

Permit No: **970806**

PERMIT ISSUED

Permit issued: **JUL 29 1997**

CITY OF PORTLAND

Zone: **TM** CBL: **293-A-016**

Zoning Approval: *OK 7/29/97*

Special Zone or Reviews:

Shoreland
 Wetland
 Flood Zone
 Subdivision
 Site Plan maj minor mm

Zoning Appeal

Variance
 Miscellaneous
 Conditional Use
 Interpretation
 Approved
 Denied

Historic Preservation

Not in District or Landmark
 Does Not Require Review
 Requires Review

Action:

Approved
 Approved with Conditions
 Denied

Date: *7/29/97*

Location of Construction: **17 Bishop St** Owner: **Spurwink School** Phone:

Owner Address: **17 Bishop St** Lessee/Buyer's Name: **Spurwink School** Phone:

Contractor Name: **Grinnell Fire Protection Systems** Address: **78 Pleasant Ave So. Portland, ME 04806 767-2166** Phone:

Past Use: **Office** Proposed Use: **Same** **COST OF WORK:** \$ **14,000.00** **PERMIT FEE:** \$ **90.00**

FIRE DEPT. Approved Denied **INSPECTION:** Use Group: Type: Signature: *AMY*

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Approved Approved with Conditions Denied

Signature: *Mary Greenik* Date: **24 July 1997**

Permit Taken By: **Mary Greenik** Date Applied For: **24 July 1997**

Proposed Project Description:

Install Sprinkler System

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..

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 provisions of the code(s) applicable to such permit

SIGNATURE OF APPLICANT *Tim Clements* ADDRESS: **24 July 1997** PHONE:

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE **Ivory Card-Inspector** PHONE:

CEO DISTRICT

J. FOWERS

City of Portland, Maine - Building or Use Permit Application 389 Congress Street, 04101, Tel: (207) 874-8703, FAX: 874-8716

Location of Construction: 17 Bishop St Owner: Spurwink School Phone: _____
 Owner Address: Lessee/Buyer's Name: Phone: _____ Business Name: _____

Contractor Name: Grinnell Fire Protection Systems Address: 78 Pleasant Ave So. Portland, ME 04106 Phone: 767-2166
 Past Use: Office Proposed Use: Same

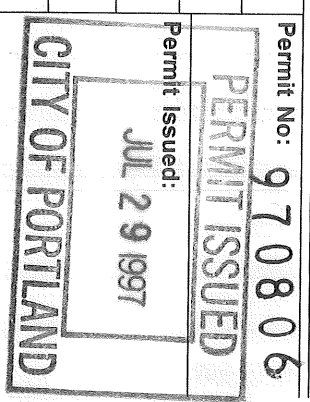
Proposed Project Description: Install Sprinkler System
 Signature: *[Signature]* Signature: _____
 PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)
 Action: Approved Approved with Conditions Denied
 FIRE DEPT. Approved Denied Use Group: _____ Type: _____
 COST OF WORK: \$ 14,000.00 PERMIT FEE: \$ 90.00
 Signature: _____ Date: _____

Permit Taken By: Mary Gresik Date Applied For: 24 July 1997
 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..

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 provisions of the code(s) applicable to such permit

SIGNATURE OF APPLICANT: *[Signature]* ADDRESS: _____ DATE: 24 July 1997 PHONE: _____
 RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE: _____ PHONE: _____



Permit No: 970806
 Zoning Approval: *[Signature]*
 Special Zone or Reviews: _____
 Variance Miscellaneous Conditional Use Interpretation Approved Denied
 Historic Preservation Not in District or Landmark Does Not Require Review Requires Review
 Action: _____
 Approved Approved with Conditions Denied
 Date: 7/29/97

CEO DISTRICT: *[Signature]* *[Signature]*

ELECTRICAL PERMIT

City of Portland, Me.



To the Chief Electrical Inspector, Portland Maine:
 The undersigned hereby applies for a permit to make electrical installations
 in accordance with the laws of Maine, the City of Portland Electrical Ordinance,
 National Electrical Code and the following specifications:

Date 7/31/97

LOCATION: 17 Bishop St

Permit # _____

OWNER Spurwink Clinic ADDRESS _____

							TOTAL EACH FEE		
OUTLETS	Telephone		Data		CATV			.20	
	Receptacles		Switches		Smoke Detector			.20	
FIBER OPTICS								15.00	
FIXTURES	incandescent		fluorescent					.20	
	fluorescent strip							.20	
SERVICES	Overhead				TTL AMPS TO	800		15.00	
	Underground					800		15.00	
Temporary Service	Overhead				AMPS OVER	800		25.00	
	Underground					800		25.00	
METERS	(number of)							1.00	
MOTORS	(number of)							2.00	
RESID/COM	Electric units							1.00	
HEATING	oil/gas units		Interior		Exterior			5.00	
APPLIANCES	Ranges		Cook Tops		Wall Ovens			2.00	
	Insta-Hot		Water heaters		Fans			2.00	
DISPOSALS	Dishwasher		Compactors		Others (denote)			2.00	
	MISC. (number of)	Air Cond/win						3.00	
	Air Cond/cent				Pools			10.00	
	HVAC		EMS		Thermostat			5.00	
	Signs							10.00	
	Alarms/res							5.00	
	x Alarms/com	- fire					1	15.00	
	Heavy Duty(CRKT)							2.00	
	Circus/Carnv							25.00	
	Alterations							5.00	
	Fire Repairs							15.00	
	E Lights							1.00	
	E Generators							20.00	
PANELS	Service		Remote		Main			4.00	
	TRANSFORMER	0-25 Kva						5.00	
		25-200 Kva						8.00	
		Over 200 Kva						10.00	
							TOTAL AMOUNT DUE		
							MINIMUM FEE/COMMERCIAL 35.00	MINIMUM FEE 25.00	35

INSPECTION: Will be ready _____ or will call X

CONTRACTORS NAME Eastern Security Syst
 ADDRESS Congress St- Ptld ME
 TELEPHONE 772-1171

MASTER LIC. # _____
 LIMITED LIC. # John Kimball - #11390

SIGNATURE OF CONTRACTOR

ELECTRICAL INSTALLATIONS

Permit Number _____

Location _____

Owner _____

Date of Permit _____

Final Inspection _____

By Inspector 

INSPECTION: Service _____ by _____

Service called in _____

Closing-in _____ by _____

PROGRESS INSPECTIONS:

7/31/07 Inspection

DATE:

REMARKS:

DATE:	REMARKS:

CONTRACTOR'S NAME _____
 ADDRESS _____
 TELEPHONE _____
 SIGNATURE OF CONTRACTOR _____

INSPECTOR _____

MINIMUM FEELCOMMERCIAL 35.00
 MINIMUM FEE _____
 TOTAL AMOUNT DUE _____

LIMITED L.C. & JOHN K. BAKER, INC.
 1121 N. ...
 ...

ELECTRICAL PERMIT

City of Portland, Me.



