

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT



This is to certify that

TAYLOR RUTH S /SPB Plumbing & Heating

Located at

15 ALLISON AVE

PERMIT ID: 2012-65682

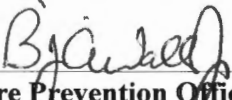
CBL: 353 A015001

has permission to **install NFPA 13D sprinkler system.**

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be procured prior to occupancy.


Fire Prevention Officer

(58)

Code Enforcement Officer / Plan Reviewer

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
THERE IS A PENALTY FOR REMOVING THIS CARD**

BUILDING PERMIT INSPECTION PROCEDURES
Please call 874-8703 (ONLY)
or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

REQUIRED INSPECTIONS:

Final - Fire

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 201265682	Date Applied For: 12/24/2012	CBL: 353 A015001
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Location of Construction: 15 ALLISON AVE	Owner Name: TAYLOR RUTH S	Owner Address: 11 ALLISON AVE	Phone:
Business Name:	Contractor Name: SPB Plumbing & Heating	Contractor Address: P O Box 21 Saco	Phone (207) 284-4800
Lessee/Buyer's Name	Phone:	Permit Type: Fire Suppression System	

Proposed Use: Single Family	Proposed Project Description: install NFPA 13D sprinkler system.
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Dept: Zoning	Status: Approved	Reviewer: Marge Schmuckal	Approval Date: 12/24/2012
Note:	Ok to Issue: <input checked="" type="checkbox"/>		

Dept: Fire	Status: Approved w/Conditions	Reviewer: Ben Wallace Jr	Approval Date: 01/01/2013
Note:	Ok to Issue: <input checked="" type="checkbox"/>		
1) A copy of the required state sprinkler permit with RMS signoff shall be provided prior to the final inspection. 2) All control valves shall be supervised in accordance with NFPA 13D. Pad locks shall only be installed on valves designed to be secured in the open position by pad lock. 3) The sprinkler system shall be installed in accordance with NFPA 13D.			

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 2012-65682	Issue Date:	CBL: 353 A015001
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Location of Construction: 15 ALLISON AVE	Owner Name: TAYLOR RUTH S	Owner Address: 11 ALLISON AVE PORTLAND , ME 04103		Phone:
Business Name:	Contractor Name: SPB Plumbing & Heating	Contractor Address: P O Box 21 Saco ME 04072		Phone (207) 284-4800
Lessee/Buyer's Name	Phone:	Permit Type: Fire Suppression System		Zone: R2 R3
Past Use: Single Family (under Construction - #2012-11-5356)	Proposed Use: Single Family	Permit Fee:	Cost of Work: \$0.00	CEO District: 8
		FIRE DEPT: 1/1/13 <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A		INSPECTION: Use Group: Type:
Proposed Project Description: Fire Suppression SF home (no fee)		Signature: <i>[Signature]</i> 28		
PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)				
Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____				

Permit Taken By: bjs	Date Applied For: 12/24/2012	Zoning Approval
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1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <i>ok - 12/24/12</i>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied	Historic Preservation <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied
	Date: _____	Date: _____	Date: _____

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

353-A-15-1

Job ID 2012-11-5356

One- or Two-family Fire Sprinkler Permit

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 15 Allison Ave.

Building owner: Jeff & Sue Hight Phone: 838 9693

Installer: SPB Plumbing & Heating Phone: 252 0698

Total sq/ft of building floor space per unit: 1663 Single-family home

or

Sq/ft of sprinklered floor space per unit: _____ Two-family home

Is this a multipurpose piping system? / N Sprinkler piping uses Pex? / N

Water supply: Municipal Water Well pump Stored water Other

Include electronic copy of approved State Sprinkler Permit plans:

Additional cost to the owner for the home fire sprinkler system for each dwelling unit minus costs necessary for domestic needs (See below): **A=** 6300

Attach cost breakdown: A City plumbing permit has been pulled:

RECEIVED

NOV - 7 2012

Dept. of Building Inspections
City of Portland Maine

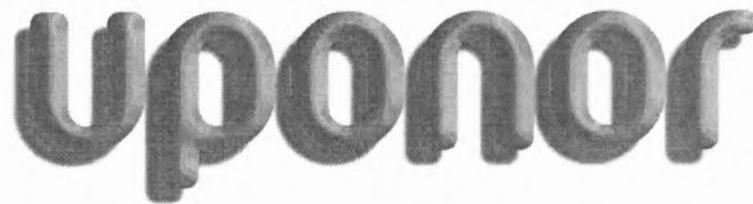
COST OF WORK: _____
(A times number of units)

NO FEE REQUIRED

Additional information and Frequently asked questions about home fire sprinkler systems may be found at

www.portlandmaine.gov/fireprevention.

Sprinkler system cost must deduct costs that would have been incurred if the system did not provide sprinkler service. In a well pump system it would include the difference between the well pump to be installed and the one that would have been installed if there were no sprinkler demand on the system. Includes additional piping and valves that are required only because of NFPA Standard 13D, and not already required for domestic needs. Includes cost of sprinkler heads and additional installation costs.



