

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that
FREEDOM FIRE PROTECTION
209 QUAKER RIDGE RD
CASCO, ME 04015

For installation at
191 RIVERSIDE ST
BERLIN CITY

Job ID: 2012-07-4484-FAFS

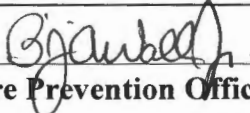
CBL: 268- A-002-001

has permission to renovate NFPA 13 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


Fire Prevention Officer

(SB)

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (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.**

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.



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Jeff Levine

Job ID: 2012-07-4484-FAFS
renovate NFPA 13 sprinkler system

For installation at:
191 RIVERSIDE ST
BERLIN CITY

CBL: 268- A-002-001

Conditions of Approval:

Fire

1. Installation shall be in accordance with NFPA 13. A signed compliance letter will be required.
2. A separate sprinkler permit is required from the State Fire Marshal's Office.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2012-07-4484-FAFS	Date Applied: 7/18/2012	CBL: 268- A-002-001	
Location of Construction: 191 RIVERSIDE ST	Owner Name: CAR SUM ME RIVER LLC	Owner Address: 8270 GREENSBORO DR STE 950 MCLEAN, VA 22102	Phone:
Business Name: Toyota & Lexus	Contractor Name: FREEDOM FIRE PROTECTION	Contractor Address: 209 QUAKER RIDGE RD CASCO MAINE 04015	Phone: (207) -627-4109 671-8639
Lessee/Buyer's Name:	Phone:	Permit Type: FIRE SUPPRESSION SYSTEM	Zone: B-4
Past Use: Automobile Sales and Service	Proposed Use: Same: Automobile Sales and Service – to install a fire suppression system	Cost of Work: \$7,000.00	CEO District:
		Fire Dept: 8/2/12 Signature: <i>[Signature]</i> (58)	Inspection: Use Group: Type: Signature:
Proposed Project Description: WB Fire Suppression		Pedestrian Activities District (P.A.D.)	

Permit Taken By: Brad	Zoning Approval		
<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p>	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <input type="checkbox"/> Maj <input type="checkbox"/> Min <input checked="" type="checkbox"/> MM Date: <i>7/24/12</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 Date:	Historic Preservation <input type="checkbox"/> Not in Dist 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:
	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 appication 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



Water-Based Fire Suppression System Permit

Extend 7/18/12

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.

(B)

\$ 2012-07-4484 -FAFS

Installation address: 191 Riverside Street CBL: 268 A002

Exact location: (within structure) New Toyota Showroom, front of building

Type of occupancy(s) (NFPA & ICC): Car Dealership

contractor

Building owner: Allied Cook Construction *CAN SUM ME RIVER LLC*

Managing Supervisor (RMS): Timothy Vess License No: 348

Supervisor phone: 207-627-4109 E-mail: wwales@maine.rr.com

Installing contractor: Freedom Fire Protection License No: 295

Contractor phone: 207-671-8639 E-mail: wwales@maine.rr.com

The suppression work to be done will be: New: Renovation: Addition to existing system:

This is an amendment to an existing permit: Yes: NO: Permit no: _____

NFPA Standard this system is designed to: NFPA 13 Edition: 2010

*Non-NFPA systems are not approved for use within the City of Portland.

Download a new copy of this document from www.portlandmaine.gov/fire for every submittal. Attach all working documents and complete approved submittals as may be required by the State Fire Marshal's Office on electronic PDF's in addition to full sized plans.

Contractor shall verify location and type of all FDCs shall be approved in writing by the Fire Prevention Bureau.

COST OF WORK: \$6,772.00
PERMIT FEE: \$90.00
 (\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED
 JUL 18 2012
 Dept. of Building Inspections
 City of Portland Maine

Submit all information to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire protection system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with NFPA and the Fire Department Technical Standard(s).

Applicant signature: *Mark Radzujinski* Date: April 26, 2012



PORTLAND MAINE

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Receipts Details:

Tender Information: Check , Check Number: 17099

Tender Amount: 90.00

Receipt Header:

Cashier Id: bsaucier

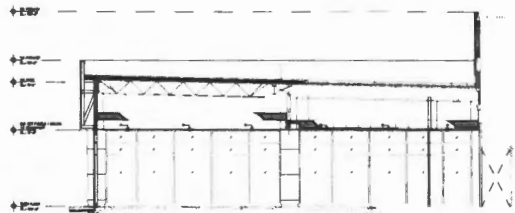
Receipt Date: 7/18/2012

Receipt Number: 46084

Receipt Details:

Referance ID:	7302	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	90.00	Charge Amount:	90.00
Job ID: Job ID: 2012-07-4484-FAFS - WB Fire Suppression			
Additional Comments: 191 Riverside			

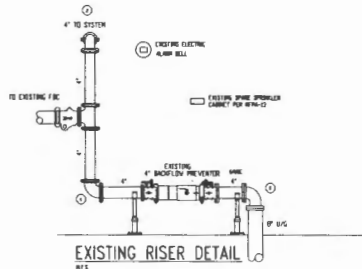
Thank You for your Payment!



SECTION VIEW
SCALE 1/4"=1'-0"

