.6
4	4T-401	800 (4-)	1349	59.3	779 (4)	1259	61.9
5	4T/4N-401	445 (4-)	1349	33.0	386 (4)	899	42.9
6	4T/4N-401	-952 (6)	1349	70.6	-386 (2)	899	42.9
7	6T-401	1258 (4+)	1349	93.3	1237 (4)	1259	98.3
8	6T-401	900 (4+)	1349	66.7	888 (4)	1259	70.5
9	6T-401	1139 (4+)	1349	84.4	1120 (4)	1259	89.0
10	4T/4N-401	-967 (6)	1349	71.7	-337 (2)	899	37.5
11	4T-401	1255 (4+)	1349	93.1	1246 (4)	1259	99.0
12	6T-401	1249 (4+)	1349	92.6	1224 (4)	1259	97.2
13	6T-401	1082 (4+)	1349	80.2	1073 (4)	1259	85.2
14	6T-401	1108 (4+)	1349	82.1	1099 (4)	1259	87.3
15	6T-401	1203 (4+)	1349	89.2	1177 (4)	1259	93.5
16	6T-401	1159 (4+)	1349	85.9	1135 (4)	1259	90.1
17	4T-401	873 (4+)	1349	64.7	860 (4)	1259	68.3
TEB	3R-403	184 (4+)	1349	13.7	181 (4)	1349	13.4



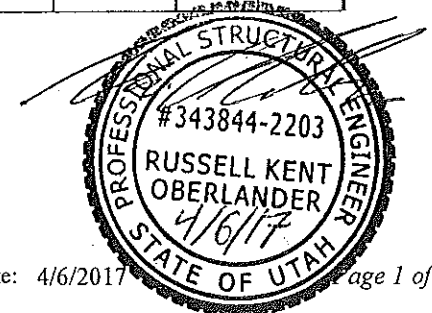
SNOWBASIN WILDCAT
UNIG 5.6M 6-CLD

Project No.: 2518
4/6/2017 4:22:17
By:

Tower Information

Units: FT

TWR	ROPE		FOOTING		HEIGHTS			SHEAVES		SPAN
	ELEV.	STATION	ELEV.	STATION	PI	TOWER	ARM	UH	RT	
EB	6,545.47	175.14								24.35
1	6,545.43	199.49	6,530.00	199.00	15.44	19.28	19.28	12D	12D	134.93
2	6,590.93	334.42	6,558.80	338.00	32.33	31.50	31.50	8	6	314.75
3	6,661.37	649.17	6,616.50	654.00	45.13	44.50	44.50	6	6	346.12
4	6,734.48	995.29	6,690.80	995.29	43.68	43.40	43.40	4	4	278.57
5	6,800.53	1,273.86	6,761.10	1,278.00	39.65	40.10	40.10	4/4	4/4	367.38
6	6,916.03	1,641.24	6,874.80	1,650.00	42.15	42.60	42.60	4/4	4/4	339.42
7	7,081.19	1,980.66	7,038.50	1,990.00	43.70	42.90	42.90	8	6	352.36
8	7,220.35	2,333.02	7,169.50	2,344.00	52.02	51.40	51.40	6	6	202.63
9	7,290.43	2,535.65	7,246.90	2,545.00	44.52	43.80	43.80	8	6	409.32
10	7,401.79	2,944.97	7,354.60	2,955.00	48.24	48.70	48.70	4/4	4/4	338.83
11	7,543.98	3,283.80	7,511.00	3,291.00	33.76	33.20	33.20	6	4	286.86
12	7,657.06	3,570.66	7,609.20	3,581.00	48.96	48.15	48.15	8	6	208.66
13	7,718.09	3,779.32	7,665.70	3,785.00	52.70	52.00	52.00	8	6	560.74
14	7,862.58	4,340.06	7,817.20	4,345.00	45.65	44.95	44.95	8	6	234.73
15	7,915.23	4,574.79	7,876.80	4,575.00	38.43	37.70	37.70	8	6	125.12
16	7,930.82	4,699.91	7,895.60	4,700.00	35.22	34.50	34.50	8	6	266.06
17	7,940.28	4,965.97	7,909.70	4,966.00	30.58	29.95	29.95	4	4	41.25
EB	7,940.48	5,007.22								



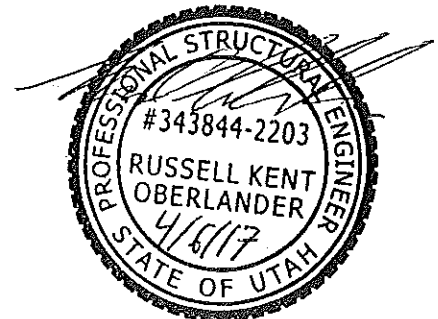
Tower Configuration

Units: KSI, FT

Design wind load velocities: Operating = 30 mph, Out of Operation = 90 mph

- A) 24" Detachable (Lower Pipe 24in @ 0.375 wall) (Middle Pipe 24in @ 0.312 wall) (Upper Pipe 24in @ 0.250 wall)
- B) 24" Detachable (Lower Pipe 24in @ 0.500 wall) (Middle Pipe 24in @ 0.375 wall) (Upper Pipe 24in @ 0.250 wall)
- C) 30/24 Bolted Transition (6 Pack) (Lower Pipe 0in @ 0.000 wall) (Middle Pipe 30in @ 0.375 wall) (Upper Pipe 24in @ 0.312 wall)