AquaSAFE™ FIRE SAFETY SYSTEM

RECEIVED

- 7 2012

Uponor EP
5925 148th Street West

Apple Valley, MN 55124
800-321-4739

Dept

ding Inspections
rtland Maine

Job Name : LOT 33 - One Head Calculation (H.14)
Drawing : RESIDENTIAL
Location : ALLISON RD PORTLAND ME
Remote Area : 1
Contract : 121010-42L
Data File : 121010-42L Lot 33 Allison.wx1

HYDRAULIC DESIGN INFORMATION SHEET

Name - LOT 33 Date - 10/31/12
Location - PORTLAND ME
Building - RESIDENTIAL System No. - 1
Contractor - SPB PLUMBING Contract No. - 121010-42L
Calculated By - DAN HUBBARD SEY IV Drawing No. - F100
Construction: (X) Combustible () Non-Combustible Ceiling Height 8
OCCUPANCY - RESIDENTIAL

S Type of Calculation: ()NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
Y Number of Sprinklers Flowing: (X)1 ()2 ()4 ()

S ()Other
T ()Specific Ruling Made by Date

E
M Listed Flow at Start Point - 18 gpm System Type
Listed Pres. at Start Point - 17.52psi (X) Wet () Dry
D MAXIMUM LISTED SPACING 18 x 18 () Deluge () PreAction
E Domestic Flow Added - 0 gpm Sprinkler or Nozzle
S Additional Flow Added - gpm Make RELIABLE Model RFC43
I Elevation at Highest Outlet - 118 Feet Size 3/8 K-Factor 4.3
G Note: Temperature Rating 165°
N

Calculation Summary gpm Required 18 C-Factor Used: psi Required 47.35 Overhead 150 At Ref Pt STR Underground 150

W Water Flow Test: Pump Data: Tank or Reservoir:
A Date of Test - x Rated Cap. Cap.
T Time of Test - x @ psi Elev.
E Static (psi) - 60 Elev.
R Residual (psi) - 55 Other Well
Flow (gpm) - 300 Proof Flow gpm
S Elevation - 100

P Location: x
P
L Source of Information: x
Y

Water Supply Curve (C)

Uponor EP
LOT 33 - One Head Calculation (H.14)

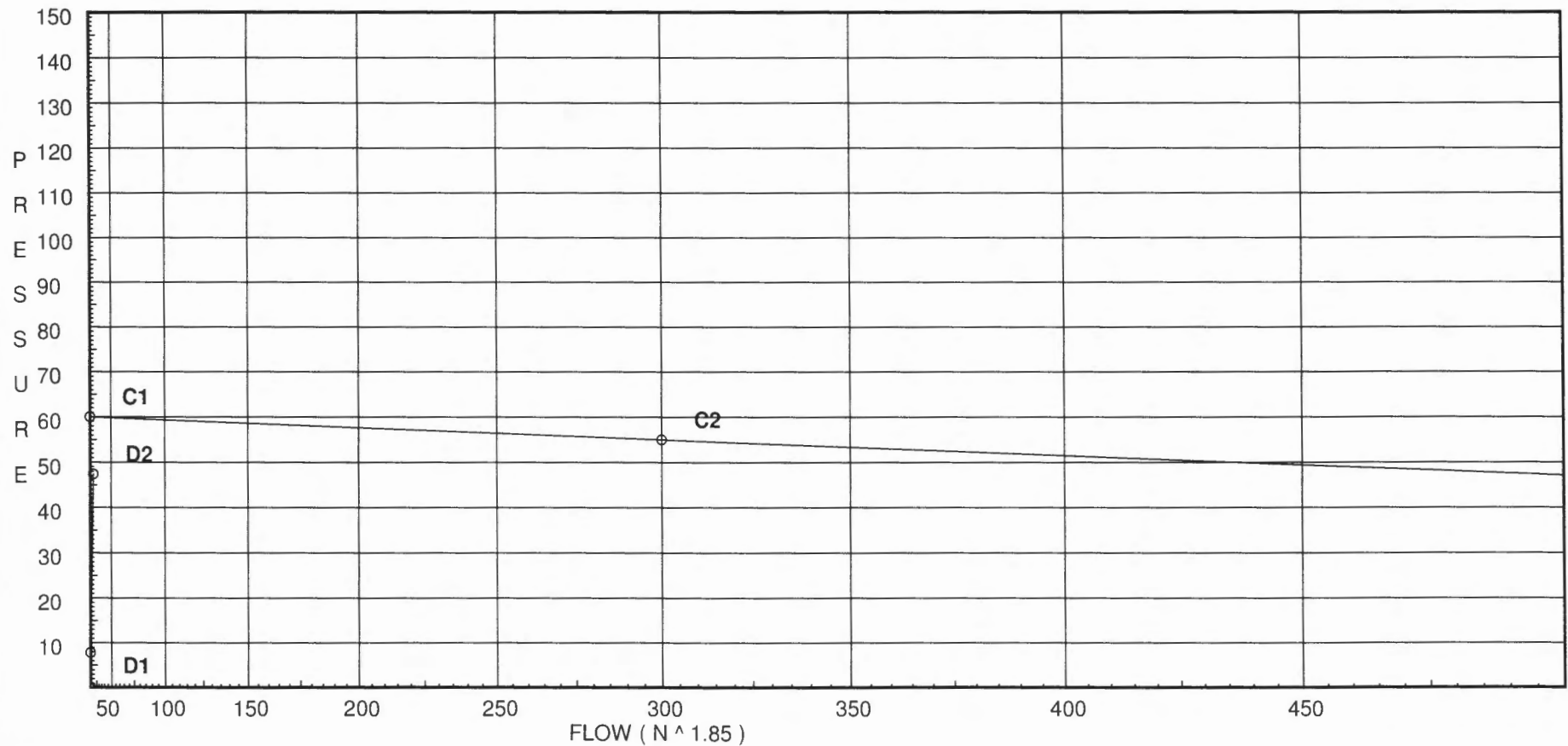
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Date 10/31/2012