FIRE SPRINKLER GENERAL NOTES

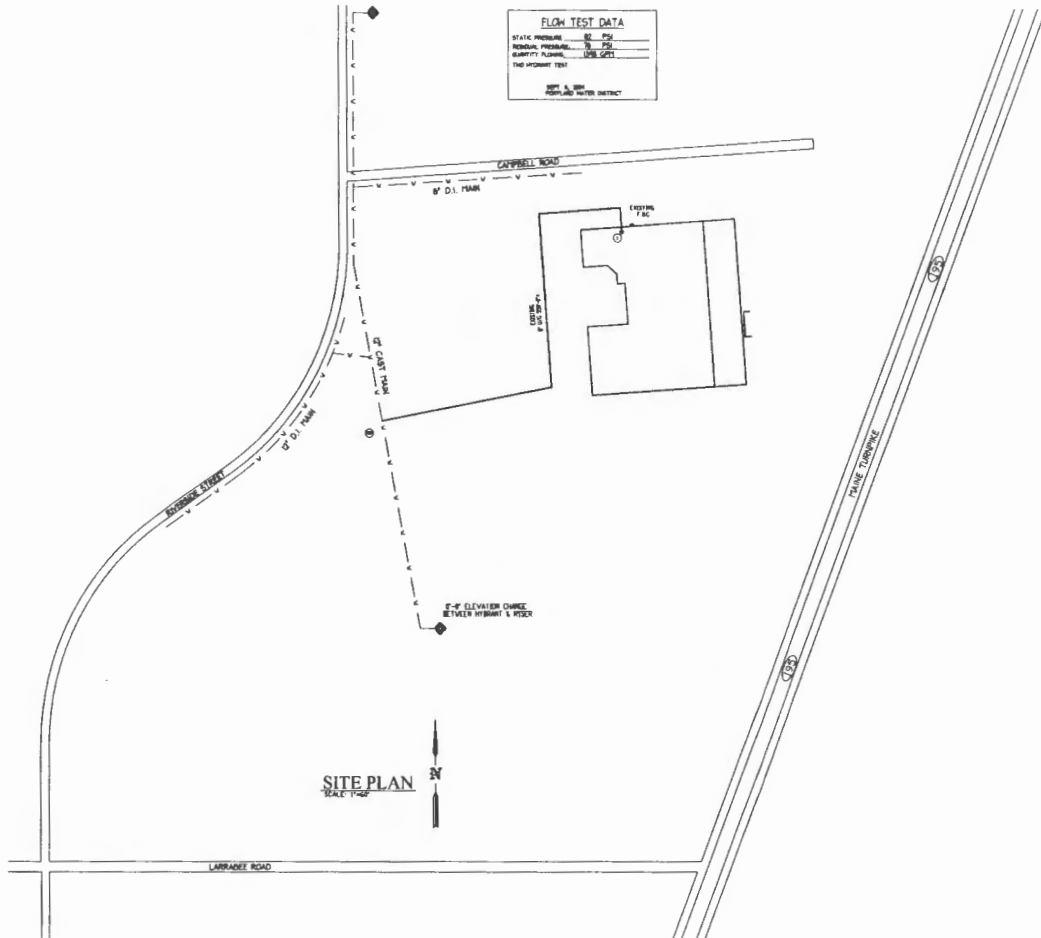
OCCUPANCY: CAR DEALERSHIP ADDITION
 DESIGN STANDARD: NFPA-13 2010
 DESIGN DENSITY: 0.15 GPM/945 SQ.FT.
 SPRINKLERS UPRIGHT: TYCO (AS NOTED ON PLAN)
 SPRINKLERS PENDENT: TYCO (AS NOTED ON PLAN)
 ESCUTCHEONS: WHITE 2 PIECE SEMI-REC.
 PIPING 1"-1 1/2": SCH. 40 BLACK STEEL WITH THREADED ENDS.
 PIPING 2"-6": SCH. 10 BLACK WITH GROOVED ENDS.
 HANGERS TO BE U.L. & FM APPROVED.
 AND SPACED PER NFPA-13
 ALL PIPING TO BE TESTED AT 200 PSI FOR 2 HOURS.
 PROVIDE TAMPER SWITCH ON ALL CONTROL VALVES.
 PROVIDE HYDRAULIC NAME PLATE PER NFPA-13.
 COORDINATE FIRE SPRINKLER PIPING WITH OTHER TRADES.
 (C) DENOTES HYDRAULIC REFERENCE POINTS.
 + DENOTES GROOVED COUPLING IN PIPE.
 RN = RISER NIPPLE.
 SG = SPRIG.
 DN = DROP NIPPLE.
 GC = GROOVED COUPLING.
 TOE = THREAD ONE END.
 GBE = GROOVE BOTH ENDS.



EXISTING RISER DETAIL
NOTES

FLOW TEST DATA	
STATIC PRESSURE	80 PSI
RESIDUAL PRESSURE	70 PSI
EMERGENCY FLOW	1500 GPM
TEST DATE	10/20/12

BY: J. B. BRY
 PORTLAND WATER DISTRICT



SITE PLAN
SCALE 1/4"=1'-0"

REVISIONS	NOTES	SPRINKLER TYPE	IDENTIFICATION NO.	SPR.	ESC.	MODEL	TRIAL	ORIFICE	TEMP.	SYMBOL	QUANT.
TOTAL SPRINKLERS THIS DRAWING											

STANDARD SYMBOLS	STANDARD SYMBOLS
(I) - FOOT INDICATOR VALVE	(A) - ALARM CHECK VALVE
(V) - KEY VALVE	(A) - RISER W/ALARM VALVE
(F) - FIRE HYDRANT	(N) - RISER W/DRY VALVE
(C) - FIRE DEPT CONNECTION	(F) - RISER W/TESTED FLOW SWITCH
(S) - RISER W/FLAME VALVE	(I) - RISER W/BUSING VALVE
(C) - SWING CHECK VALVE	(M) - WATER MOTOR BELL
(H) - NEW UNDERGROUND	(E) - ELECTRIC BELL
(A) - 4" - 6" UG UNDERGROUND	(F) - FLUSH FIRE DEPT CONNECTION

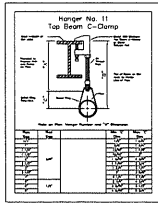
INSPECTIONS
1.
2.
3.
4.
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10.