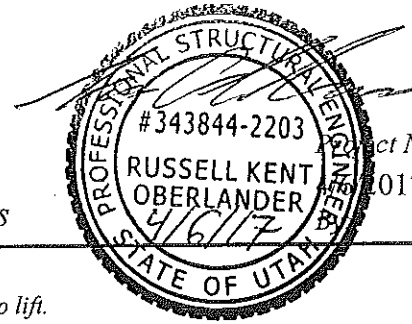
TWR	TOWER LENGTH	PIPE LENGTHS			CHANNEL		TWR TYPE	LADDERS				ANCHOR BOLTS	MAX STRESS
		LOWER	MIDDLE	UPPER	PAR.	PERP.		5'	10'	16'	20'		
EB							A						
1	19.28	19.28					B			1		8	4
2	31.50			31.50			A		1		1	8	13
3	44.50		19.00	25.50			B		1	2		8	16
4	43.40		43.40				A		1	2		8	17
5	40.10		20.10	20.00			A	1		2		8	14
6	42.60		16.60	26.00			C	1		1	1	12	12
7	42.90	10.00	15.00	17.90			B		1	2		12	13
8	51.40	10.00	18.15	23.25			B		1		2	12	14
9	43.80	10.00	15.00	18.80			B		1	2		8	12
10	48.70		22.70	26.00			C	1	1	2		12	15
11	33.20			33.20			A			2		8	16
12	48.15		24.90	23.25			A	1	1	2		8	16
13	52.00	11.00	17.75	23.25			B			2	1	12	18
14	44.95	10.00	9.00	25.95			B	1			2	12	15
15	37.70			37.70			A	1	1		1	8	18
16	34.50			34.50			A			2		8	14
17	29.95			29.95			A		1		1	8	8
EB							A						





SNOWBASIN WILDCAT
UNIG 5.6M 6-CLD

Foundation Loads



Act No.: 2518
017 4:22:40

Units: LBS, FT

Load case 1 - Combination of stationary lift and design wind load perpendicular to lift.

Load case 2 - Combination of empty lift and design wind load in lift line.

Load case 3 - Combination of operational lift and operational design wind load in lift line.

TWR	LOAD CASE	VERTICAL LOAD	LOADS IN LIFT LINE		LOADS ACROSS LIFT LINE	
			SHEAR	MOMENT	SHEAR	MOMENT
EB	1					
	2					
	3					
1	1	-3,617	3,063	47,325	3,103	47,844
	2	-3,617	4,808	71,474		2,723
	3	-2,967	3,088	47,402		875
2	1	21,935	3,090	30,856	3,918	118,228
	2	21,935	5,077	80,237		6,814
	3	23,827	3,727	43,348		17,214
3	1	19,172	1,721	2,184	5,498	216,236
	2	19,172	4,235	84,543		
	3	21,913	2,578	19,977		15,074
4	1	15,171	1,155	8,594	4,984	189,375
	2	15,171	3,588	86,190		301
	3	17,702	2,022	14,479		13,626
5	1	14,442	501	31,342	5,415	191,545
	2	14,442	2,952	104,965		1,098
	3	16,916	1,425	24,080		12,484
6	1	10,080	1,256	118,776	6,105	225,853
	2	10,080	3,937	200,884		2,530
	3	12,449	606	109,554		10,601
7	1	24,702	5,517	34,876	5,874	230,076
	2	24,702	7,979	112,242		6,857
	3	27,701	7,102	72,276		23,467
8	1	21,341	3,467	23,333	5,481	238,806
	2	21,341	6,272	125,068		896
	3	23,760	4,741	11,809		14,286
9	1	24,123	3,503	46,723	5,378	212,049
	2	24,123	6,002	126,524		6,902
	3	27,036	4,574	48,010		23,064
10	1	11,070	1,021	130,770	6,651	278,305
	2	11,070	4,011	232,925		3,452
	3	13,023	672	129,562		6,725
11	1	17,493	3,382	418	4,714	145,194
	2	17,493	5,409	51,620		5,294
	3	20,113	4,694	23,598		19,791

Foundation Loads

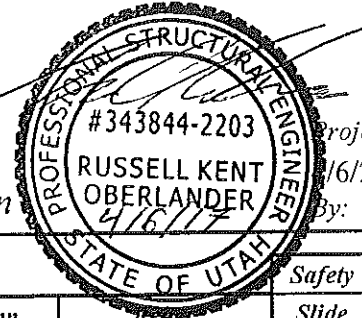
Units: LBS, FT

Load case 1 - Combination of stationary lift and design wind load perpendicular to lift.

Load case 2 - Combination of empty lift and design wind load in lift line.

Load case 3 - Combination of operational lift and operational design wind load in lift line.