City Water Supply:

C1 - Static Pressure : 60
C2 - Residual Pressure: 55
C2 - Residual Flow : 300

Demand:

D1 - Elevation : 7.796
D2 - System Flow : 17.9985
D2 - System Pressure : 47.350
Hose (Adj City) : _____
Hose (Demand) : _____
D3 - System Demand : 17.9985
Safety Margin : 12.622



Fittings Used Summary

Uponor EP
 LOT 33 - One Head Calculation (H.14)

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 Date 10/31/2012

Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	Generic Gate Valve	1	1	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Utb	Aquapex Tee - Branch	2	17	14	9	12	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utr	Aquapex Tee - Run	1	2	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Flow Summary - NFPA 2007

Uponor EP
 LOT 33 - One Head Calculation (H.14)

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
STR	60.0	55	300.0	59.973	18.0	47.35

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
H.14	118.0	4.3	17.52	18.0	
T.37	118.0		23.35		
H.20	118.0		24.19		
H.18	118.0		24.58		
T.36	118.0		24.85		
H.19	118.0		25.1		
H.21	118.0		25.22		
H.15	118.0		25.46		
H.16	118.0		25.59		
H.17	118.0		25.75		
H.11	118.0		25.93		
T.32	118.0		26.25		
T.22	108.0		30.69		
T.28	108.0		31.47		
T.29	108.0		31.83		
S.1	104.0		35.57		
MTR	100.0		44.81		
STR	100.0		47.35		
H.12	118.0		19.51		
T.33	118.0		20.74		
H.13	118.0		21.96		
T.35	118.0		26.1		
T.31	108.0		27.99		
H.8	108.0		28.79		
H.9	108.0		29.26		
H.7	108.0		29.93		
H.6	108.0		30.23		
H.5	108.0		30.63		
H.4	108.0		30.8		
T.30	108.0		30.96		
H.3	108.0		28.44		
T.25	108.0		28.71		
H.2	108.0		28.83		
T.27	108.0		29.2		
H.1	108.0		30.16		
T.23	108.0		30.44		
T.34	118.0		26.16		
H.10	118.0		26.17		

Final Calculations - Hazen-Williams

Uponor EP
 LOT 33 - One Head Calculation (H.14)

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 Date 10/31/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Fting's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
H.14 to T.37	9.58	0.671 150.0 0.1943	1Utb 17.0 0.0	13.000 17.000 30.000	17.520 0.0 5.829		K Factor = 4.30 Vel = 8.69		
T.37 to H.20	-6.27 3.31	0.671 150.0 0.0273	1Utb 17.0 0.0	14.000 17.000 31.000	23.349 0.0 0.845		Vel = 3.00		
H.20 to H.18	0.0 3.31	0.671 150.0 0.0273	1Utr 2.0 0.0	12.000 2.000 14.000	24.194 0.0 0.382		Vel = 3.00		
H.18 to T.36	0.0 3.31	0.671 150.0 0.0273	1Utr 2.0 0.0	8.000 2.000 10.000	24.576 0.0 0.273		Vel = 3.00		
T.36 to H.19	-1.24 2.07	0.671 150.0 0.0114	1Utb 17.0 1Utr 2.0 0.0	3.000 19.000 22.000	24.849 0.0 0.251		Vel = 1.88		
H.19 to H.21	0.0 2.07	0.671 150.0 0.0114	0.0 0.0	11.000 0.0 11.000	25.100 0.0 0.125		Vel = 1.88		
H.21 to H.15	0.0 2.07	0.671 150.0 0.0114	1Utr 2.0 0.0	19.000 2.000 21.000	25.225 0.0 0.240		Vel = 1.88		
H.15 to H.16	0.0 2.07	0.671 150.0 0.0114	1Utr 2.0 0.0	9.000 2.000 11.000	25.465 0.0 0.125		Vel = 1.88		
H.16 to H.17	0.0 2.07	0.671 150.0 0.0114	0.0 0.0	14.000 0.0 14.000	25.590 0.0 0.160		Vel = 1.88		
H.17 to H.11	0.0 2.07	0.671 150.0 0.0114	1Utr 2.0 0.0	14.000 2.000 16.000	25.750 0.0 0.183		Vel = 1.88		
H.11 to T.32	0.0 2.07	0.671 150.0 0.0114	1Utb 17.0 1Utr 2.0 0.0	9.000 19.000 28.000	25.933 0.0 0.319		Vel = 1.88		
T.32 to T.22	1.00 3.07	0.862 150.0 0.0070	0.0 0.0	15.000 0.0 15.000	26.252 4.331 0.105		Vel = 1.69		
T.22 to T.28	3.82 6.89	0.862 150.0 0.0312	1Utr 2.0 1Utb 17.0 0.0	9.000 16.000 25.000	30.688 0.0 0.779		Vel = 3.79		
T.28 to T.29	7.41 14.3	0.862 150.0 0.1207	1Utr 2.0 0.0	1.000 2.000 3.000	31.467 0.0 0.362		Vel = 7.86		
T.29 to S.1	3.70 18.0	0.862 150.0 0.1843	1T 7.528 0.0	8.000 2.904 10.904	31.829 1.732 2.010		Vel = 9.90		
S.1 to MTR	0.0 18.0	1.025 150.0 0.0794	2E 5.4 0.0	1.000 5.400 6.400	35.571 8.732 0.508		* Fixed loss = 7 Vel = 7.00		

