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Coble Ski School  
60 Coble Lakes Estate  
Lillington, NC 27546

## Fire Sprinkler Calculations

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7-10	Area 2 Calcs



4/1/2019

COBLE SKI  
STAFF/UTILITY

HYDRAULIC CALCULATIONS FOR

DRAWING NUMBER: 1 DATE: 3-22-2019

-DESIGN DATA-

REMOTE AREA NUMBER: 1 REMOTE AREA LOCATION: STAFF/UTILITY BL

DG

OCCUPANCY CLASSIFICATION: NFPA-13D  
DENSITY: .05 gpm/sq. ft.  
AREA OF APPLICATION: 512 sq. ft.

COVERAGE PER SPRINKLER: 256 sq. ft.  
TYPE OF SPRINKLERS CALCULATED: 3.0k  
NUMBER OF SPRINKLERS CALCULATED: 2

\*IN-RACK SPRINKLER DEMAND: gpm  
HOSE-STREAM DEMAND: gpm  
TOTAL WATER REQUIRED (INCLUDING HOSE): gpm  
FLOW AND PRESSURE (AT BASE OF RISER): gpm @ psi

TYPE OF SYSTEM: WET

\*VOLUME OF DRY OR PREACTION SYSTEM:

\*DETAILS:

WATER SUPPLY

Source: HYDRANT Test Date: 3/15/2019 Test By:

Location: AT STREET

Static: 84 psi Residual: 32 psi Flow: 521 gpm  
Source Elevation Relative to Finished Floor Level: 2 ft.

INSTALLING CONTRACTOR

Name:

Address:

Phone:

Certification number:

NAME OF DESIGNER:

AUTHORITY HAVING JURISDICTION:

NOTES:

Calculations performed by HASS under license # 50070567 ,  
granted by HRS SYSTEMS, INC.

(Notes continue after pipe calculations results.)

(Notes continue after pipe calculations results.)