To the Chief Electrical Inspector, Portland Maine:
 The undersigned hereby applies for a permit to make electrical installations
 in accordance with the laws of Maine, the City of Portland Electrical Ordinance,
 National Electrical Code and the following specifications:

Date 5/19/97

LOCATION: 17 Bishop St

Permit # _____

OWNER Spurwink Schol ADDRESS _____

							TOTAL EACH FEE		
OUTLETS	20	Telephone	20	Data		CATV	40	.20	8
	30	Receptacles	20	Switches	10	Smoke Detector	60	.20	12
FIBER OPTICS	5	exit signs					5	15.00x	1
FIXTURES		incandescent	30	fluorescent			30	.20	6
		fluorescent strip						.20	
SERVICES		Overhead				TTL AMPS TO	800	15.00	
		Underground					800	15.00	
Temporary Service		Overhead				AMPS OVER	800	25.00	
		Underground					800	25.00	
METERS		(number of)						1.00	
MOTORS		(number of)						2.00	
RESID/COM		Electric units						1.00	
HEATING		oil/gas units		Interior		Exterior		5.00	
APPLIANCES	1	Ranges		Cook Tops		Wall Ovens		2.00	
Insta-Hot		Water heaters	3	Fans		Dryers	4	2.00	8
Disposals		Dishwasher		Compactors		Others (denote)		2.00	
MISC. (number of)		Air Cond/win						3.00	
		Air Cond/cent				Pools		10.00	
		HVAC		EMS		Thermostat		5.00	
		Signs						10.00	
		Alarms/res						5.00	
		Alarms/com						15.00	
		Heavy Duty(CRKT)						2.00	
		Circus/Carnv						25.00	
	x	Alterations					x	5.00	5
		Fire Repairs						15.00	
		E Lights						1.00	
		E Generators						20.00	
PANELS		Service		Remote		Main		4.00	
TRANSFORMER		0-25 Kva						5.00	
		25-200 Kva						8.00	
		Over 200 Kva						10.00	
							TOTAL AMOUNT DUE		
							MINIMUM FEE/COMMERCIAL 35.00		
							MINIMUM FEE 25.00		
							40		

INSPECTION: Will be ready _____ or will call x

CONTRACTORS NAME Thomas Elect Co
 ADDRESS RR1 West XXXXX Buxton
 TELEPHONE 727-3257

MASTER LIC. # Clifford Thomas #03168
 LIMITED LIC. # _____

SIGNATURE OF CONTRACTOR _____

ELECTRICAL INSTALLATIONS—

Permit Number _____

Location _____

Owner _____

Date of Permit _____

Final Inspection _____

By Inspector _____

INSPECTION: Service _____ by _____

Service called in _____

Closing-in 6/4/07 by [Signature]

PROGRESS INSPECTIONS:

5/28/07 *Inspection*
6/14/07 *Closing*
7/6/07 *Final*

[Signature]

DATE:	REMARKS:

TOTAL AMOUNT DUE _____
MINIMUM FEE _____
MINIMUM FEE COMMERCIAL \$5.00
WILL BE READY _____
CONTRACTOR'S NAME _____
ADDRESS _____
TELEPHONE _____
SIGNATURE OF CONTRACTOR _____

MASTERS LIC. # _____
LIMITED LIC. # _____

REVIEWED FOR
NOT
PAID-FREE
COMPLIANCE

STATE OF MAINE
DEPARTMENT OF PUBLIC SAFETY
OFFICE OF STATE FIRE MARSHAL
AUGUSTA
CONSTRUCTION PERMIT



Permit Nº 8622

PERMISSION IS HEREBY GIVEN TO:
Spurwink School
899 Riverside St.
Portland, ME 04103

Location of project:

17 Bishop St.
Portland, ME

PROJECT TITLE:

Spurwink School Child Abuse Pr
r
OCCUPANCY CLASSIFICATION:
Limited Care

To construct or alter the afore referenced building according to the plans hitherto filed with the Commissioner and now approved. No departure from such plans shall be made without prior approval in writing.

This permit will expire at midnight on December 3, 1997.

This permit is issued under the provisions of Title 25, Chapter 317, Section 2448

Nothing herein shall excuse the holder of this permit for the failure to comply with local ordinances, zoning laws, or other pertinent legal restrictions.

Dated the 4th day of June A.D. 19 97

FEE \$ 150.00

SPRINKLED

Commissioner - Public Safety



APPLICATION FOR SPRINKLER PERMIT

SHADED AREAS ARE FOR OFFICE USE ONLY

STATE FIRE MARSHAL'S OFFICE
#164 State House Station,
Augusta, Maine 04333-0164
Tel: 207-624-8736 Fax: 207-624-8767

PROJECT INFORMATION

Date mailed to S.F.M.O.: 6-9-97

Name of Project: SPURWINK School
 Street Location: 17 BISHOP ST Town Location: PORTLAND, ME
 Owner of Project: SPURWINK School
 Mailing Address of owner: 17 BISHOP ST
 City: PORTLAND ME State: ME Zip Code: 04104
 Telephone Number of owner: _____
 The SPRINKLER work to be done will be: New Renovation Both
 The BUILDING/STRUCTURE to be sprinkled will be: New Existing Both
 What is the main activity/use of this building/structure? School - Counseling
 Estimated Project Cost Fee

CONTRACTOR INFORMATION

Contractor Name: Grinnell Fire Protection Systems Company CONTRACTOR NUMBER: 24
 Mailing Address: 78 Pleasant Avenue South Portland ME 04106
 Telephone Number: 207-767-2166 Fax Number: 207-767-6326
 Responsible Managing Supervisor's Signature: _____ RMS NUMBER:

SYSTEM INFORMATION

Standard(s) Used:
 NFPA 13 NFPA 13R NFPA 13D Hydro Pro Maine Life Safety Special Hazards
 NFPA 231 NFPA 231C NFPA 231D NFPA 231E NFPA 231F Other (Explain) _____
 (General) (Rack) (Tires) (Cotton) (Roll Paper)
 Design Method(s):
 Area-Density Room Design 2 Head Calc 3 Head Calc 4 Head Calc 5 Head Calc
 Pipe Schedule Other (Explain) _____
 If NFPA 231/231C are used, then check Commodity Class: Class I Class II Class III Class IV
 Water Supply:
 Date of last water test is 1994
 Static Pressure 68 Residual Pressure 55 Flow in GPM 1244
 Pump Data:
 Brand Name / Model Number / UL Listed Not UL Listed
 Rated Capacity is / gpm at / psi
 Safety Margin: psi
 System is: Wet Dry Foam Other (Explain) _____
 Hazard Class: Light Ordinary 1 Ordinary 2 Extra Hazard 1 Extra Hazard 2 Other
 Sprinkler Heads:

Quantity	Brand	Model	Temperature	Type	Orifice	K-Factor
43	Grinnell	A	155°	CHR. Pendant	1/2"	5.6
43	"	A	200°	BR UP	1/2"	5.6
3	"	A	155	SIDE WALL	1/2"	5.6
Total Heads: <u>89</u>						

(if more than 5 types, then list on blueprints but record total heads in the box below)
 Extra comments on back of this form?: Yes No

