Listed below are key characters (in bold) for searching within this file.

Hold down the control key and select the "f" key. Enter either a key character from the list below or document name and select enter for a list of documents containing the search word you entered.

APL – all documents behind this target sheet pertain to the original application submitted by the Applicant.

REVIEW – all documents behind this target sheet pertain to those documents submitted to and from staff as part of the project review.

PBM1 – all documents behind this target sheet are any Planning Board memos with attachments that went to the Board.

PBR1 - all documents behind this target sheet are any Planning Board reports with attachments that went to the Board.

CC1 - all documents behind this target sheet are any City Council memos/reports that went to the City Council.

DRC1 - all documents behind this target sheet are those pertaining to the post review of the project by the Development Review Coordinator.

MISC1 - all documents behind this target sheet are those that may not be included in any of the categories above.

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Planning Department Copy

19990046
I. D. Number

Hannaford Bros. Co.
Applicant

04/27/1999
Application Date

P.O. Box 1000, Portland, ME 04104
Applicant's Mailing Address

Forest Avenue - 295
Project Name/Description

Steve Bushey/Deluca Hoffman
Consultant/Agent

295 - 295 Forest Ave, Hannaford Bros
Address of Proposed Site

775-1121
Applicant or Agent Daytime Telephone, Fax

034A C001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☐ New Building ☑ Building Addition ☐ Change Of Use ☐ Residential
☐ Office ☑ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☑ Other (specify) **demo**

13,140 sq. ft.	**9.77 ac**	**B2**
Proposed Building square Feet or # of Units	Acreage of Site	Zoning

Check Review Required:

☑ Site Plan (major/minor) ☐ Subdivision # of lots ☐ PAD Review ☐ 14-403 Streets Review

☐ Flood Hazard ☐ Shoreland ☐ HistoricPreservation ☐ DEP Local Certification

☐ Zoning Conditional Use (ZBA/PB) ☐ Zoning Variance ☐ Other

Fees Paid: Site Plan **$500.00** Subdivisio Engineer Review **$600.00** Date **11/04/1999**

Planning Approval Status:

Reviewer **Kandi Talbot**

☐ **Approved** ☑ **Approved w/Conditions** See Attached ☐ **Denied**

Approval Date **06/08/1999** Approval Expiration **06/08/2000** Extension to ☑ Additional Sheets Attached

☑ OK to Issue Building Permi **Kandi Talbot** (signature) **07/25/2000** (date)

Performance Guarantee ☑ **Required*** ☐ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☑ Performance Guarantee Accepted	**12/01/1999** (date)	**$31,800.00** (amount)	**12/01/2000** (expiration date)
☑ Inspection Fee Paid	**11/04/1999** (date)	**$1,243.00** (amount)	
☐ Building Permit Issue	(date)		
☐ Performance Guarantee Reduced	(date)	(remaining balance)	(signature)
☐ Temporary Certificate of Occupancy	(date)	☐ Conditions (See Attached)	(expiration date)
☐ Final Inspection	(date)	(signature)	
☐ Certificate Of Occupancy	(date)		
☐ Performance Guarantee Released	(date)	(signature)	
☐ Defect Guarantee Submitted	(submitted date)	(amount)	(expiration date)
☐ Defect Guarantee Released	(date)	(signature)	

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
D.R.C. Copy

19990046
I. D. Number

Hannaford Bros. Co.
Applicant

04/27/1999
Application Date

P.O. Box 1000, Portland, ME 04104
Applicant's Mailing Address

Forest Avenue - 295
Project Name/Description

Steve Bushey/Deluca Hoffman
Consultant/Agent

295 - 295 Forest Ave, Hannaford Bros
Address of Proposed Site

775-1121
Applicant or Agent Daytime Telephone, Fax

034A C001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☐ New Building ☑ Building Addition ☐ Change Of Use ☐ Residential
☐ Office ☑ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☑ Other (specify) **demo**

13,140 sq. ft.	**9.77 ac**	**B2**
Proposed Building square Feet or # of Units	Acreage of Site	Zoning

Check Review Required:

☑ Site Plan (major/minor) ☐ Subdivision # of lots ☐ PAD Review ☐ 14-403 Streets Review
☐ Flood Hazard ☐ Shoreland ☐ HistoricPreservation ☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB) ☐ Zoning Variance ☐ Other

Fees Paid: Site Plan **$500.00** Subdivision Engineer Revie **$600.00** Date: **11/04/1999**

DRC Approval Status:

Reviewer **Jim Seymour**

☐ **Approved** ☑ **Approved w/Conditions** see attache ☐ **Denied**

Approval Date **06/08/1999** Approval Expiration **06/08/2000** Extension to ☑ Additional Sheets Attached

☑ Condition Compliance **Jim Seymour** (signature) **07/25/2000** (date)

Performance Guarantee ☑ **Required*** ☐ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☑ Performance Guarantee Accepted	**12/01/1999** (date)	**$31,800.00** (amount)	**12/01/2000** (expiration date)
☑ Inspection Fee Paid	**11/04/1999** (date)	**$1,243.00** (amount)	
☐ Building Permit	(date)		
☐ Performance Guarantee Reduced	(date)	(remaining balance)	(signature)
☐ Temporary Certificate Of Occupancy	(date)	☐ Conditions (See Attached)	(expiration date)
☐ Final Inspection	(date)	(signature)	
☐ Certificate Of Occupancy	(date)		
☐ Performance Guarantee Released	(date)	(signature)	
☐ Defect Guarantee Submitted	(submitted date)	(amount)	(expiration date)
☐ Defect Guarantee Released	(date)	(signature)	

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
ADDENDUM

19990046
I. D. Number

Hannaford Bros. Co.
Applicant

04/27/1999
Application Date

P.O. Box 1000, Portland, ME 04104
Applicant's Mailing Address

Forest Avenue - 295
Project Name/Description

Steve Bushey/Deluca Hoffman
Consultant/Agent

295 - 295 Forest Ave, Hannaford Bros
Address of Proposed Site

775-1121
Applicant or Agent Daytime Telephone, Fax

034A C001
Assessor's Reference: Chart-Block-Lot

DRC Conditions of Approval

- see Planning's conditions

Planning Conditions of Approval

i. that the applicant provide any necessary permits required by Army Corp of Engineers to City staff.
ii. that the applicant submit utility letters to staff from Portland Water District and Portland Sewer Division.
iii. that the applicant submit a drainage maintenance agreement, for review and approval by staff.
iv. that the applicant negotiate with Public Works regarding the location of stormwater treatment system and if Public Works agrees the stormwater treatment system may remain where proposed as long as the City bears no maintenance responsibility for the stormwater treatment system.
v. that the applicant revise the plans in accordance with the DRC's memo dated 6/4/99 in regards to stormwater treatment system selection and location, erosion control plan, details, and information on new gas line and electrical connections.

Inspections Conditions of Approval

1. This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.
2. Separate permits shall be required for any new signage.

Fire Conditions of Approval

Application requires State Fire Marshal approval.

Planning & Urban Development

Joseph E. Gray Jr.
Director

CITY OF PORTLAND

January 4, 2001

Steve Bushey
DeLuca-Hoffman Associates, Inc.
778 Main Street
Suite 8
South Portland, ME 04106

RE: 295 Forest Avenue (Job # 19990046, C-B-L 034-A-C-001)

Dear Steve:

This letter is to confirm the revision to the approved plan of the Shop 'N Save project located at 295 Forest Avenue. The approved revision includes the substitution of a Vortechnics stormwater treatment tank with a HIL Technology stormwater treatment tank. The revised plan has been reviewed and approved by the project review staff including representatives of the Planning, Public Works, Building Inspections, Fire and Parks Departments.

If you have any questions regarding the revision please contact the planning staff at 874-8901.

Sincerely,

Alexander Jaegerman
Chief Planner

cc: Kandice Talbot, Planner
P. Samuel Hoffses, Building Inspector
Jeff Tarling, City Arborist
William Bray, Director of Public Works
Tony Lombardo, Project Engineer
Lt. Gaylen McDougall, Fire Prevention
Penny Littell, Associate Corporation Counsel
Inspection Department
Development Review Coordinator
Lee Urban, Director of Economic Development
Susan Doughty, Assessor's Office
Approval Letter File

O:\PLAN\DEVREVW\FORAV295\REVISION.DOC

H.I.L. TECHNOLOGY, INC.
94 Hutchins Drive
Portland, ME 04102

PHONE (207) 756-6200
FAX (207) 756-6212
TOLL FREE 1-800-848-2706
E-MAIL: hiltech@hil-tech.com

H.I.L. TECHNOLOGY INC. ™

January 3, 2001

H.I.L. Ref. 2000/00297

Jim Seymour
Sebago Technics
One Chabot St.
P.O. Box 1339
Westbrook, ME 04098-1339

RE: Forest Avenue Shop 'n Save

Dear Jim:

This letter is written to address comments raised in your letter dated December 21, 2000. To respond to the five items that you have outlined, I have provided some background information where necessary. Our responses to each question are as follows:

1. The specific criteria requested is not a regulatory requirement. As a result, it is data that H.I.L. does not have readily available. Furthermore, the test protocol established by Maine DEP, as of October 1, 2000, is not as specific as you are requesting. The DEP protocol came about through a number of meetings that occurred throughout the year 2000. It is worth noting that it was H.I.L. that urged the DEP to establish a common test protocol so that all such devices could be evaluated equitably.