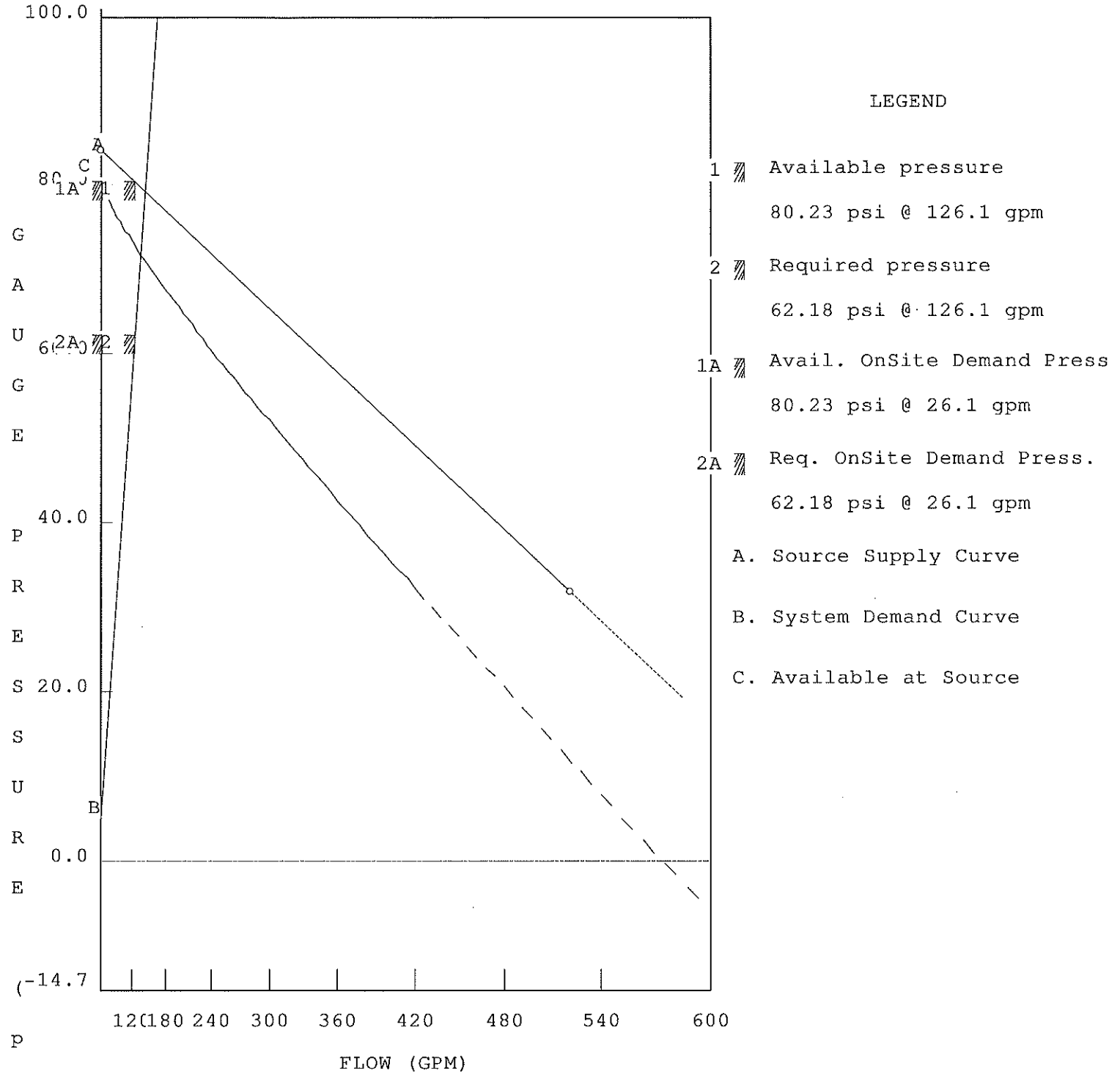
DATE: 3/22/2019

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JOB TITLE: Coble Ski Staff/Utility

WATER SUPPLY ANALYSIS

Static: 84.00 psi Resid: 32.00 psi Flow: 521.0 gpm



Note: (1) Dashed Lines indicate extrapolated values from Test Results

(2) On Site pressures are based on hose stream deduction at the source

DATE: 3/22/2019

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JOB TITLE: Coble Ski Staff/Utility

NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SORC	84.0	32.0	521.0	80.2	126.1	62.2

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	126.1 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	100.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	26.1 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
1	8.0	- - - -	21.7	- - -	
2	8.0	K= 3.00	19.7	13.3	
3	8.0	K= 3.00	18.2	12.8	
4	8.0	- - - -	32.7	- - -	
AA	-4.0	- - - -	54.6	- - -	
SORC	-4.0	SOURCE	62.2	26.1	

DATE: 3/22/2019

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JOB TITLE: Coble Ski Staff/Utility

NFPA3 PIPE DATA

Pipe Tag	K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt)		
To Node	El (ft)	PT	(q) Node/	Eq.Ln.	F		(Pe)		
Frm Node	El (ft)	PT	Tot.(Q) Disch	Act ID	(ft.)	T Pf/ft.	(Pf)		
Pipe: 1	3.00	13.3	Disch		1.00	150	19.7		
2	8.0	19.7	12.8	3	0.750	T: 4.9	4.90	0.0	
1	8.0	21.7	26.1		0.874		5.90	0.343	2.0
Pipe: 2	3.00	12.8	Disch		16.00	150	18.2		
3	8.0	18.2	0.0		0.750	----	0.00	0.0	
2	8.0	19.7	12.8		0.874		16.00	0.092	1.5
Pipe: 4	0.0	0.0			30.00	150	21.7		
1	8.0	21.7	26.1	2	0.750	E: 2.0	2.00	0.0	
4	8.0	32.7	26.1		0.874		32.00	0.343	11.0
Pipe: 5	0.0	0.0			147.00	150	32.7		
4	8.0	32.7	26.1	1	1.000	E: 2.5	2.90	5.2	
AA	-4.0	54.6	26.1		1.101	G: 0.4	149.90	0.111	16.7
Pipe: 6	0.0	0.0			60.00	150	54.6		
AA	-4.0	54.6	26.1	4	1.000	E: 2.5	8.50	0.0	
SORC	-4.0	62.2	26.1		1.101	T: 6.0	68.50	0.111	7.6

NOTES (HASS):

- (1) Calculations were performed by the HASS 8.8 computer program in accordance with NFPA13 (2016) under license no. 50070567 granted by HRS Systems, Inc. 208 Southside Square Petersburg, TN 37144 (931) 659-9760
- (2) The system has been calculated to provide an average imbalance at each node of 0.013 gpm and a maximum imbalance at any node of 0.064 gpm.
- (3) Total pressure at each node is used in balancing the system. Maximum water velocity is 14.0 ft/sec at pipe 1.
- (4) Items listed in bold print on the cover sheet are automatically transferred from the calculation report.
- (5) Available pressure at source node SORC under full flow conditions is 80.01 psi with a flow of 130.14 gpm.