GobriDbrdvrtjpot !.!! b{f o.X jnjb n t

VqpopstFQ

MPUI44!!IPof !! f be!Dbrdvrtjpo!)l /25*

Qbhf 7!

Ebuf 2104208123!!

I ze/ Sf g Qpjou	Rb Ru	Ejb/ #D# QdGu	Gujoh ps Frw Mb/	Qjof Gohf Upbm	Qu Qf Qg	Ql Qw Qo!	+++++	Opf t	++++!
NUS	1/1	2/425	2F 3/358	!211/111	!55/922	!			
up		261/1	2U 5/5: 6	!!!8/415	1/1	!			
TUS	29/1	1/1348	2H 1/673	!218/415	!!3/64:	!	W r>	!!!5/37!	
	1/1					!			
	!!!29/11				!58/461	!	L !Gbdpsl>	!!!3/73!	
I /25	!!!9/53	1/782	2Vus 3/1	!!22/111	!28/631	!			
up		261/1	1/1	!!!3/111	1/1	!			
I /23	9/53	1/2643	1/1	!!24/111	!!2/: : 3	!	W r>	!!!8/75!	
I /23	1/1	1/782	2Vus 3/1	!!!7/111	!2: /623	!			
up		261/1	1/1	!!!3/111	1/1	!			
U/44	9/53	1/2642	1/1	!!!9/111	!!2/336	!	W r>	!!!8/75!	
U/44	1/1	1/782	2Vus 3/1	!!!7/111	!31/848	!			
up		261/1	1/1	!!!3/111	1/1	!			
I /24	9/53	1/2643	1/1	!!!9/111	!!2/337	!	W r>	!!!8/75!	
I /24	1/1	1/782	2Vuc 28/1	!!21/111	!32/: 74	!			
up		261/1	1/1	!!28/111	1/1	!			
U/46	9/53	1/2643	1/1	!!38/111	!!5/247	!	W r>	!!!8/75!	
U/46	!!!.2/11	1/973	2Vuc 28/1	!!26/111	!37/1: :	!			
up		261/1	1/1	!!25/111	!!5/442	!			
U/39	8/53	1/1469	1/1	!!3: /111	!!2/148	!	W r>	!!!5/19!	
	1/1					!			
	!!!8/53				!42/578	!	L !Gbdpsl>	!!!2/43!	
U/48	!!!7/37	1/973	1/1	!!23/111	!34/45:	!			
up		261/1	1/1	1/1	!!5/442	!			
U/42	7/37	1/1372	1/1	!!23/111	!!1/424	!	W r>	!!!4/55!	
U/42	!!!.3/68	1/782	2Vuc 28/1	!!!6/111	!38/: : 4	!			
up		261/1	2Vus 3/1	!!2: /111	1/1	!			
I /9	4/7:	1/1445	1/1	!!35/111	!!1/912	!	W r>	!!!4/46!	
I /9	1/1	1/782	1/1	!!25/111	!39/8: 5	!			
up		261/1	1/1	1/1	1/1	!			
I /:	4/7:	1/1445	1/1	!!25/111	!!1/578	!	W r>	!!!4/46!	
I /:	1/1	1/782	2Vus 3/1	!!29/111	!3: /372	!			
up		261/1	1/1	!!!3/111	1/1	!			
I /8	4/7:	1/1445	1/1	!!31/111	!!1/778	!	W r>	!!!4/46!	
I /8	1/1	1/782	2Vus 3/1	!!!8/111	!3: /: 39	!			
up		261/1	1/1	!!!3/111	1/1	!			
I /7	4/7:	1/1444	1/1	!!!: /111	!!1/411	!	W r>	!!!4/46!	
I /7	1/1	1/782	2Vus 3/1	!!21/111	!41/339	!			
up		261/1	1/1	!!!3/111	1/1	!			
I /6	4/7:	1/1444	1/1	!!23/111	!!1/511	!	W r>	!!!4/46!	
I /6	1/1	1/782	2Vus 3/1	!!!4/111	!41/739	!			
up		261/1	1/1	!!!3/111	1/1	!			
I /5	4/7:	1/1445	1/1	!!!6/111	!!1/278	!	W r>	!!!4/46!	
I /5	1/1	1/782	2Vus 3/1	!!!4/111	!41/8: 6	!			
up		261/1	1/1	!!!3/111	1/1	!			
U/41	4/7:	1/1445	1/1	!!!6/111	!!1/278	!	W r>	!!!4/46!	
U/41	1/1	1/782	2Vus 3/1	!!!8/111	!41/: 73	!			
up		261/1	2Vuc 28/1	!!2: /111	1/1	!			
U/3:	4/7:	1/1444	1/1	!!37/111	!!1/978	!	W r>	!!!4/46!	