BERLIN CITY TOYOTA SHOWROOM ADDITION
 191 RIVERSIDE STREET
 PORTLAND, MAINE 04103

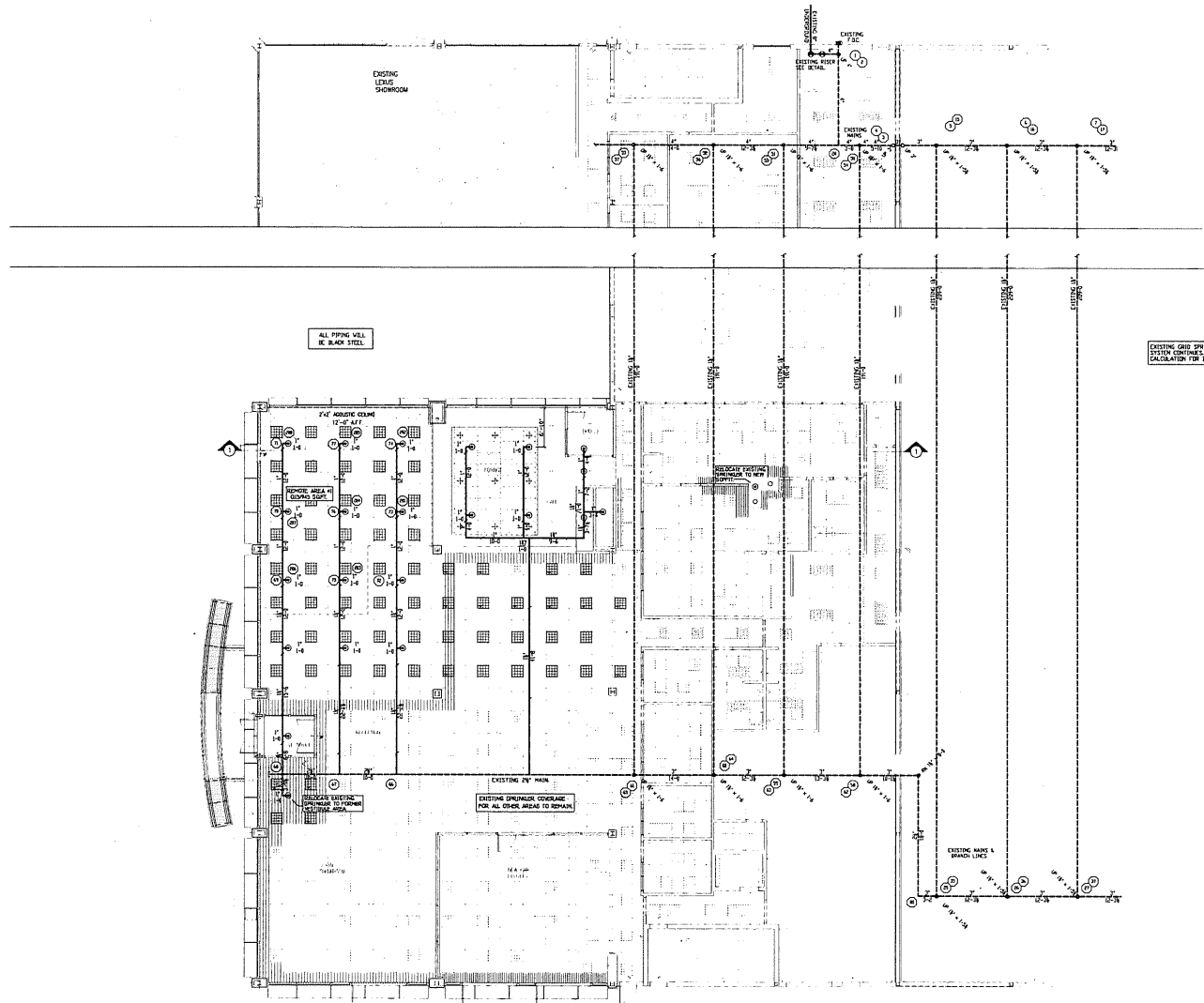
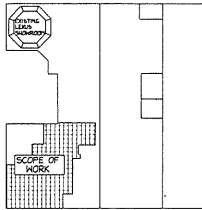
FIRE PROTECTION PLAN

FREEDOM FIRE PROTECTION, INC.
 209 QUAKER RIDGE ROAD
 CASCO, MAINE 04015

JOB No.	MOORE
DATE	7/2/12
DRAWN BY	MAN
SCALE	AS NOTED
SHEET No.	FP-1of2



HYDRAULIC DESIGN DATA	
System & Area	#1 - #1
No. of Sprinklers	8
Density	0.10 GPM
Design Area	943 SQ FT
Water Demand	420 GPM
Water Flow Rate	420 GPM
Residual Pressure @ 1500 ft. Rise of Water	38 PSI
Safety Factor	K=1.3 PSI
Net. Rise of Water	



GROUND FLOOR RENOVATION & NEW ADDITION FIRE PROTECTION

SCALE 1/8"=1'-0"
QUANTITY @ = 23

REVISIONS	NOTES	SPRINKLER TYPE	IDENTIFICATION NO.	MFG.	ESC.	MODEL	FINISH	ORIFICE	TEMP.	SYMBOL	QUANT.
		QUICK RESP. ESSENTIAL K=1.4	TF 308	TYD	SEN-REC	TF-FRM	WHITE	1/2"	157°	⊙	23
											23
TOTAL SPRINKLERS THIS DRAWING											

BERLIN CITY TOYOTA SHOWROOM ADDITION
191 RIVERSIDE STREET
PORTLAND, MAINE 04103

FIRE PROTECTION PLAN

FREEDOM FIRE PROTECTION, INC.
209 OQUAKER RIDGE ROAD
CASCO, MAINE 04015

JOB No. 40080
DATE 7/9/17
DRAWN BY JLN
SCALE AS NOTED
SHEET No.
FP-2 of 2



... Fire Protection by Computer Design

FREEDOM FIRE PROTECTION INC.
209 QUAKER RIDGE ROAD
CASCO, MAINE 04015
207-627-4109

Job Name : BERLIN CITY TOYOTA SHOWROOM ADDITION
Building : 191 RIVERSIDE STREET
Location : PORTLAND, MAINE 04103
System : #1 AREA#1
Contract :
Data File : Berlin City Toyota Show Room HC.WXF

Hydraulic Design Information Sheet

Name - BERLIN CITY TOYOTA SHOWROOM ADDITION Date - 7/11/12
 Location - PORTLAND, MAINE 04103
 Building - 191 RIVERSIDE STREET System No. - #1 AREA#1
 Contractor - Contract No. -
 Calculated By - TIM VESS Drawing No. - FP-2
 Construction: () Combustible (X) Non-Combustible Ceiling Height - 12'-0"
 Occupancy - CAR DEALERSHIP

S (X) NFPA 13 () Lt. Haz. Ord.Haz.Gp. (X) 1 () 2 () 3 () Ex.Haz.
 Y () NFPA 231 () NFPA 231C () Figure Curve

S Other

T Specific Ruling Made By Date

E	Specific Ruling	Made By	Date
M	Area of Sprinkler Operation - 945	System Type	Sprinkler/Nozzle
	Density - .15	(X) Wet	Make TYCO
D	Area Per Sprinkler - 130.00	() Dry	Model TY-FRB
E	Elevation at Highest Outlet - 14"-0"	() Deluge	Size 1/2"
S	Hose Allowance - Inside -	() Preaction	K-Factor 5.6
I	Rack Sprinkler Allowance -	() Other	Temp.Rat.155
G	Hose Allowance - Outside - 250		

N Note

Calculation Flow Required - 404.529 Press Required - 38.168 At Test
 Summary C-Factor Used: 120 Overhead 140 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test - 9/8/2004		Cap. -
T	Time of Test -	Rated Cap.-	Elev.-
E	Static Press - 82	@ Press -	
R	Residual Press - 78	Elev. -	Well
	Flow - 1393		Proof Flow
S	Elevation - 0		