TWR	LOAD CASE	VERTICAL LOAD	LOADS IN LIFT LINE		LOADS ACROSS LIFT LINE	
			SHEAR	MOMENT	SHEAR	MOMENT
12	1	25,279	4,551	12,964	5,082	215,689
	2	25,279	7,233	105,598		8,163
	3	28,086	5,846	16,523		23,866
13	1	24,133	2,831	31,622	6,593	308,857
	2	24,133	5,677	137,877		6,250
	3	27,624	3,951	66,284		25,554
14	1	23,559	2,992	35,482	6,290	260,859
	2	23,559	5,540	119,915		6,570
	3	27,149	4,281	73,405		26,456
15	1	23,930	2,393	91,940	3,805	133,601
	2	23,930	4,638	156,753		8,832
	3	26,569	3,143	118,367		23,747
16	1	23,403	933	32,867	3,757	123,934
	2	23,403	3,045	89,598		9,222
	3	26,129	1,333	45,019		24,662
17	1	14,908	212	6,488	2,807	74,533
	2	14,908	2,090	50,990		1,632
	3	16,586	500	13,849		11,020
EB	1					
	2					
	3					



TWR	Soil	Backfill	Materials	Pad (ft)	Column	Rebar	Safety Factors		S.P. (psf)
							Slide	O.T.	
EB No Footing	fv: psf ft: psf / ft Frict:	Ht: ft Wt: pcf	fy: ksi fc: psi	W: L: D:	Col W: in Col H: ft	Col: 0 # 0's P. Par: in ² P. Perp: in ²	Opp Non Opp	Opp Non Opp	Opp Non Opp
1 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 8.0 L: 9.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 3.46 in ² P. Perp: 3.89 in ²	Opp 6.7 Non Opp	Opp 2.9 Non Opp 1.9	Opp 1,174 Non Opp 1,615
2 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 9.0 L: 7.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 3.89 in ² P. Perp: 3.02 in ²	Opp 8.3 Non Opp 6.1	Opp 3.4 Non Opp 2.0	Opp 1,428 Non Opp 3,353
3 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 4.75 in ² P. Perp: 3.73 in ²	Opp 14.4 Non Opp 6.7	Opp 8.7 Non Opp 1.7	Opp 1,109 Non Opp 2,841
4 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 4.75 in ² P. Perp: 3.24 in ²	Opp 17.3 Non Opp 7.0	Opp 10.9 Non Opp 1.8	Opp 1,019 Non Opp 2,426
5 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 4.75 in ² P. Perp: 3.32 in ²	Opp 24.3 Non Opp 6.4	Opp 8.7 Non Opp 1.7	Opp 1,023 Non Opp 2,802
6 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 12.0 L: 9.0 D: 1.5	Round Column Col W: 48 in Col H: 6.0 ft	Col: 12 # 8's P. Par: 5.18 in ² P. Perp: 3.91 in ²	Opp 67.0 Non Opp 6.7	Opp 3.2 Non Opp 1.6	Opp 1,321 Non Opp 3,509
7 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 6.0 ft	Col: 12 # 8's P. Par: 4.75 in ² P. Perp: 4.16 in ²	Opp 5.8 Non Opp 5.2	Opp 2.6 Non Opp 1.7	Opp 1,950 Non Opp 4,032
8 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 6.0 ft	Col: 12 # 8's P. Par: 4.75 in ² P. Perp: 4.32 in ²	Opp 8.3 Non Opp 6.3	Opp 6.7 Non Opp 1.6	Opp 1,212 Non Opp 3,916
9 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 6.0 ft	Col: 8 # 8's P. Par: 4.75 in ² P. Perp: 3.79 in ²	Opp 8.9 Non Opp 6.8	Opp 4.0 Non Opp 1.8	Opp 1,461 Non Opp 3,548
10 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 12.0 L: 10.0 D: 1.5	Round Column Col W: 48 in Col H: 8.0 ft	Col: 12 # 8's P. Par: 5.18 in ² P. Perp: 4.98 in ²	Opp 69.3 Non Opp 7.0	Opp 3.4 Non Opp 1.6	Opp 1,455 Non Opp 4,015
11 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 9.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 8.0 ft	Col: 8 # 8's P. Par: 3.89 in ² P. Perp: 3.46 in ²	Opp 7.3 Non Opp 6.3	Opp 4.0 Non Opp 1.6	Opp 1,705 Non Opp 3,847
12 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 11.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 8.0 ft	Col: 8 # 8's P. Par: 4.75 in ² P. Perp: 3.97 in ²	Opp 7.3 Non Opp 5.9	Opp 4.8 Non Opp 1.8	Opp 1,470 Non Opp 3,446
13 Spread Footing	fv: 4,000 psf ft: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 13.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 8.0 ft	Col: 12 # 9's P. Par: 5.62 in ² P. Perp: 6.50 in ²	Opp 11.9 Non Opp 7.1	Opp 3.6 Non Opp 1.6	Opp 1,178 Non Opp 3,436

Foundation Design

TWR	Soil	Backfill	Materials	Pad (ft)	Column	Rebar	Safety Factors		S.P.
							Slide	O.T.	(psf)
14 Spread Footing	fv: 4,000 psf fl: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 12.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 8.0 ft	Col: 12 # 8's P. Par: 5.18 in ² P. Perp: 5.25 in ²	Opp 10.4 Non Opp 7.1	Opp 3.1 Non Opp 1.7	Opp 1,445 Non Opp 3,602
15 Spread Footing	fv: 4,000 psf fl: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 8.0 L: 10.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 3.46 in ² P. Perp: 4.32 in ²	Opp 11.8 Non Opp 8.0	Opp 2.7 Non Opp 1.9	Opp 2,006 Non Opp 3,112
16 Spread Footing	fv: 4,000 psf fl: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 8.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 3.46 in ² P. Perp: 3.46 in ²	Opp 23.9 Non Opp 8.5	Opp 4.9 Non Opp 1.8	Opp 1,899 Non Opp 3,807
17 Spread Footing	fv: 4,000 psf fl: 750 psf / ft Frict: 0.5	Ht: 3.5 ft Wt: 110 pcf	fy: 60 ksi fc: 3,000 psi	W: 8.0 L: 8.0 D: 1.5	Round Column Col W: 42 in Col H: 4.0 ft	Col: 8 # 8's P. Par: 3.46 in ² P. Perp: 3.46 in ²	Opp 55.3 Non Opp 9.9	Opp 13.3 Non Opp 2.5	Opp 1,188 Non Opp 2,052
EB No Footing	fv: psf fl: psf / ft Frict:	Ht: ft Wt: pcf	fy: ksi fc: psi	W: L: D:	Col W: in Col H: ft	Col: 0 # 0's P. Par: in ² P. Perp: in ²	Opp Non Opp	Opp Non Opp	Opp Non Opp