Gjohr Dbrdrtrajpot !.!! b{f o.X jriobn t

VqpopstFQ

MPUI44! !Pof !! f be!Dbrdrtrajpo!)l /25*

Qbhf 8!
Ebuf 2104208123!!

I ze/ Sf g Qpjou	Rb Ru	Ejb/ #D# QqGu	Gujoh ps Frw Mb/	Qjof Goh(t Upubm	Qu Qf Qg	Ql Qw Qo!	+++++	Opuf t	++++!
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	1/1 !!!!4/7:				!42/93:		!	L!Gbdups>!!!!1/76!	
U/42 p	!!!!3/68	1/782 261/1	2Vuc 28/1 1/1	!!!: /111 !!28/111	!38/: : 4 1/1		!		
I /4	3/68	1/1281	1/1	!!37/111	!!1/554		!	W rtr!!!!3/44!	
U/36 p	1/1 3/68	1/782 261/1 1/1281	2Vus 3/1 1/1	!!25/111 !!!3/111	!39/547 1/1		!		
I /4	1/1	1/782	1/1	!!27/111	!!1/383		!	W rtr!!!!3/44!	
U/36 p	1/1 3/68	1/782 261/1 1/1282	2Vus 3/1 1/1	!!!6/111 !!!3/111	!39/819 1/1		!		
I /3	3/68	1/1282	1/1	!!!8/111	!!1/231		!	W rtr!!!!3/44!	
U/38 p	1/1 3/68	1/782 261/1 1/1281	2Vuc 28/1 1/1	!!!6/111 !!28/111	!39/939 1/1		!		
I /3	3/68	1/1281	1/1	!!33/111	!!1/485		!	W rtr!!!!3/44!	
U/38 p	!!!!2/35	1/782 261/1	2Vuc 28/1 1/1	!!21/111 !!28/111	!3: /313 1/1		!		
I /2	4/92	1/1465	1/1	!!38/111	!!1/: 66		!	W rtr!!!!4/57!	
U/34 p	1/1 4/92	1/782 261/1 1/1465	2Vus 3/1 1/1	!!!7/111 !!!3/111	!41/268 1/1		!		
I /2	1/1	1/782	1/1	!!!9/111	!!1/394		!	W rtr!!!!4/57!	
U/34 p	1/1 4/92	1/782 261/1 1/1465	2Vus 3/1 1/1	!!!6/111 !!!3/111	!41/551 1/1		!		
I /2	4/92	1/1465	1/1	!!!8/111	!!1/359		!	W rtr!!!!4/57!	
	1/1 !!!!4/92				!41/799		!	L!Gbdups>!!!!1/7: !	
U/47 p	!!!!2/36	1/973 261/1	1/1 1/1	!!28/111 1/1	!35/95: !!5/442		!		
I /2	2/36	1/1124	1/1	!!28/111	!!1/133		!	W rtr!!!!1/7: !	
	1/1 !!!!2/36				!3: /313		!	L!Gbdups>!!!!1/34!	
U/46 p	!!!!2/11	1/782 261/1	2Vuc 28/1 1/1	!!!5/111 !!28/111	!37/1: : 1/1		!		
I /2	2/1	1/1141	1/1	!!32/111	!!1/174		!	W rtr!!!!1/: 2!	
U/45 p	1/1 2/1	1/782 261/1 1/1141	2Vus 3/1 1/1	!!!3/111 !!!3/111	!37/273 1/1		!		
I /2	2/1	1/1141	1/1	!!!5/111	!!1/123		!	W rtr!!!!1/: 2!	
U/45 p	1/1 2/1	1/782 261/1 1/1141	2Vuc 28/1 2Vus 3/1	!!!8/111 !!2: /111	!37/285 1/1		!		
I /2	2/1	1/1141	1/1	!!37/111	!!1/189		!	W rtr!!!!1/: 2!	
	1/1 !!!!2/11				!37/363		!	L!Gbdups>!!!!1/31!	

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Dept. of Building Inspections
City of Portland Maine



AquaSAFE™ FIRE SAFETY SYSTEM

Uponor EP
5925 148th Street West

Apple Valley, MN 55124
800-321-4739

Job Name : LOT 33 - Two Head Calculation (H.16 & H.17)
Drawing : RESIDENTIAL
Location : ALLISON RD PORTLAND ME
Remote Area : 1
Contract : 121010-42L
Data File : 121010-42L Lot 33 Allison.wx2

Water Supply Curve (C)

Uponsor EP
 LOT 33 - Two Head Calculation (H.16 & H.17)