U Location -

P Source of Information - PORTLAND WATER DISTRICT

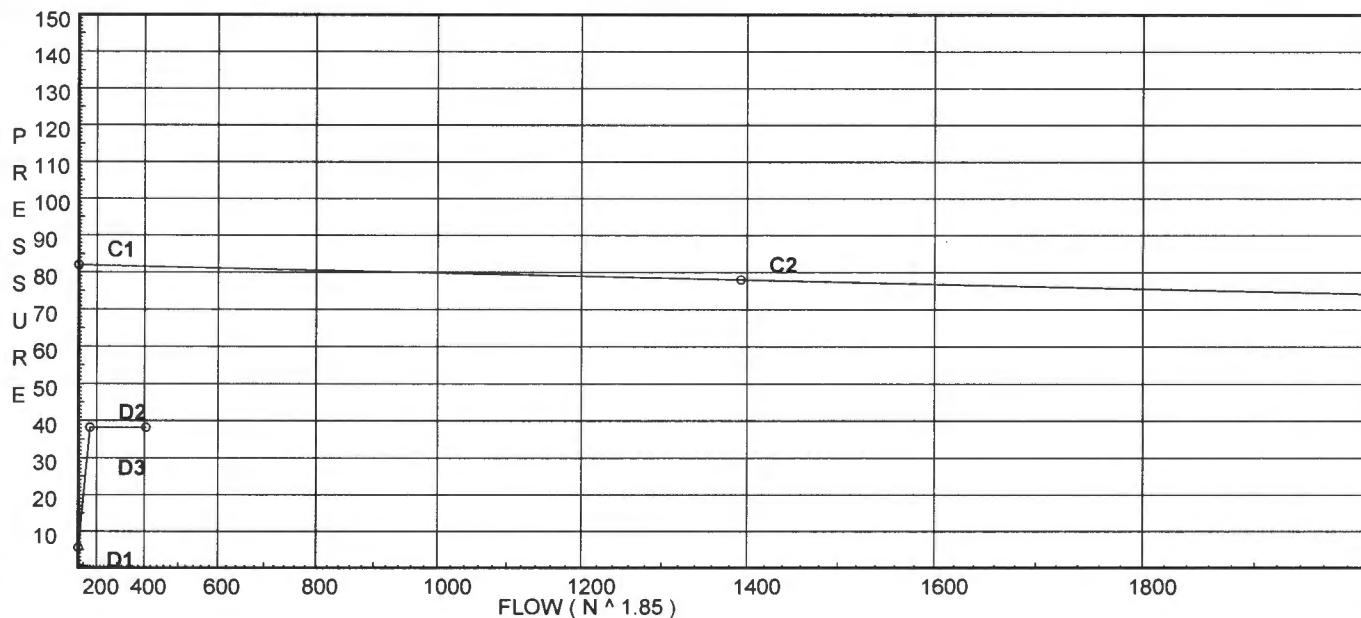
Y

Water Supply Curve (C)

FREEDOM FIRE PROTECTION INC.
 BERLIN CITY TOYOTA SHOWROOM ADDITION

City Water Supply:
 C1 - Static Pressure : 82
 C2 - Residual Pressure: 78
 C2 - Residual Flow : 1393

Demand:
 D1 - Elevation : 5.557
 D2 - System Flow : 154.529
 D2 - System Pressure : 38.168
 Hose (Adj City) :
 Hose (Demand) : 250
 D3 - System Demand : 404.529
 Safety Margin : 43.426



Fittings Used Summary

FREEDOM FIRE PROTECTION INC.
 BERLIN CITY TOYOTA SHOWROOM ADDITION

Page 3
 Date 7/11/12

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	
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	
Zac	Ames 2000SS	Fitting generates a Fixed Loss Based on Flow																				

Pressure / Flow Summary - STANDARD

FREEDOM FIRE PROTECTION INC.
 BERLIN CITY TOYOTA SHOWROOM ADDITION

Page 4
 Date 7/11/12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
201	12.83	5.6	14.17	na	21.08	0.15	120	7.0
202	12.83	5.6	13.03	na	20.22	0.15	120	7.0
74	12.83		13.37	na				
73	12.83		14.96	na				
72	12.83		16.53	na				
203	12.83	5.6	12.52	na	19.81	0.15	120	7.0
204	12.83	5.6	11.31	na	18.83	0.15	120	7.0
P-18	14.0		9.82	na				
205	12.83	5.6	10.39	na	18.05	0.15	120	7.0
77	12.83		10.66	na				
76	12.83		11.95	na				
75	12.83		13.22	na				
206	12.83	5.6	12.45	na	19.76	0.15	120	7.0
207	12.83	5.6	11.25	na	18.78	0.15	120	7.0
208	12.83	5.6	10.33	na	18.0	0.15	120	7.0
71	12.83		10.6	na				
70	12.83		11.88	na				
69	12.83		13.15	na				
68	12.83		19.76	na				
67	12.83		19.86	na				
66	12.83		20.23	na				
61	12.83		22.9	na				
60	12.83		23.59	na				
59	12.83		24.04	na				
65	14.33		22.42	na				
57	12.83		26.58	na				
64	14.33		23.08	na				
56	12.83		26.61	na				
63	14.33		23.51	na				
55	12.83		26.64	na				
58	12.83		24.41	na				
62	14.33		23.86	na				
54	12.83		26.59	na				
53	12.83		26.75	na				
52	12.83		26.75	na				
51	12.83		26.76	na				
33	18.5		22.92	na				
43	20.0		22.31	na				
106	20.0		22.33	na				
105	20.0		22.35	na				
104	20.0		22.37	na				
103	20.0		22.39	na				
102	20.0		22.41	na				
101	20.0		22.43	na				
23	20.0		22.82	na				
32	18.5		22.92	na				
42	20.0		22.3	na				
22	20.0		22.83	na				
31	18.5		22.91	na				
41	20.0		22.3	na				
21	20.0		22.83	na				
30	18.5		22.9	na				
40	20.0		22.28	na				
20	20.0		22.84	na				
29	18.5		22.89	na				
39	20.0		22.26	na				
19	20.0		22.86	na				