SNOWBASIN WILDCAT
UNIG 5.6M 6-CLD

Tower Weight

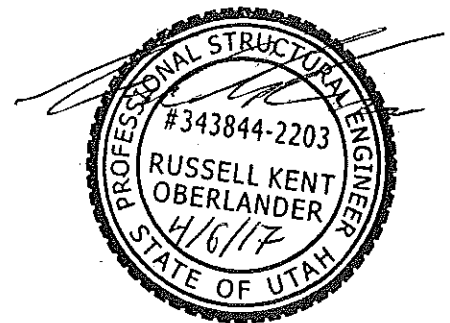
Project No.: 2518
4/6/2017 4:22:54
By:

Units: LBS, FT

Mast weight includes ladders.

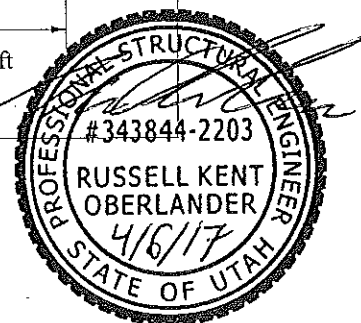
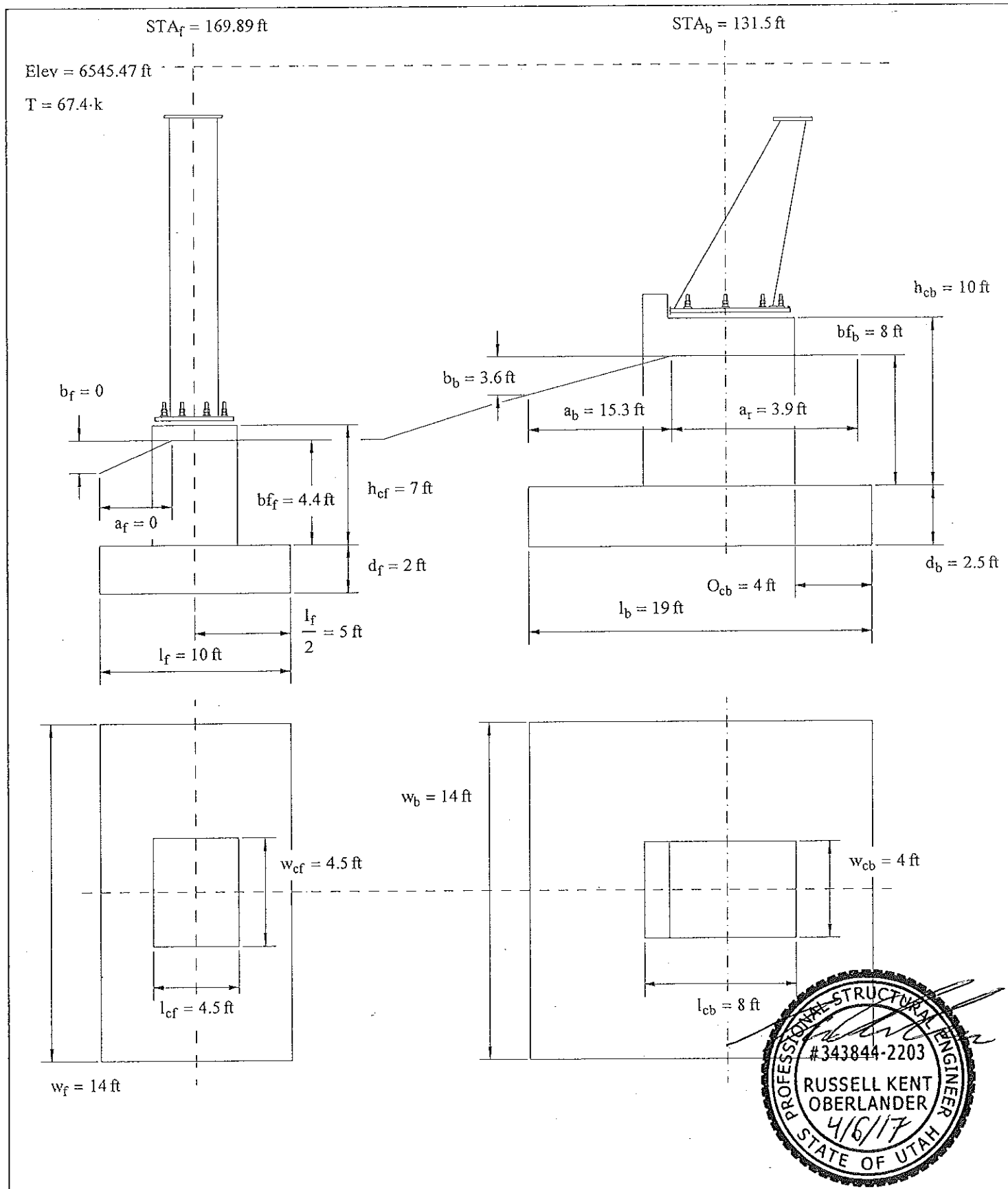
Tower head weight include sheaves and crossarm.