Note:

Permit Issued By:

LOG #	DATE PLANS RECEIVED	REVIEW FEE	CHECK #	DATE FEE RECEIVED	DATE PERMIT ISSUED	PERMIT #

GRINNELL FIRE PROTECTION
78 PLEASANT AVENUE
S. PORTLAND, ME 04106

HYDRAULIC CALCULATIONS

FOR
NAME: THE SPURWINK SCHOOL
LOCATION: PORTLAND, MAINE
DATE: 6-10-97
CONTRACT NUMBER: 84-175465-A9
CONTRACT WITH: SPURWINK SCHOOL

AREA CALCULATED: ROOM DESIGN METHOD

* DESIGN DATA *

OCCUPANCY CLASSIFICATION: LIGHT HAZ
DENSITY: .10GPM/SF
AREA OF APPLICATION: LARG ROOM
REMOTE AREA MULTIPLIER: N/A
SYSTEM TYPE @ C-FACTOR: DRY C=100
UNDERGROUND C-FACTOR: C=140
COVERAGE PER SPRINKLER: N/A SQ. FT.
SPRINKLER SIZE AND K-FACTOR: 1/2 " K=5.6
NUMBER OF SPRINKLERS CALCULATED: 7
SYSTEM DEMAND AT BASE OF RISER (BOR): 128.4 GPM @ 34.3 PSI
HOSE ALLOWANCE: 100 GPM FOR
TOTAL DEMAND AT TEST: 228.4 GPM @ 34.3 PSI
CALCULATED BY: L.D.A.
AUTHORITY HAVING JURISTICIION: STATE OF MAINE FIRE MARSHALL
NOTES: DESIGN: NFPA 13

CALCULATIONS BY HASS COMPUTER PROGRAM (LICENSE # 8422C1324K)
HRS SYSTEMS, INC.
ATLANTA, GEORGIA

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL DEMAND (GPM)	REQ'D PRESS. (PSI)
HYDRANT	68.0	55.0	1244.0	67.4	228.4	34.3

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	228.4 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	100.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	128.4 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
HYDRANT	0.0	SOURCE	34.3	128.4
1	11.3	K= 5.25	8.1	14.9
2	11.3	- - - -	8.6	- - -
3	11.3	K= 5.25	7.9	14.8
4	11.3	K= 5.21	11.3	17.6
5	11.3	- - - -	12.5	- - -
6	11.3	K= 5.25	11.9	18.1
7	11.3	- - - -	12.8	- - -
8	11.3	K= 5.25	17.6	22.0
9	11.3	- - - -	18.7	- - -
10	11.3	- - - -	21.8	- - -
11	11.3	- - - -	22.7	- - -
12	11.0	- - - -	23.2	- - -
13	11.0	- - - -	25.4	- - -
14	11.0	K= 5.25	15.4	20.6
15	11.0	K= 5.25	15.2	20.5
16	11.0	- - - -	16.3	- - -
17	11.0	- - - -	23.3	- - -
18	11.0	- - - -	26.5	- - -
A	11.0	- - - -	27.7	- - -
B	11.0	- - - -	27.9	- - -
C	11.0	- - - -	27.6	- - -
D	11.0	- - - -	28.8	- - -
E	11.0	- - - -	29.3	- - -
F	3.0	- - - -	33.0	- - -
G	-6.0	- - - -	36.9	- - -
H	-6.0	- - - -	36.9	- - -

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

PIPE DATA

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q(GPM)	DIA(IN)	LENGTH	PRESS.		
	NODES	(FT)	(K)	(PSI)	(GPM)	VEL(FPS)	HW(C)	(FT)	SUM.		
							F.L./FT		(PSI)		
	Pipe: 1					-14.9	1.049	PL	4.30	PF	0.5
1		11.3	5.2	8.1	14.9	5.5	100	FTG	----	PE	0.0
2		11.3	0.0	8.6	0.0		0.106	TL	4.30	PV	0.2
	Pipe: 2					-14.8	1.049	PL	2.30	PF	0.6
3		11.3	5.2	7.9	14.8	5.5	100	FTG	T	PE	0.0
2		11.3	0.0	8.6	0.0		0.104	TL	5.87	PV	0.2
	Pipe: 3					-29.7	1.049	PL	10.30	PF	3.9
2		11.3	0.0	8.6	0.0	11.0	100	FTG	----	PE	0.0
5		11.3	0.0	12.5	0.0		0.380	TL	10.30	PV	0.8
	Pipe: 4					-17.6	1.049	PL	4.30	PF	1.1
4		11.3	5.2	11.3	17.6	6.5	100	FTG	T	PE	0.0
5		11.3	0.0	12.5	0.0		0.143	TL	7.87	PV	0.3
	Pipe: 5					-47.3	1.380	PL	1.30	PF	0.3
5		11.3	0.0	12.5	0.0	10.1	100	FTG	----	PE	0.0
7		11.3	0.0	12.8	0.0		0.236	TL	1.30	PV	0.7
	Pipe: 6					-18.1	1.049	PL	2.30	PF	0.9
6		11.3	5.2	11.9	18.1	6.7	100	FTG	T	PE	0.0
7		11.3	0.0	12.8	0.0		0.152	TL	5.87	PV	0.3
	Pipe: 7					-65.4	1.380	PL	13.90	PF	6.0
7		11.3	0.0	12.8	0.0	14.0	100	FTG	----	PE	0.0
9		11.3	0.0	18.7	0.0		0.429	TL	13.90	PV	1.3
	Pipe: 8					-22.0	1.049	PL	1.75	PF	1.2
8		11.3	5.2	17.6	22.0	8.2	100	FTG	T	PE	0.0
9		11.3	0.0	18.7	0.0		0.218	TL	5.32	PV	0.4
	Pipe: 9					-87.4	1.610	PL	8.75	PF	3.0
9		11.3	0.0	18.7	0.0	13.8	100	FTG	----	PE	0.0
10		11.3	0.0	21.8	0.0		0.347	TL	8.75	PV	1.3
	Pipe: 10					-87.4	2.067	PL	5.00	PF	0.9
10		11.3	0.0	21.8	0.0	8.4	100	FTG	E	PE	0.0
11		11.3	0.0	22.7	0.0		0.103	TL	8.57	PV	0.5
	Pipe: 11					-87.4	2.067	PL	0.30	PF	0.4
11		11.3	0.0	22.7	0.0	8.4	100	FTG	E	PE	0.1
12		11.0	0.0	23.2	0.0		0.103	TL	3.87	PV	0.5
	Pipe: 12					-87.4	2.067	PL	21.40	PF	2.2
12		11.0	0.0	23.2	0.0	8.4	100	FTG	----	PE	0.0
13		11.0	0.0	25.4	0.0		0.103	TL	21.40	PV	0.5
	Pipe: 13					-87.4	2.067	PL	15.10	PF	2.3
13		11.0	0.0	25.4	0.0	8.4	100	FTG	T	PE	0.0
A		11.0	0.0	27.7	0.0		0.103	TL	22.24	PV	0.5

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

PIPE DATA (cont.)