Flow Summary - Standard

FREEDOM FIRE PROTECTION INC.
 BERLIN CITY TOYOTA SHOWROOM ADDITION

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 Date 7/11/12

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
28	18.5		22.86	na				
38	20.0		22.26	na				
90	20.0		22.8	na				
18	20.0		22.93	na				
27	18.5		22.82	na				
37	20.0		22.2	na				
17	20.0		22.96	na				
26	18.5		22.77	na				
36	20.0		22.16	na				
16	20.0		23.0	na				
34	18.5		22.92	na				
25	18.5		22.65	na				
80	12.83		25.08	na				
35	20.0		22.03	na				
15	20.0		23.06	na				
44	20.0		22.31	na				
112	20.0		22.33	na				
111	20.0		22.35	na				
110	20.0		22.37	na				
109	20.0		22.39	na				
108	20.0		22.41	na				
107	20.0		22.43	na				
24	20.0		22.83	na				
14	18.5		23.49	na				
13	18.5		23.49	na				
12	18.5		23.5	na				
11	18.5		23.51	na				
10	18.5		23.51	na				
9	18.5		23.53	na				
8	18.5		23.6	na				
7	18.5		23.64	na				
6	18.5		23.69	na				
5	18.5		23.76	na				
4	12.83		26.54	na				
3	7.66		28.86	na				
50	7.66		28.93	na				
2A	7.66		29.0	na				
2	7.66		29.1	na				
1	2.0		31.67	na				
0	2.0		34.2	na				
TEST	0.0		38.17	na	250.0			

The maximum velocity is 12.16 and it occurs in the pipe between nodes 75 and 67

Final Calculations - Hazen-Williams

FREEDOM FIRE PROTECTION INC.
 BERLIN CITY TOYOTA SHOWROOM ADDITION

Page 6
 Date 7/11/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
201 to 73	21.08 21.08	1.049 120 0.1435	1T 5.0 0.0 0.0	0.500 5.000 5.500	14.170 0.0 0.789		K Factor = 5.60 Vel = 7.83
	0.0 21.08				14.959		K Factor = 5.45
202 to 74	20.22 20.22	1.049 120 0.1328	1E 2.0 0.0 0.0	0.500 2.000 2.500	13.034 0.0 0.332		K Factor = 5.60 Vel = 7.51
74 to 73	0.0 20.22	1.049 120 0.1328	0.0 0.0 0.0	12.000 0.0 12.000	13.366 0.0 1.593		Vel = 7.51
73 to 72	21.08 41.3	1.38 120 0.1309	0.0 0.0 0.0	12.000 0.0 12.000	14.959 0.0 1.571		Vel = 8.86
72 to 66	0.0 41.3	1.38 120 0.1309	1T 6.0 0.0 0.0	22.250 6.000 28.250	16.530 0.0 3.697		Vel = 8.86
	0.0 41.30				20.227		K Factor = 9.18
203 to 75	19.81 19.81	1.049 120 0.1278	1T 5.0 0.0 0.0	0.500 5.000 5.500	12.517 0.0 0.703		K Factor = 5.60 Vel = 7.35
	0.0 19.81				13.220		K Factor = 5.45
204 to 76	18.83 18.83	1.049 120 0.1164	1T 5.0 0.0 0.0	0.500 5.000 5.500	11.306 0.0 0.640		K Factor = 5.60 Vel = 6.99
	0.0 18.83				11.946		K Factor = 5.45
205 to 77	18.05 18.05	1.049 120 0.1076	1E 2.0 0.0 0.0	0.500 2.000 2.500	10.386 0.0 0.269		K Factor = 5.60 Vel = 6.70
77 to 76	0.0 18.05	1.049 120 0.1076	0.0 0.0 0.0	12.000 0.0 12.000	10.655 0.0 1.291		Vel = 6.70
76 to 75	18.83 36.88	1.38 120 0.1062	0.0 0.0 0.0	12.000 0.0 12.000	11.946 0.0 1.274		Vel = 7.91
75 to 67	19.81 56.69	1.38 120 0.2352	1T 6.0 0.0 0.0	22.250 6.000 28.250	13.220 0.0 6.644		Vel = 12.16

Final Calculations - Standard

FREEDOM FIRE PROTECTION INC.
BERLIN CITY TOYOTA SHOWROOM ADDITION

Page 7
Date 7/11/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv.	Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0 56.69					19.864			K Factor = 12.72	
206 to 69	19.76 19.76	1.049 120 0.1273	1T	5.0 0.0 0.0	0.500 5.000 5.500	12.452 0.0 0.700			K Factor = 5.60	Vel = 7.34
	0.0 19.76					13.152			K Factor = 5.45	
207 to 70	18.78 18.78	1.049 120 0.1158	1T	5.0 0.0 0.0	0.500 5.000 5.500	11.247 0.0 0.637			K Factor = 5.60	Vel = 6.97
	0.0 18.78					11.884			K Factor = 5.45	
208 to 71 71 to 70 70 to 69 69 to 68 68 to 67 67 to 66 66 to 61 61 to 60 60 to 59 59 to 58	18.00 18.0 0.0 18.0 18.78 36.78 19.76 56.54 0.0 56.54 56.69 113.23 41.30 154.53 -20.99 133.54 -18.87 114.67 -17.36 97.31	1.049 120 0.1068 1.049 120 0.1071 1.38 120 0.1057 1.38 120 0.2341 2.635 120 0.0100 2.635 120 0.0363 2.635 120 0.0644 2.635 120 0.0492 2.635 120 0.0371 2.635 120 0.0275	1E 1T	2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 6.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.500 2.000 2.500 12.000 0.0 12.000 12.000 0.0 12.000 22.250 6.000 28.250 10.000 0.0 10.000 10.000 41.458 0.0 41.458 14.000 0.0 14.000 12.330 0.0 12.330 13.330 0.0 13.330	10.332 0.0 0.267 10.599 0.0 1.285 11.884 0.0 1.268 13.152 0.0 6.612 19.764 0.0 0.100 19.864 0.0 0.363 20.227 0.0 2.671 22.898 0.0 0.689 23.587 0.0 0.457 24.044 0.0 0.366			K Factor = 5.60 Vel = 6.68 Vel = 6.68 Vel = 7.89 Vel = 12.13 Vel = 3.33 Vel = 6.66 Vel = 9.09 Vel = 7.86 Vel = 6.75 Vel = 5.73	