TWR	TOWER LENGTH	SHEAVES		WEIGHT		
		UPHILL	RETURN	MAST	TOWER HEAD	TOTAL
EB						
1	19.28	12D	12D	3,230	13,084	16,314
2	31.50	8	6	2,906	7,320	10,226
3	44.50	6	6	4,428	6,744	11,172
4	43.40	4	4	4,430	5,712	10,142
5	40.10	4/4	4/4	4,459	8,114	12,573
6	42.60	4/4	4/4	5,105	8,114	13,219
7	42.90	8	6	4,810	7,320	12,130
8	51.40	6	6	5,516	6,744	12,260
9	43.80	8	6	4,875	7,320	12,195
10	48.70	4/4	4/4	5,879	8,114	13,993
11	33.20	6	4	3,027	6,228	9,255
12	48.15	8	6	4,873	7,320	12,193
13	52.00	8	6	5,608	7,320	12,928
14	44.95	8	6	4,769	7,320	12,089
15	37.70	8	6	3,349	7,320	10,669
16	34.50	8	6	3,120	7,320	10,440
17	29.95	4	4	2,795	5,712	8,507
EB						





Snowbasin / Wildcat
UNI-GM Tension Terminal
Foundation Design





BACK PAD

INPUT AREA 1: Lift Properties

Rope Elevation Elev \equiv 6545.47-ft Lift Tension T \equiv 67.4-k Reaction Column Station STA_b \equiv 131.50ft

INPUT AREA 2: Material Properties

Soil Weight $W_{soil} \equiv 100 \cdot \frac{\text{lb}}{\text{ft}^3}$ Conc. Strength $f_c \equiv 3000\text{-psi}$ $\phi \equiv .90$ $\rho_{minslab} \equiv .0018$
 Conc. Weight $W_{conc} \equiv 145 \cdot \frac{\text{lb}}{\text{ft}^3}$ Steel Strength $f_y \equiv 60000\text{-psi}$ $\beta \equiv .85$ $\rho_{min} \equiv \frac{200\text{-psi}}{f_y}$

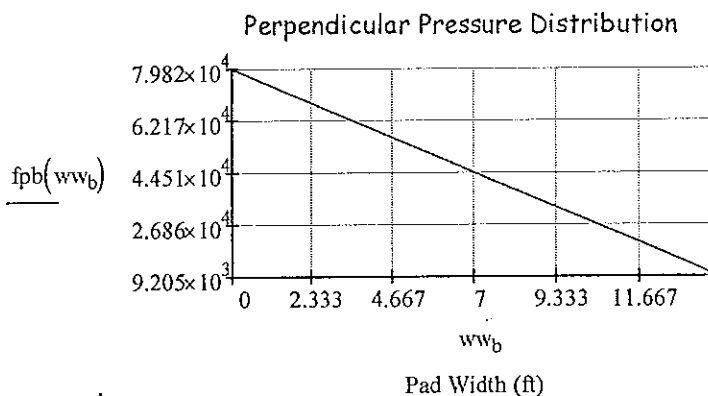
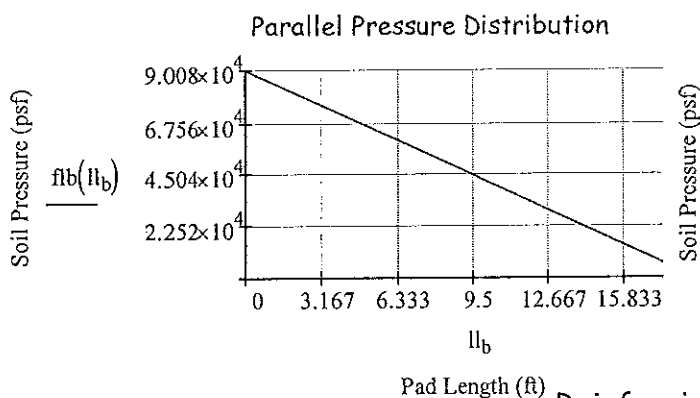
OUTPUT AREA 3:

Safety Factors

	<u>Overturning:</u>	<u>Sliding:</u>
Parallel=	SF _{l_otb} = 2.53	SF _{l_sb} = 2.27
Perpendicular=	SF _{p_otb} = 3.78	SF _{p_sb} = 7.58

Soil Pressures:

	<u>Maximum:</u>	<u>Minimum:</u>
Parallel=	Max _{jb} = 2.8-ksf	Min _{jb} = 0-ksf
Perpendicular=	Max _{pb} = 2.48-ksf	Min _{pb} = 0.29-ksf



Reinforcing Steel

Pad Parallel to Center Line=	$A_{s1b} = 8.01\text{-in}^2$	Pedestal Parallel to Center Line=	$A_{s3b} = 6.08\text{-in}^2$
Pad Perpendicular to Center Line=	$A_{s2b} = 10.47\text{-in}^2$	Pedestal Perpendicular to Center Line=	$A_{s4b} = 6.14\text{-in}^2$

INPUT AREA 4:

MISC.:

Soil Backfill: $bf_b \equiv 8\text{-ft}$
 Void Length: $a_b \equiv 15.3\text{-ft}$
 Void Height: $b_b \equiv 3.6\text{-ft}$
 Ramp Length: $a_r \equiv 3.9\text{-ft}$

COLUMN:

length: $l_{cb} \equiv 96\text{-in}$
 width: $w_{cb} \equiv 48\text{-in}$
 height: $h_{cb} \equiv 10\text{-ft}$
 Offset: $O_{cb} \equiv 4\text{-ft}$

SLAB:

length: $l_b \equiv 19\text{-ft}$
 width: $w_b \equiv 14\text{-ft}$
 depth: $d_b \equiv 2.5\text{-ft}$



FRONT PAD

Column Station STA_f = 169.89ft

OUTPUT AREA 5:

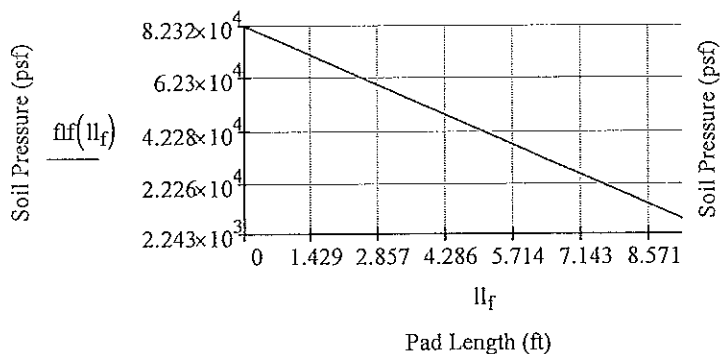
Safety Factors

	<u>Overtuning:</u>	<u>Sliding:</u>
Parallel=	SF _{l_of} = 3.17	SF _{l_sf} = 5.76
Perpendicular=	SF _{p_of} = 2.66	SF _{p_sf} = 4.93

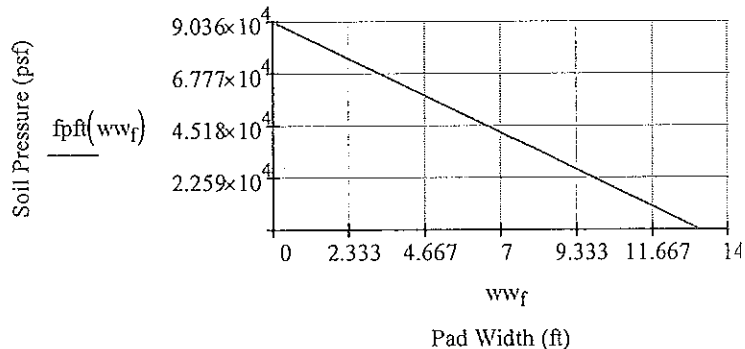
Soil Pressures:

	<u>Maximum:</u>	<u>Minimum:</u>
Parallel=	Max _{lf} = 2.56·ksf	Min _{lf} = 0.07·ksf
Perpendicular=	Max _{pf} = 2.81·ksf	Min _{pf} = 0·ksf

Parallel Pressure Distribution



Perpendicular Pressure Distribution



Reinforcing Steel

Pad Parallel to Center Line=	A _{s1f} = 6.2·in ²	Pedestal Parallel to Center Line=	A _{s3f} = 2.16·in ²
Pad Perpendicular to Center Line=	A _{s2f} = 4.21·in ²	Pedestal Perpendicular to Center Line=	A _{s4f} = 3.75·in ²

INPUT AREA 6:

MISC.:

Soil Backfill:	bf _f = 4.4·ft
Void Length:	af _f = 0·ft
Void Height:	bf _f = 0·ft

COLUMN:

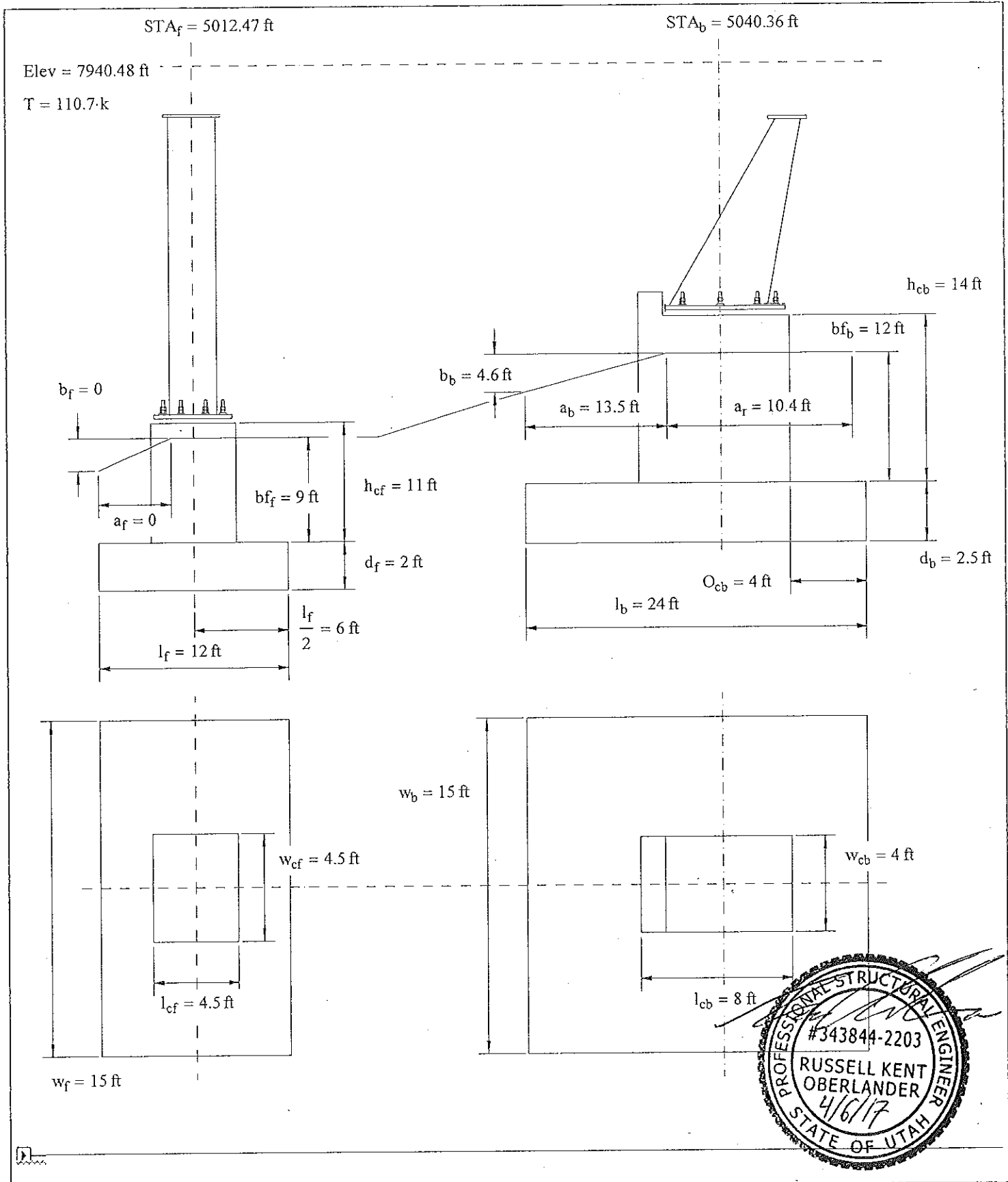
length:	l _{cf} = 54·in
width:	w _{cf} = 54·in
height:	h _{cf} = 7·ft

SLAB:

length:	l _f = 10·ft
width:	w _f = 14·ft
depth:	d _f = 2·ft



Snowbasin / Wildcat UNI-GS
Drive Terminal Foundation
Design





Snowbasin / Wildcat UNI-6S
 Drive Terminal Foundation
 Design

BACK PAD

INPUT AREA 1: Lift Properties

Rope Elevation Elev \equiv 7940.48-ft Lift Tension T \equiv 110.7-k Reaction Column Station STA_b \equiv 5040.36ft

INPUT AREA 2: Material Properties

Soil Weight $W_{soil} \equiv 110 \cdot \frac{lb}{ft^3}$ Conc. Strength $f_c \equiv 3000$ -psi $\phi \equiv .90$ $\rho_{minslab} \equiv .0018$
 Conc. Weight $W_{conc} \equiv 145 \cdot \frac{lb}{ft^3}$ Steel Strength $f_y \equiv 60000$ -psi $\beta \equiv .85$ $\rho_{min} \equiv \frac{200 \cdot psi}{f_y}$

OUTPUT AREA 3:

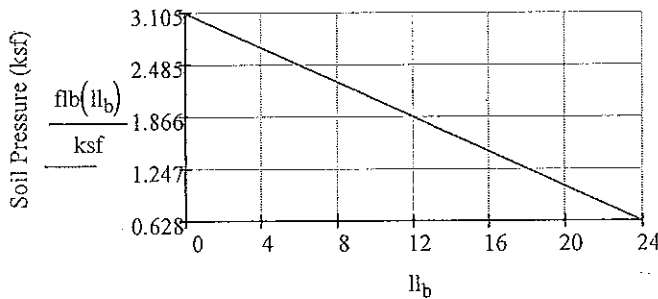
Safety Factors

	<u>Overturning:</u>	<u>Sliding:</u>
Parallel=	SF _{l_ottb} = 3.37	SF _{l_sb} = 2.99
Perpendicular=	SF _{p_ottb} = 6.15	SF _{p_sb} = 12.19

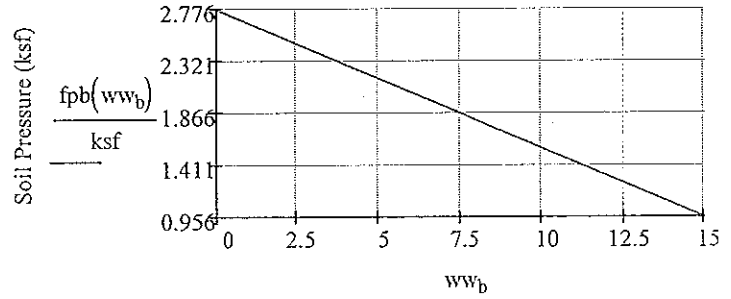
Soil Pressures:

	<u>Maximum:</u>	<u>Minimum:</u>
Parallel=	Max _{lb} = 3.1-ksf	Min _{lb} = 0.63-ksf
Perpendicular=	Max _{pb} = 2.78-ksf	Min _{pb} = 0.96-ksf