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q(GPM)	DIA(IN)	LENGTH	PRESS.
	NODES	(FT)	(K)	(PSI)	(GPM)	VEL(FPS)	HW(C)	(FT)	SUM.
							F.L./FT		(PSI)
	Pipe: 14					-20.6	1.049	PL 5.00	PF 1.0
14		11.0	5.2	15.4	20.6	7.6	100	FTG	PE 0.0
16		11.0	0.0	16.3	0.0		0.192	TL 5.00	PV 0.4
	Pipe: 15					-20.5	1.049	PL 2.00	PF 1.1
15		11.0	5.2	15.2	20.5	7.6	100	FTG	PE 0.0
16		11.0	0.0	16.3	0.0		0.191	TL 5.57	PV 0.4
	Pipe: 16					-41.1	1.049	PL 10.10	PF 7.0
16		11.0	0.0	16.3	0.0	15.2	100	FTG	PE 0.0
17		11.0	0.0	23.3	0.0		0.690	TL 10.10	PV 1.6
	Pipe: 17					-41.1	1.380	PL 17.50	PF 3.2
17		11.0	0.0	23.3	0.0	8.8	100	FTG	PE 0.0
18		11.0	0.0	26.5	0.0		0.182	TL 17.50	PV 0.5
	Pipe: 18					-41.1	1.610	PL 7.60	PF 1.1
18		11.0	0.0	26.5	0.0	6.5	100	FTG	PE 0.0
C		11.0	0.0	27.6	0.0		0.086	TL 13.31	PV 0.3
	Pipe: 19					-87.4	3.260	PL 8.00	PF 0.2
A		11.0	0.0	27.7	0.0	3.4	100	FTG	PE 0.0
B		11.0	0.0	27.9	0.0		0.011	TL 22.39	PV 0.1
	Pipe: 20					-41.1	2.067	PL 8.75	PF 0.3
C		11.0	0.0	27.6	0.0	3.9	100	FTG	PE 0.0
B		11.0	0.0	27.9	0.0		0.025	TL 12.32	PV 0.1
	Pipe: 21					-128.5	3.260	PL 25.50	PF 0.9
B		11.0	0.0	27.9	0.0	4.9	100	FTG	PE 0.0
D		11.0	0.0	28.8	0.0		0.023	TL 39.89	PV 0.2
	Pipe: 22					-128.5	3.260	PL 8.50	PF 0.5
D		11.0	0.0	28.8	0.0	4.9	100	FTG	PE 0.0
E		11.0	0.0	29.3	0.0		0.023	TL 22.89	PV 0.2
	Pipe: 23					-128.5	4.026	PL 5.00	PF 0.2
E		11.0	0.0	29.3	0.0	3.2	120	FTG	PE 3.5
F		3.0	0.0	33.0	0.0		0.006	TL 29.00	PV 0.1
	Pipe: 24					-128.5	6.155	PL 9.00	PF 0.0
F		3.0	0.0	33.0	0.0	1.4	140	FTG	PE 3.9
G		-6.0	0.0	36.9	0.0		0.001	TL 29.00	PV 0.0
	Pipe: 25					-128.5	6.155	PL 50.00	PF 0.1
G		-6.0	0.0	36.9	0.0	1.4	140	FTG	PE 0.0
H		-6.0	0.0	36.9	0.0		0.001	TL 92.87	PV 0.0
	Pipe: 26					-128.4	12.580	PL 150.00	PF 0.0
H		-6.0	0.0	36.9	0.0	0.3	140	FTG	PE -2.6
HYDRANT		0.0	SRCE	34.3	(N/A)		0.000	TL 247.00	PV 0.0

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

NOTES:

- (1) Calculations were performed by the HASS 6.1.0 computer program under license no. 8422C1324K granted by
HRS Systems, Inc.
2193 Ranchwood Dr., N.E.
Atlanta, GA 30345
- (2) The system has been balanced to provide an average imbalance at each node of 0.005 gpm and a maximum imbalance at any node of 0.136 gpm.
- (3) Velocity pressures are printed for information only, and are not used in balancing the system. Maximum water velocity is 15.2 ft/sec at pipe 16.

(4) PIPE FITTINGS TABLE

Pipe Table Name: STANDARD.PIP

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet							
	E	T	L	C	B	G	A	D
	Ell	Tee	LngEll	ChkVlv	BfyVlv	GatVlv	AlmChk	DPVlv
1.049	2.00	5.00	2.00	5.00	6.00	1.00	10.00	10.00
1.380	3.00	6.00	2.00	7.00	6.00	1.00	10.00	10.00
1.610	6.36	12.71	4.24	14.83	12.71	2.12	21.19	21.19
2.067	5.00	10.00	3.00	11.00	6.00	1.00	10.00	10.00
4.026	14.80	31.46	9.25	35.16	20.36	1.85	25.91	18.51

PAGE: D MATERIAL: DIRON HWC: 140

Diameter (in)	Equivalent Fitting Lengths in Feet					
	E	T	L	C	B	G
	Ell	Tee	LngEll	ChkVlv	BfyVlv	GatVlv
12.580	43.58	96.83	29.05	104.90	33.89	9.68