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
	0.0								
	97.31					24.410		K Factor = 19.70	
61 to 65	20.98	1.61 120	1T 8.0	1.500 8.000	22.898 -0.650				
	20.98	0.0177		9.500	0.168			Vel = 3.31	
65 to 57	0.0	1.61 120	2E 8.0	191.000 8.000	22.416 0.650				
	20.98	0.0177		199.000	3.514			Vel = 3.31	
57 to 53	0.0	1.61 120	1T 8.0	1.500 8.000	26.580 0.0				
	20.98	0.0177		9.500	0.168			Vel = 3.31	
	0.0								
	20.98					26.748		K Factor = 4.06	
60 to 64	18.87	1.61 120	1T 8.0	1.500 8.000	23.587 -0.650				
	18.87	0.0145		9.500	0.138			Vel = 2.97	
64 to 56	0.0	1.61 120	2E 8.0	191.000 8.000	23.075 0.650				
	18.87	0.0145		199.000	2.887			Vel = 2.97	
56 to 52	0.0	1.61 120	1T 8.0	1.500 8.000	26.612 0.0				
	18.87	0.0145		9.500	0.138			Vel = 2.97	
	0.0								
	18.87					26.750		K Factor = 3.65	
59 to 63	17.36	1.61 120	1T 8.0	1.500 8.000	24.044 -0.650				
	17.36	0.0125		9.500	0.119			Vel = 2.74	
63 to 55	0.0	1.61 120	2E 8.0	191.000 8.000	23.513 0.650				
	17.36	0.0124		199.000	2.475			Vel = 2.74	
55 to 51	0.0	1.61 120	1T 8.0	1.500 8.000	26.638 0.0				
	17.36	0.0124		9.500	0.118			Vel = 2.74	
	0.0								
	17.36					26.756		K Factor = 3.36	
58 to 62	15.80	1.61 120	1T 8.0	1.500 8.000	24.410 -0.650				
	15.8	0.0104		9.500	0.099			Vel = 2.49	
62 to 54	0.0	1.61 120	2E 8.0	191.000 8.000	23.859 0.650				
	15.8	0.0104		199.000	2.078			Vel = 2.49	

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Hyd. Ref. Point	Qa Qt	.Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** 	Notes 	*****
54	0.0	1.61	1T 8.0	1.500	26.587				
to		120	0.0	8.000	2.239				
50	15.8	0.0105	0.0	9.500	0.100		Vel = 2.49		
	0.0								
	15.80				28.926		K Factor = 2.94		
53	20.98	4.26	0.0	14.000	26.748				
to		120	0.0	0.0	0.0				
52	20.98	0.0001	0.0	14.000	0.002		Vel = 0.47		
52	18.87	4.26	0.0	12.330	26.750				
to		120	0.0	0.0	0.0				
51	39.85	0.0005	0.0	12.330	0.006		Vel = 0.90		
51	17.37	4.26	0.0	9.660	26.756				
to		120	0.0	0.0	2.239				
2A	57.22	0.0010	0.0	9.660	0.010		Vel = 1.29		
	0.0								
	57.22				29.005		K Factor = 10.62		
33	7.00	1.61	2T 16.0	1.450	22.920				
to		120	0.0	16.000	-0.650				
43	7.0	0.0023	0.0	17.450	0.041		Vel = 1.10		
43	0.0	1.61	0.0	6.660	22.311				
to		120	0.0	0.0	0.0				
106	7.0	0.0023	0.0	6.660	0.015		Vel = 1.10		
106	0.0	1.61	0.0	8.830	22.326				
to		120	0.0	0.0	0.0				
105	7.0	0.0024	0.0	8.830	0.021		Vel = 1.10		
105	0.0	1.61	0.0	8.830	22.347				
to		120	0.0	0.0	0.0				
104	7.0	0.0023	0.0	8.830	0.020		Vel = 1.10		
104	0.0	1.61	0.0	8.830	22.367				
to		120	0.0	0.0	0.0				
103	7.0	0.0024	0.0	8.830	0.021		Vel = 1.10		
103	0.0	1.61	0.0	8.830	22.388				
to		120	0.0	0.0	0.0				
102	7.0	0.0023	0.0	8.830	0.020		Vel = 1.10		
102	0.0	1.61	0.0	8.830	22.408				
to		120	0.0	0.0	0.0				
101	7.0	0.0024	0.0	8.830	0.021		Vel = 1.10		
101	0.0	1.61	1T 8.0	162.160	22.429				
to		120	0.0	8.000	0.0				
23	7.0	0.0023	0.0	170.160	0.394		Vel = 1.10		
23	0.0	1.61	1T 8.0	1.450	22.823				
to		120	0.0	8.000	0.650				
13	7.0	0.0022	0.0	9.450	0.021		Vel = 1.10		

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
	0.0						
	7.00				23.494		K Factor = 1.44
32 to 42	6.56	1.61 120	2T 16.0 0.0	1.450 16.000	22.916 -0.650		Vel = 1.03
42 to 22	6.56	0.0021	0.0	17.450	0.036		
42 to 22	0.0	1.61 120	8E 32.0 1T 8.0	217.000 40.000	22.302 0.0		Vel = 1.03
22 to 22	6.56	0.0021	0.0	257.000	0.529		
22 to 12	0.0	1.61 120	1T 8.0 0.0	1.450 8.000	22.831 0.650		Vel = 1.03
12	6.56	0.0020	0.0	9.450	0.019		
	0.0						
	6.56				23.500		K Factor = 1.35
31 to 41	7.14	1.61 120	2T 16.0 0.0	1.450 16.000	22.911 -0.650		Vel = 1.13
41 to 21	7.14	0.0024	0.0	17.450	0.042		
41 to 21	0.0	1.61 120	1T 8.0 0.0	213.000 8.000	22.303 0.0		Vel = 1.13
21 to 21	7.14	0.0024	0.0	221.000	0.531		
21 to 11	0.0	1.61 120	1T 8.0 0.0	1.450 8.000	22.834 0.650		Vel = 1.13
11	7.14	0.0024	0.0	9.450	0.023		
	0.0						
	7.14				23.507		K Factor = 1.47
30 to 40	7.37	1.61 120	1T 8.0 0.0	1.450 8.000	22.903 -0.650		Vel = 1.16
40 to 20	7.37	0.0026	0.0	9.450	0.025		
40 to 20	0.0	1.61 120	2E 8.0 0.0	213.000 8.000	22.278 0.0		Vel = 1.16
20 to 20	7.37	0.0025	0.0	221.000	0.563		
20 to 10	0.0	1.61 120	1T 8.0 0.0	1.450 8.000	22.841 0.650		Vel = 1.16
10	7.37	0.0024	0.0	9.450	0.023		
	0.0						
	7.37				23.514		K Factor = 1.52
29 to 39	7.60	1.61 120	1T 8.0 0.0	1.450 8.000	22.885 -0.650		Vel = 1.20
39 to 19	7.6	0.0028	0.0	9.450	0.026		
39 to 19	0.0	1.61 120	2E 8.0 0.0	213.000 8.000	22.261 0.0		Vel = 1.20
19	7.6	0.0027	0.0	221.000	0.596		