Parallel Pressure Distribution



Perpendicular Pressure Distribution



Reinforcing Steel

Pad Parallel to Center Line=	$A_{s1h} = 18.17$ -in ²	Pedestal Parallel to Center Line=	$A_{s3h} = 11.15$ -in ²
Pad Perpendicular to Center Line=	$A_{s2b} = 13.22$ -in ²	Pedestal Perpendicular to Center Line=	$A_{s4b} = 8.14$ -in ²

INPUT AREA 4:

MISC:

Soil Backfill: $bf_b \equiv 12$ -ft
 Void Length: $ab \equiv 13.5$ -ft
 Void Height: $bb \equiv 4.6$ -ft
 Ramp Length: $ar \equiv 10.4$ -ft

COLUMN:

length: $l_{cb} \equiv 96$ -in
 width: $w_{cb} \equiv 48$ -in
 height: $h_{cb} \equiv 14$ -ft
 Offset: $O_{cb} \equiv 4$ -ft

SLAB:

length: $l_b \equiv 24$ -ft
 width: $w_b \equiv 15$ -ft
 depth: $d_b \equiv 2.5$ -ft



FRONT PAD

Column Station $STA_f = 5012.47\text{ft}$

OUTPUT AREA 5:

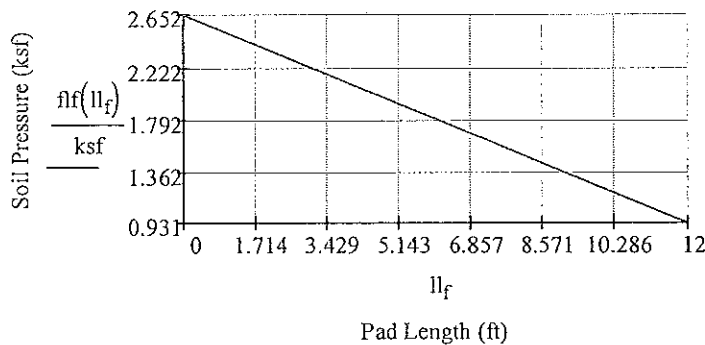
Safety Factors

	<u>Overturning:</u>	<u>Sliding:</u>
Parallel=	$SF_{l_otf} = 6.25$	$SF_{l_sf} = 11.33$
Perpendicular=	$SF_{p_otf} = 3.86$	$SF_{p_sf} = 7.35$

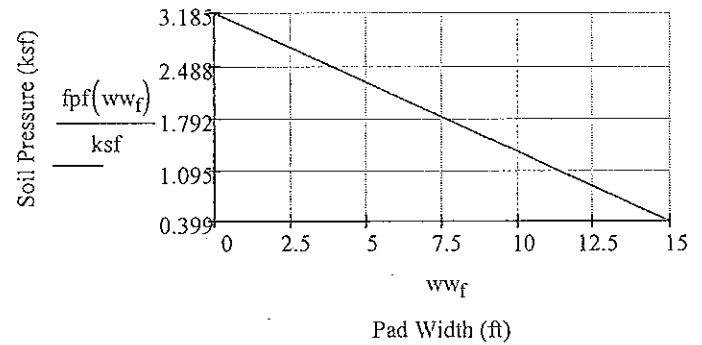
Soil Pressures:

	<u>Maximum:</u>	<u>Minimum:</u>
Parallel=	$Max_{lf} = 2.65 \cdot \text{ksf}$	$Min_{lf} = 0.93 \cdot \text{ksf}$
Perpendicular=	$Max_{pf} = 3.18 \cdot \text{ksf}$	$Min_{pf} = 0.4 \cdot \text{ksf}$

Parallel Pressure Distribution



Perpendicular Pressure Distribution



Reinforcing Steel

Pad Parallel to Center Line=	$A_{s1f} = 6.64 \cdot \text{in}^2$	Pedestal Parallel to Center Line=	$A_{s3f} = 2.35 \cdot \text{in}^2$
Pad Perpendicular to Center Line=	$A_{s2f} = 5.05 \cdot \text{in}^2$	Pedestal Perpendicular to Center Line=	$A_{s4f} = 4.92 \cdot \text{in}^2$

INPUT AREA 6:

MISC.:

Soil Backfill:	$bf_f = 9 \cdot \text{ft}$
Void Length:	$af = 0 \cdot \text{ft}$
Void Height:	$bf = 0 \cdot \text{ft}$

COLUMN:

length:	$l_{cf} = 54 \cdot \text{in}$
width:	$w_{cf} = 54 \cdot \text{in}$
height:	$h_{cf} = 11 \cdot \text{ft}$

SLAB:

length:	$l_f = 12 \cdot \text{ft}$
width:	$w_f = 15 \cdot \text{ft}$
depth:	$d_f = 2 \cdot \text{ft}$

OUTPUT AREA 7

Volume of Concrete Pours:

$$l_f \cdot w_f \cdot d_f = 13.333 \cdot \text{yd}^3$$

$$h_{cf} \cdot l_{cf} \cdot w_{cf} = 8.25 \cdot \text{yd}^3$$

$$l_b \cdot w_b \cdot d_b = 33.333 \cdot \text{yd}^3$$

$$(h_{cb} \cdot l_{cb} \cdot w_{cb}) + (16 \cdot \text{in} \cdot 12 \cdot \text{in} \cdot 4 \cdot \text{ft}) = 16.79 \cdot \text{yd}^3$$