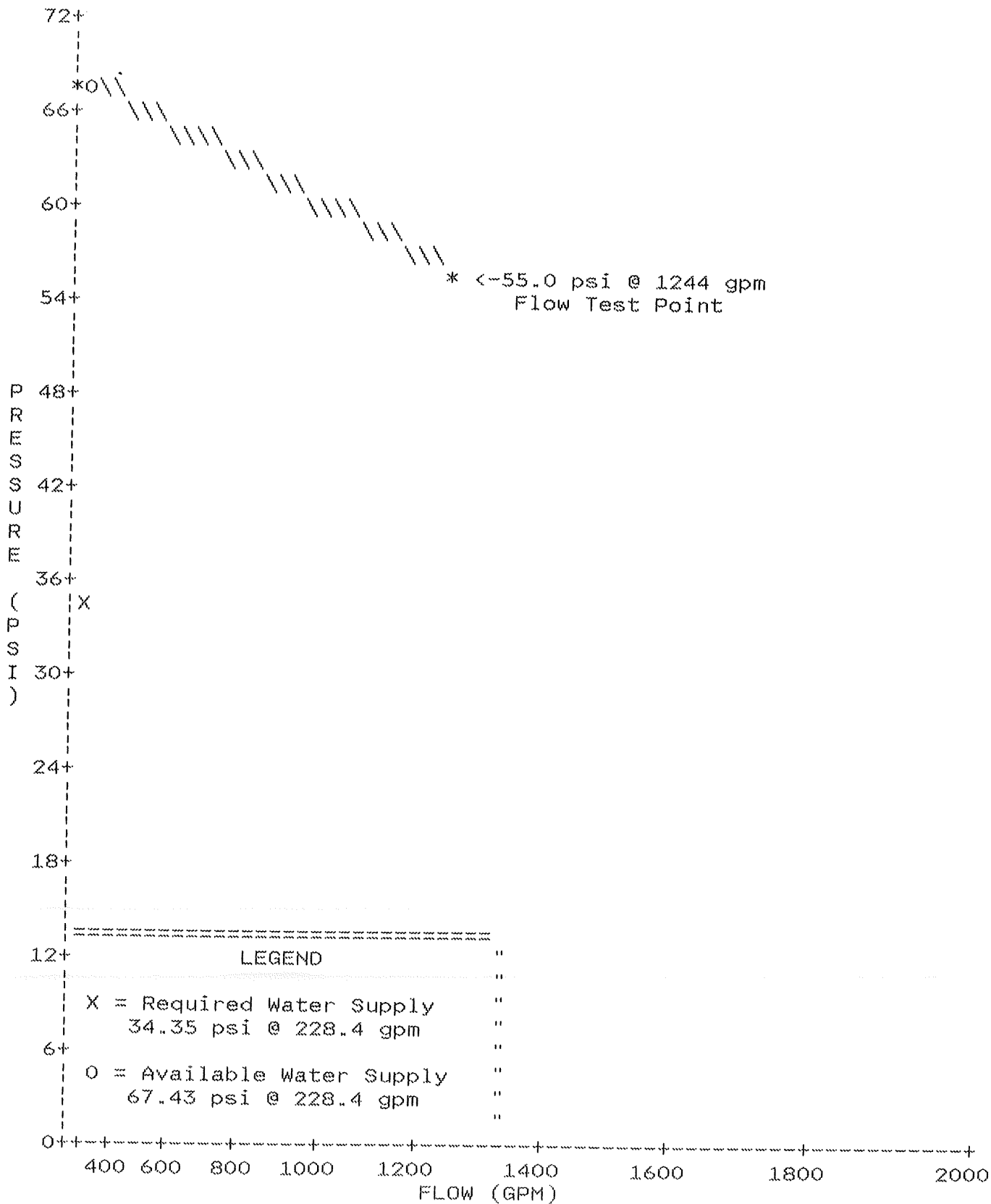
PAGE: * MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet							
	E	T	L	C	B	G	A	D
	Ell	Tee	LngEll	ChkVlv	BfyVlv	GatVlv	AlmChk	DPVlv
3.260	9.41	20.16	6.72	21.50	13.44	1.34	17.47	13.44
6.155	15.04	32.23	9.67	34.38	10.74	3.22	30.08	20.41

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

WATER SUPPLY CURVE



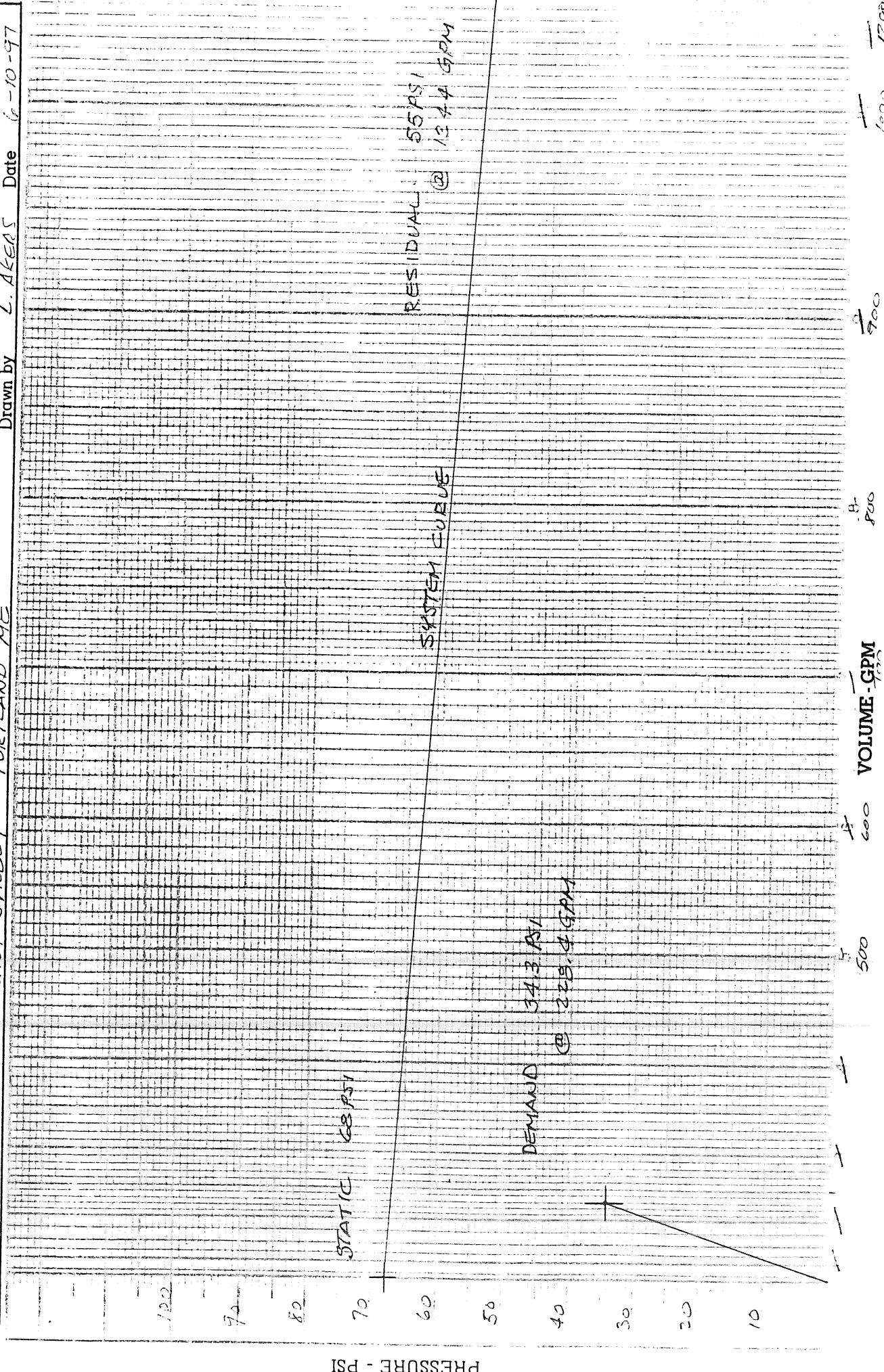
Form 9.54 (Rev. 2-62)

GRAPH SHEET FOR HYDRAULIC CALCULATIONS - GRINNELL FIRE PROTECTION SYSTEMS COMPANY

Name-Address of Property SPURWINK SCHOOL

17 BISHOP STREET PORTLAND ME

Drawn by L. AKEAS Date 6-10-97



PRESSURE - PSI

VOLUME - GPM

800

900

1000

1200

GRINNELL FIRE PROTECTION
78 PLEASANT AVENUE
S. PORTLAND, ME 04106

HYDRAULIC CALCULATIONS

FOR

NAME: THE SPURWINK SCHOOL
LOCATION: PORTLAND, MAINE
DATE: 6-10-97
CONTRACT NUMBER: **84-175465-A9**
CONTRACT WITH: SPURWINK SCHOOL