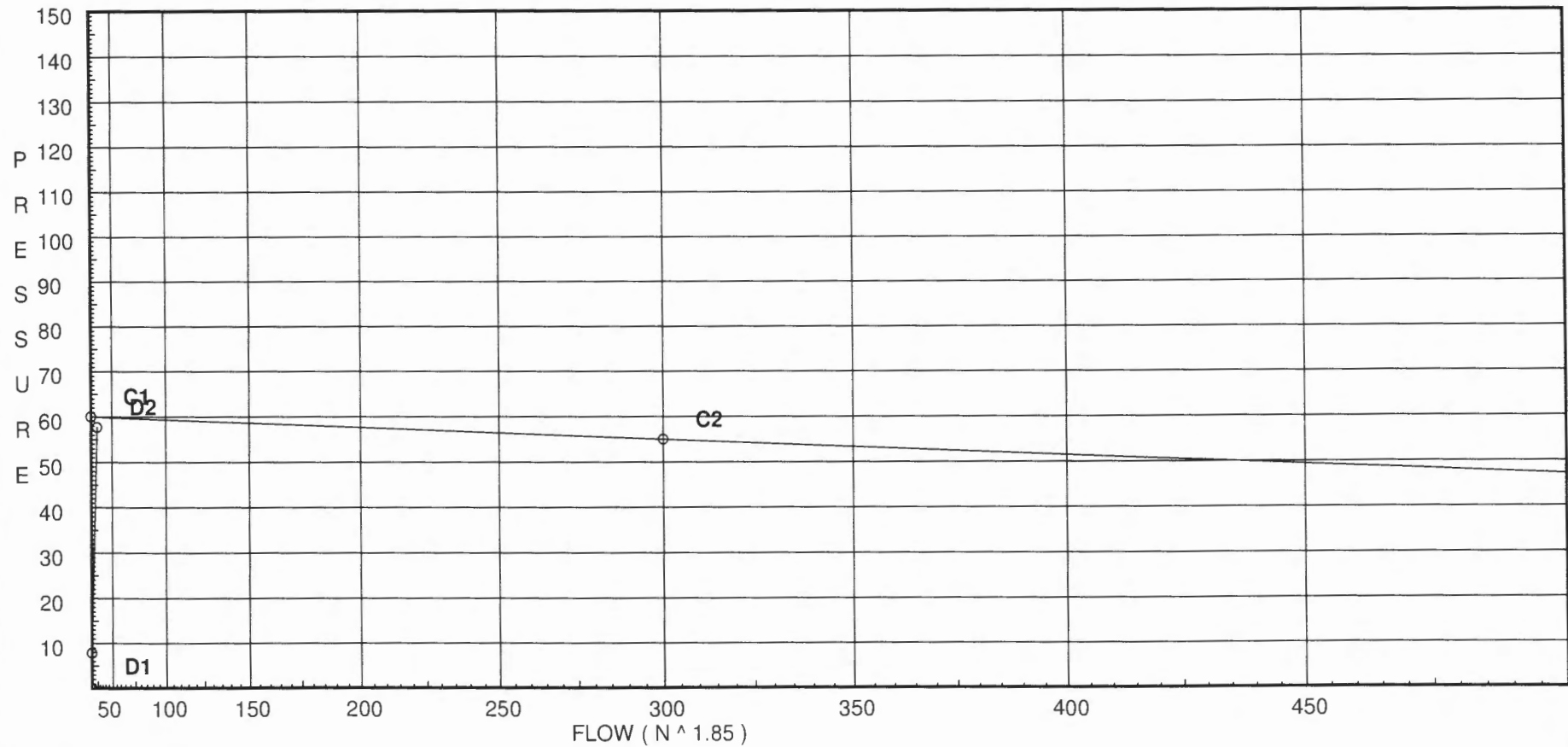
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City Water Supply:

C1 - Static Pressure : 60
 C2 - Residual Pressure: 55
 C2 - Residual Flow : 300

Demand:

D1 - Elevation : 7.796
 D2 - System Flow : 26.0718
 D2 - System Pressure : 57.675
 Hose (Adj City) : _____
 Hose (Demand) : _____
 D3 - System Demand : 26.0718
 Safety Margin : 2.270



Fittings Used Summary

Uponsor EP
 LOT 33 - Two Head Calculation (H.16 & H.17)

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Fitting Legend		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
Abbrev.	Name																				
E	90' Standard Elbow	2	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	Generic Gate Valve	1	1	1	1	1	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Utb	Aquapex Tee - Branch	2	17	14	9	12	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utr	Aquapex Tee - Run	1	2	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Flow Summary - NFPA 2007

Uponsor EP
 LOT 33 - Two Head Calculation (H.16 & H.17)

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
STR	60.0	55	300.0	59.946	26.07	57.675

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
H.16	118.0	4.3	9.14	13.0	
H.15	118.0		12.08		
H.21	118.0		17.7		
H.19	118.0		20.64		
T.36	118.0		26.52		
T.27	108.0		31.45		
H.1	108.0		32.67		
T.23	108.0		33.04		
T.22	108.0		33.36		
T.28	108.0		36.36		
T.29	108.0		37.17		
S.1	104.0		42.9		
MTR	100.0		52.64		
STR	100.0		57.68		
H.17	118.0	4.3	9.24	13.07	
H.11	118.0		16.1		
T.32	118.0		28.11		
H.10	118.0		29.5		
T.34	118.0		29.72		
T.35	118.0		30.85		
H.18	118.0		26.92		
H.20	118.0		27.47		
T.37	118.0		28.69		
H.14	118.0		29.44		
H.12	118.0		29.77		
T.33	118.0		29.97		
H.13	118.0		30.17		
H.2	108.0		31.94		
T.25	108.0		32.1		
H.3	108.0		32.45		
T.31	108.0		33.03		
H.8	108.0		33.9		
H.9	108.0		34.4		
H.7	108.0		35.12		
H.6	108.0		35.44		
H.5	108.0		35.88		
H.4	108.0		36.06		
T.30	108.0		36.24		