DATE: 3/22/2019

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JOB TITLE: Coble Ski Staff/Utility

(6) PIPE FITTINGS TABLE

HASS Pipe Table Name: standard.pip

PAGE: F MATERIAL: CPVC HWC: 150

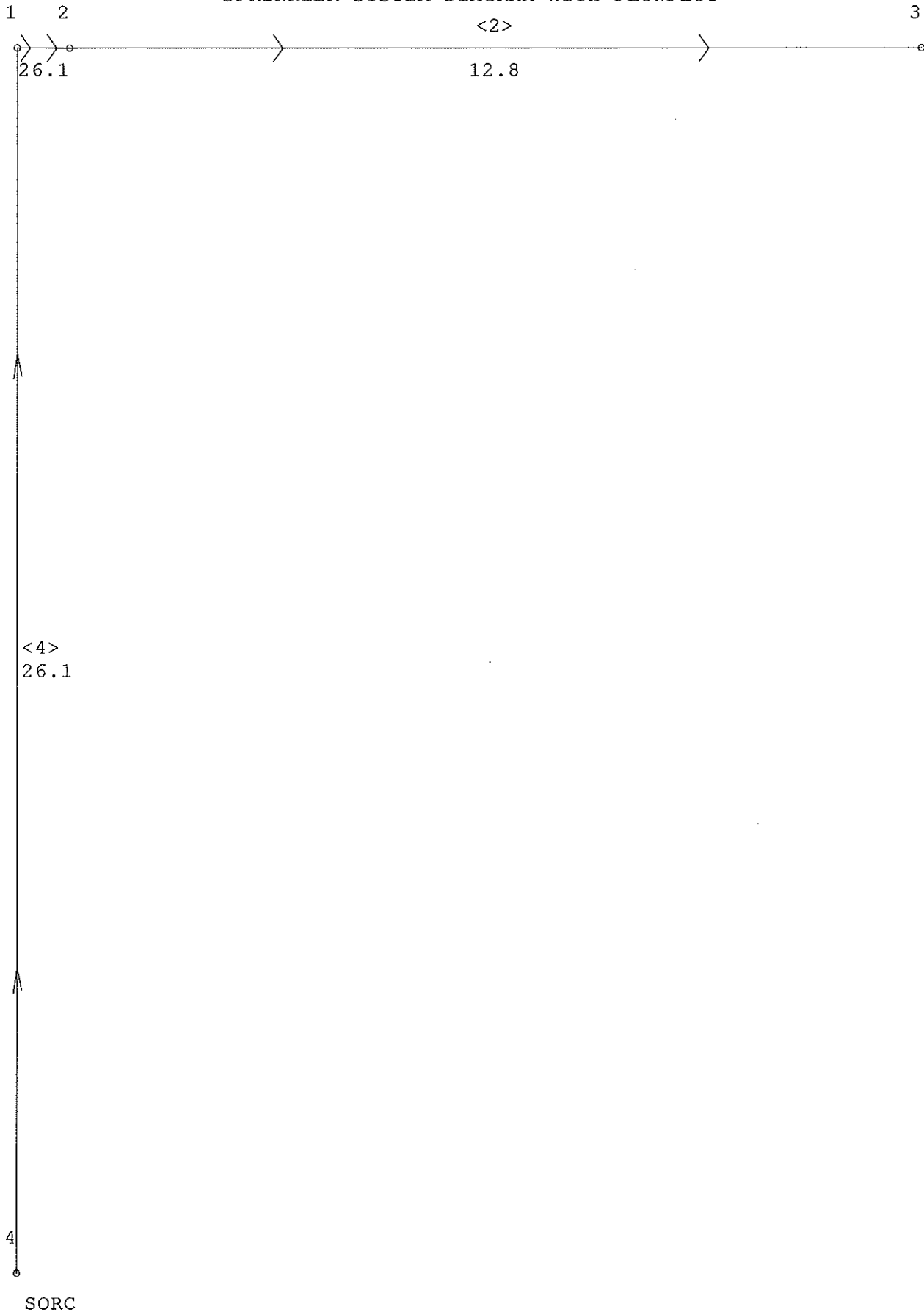
Diameter (in)	Equivalent Fitting Lengths in Feet						
	F	E	T	R	K	C	G
	F45	Ell	Tee	RunT	Kplg	ChkVlv	Gate
0.874	1.10	2.00	4.90	1.40	1.00	5.00	0.40
1.101	1.40	2.50	6.00	1.70	1.00	8.00	0.40

DATE: 3/22/2019

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JOB TITLE: Coble Ski Staff/Utility

SPRINKLER SYSTEM DIAGRAM WITH FLOWPLOT



SORC

Coble Ski School  
Camp Room 11

HYDRAULIC CALCULATIONS FOR

DRAWING NUMBER: 1 DATE: 3-22-2019  
-DESIGN DATA-  
REMOTE AREA NUMBER: 2 REMOTE AREA LOCATION: Camp Room 11

OCCUPANCY CLASSIFICATION: NFPA-13D  
DENSITY: .05 gpm/sq. ft.  
AREA OF APPLICATION: 392 sq. ft.