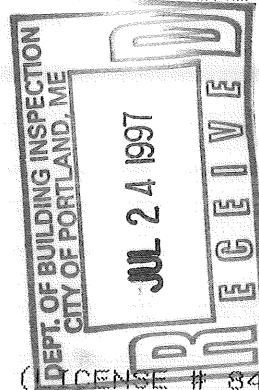
AREA CALCULATED: ROOM DESIGN METHOD

* DESIGN DATA *

OCCUPANCY CLASSIFICATION: LIGHT HAZ
DENSITY: .10GPM/SF
AREA OF APPLICATION: LARG ROOM
REMOTE AREA MULTIPLIER: N/A
SYSTEM TYPE @ C-FACTOR: DRY C=100
UNDERGROUND C-FACTOR: C=140
COVERAGE PER SPRINKLER: N/A SQ. FT.
SPRINKLER SIZE AND K-FACTOR: 1/2 " K=5.6
NUMBER OF SPRINKLERS CALCULATED: 7
SYSTEM DEMAND AT BASE OF RISER (BOR): 128.4 GPM @ 34.3 PSI
HOSE ALLOWANCE: 100 GPM FOR
TOTAL DEMAND AT TEST: 228.4 GPM @ 34.3 PSI
CALCULATED BY: L.D.A.

AUTHORITY HAVING JURISDICTION: STATE OF MAINE FIRE MARSHALL

NOTES: DESIGN: NFPA 13



CALCULATIONS BY HASS COMPUTER PROGRAM (LICENSE # 8422C1324K)
HRS SYSTEMS, INC.
ATLANTA, GEORGIA

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	FLOW @ (GPM)	AVAIL. PRESS. (PSI)	TOTAL DEMAND (GPM)	REQ'D PRESS. (PSI)
HYDRANT	68.0	55.0	1244.0	67.4	228.4	34.3

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	228.4 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	100.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	128.4 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
HYDRANT	0.0	SOURCE	34.3	128.4
1	11.3	K= 5.25	8.1	14.9
2	11.3	- - - -	8.6	- - -
3	11.3	K= 5.25	7.9	14.8
4	11.3	K= 5.21	11.3	17.6
5	11.3	- - - -	12.5	- - -
6	11.3	K= 5.25	11.9	18.1
7	11.3	- - - -	12.8	- - -
8	11.3	K= 5.25	17.6	22.0
9	11.3	- - - -	18.7	- - -
10	11.3	- - - -	21.8	- - -
11	11.3	- - - -	22.7	- - -
12	11.0	- - - -	23.2	- - -
13	11.0	- - - -	25.4	- - -
14	11.0	K= 5.25	15.4	20.6
15	11.0	K= 5.25	15.2	20.5
16	11.0	- - - -	16.3	- - -
17	11.0	- - - -	23.3	- - -
18	11.0	- - - -	26.5	- - -
A	11.0	- - - -	27.7	- - -
B	11.0	- - - -	27.9	- - -
C	11.0	- - - -	27.6	- - -
D	11.0	- - - -	28.8	- - -
E	11.0	- - - -	29.3	- - -
F	3.0	- - - -	33.0	- - -
G	-6.0	- - - -	36.9	- - -
H	-6.0	- - - -	36.9	- - -

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

PIPE DATA

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q(GPM)	DIA(IN)	LENGTH	PRESS.		
	NODES	(FT)	(K)	(PSI)	(GPM)	VEL(FPS)	HW(C)	(FT)	SUM.		
							F.L./FT		(PSI)		
	Pipe: 1					-14.9	1.049	PL	4.30	PF	0.5
1		11.3	5.2	8.1	14.9	5.5	100	FTG	----	PE	0.0
2		11.3	0.0	8.6	0.0		0.106	TL	4.30	PV	0.2
	Pipe: 2					-14.8	1.049	PL	2.30	PF	0.6
3		11.3	5.2	7.9	14.8	5.5	100	FTG	T	PE	0.0
2		11.3	0.0	8.6	0.0		0.104	TL	5.87	PV	0.2
	Pipe: 3					-29.7	1.049	PL	10.30	PF	3.9
2		11.3	0.0	8.6	0.0	11.0	100	FTG	----	PE	0.0
5		11.3	0.0	12.5	0.0		0.380	TL	10.30	PV	0.8
	Pipe: 4					-17.6	1.049	PL	4.30	PF	1.1
4		11.3	5.2	11.3	17.6	6.5	100	FTG	T	PE	0.0
5		11.3	0.0	12.5	0.0		0.143	TL	7.87	PV	0.3
	Pipe: 5					-47.3	1.380	PL	1.30	PF	0.3
5		11.3	0.0	12.5	0.0	10.1	100	FTG	----	PE	0.0
7		11.3	0.0	12.8	0.0		0.236	TL	1.30	PV	0.7
	Pipe: 6					-18.1	1.049	PL	2.30	PF	0.9
6		11.3	5.2	11.9	18.1	6.7	100	FTG	T	PE	0.0
7		11.3	0.0	12.8	0.0		0.152	TL	5.87	PV	0.3
	Pipe: 7					-65.4	1.380	PL	13.90	PF	6.0
7		11.3	0.0	12.8	0.0	14.0	100	FTG	----	PE	0.0
9		11.3	0.0	18.7	0.0		0.429	TL	13.90	PV	1.3
	Pipe: 8					-22.0	1.049	PL	1.75	PF	1.2
8		11.3	5.2	17.6	22.0	8.2	100	FTG	T	PE	0.0
9		11.3	0.0	18.7	0.0		0.218	TL	5.32	PV	0.4
	Pipe: 9					-87.4	1.610	PL	8.75	PF	3.0
9		11.3	0.0	18.7	0.0	13.8	100	FTG	----	PE	0.0
10		11.3	0.0	21.8	0.0		0.347	TL	8.75	PV	1.3
	Pipe: 10					-87.4	2.067	PL	5.00	PF	0.9
10		11.3	0.0	21.8	0.0	8.4	100	FTG	E	PE	0.0
11		11.3	0.0	22.7	0.0		0.103	TL	8.57	PV	0.5
	Pipe: 11					-87.4	2.067	PL	0.30	PF	0.4
11		11.3	0.0	22.7	0.0	8.4	100	FTG	E	PE	0.1
12		11.0	0.0	23.2	0.0		0.103	TL	3.87	PV	0.5
	Pipe: 12					-87.4	2.067	PL	21.40	PF	2.2
12		11.0	0.0	23.2	0.0	8.4	100	FTG	----	PE	0.0
13		11.0	0.0	25.4	0.0		0.103	TL	21.40	PV	0.5
	Pipe: 13					-87.4	2.067	PL	15.10	PF	2.3
13		11.0	0.0	25.4	0.0	8.4	100	FTG	T	PE	0.0
A		11.0	0.0	27.7	0.0		0.103	TL	22.24	PV	0.5

SPRINKLER SYSTEM HYDRAULIC ANALYSIS

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

PIPE DATA (cont.)