Final Calculations - Hazen-Williams

Uponor EP

LOT 33 - Two Head Calculation (H.16 & H.17)

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Date 10/31/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
H.16 to H.15	11.38	0.671 150.0	1Utr	2.0 0.0	9.000 2.000	9.140 0.0			K Factor = 4.30	
H.15 to H.21	11.38	0.2675 150.0		0.0	11.000	2.942			Vel = 10.32	
H.15 to H.21	0.0	0.671 150.0	1Utr	2.0 0.0	19.000 2.000	12.082 0.0				
H.21 to H.19	11.38	0.2674 150.0		0.0	21.000	5.615			Vel = 10.32	
H.21 to H.19	0.0	0.671 150.0		0.0	11.000	17.697				
H.19 to T.36	11.38	0.2675 150.0		0.0	11.000	2.942			Vel = 10.32	
H.19 to T.36	0.0	0.671 150.0	1Utb 1Utr	17.0 2.0	3.000 19.000	20.639 0.0				
T.36 to T.27	11.38	0.2674 150.0		0.0	22.000	5.883			Vel = 10.32	
T.36 to T.27	-4.04	0.862 150.0		0.0	17.000	26.522				
T.27 to H.1	7.34	0.0351 150.0		0.0	17.000	0.596			Vel = 4.04	
T.27 to H.1	-2.98	0.671 150.0	1Utb	17.0 0.0	10.000 17.000	31.449 0.0				
H.1 to T.23	4.36	0.0454 150.0		0.0	27.000	1.226			Vel = 3.96	
H.1 to T.23	0.0	0.671 150.0	1Utr	2.0 0.0	6.000 2.000	32.675 0.0				
T.23 to T.22	4.36	0.0454 150.0		0.0	8.000	0.363			Vel = 3.96	
T.23 to T.22	0.0	0.671 150.0	1Utr	2.0 0.0	5.000 2.000	33.038 0.0				
T.22 to T.28	4.36	0.0454 150.0		0.0	7.000	0.318			Vel = 3.96	
T.22 to T.28	9.92	0.862 150.0	1Utr 1Utb	2.0 17.0	9.000 16.000	33.356 0.0				
T.28 to T.29	14.28	0.1200 150.0		0.0	25.000	3.001			Vel = 7.85	
T.28 to T.29	7.94	0.862 150.0	1Utr	2.0 0.0	1.000 2.000	36.357 0.0				
T.29 to S.1	22.22	0.2723 150.0		0.0	3.000	0.817			Vel = 12.22	
T.29 to S.1	3.85	0.862 150.0	1T	7.528 0.0	8.000 2.904	37.174 1.732				
S.1 to MTR	26.07	0.3659 150.0		0.0	10.904	3.990			Vel = 14.33	
S.1 to MTR	0.0	1.025 150.0	2E	5.4 0.0	1.000 5.400	42.896 8.732			* Fixed loss = 7	
MTR to STR	26.07	0.1575 150.0		0.0	6.400	1.008			Vel = 10.14	
MTR to STR	0.0	1.314 150.0	1E 1T	2.247 4.495	100.000 7.304	52.636 0.0				
STR	26.07	0.0470 150.0	1G	0.562	107.304	5.039			Vel = 6.17	
	0.0 26.07					57.675			K Factor = 3.43	
H.16 to H.17	1.62	0.671 150.0		0.0	14.000	9.140				
H.17 to H.11	1.62	0.0072 150.0		0.0	14.000	0.101			Vel = 1.47	
H.17 to H.11	13.07	0.671 150.0	1Utr	2.0 0.0	14.000 2.000	9.241 0.0			K Factor = 4.30	
H.11 to T.32	14.69	0.4288 150.0		0.0	16.000	6.861			Vel = 13.33	
H.11 to T.32	0.0	0.671 150.0	1Utb 1Utr	17.0 2.0	9.000 19.000	16.102 0.0				
T.32	14.69	0.4288 150.0		0.0	28.000	12.006			Vel = 13.33	

Final Calculations - Hazen-Williams

Uponsor EP

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LOT 33 - Two Head Calculation (H.16 & H.17)