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
19	0.0	1.61	1T 8.0	1.450	22.857				
to 9	7.6	120	0.0	8.000	0.650				
	0.0	0.0028	0.0	9.450	0.026		Vel = 1.20		
	7.60				23.533		K Factor = 1.57		
28	10.55	1.61	1T 8.0	1.450	22.859				
to 38	10.55	120	0.0	8.000	-0.650				
	0.0	0.0050	0.0	9.450	0.047		Vel = 1.66		
38	0.0	1.61	1E 4.0	106.040	22.256				
to 90	10.55	120	0.0	4.000	0.0				
	0.0	0.0050	0.0	110.040	0.545		Vel = 1.66		
90	0.0	2.157	1E 6.153	106.120	22.801				
to 18	10.55	120	0.0	6.153	0.0				
	0.0	0.0012	0.0	112.273	0.133		Vel = 0.93		
18	0.0	2.157	1T 12.307	1.450	22.934				
to 8	10.55	120	0.0	12.307	0.650				
	0.0	0.0012	0.0	13.757	0.016		Vel = 0.93		
	10.55				23.600		K Factor = 2.17		
27	8.65	1.61	1T 8.0	1.450	22.820				
to 37	8.65	120	0.0	8.000	-0.650				
	0.0	0.0035	0.0	9.450	0.033		Vel = 1.36		
37	0.0	1.61	2E 8.0	212.160	22.203				
to 17	8.65	120	0.0	8.000	0.0				
	0.0	0.0034	0.0	220.160	0.754		Vel = 1.36		
17	0.0	1.61	1T 8.0	1.450	22.957				
to 7	8.65	120	0.0	8.000	0.650				
	0.0	0.0034	0.0	9.450	0.032		Vel = 1.36		
	8.65				23.639		K Factor = 1.78		
26	9.23	1.61	1T 8.0	1.450	22.768				
to 36	9.23	120	0.0	8.000	-0.650				
	0.0	0.0039	0.0	9.450	0.037		Vel = 1.45		
36	0.0	1.61	2E 8.0	212.160	22.155				
to 16	9.23	120	0.0	8.000	0.0				
	0.0	0.0039	0.0	220.160	0.850		Vel = 1.45		
16	0.0	1.61	1T 8.0	1.450	23.005				
to 6	9.23	120	0.0	8.000	0.650				
	0.0	0.0038	0.0	9.450	0.036		Vel = 1.45		
	9.23				23.691		K Factor = 1.90		

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
34	-7.04	3.26		14.660	22.921				
to		120	0.0	0.0	0.0				
33	-7.04	-0.0001	0.0	14.660	-0.001		Vel =	0.27	
33	-7.01	3.26	0.0	14.660	22.920				
to		120	0.0	0.0	0.0				
32	-14.05	-0.0003	0.0	14.660	-0.004		Vel =	0.54	
32	-6.56	3.26	0.0	9.290	22.916				
to		120	0.0	0.0	0.0				
31	-20.61	-0.0005	0.0	9.290	-0.005		Vel =	0.79	
31	-7.14	3.26	0.0	8.160	22.911				
to		120	0.0	0.0	0.0				
30	-27.75	-0.0010	0.0	8.160	-0.008		Vel =	1.07	
30	-7.36	3.26	0.0	12.290	22.903				
to		120	0.0	0.0	0.0				
29	-35.11	-0.0015	0.0	12.290	-0.018		Vel =	1.35	
29	-7.61	3.26	0.0	12.290	22.885				
to		120	0.0	0.0	0.0				
28	-42.72	-0.0021	0.0	12.290	-0.026		Vel =	1.64	
28	-10.54	3.26	0.0	12.290	22.859				
to		120	0.0	0.0	0.0				
27	-53.26	-0.0032	0.0	12.290	-0.039		Vel =	2.05	
27	-8.66	3.26	0.0	12.290	22.820				
to		120	0.0	0.0	0.0				
26	-61.92	-0.0042	0.0	12.290	-0.052		Vel =	2.38	
26	-9.22	3.26	1E	9.408	12.290	22.768			
to		120	0.0	9.408	0.0				
25	-71.14	-0.0054	0.0	21.698	-0.118		Vel =	2.73	
25	-10.37	3.26	0.0	3.166	22.650				
to		120	0.0	0.0	2.456				
80	-81.51	-0.0069	0.0	3.166	-0.022		Vel =	3.13	
80	0.0	2.635	0.0	34.166	25.084				
to		120	0.0	0.0	0.0				
58	-81.51	-0.0197	0.0	34.166	-0.674		Vel =	4.80	
	0.0								
	-81.51				24.410		K Factor =	-16.50	
25	10.37	1.61	1E	4.0	1.450	22.650			
to		120	0.0	4.000	-0.650				
35	10.37	0.0050	0.0	5.450	0.027		Vel =	1.63	
35	0.0	1.61	1E	4.0	212.160	22.027			
to		120	0.0	4.000	0.0				
15	10.37	0.0048	0.0	216.160	1.036		Vel =	1.63	