PIPE TAG	END	ELEV.	NOZ.	PT	DISC.	Q(GPM)	DIA(IN)	LENGTH	PRESS.
NODES	(FT)	(K)	(PSI)	(GPM)	VEL(FPS)	HW(C)	(FT)	SUM.	
						F.L./FT		(PSI)	
	Pipe: 14					-20.6	1.049	PL 5.00	PF 1.0
14	11.0	5.2	15.4	20.6	7.6	100	FTG	PE 0.0	
16	11.0	0.0	16.3	0.0		0.192	TL 5.00	PV 0.4	
	Pipe: 15					-20.5	1.049	PL 2.00	PF 1.1
15	11.0	5.2	15.2	20.5	7.6	100	FTG	T PE 0.0	
16	11.0	0.0	16.3	0.0		0.191	TL 5.57	PV 0.4	
	Pipe: 16					-41.1	1.049	PL 10.10	PF 7.0
16	11.0	0.0	16.3	0.0	15.2	100	FTG	PE 0.0	
17	11.0	0.0	23.3	0.0		0.690	TL 10.10	PV 1.6	
	Pipe: 17					-41.1	1.380	PL 17.50	PF 3.2
17	11.0	0.0	23.3	0.0	8.8	100	FTG	PE 0.0	
18	11.0	0.0	26.5	0.0		0.182	TL 17.50	PV 0.5	
	Pipe: 18					-41.1	1.610	PL 7.60	PF 1.1
18	11.0	0.0	26.5	0.0	6.5	100	FTG	T PE 0.0	
C	11.0	0.0	27.6	0.0		0.086	TL 13.31	PV 0.3	
	Pipe: 19					-87.4	3.260	PL 8.00	PF 0.2
A	11.0	0.0	27.7	0.0	3.4	100	FTG	T PE 0.0	
B	11.0	0.0	27.9	0.0		0.011	TL 22.39	PV 0.1	
	Pipe: 20					-41.1	2.067	PL 8.75	PF 0.3
C	11.0	0.0	27.6	0.0	3.9	100	FTG	E PE 0.0	
B	11.0	0.0	27.9	0.0		0.025	TL 12.32	PV 0.1	
	Pipe: 21					-128.5	3.260	PL 25.50	PF 0.9
B	11.0	0.0	27.9	0.0	4.9	100	FTG	T PE 0.0	
D	11.0	0.0	28.8	0.0		0.023	TL 39.89	PV 0.2	
	Pipe: 22					-128.5	3.260	PL 8.50	PF 0.5
D	11.0	0.0	28.8	0.0	4.9	100	FTG	T PE 0.0	
E	11.0	0.0	29.3	0.0		0.023	TL 22.89	PV 0.2	
	Pipe: 23					-128.5	4.026	PL 5.00	PF 0.2
E	11.0	0.0	29.3	0.0	3.2	120	FTG	CG PE 3.5	
F	3.0	0.0	33.0	0.0		0.006	TL 29.00	PV 0.1	
	Pipe: 24					-128.5	6.155	PL 9.00	PF 0.0
F	3.0	0.0	33.0	0.0	1.4	140	FTG	E PE 3.9	
G	-6.0	0.0	36.9	0.0		0.001	TL 29.00	PV 0.0	
	Pipe: 25					-128.5	6.155	PL 50.00	PF 0.1
G	-6.0	0.0	36.9	0.0	1.4	140	FTG	T PE 0.0	
H	-6.0	0.0	36.9	0.0		0.001	TL 92.87	PV 0.0	
	Pipe: 26					-128.4	12.580	PL 150.00	PF 0.0
H	-6.0	0.0	36.9	0.0	0.3	140	FTG	T PE -2.6	
HYDRANT	0.0	SRCE	34.3	(N/A)		0.000	TL 247.00	PV 0.0	

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

NOTES:

- (1) Calculations were performed by the HASS 6.1.0 computer program under license no. 8422C1324K granted by
HRS Systems, Inc.
2193 Ranchwood Dr., N.E.
Atlanta, GA 30345
- (2) The system has been balanced to provide an average imbalance at each node of 0.005 gpm and a maximum imbalance at any node of 0.136 gpm.
- (3) Velocity pressures are printed for information only, and are not used in balancing the system. Maximum water velocity is 15.2 ft/sec at pipe 16.

(4) PIPE FITTINGS TABLE

Pipe Table Name: STANDARD.PIP

PAGE: A MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet							
	E	T	L	C	B	G	A	D
	Ell	Tee	LngEll	ChkVlv	BfyVlv	GatVlv	AlmChk	DPVlv
1.049	2.00	5.00	2.00	5.00	6.00	1.00	10.00	10.00
1.380	3.00	6.00	2.00	7.00	6.00	1.00	10.00	10.00
1.610	6.36	12.71	4.24	14.83	12.71	2.12	21.19	21.19
2.067	5.00	10.00	3.00	11.00	6.00	1.00	10.00	10.00
4.026	14.80	31.46	9.25	35.16	20.36	1.85	25.91	18.51

PAGE: D MATERIAL: DIRON HWC: 140

Diameter (in)	Equivalent Fitting Lengths in Feet					
	E	T	L	C	B	G
	Ell	Tee	LngEll	ChkVlv	BfyVlv	GatVlv
12.580	43.58	96.83	29.05	104.90	33.89	9.68