Date 10/31/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftg's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
T.32 to H.10	-9.91 4.78	0.671 150.0 0.0537	1Utb 1Utr	17.0 2.0 0.0	7.000 19.000 26.000	28.108 0.0 1.397			Vel = 4.34	
H.10 to T.34	0.0 4.78	0.671 150.0 0.0538	1Utr	2.0 0.0 0.0	2.000 2.000 4.000	29.505 0.0 0.215			Vel = 4.34	
T.34 to T.35	0.0 4.78	0.671 150.0 0.0537	1Utb	17.0 0.0 0.0	4.000 17.000 21.000	29.720 0.0 1.128			Vel = 4.34	
T.35 to T.28	3.17 7.95	0.862 150.0 0.0406	1Utb	17.0 0.0 0.0	15.000 14.000 29.000	30.848 4.331 1.178			Vel = 4.37	
	0.0 7.95					36.357			K Factor = 1.32	
T.36 to H.18	4.05 4.05	0.671 150.0 0.0395	1Utr	2.0 0.0 0.0	8.000 2.000 10.000	26.522 0.0 0.395			Vel = 3.67	
H.18 to H.20	0.0 4.05	0.671 150.0 0.0394	1Utr	2.0 0.0 0.0	12.000 2.000 14.000	26.917 0.0 0.552			Vel = 3.67	
H.20 to T.37	0.0 4.05	0.671 150.0 0.0395	1Utb	17.0 0.0 0.0	14.000 17.000 31.000	27.469 0.0 1.223			Vel = 3.67	
T.37 to H.14	-0.88 3.17	0.671 150.0 0.0251	1Utb	17.0 0.0 0.0	13.000 17.000 30.000	28.692 0.0 0.752			Vel = 2.88	
H.14 to H.12	0.0 3.17	0.671 150.0 0.0251	1Utr	2.0 0.0 0.0	11.000 2.000 13.000	29.444 0.0 0.326			Vel = 2.88	
H.12 to T.33	0.0 3.17	0.671 150.0 0.0251	1Utr	2.0 0.0 0.0	6.000 2.000 8.000	29.770 0.0 0.201			Vel = 2.88	
T.33 to H.13	0.0 3.17	0.671 150.0 0.0251	1Utr	2.0 0.0 0.0	6.000 2.000 8.000	29.971 0.0 0.201			Vel = 2.88	
H.13 to T.35	0.0 3.17	0.671 150.0 0.0250	1Utb	17.0 0.0 0.0	10.000 17.000 27.000	30.172 0.0 0.676			Vel = 2.88	
	0.0 3.17					30.848			K Factor = 0.57	
T.27 to H.2	2.97 2.97	0.671 150.0 0.0223	1Utb	17.0 0.0 0.0	5.000 17.000 22.000	31.449 0.0 0.490			Vel = 2.69	
H.2 to T.25	0.0 2.97	0.671 150.0 0.0223	1Utr	2.0 0.0 0.0	5.000 2.000 7.000	31.939 0.0 0.156			Vel = 2.69	
T.25 to H.3	0.0 2.97	0.671 150.0 0.0223	1Utr	2.0 0.0 0.0	14.000 2.000 16.000	32.095 0.0 0.357			Vel = 2.69	

Final Calculations - Hazen-Williams

Uponsor EP

• LOT 33 - Two Head Calculation (H.16 & H.17)

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Date 10/31/2012

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
H.3 to T.31	0.0 2.97	0.671 150.0 0.0223	1Utb	17.0 0.0 0.0	9.000 17.000 26.000	32.452 0.0 0.580			Vel = 2.69	
T.31 to H.8	0.88 3.85	0.671 150.0 0.0360	1Utb 1Utr	17.0 2.0 0.0	5.000 19.000 24.000	33.032 0.0 0.864			Vel = 3.49	
H.8 to H.9	0.0 3.85	0.671 150.0 0.0361		0.0 0.0 0.0	14.000 0.0 14.000	33.896 0.0 0.505			Vel = 3.49	
H.9 to H.7	0.0 3.85	0.671 150.0 0.0360	1Utr	2.0 0.0 0.0	18.000 2.000 20.000	34.401 0.0 0.720			Vel = 3.49	
H.7 to H.6	0.0 3.85	0.671 150.0 0.0360	1Utr	2.0 0.0 0.0	7.000 2.000 9.000	35.121 0.0 0.324			Vel = 3.49	
H.6 to H.5	0.0 3.85	0.671 150.0 0.0360	1Utr	2.0 0.0 0.0	10.000 2.000 12.000	35.445 0.0 0.432			Vel = 3.49	
H.5 to H.4	0.0 3.85	0.671 150.0 0.0362	1Utr	2.0 0.0 0.0	3.000 2.000 5.000	35.877 0.0 0.181			Vel = 3.49	
H.4 to T.30	0.0 3.85	0.671 150.0 0.0360	1Utr	2.0 0.0 0.0	3.000 2.000 5.000	36.058 0.0 0.180			Vel = 3.49	
T.30 to T.29	0.0 3.85	0.671 150.0 0.0360	1Utr 1Utb	2.0 17.0 0.0	7.000 19.000 26.000	36.238 0.0 0.936			Vel = 3.49	
	0.0 3.85					37.174			K Factor = 0.63	
T.32 to T.22	9.91 9.91	0.862 150.0 0.0611		0.0 0.0 0.0	15.000 0.0 15.000	28.108 4.331 0.917			Vel = 5.45	
	0.0 9.91					33.356			K Factor = 1.72	
T.37 to T.31	0.88 0.88	0.862 150.0 0.0007		0.0 0.0 0.0	12.000 0.0 12.000	28.692 4.331 0.009			Vel = 0.48	
	0.0 0.88					33.032			K Factor = 0.15	