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
15	0.0	1.61	1T 8.0	1.450	23.063				
to		120	0.0	8.000	0.650				
5	10.37	0.0048	0.0	9.450	0.045		Vel = 1.63		
	0.0								
	10.37				23.758		K Factor = 2.13		
34	7.04	1.61	2T 16.0	1.450	22.921				
to		120	0.0	16.000	-0.650				
44	7.04	0.0024	0.0	17.450	0.042		Vel = 1.11		
44	0.0	1.61	0.0	6.660	22.313				
to		120	0.0	0.0	0.0				
112	7.04	0.0023	0.0	6.660	0.015		Vel = 1.11		
112	0.0	1.61	0.0	8.830	22.328				
to		120	0.0	0.0	0.0				
111	7.04	0.0024	0.0	8.830	0.021		Vel = 1.11		
111	0.0	1.61	0.0	8.830	22.349				
to		120	0.0	0.0	0.0				
110	7.04	0.0024	0.0	8.830	0.021		Vel = 1.11		
110	0.0	1.61	0.0	8.830	22.370				
to		120	0.0	0.0	0.0				
109	7.04	0.0023	0.0	8.830	0.020		Vel = 1.11		
109	0.0	1.61	0.0	8.830	22.390				
to		120	0.0	0.0	0.0				
108	7.04	0.0024	0.0	8.830	0.021		Vel = 1.11		
108	0.0	1.61	0.0	8.830	22.411				
to		120	0.0	0.0	0.0				
107	7.04	0.0024	0.0	8.830	0.021		Vel = 1.11		
107	0.0	1.61	1T 8.0	162.160	22.432				
to		120	0.0	8.000	0.0				
24	7.04	0.0023	0.0	170.160	0.399		Vel = 1.11		
24	0.0	1.61	1E 4.0	1.450	22.831				
to		120	0.0	4.000	0.650				
14	7.04	0.0022	0.0	5.450	0.012		Vel = 1.11		
14	0.0	3.068	0.0	14.660	23.493				
to		120	0.0	0.0	0.0				
13	7.04	0.0001	0.0	14.660	0.001		Vel = 0.31		
13	7.01	3.068	0.0	14.660	23.494				
to		120	0.0	0.0	0.0				
12	14.05	0.0004	0.0	14.660	0.006		Vel = 0.61		
12	6.56	3.068	0.0	9.290	23.500				
to		120	0.0	0.0	0.0				
11	20.61	0.0008	0.0	9.290	0.007		Vel = 0.89		
11	7.14	3.26	0.0	8.160	23.507				
to		120	0.0	0.0	0.0				
10	27.75	0.0009	0.0	8.160	0.007		Vel = 1.07		

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Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	***** Notes *****
10	7.36	3.26	0.0	12.290	23.514		
to		120	0.0	0.0	0.0		
9	35.11	0.0015	0.0	12.290	0.019		Vel = 1.35
9	7.61	3.26	2E 18.815	13.160	23.533		
to		120	0.0	18.815	0.0		
8	42.72	0.0021	0.0	31.975	0.067		Vel = 1.64
8	10.54	3.26	0.0	12.290	23.600		
to		120	0.0	0.0	0.0		
7	53.26	0.0032	0.0	12.290	0.039		Vel = 2.05
7	8.66	3.26	0.0	12.290	23.639		
to		120	0.0	0.0	0.0		
6	61.92	0.0042	0.0	12.290	0.052		Vel = 2.38
6	9.22	3.26	0.0	12.290	23.691		
to		120	0.0	0.0	0.0		
5	71.14	0.0055	0.0	12.290	0.067		Vel = 2.73
5	10.37	3.26	3E 28.223	18.160	23.758		
to		120	0.0	28.223	2.456		
4	81.51	0.0070	0.0	46.383	0.324		Vel = 3.13
4	0.0	3.26	1E 9.408	3.000	26.538		
to		120	0.0	9.408	2.239		
3	81.51	0.0070	0.0	12.408	0.087		Vel = 3.13
3	0.0	4.26	1T 26.334	5.830	28.864		
to		120	0.0	26.334	0.0		
50	81.51	0.0019	0.0	32.164	0.062		Vel = 1.83
50	15.80	4.26	1T 26.334	3.660	28.926		
to		120	0.0	26.334	0.0		
2A	97.31	0.0026	0.0	29.994	0.079		Vel = 2.19
2A	57.22	4.26	0.0	16.000	29.005		
to		120	0.0	0.0	0.0		
2	154.53	0.0062	0.0	16.000	0.099		Vel = 3.48
2	0.0	4.26	1E 13.167	5.660	29.104		
to		120	0.0	13.167	2.451		
1	154.53	0.0062	0.0	18.827	0.117		Vel = 3.48
1	0.0	4.26	2E 26.334	4.830	31.672		
to		120	1Zac 0.0	26.334	2.330		* Fixed loss = 2.33
0	154.53	0.0062	0.0	31.164	0.194		Vel = 3.48
0	0.0	8.27	4E 113.872	458.330	34.196		
to		140	0.0	113.872	3.866		* Fixed loss = 3
TEST	154.53	0.0002	0.0	572.202	0.106		Vel = 0.92
	250.00						Qa = 250.00
	404.53				38.168		K Factor = 65.48

Final Calculations - Standard

FREEDOM FIRE PROTECTION INC.
BERLIN CITY TOYOTA SHOWROOM ADDITION

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Date 7/11/12

Hyd. Ref. Point	Qa Qt	Dia. "C" Pf/Ft	Fitting or Eqv. Ln.	Pipe Ftng's Total	Pt Pe Pf	Pt Pv Pn	*****	Notes	*****
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State of Maine
Department of Public Safety



Fire Sprinkler System Permit

10122

BERLIN CITY TOYOTA SHOWROOM ADDITION

Located at: 191 RIVERSIDE STREET
In the Town of: Portland
Occupancy/Use: CAR DEALERSHIP
Type of System: NFPA 13

Permission is hereby given to:

Freedom Fire Protection, Inc.
209 Quaker Ridge Road
Casco, ME 04015
Contractor License # 295

to begin installation according to plans submittal approved by the Office of State Fire Marshal.
The submittal is filed under log # 2121315, and no departure from the application submittal shall be made without prior approval in writing. This permit is issued under the provisions of Title 32, Chapter 20, Section 12004-I. Nothing herein shall excuse the holder of this permit from failure to comply with local ordinances, zoning laws, or other pertinent legal restrictions. This permit shall be displayed at the construction site or be made readily available.

This permit was issued on 7/16/2012 for a fee paid of \$100.00

This permit will expire at midnight on Saturday, January 12, 2013

The expiration date applies only if the installation has not begun by that date and no permission has been granted to extend the date. Once installation begins, then the permit is valid for however long it takes to complete the installation, assuming that the work is fairly continuous.

John E. Morris
Commissioner

The type of Fire Department Connection and its location is to be according to the Local Fire Department

Within 30 days of the completion of a new fire sprinkler system or an addition to an existing fire sprinkler system, a fire sprinkler system contractor shall provide to the Office of State Fire Marshal a copy of this permit signed and dated by the certified Responsible Managing Supervisor representing that the fire sprinkler system has been installed according to specifications of the approved plan to the best of the supervisor's knowledge, information, and belief. This requirement is part of the sprinkler law, and neglect of this duty is grounds to not renew the contractor's license to do work in the State of Maine. All renewed sprinkler licenses are good for two years and expire on a June 30th.

Job completed, tested and verified by date of _____

RMS for this job: Vess Timothy L.

RMS Signature: _____