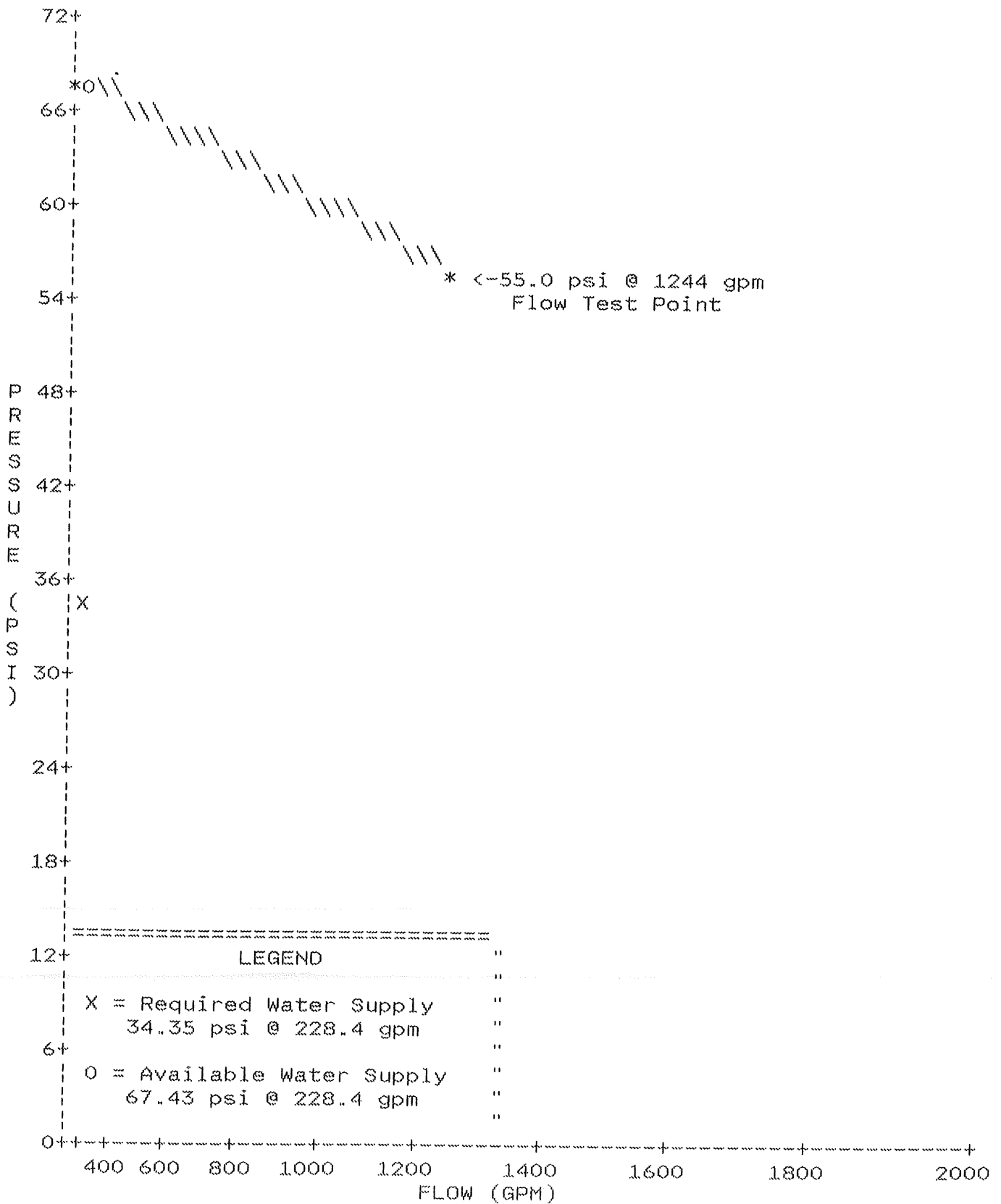
PAGE: * MATERIAL: S40 HWC: 120

Diameter (in)	Equivalent Fitting Lengths in Feet							
	E	T	L	C	B	G	A	D
	Ell	Tee	LngEll	ChkVlv	BfyVlv	GatVlv	AlmChk	DPVlv
3.260	9.41	20.16	6.72	21.50	13.44	1.34	17.47	13.44
6.155	15.04	32.23	9.67	34.38	10.74	3.22	30.08	20.41

Date: 06/09/1997

JOB TITLE: SPURWINK SCHOOL PORTLAND, MAINE

WATER SUPPLY CURVE



Form 9-54 (Rev. 2-62)

GRAPH SHEET FOR HYDRAULIC CALCULATIONS - GRINNELL FIRE PROTECTION SYSTEMS COMPANY

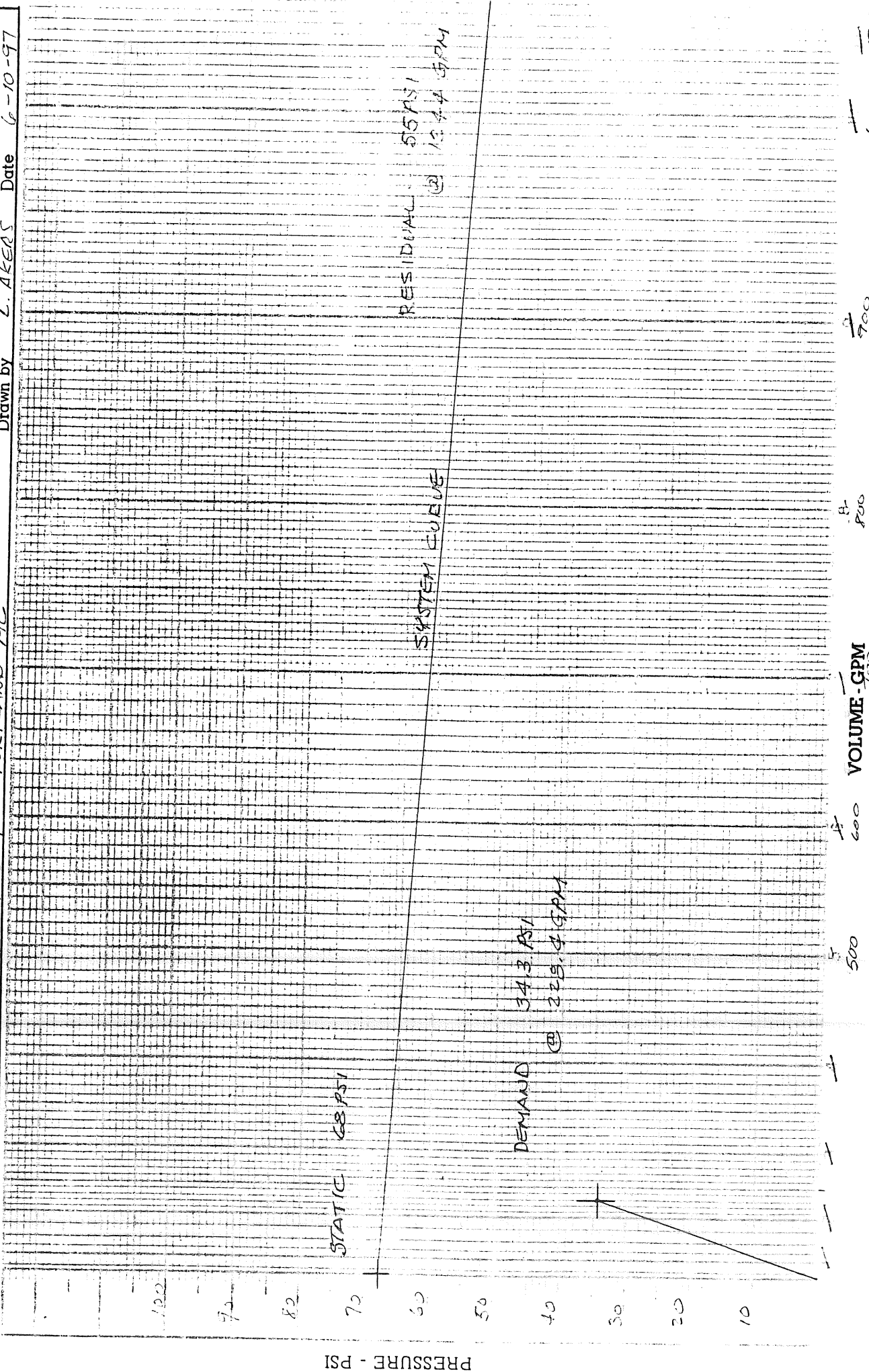
Name-Address of Property *SPURWINK SCHOOL*

17 BISHOP STREET

PORTLAND ME

Drawn by *L. AKERS*

Date *6-10-97*



1200
1000
800
600
400
200
0

1200
1000
800
600
400
200
0

VOLUME - GPM

PRESSURE - PSI