COVERAGE PER SPRINKLER: 196 sq. ft.  
TYPE OF SPRINKLERS CALCULATED: 3.0K  
NUMBER OF SPRINKLERS CALCULATED: 2

\*IN-RACK SPRINKLER DEMAND: gpm  
HOSE-STREAM DEMAND: gpm  
TOTAL WATER REQUIRED (INCLUDING HOSE): gpm  
FLOW AND PRESSURE (AT BASE OF RISER): gpm @ psi

TYPE OF SYSTEM: Wet

\*VOLUME OF DRY OR PREACTION SYSTEM:

\*DETAILS:

WATER SUPPLY

Source: Hydrant Test Date: 3/15-2019 Test By:

Location: At Street

Static: 84 psi Residual: 32 psi Flow: 521 gpm

Source Elevation Relative to Finished Floor Level: 2 ft.

INSTALLING CONTRACTOR

Name:

Address:

Phone:

Certification number:

NAME OF DESIGNER:

AUTHORITY HAVING JURISDICTION:

NOTES:

Calculations performed by HASS under license # 50070567 ,  
granted by HRS SYSTEMS, INC.

(Notes continue after pipe calculations results.)

(Notes continue after pipe calculations results.)



DATE: 4/1/2019

C:\PROGRAM FILES\HRS SYSTEMS\CAMP ROOM 11.SDF

JOB TITLE: Coble Ski Staff/Utility

NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL @ DEMAND (GPM)	REQ'D PRESS. (PSI)
SORC	84.0	32.0	521.0	80.6	120.0	60.6

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	120.0 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	100.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	20.0 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
1	8.0	K= 3.00	10.7	9.8	
2	8.0	K= 3.00	11.5	10.2	
3	8.0	- - - -	15.3	- - -	
4	1.0	- - - -	23.5	- - -	
A	-4.0	- - - -	37.0	- - -	
SORC	-4.0	SOURCE	60.6	20.0	

DATE: 4/1/2019

C:\PROGRAM FILES\HRS SYSTEMS\CAMP ROOM 11.SDF

JOB TITLE: Coble Ski Staff/Utility

NFPA3 PIPE DATA

Pipe Tag	K-fac	Add Fl	Add Fl To	Fit:	L	C	(Pt)
To Node	El (ft)	PT	(q) Node/	Eq.Ln.	F		(Pe)
Frm Node	El (ft)	PT	Tot.(Q) Disch	Act ID	(ft.)	T	Pf/ft. (Pf)
Pipe: 1	3.00		9.8 Disch			14.00	150 10.7
1	8.0	10.7	0.0	0.750	----	0.00	0.0
2	8.0	11.5	9.8	0.874		14.00	0.056 0.8
Pipe: 2	3.00		10.2 Disch			14.00	150 11.5
2	8.0	11.5	9.8 1	0.750	2E: 4.0	4.40	0.0
3	8.0	15.3	20.0	0.874	G: 0.4	18.40	0.209 3.8
Pipe: 4	0.0		0.0			18.00	150 15.3
3	8.0	15.3	20.0 2	0.750	E: 2.0	6.90	3.0
4	1.0	23.5	20.0	0.874	T: 4.9	24.90	0.209 5.2
Pipe: 5	0.0		0.0			50.00	150 23.5
4	1.0	23.5	20.0 3	0.750	2E: 4.0	4.00	2.2
A	-4.0	37.0	20.0	0.874		54.00	0.209 11.3
Pipe: 6	0.0		0.0		3E: 7.5	335.00	150 37.0
A	-4.0	37.0	20.0 4	1.000	T: 6.0	13.90	0.0
SORC	-4.0	60.6	20.0	1.101	G: 0.4	348.90	0.068 23.6

NOTES (HASS):

- (1) Calculations were performed by the HASS 8.8 computer program in accordance with NFPA13 (2016) under license no. 50070567 granted by HRS Systems, Inc. 208 Southside Square Petersburg, TN 37144 (931) 659-9760
- (2) The system has been calculated to provide an average imbalance at each node of 0.001 gpm and a maximum imbalance at any node of 0.006 gpm.
- (3) Total pressure at each node is used in balancing the system. Maximum water velocity is 10.7 ft/sec at pipe 4.
- (4) Items listed in bold print on the cover sheet are automatically transferred from the calculation report.
- (5) Available pressure at source node SORC under full flow conditions is 80.37 psi with a flow of 123.48 gpm.

DATE: 4/1/2019

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JOB TITLE: Coble Ski Staff/Utility

(6) PIPE FITTINGS TABLE

HASS Pipe Table Name: standard.pip

PAGE: F MATERIAL: CPVC HWC: 150

Diameter (in)	Equivalent Fitting Lengths in Feet						
	F	E	T	R	K	C	G
	F45	Ell	Tee	RunT	Kplg	ChkVlv	Gate
0.874	1.10	2.00	4.90	1.40	1.00	5.00	0.40
1.101	1.40	2.50	6.00	1.70	1.00	8.00	0.40