   In an attempt to respond to your request, H.I.L. can provide removal efficiencies for particles smaller than 150 microns. This data was gathered using the direct test method, as compared to influent and effluent grab samples used in establishing the Vortechs removal efficiency curves. In the direct test method, a known mass of sediment is fed into the influent and compared with the mass captured by the device. This approach is naturally more conservative and more accurate. Test results show that a Downstream Defender loaded at a rate of 6.6 gpm/ft3 (which equates to the design flow rate of 2.97 cfs in an 8-ft diameter unit) removes 77% of particles smaller than 150 microns. These tests were conducted on material collected in the field (locally) that included a relatively small fraction of particles in this range. The protocols and equipment used in this series of tests were not specifically intended to accurately measure small fractions of fine particles. Therefore we believe the removal efficiencies may be underestimated.

2. The removal efficiency of Vortechs units is based on surface loading rates (maximum of 24 gpm/sf for a 2-month storm). There are no flow-modifying internal components and units do not get deeper as diameters increase. The internal components of the Downstream Defender incorporate a three-dimensional flow pattern to maximize solids separation. In addition, as Downstream Defender

diameters increase to treat higher flows, depths also increase. Therefore, removal efficiencies are based on volumetric loading rates. In a Downstream Defender, the maximum loading rate for a design storm is 16 gpm/ft^3. The treatment volume of an 8-ft diameter unit is 201.1 ft^3. Therefore, at the design flow of 2.97 cfs, the loading rate in an 8-ft diameter Defender is 6.6 gpm/ft^3.

3. The maximum recommended hydraulic capacity of an 8-ft Defender is 15 cfs, whether the unit is placed on-line or off-line. Therefore, in an off-line arrangement, a maximum of 15 cfs may be diverted to the unit prior to bypassing. However, it is not uncommon for a unit to be bypassed prior to reaching its hydraulic capacity depending on the impact of water levels on the drainage system.
4. The intent of this question is unclear. Settling velocity is generally associated with the rate of descent for a particular particle size and density in a column of water.
5. An 8-ft diameter Defender has a sediment storage volume of 4.65 cubic yards and an oil storage volume of 525 gallons. The storage areas of the Downstream Defender are unique in that they are located outside of the treatment flow path, thereby eliminating the potential for re-entrainment and maintaining treatment volume and removal efficiency between clean-outs. This is not the case with competing systems such as Vortechs and Stormceptor, where calculated storage volumes overlap treatment volumes. In the event of a single large volume of oil entering the device, as with a spill, an 8-ft unit can contain up to 1500 gallons of oil.

   During the first year of operation, it is recommended that the unit be inspected every six months to determine the rate of sediment and floatables accumulation. It is also recommended that annual clean-outs be planned. Based on the semi-annual inspections, a site specific clean-out schedule can be established.

I hope these answers aid your comparison of the two devices. To further your comparison, I would like to share with you some findings made during recent tests conducted by H.I.L. using the new DEP test requirements. These findings offer interesting insight into the role of test protocols in establishing performance data. A meeting would provide the appropriate forum to review this information. I look forward to meeting with you directly to discuss the performance of the Downstream Defender. In the meantime, if you have any questions, please do not hesitate to contact me.

Sincerely,

David Mongeau
Regional Sales Engineer

Cc: Kandice Talbot, City of Portland
Tony Lombardo, City of Portland

Sebago Technics

Engineering & Planning for the Future

January 3, 2001
99280

Kandi Talbot, Planner
Planning and Urban Development
City of Portland
389 Congress Street
Portland, ME 04101

Forest Avenue Shop 'n Save, Stormwater Treatment System

Dear Kandi:

We have just received a message from Tony Lombardo, P.E. of Public Works regarding the substitution of an 8' Downstream Defender for a Model 9000 Vortechs stormwater system on the Shop 'n Save site. Our understanding is that Public Works has determined that, based on the same treatment application, the location within the City right-of-way, the fact that they requested the additional stormwater treatment, the substituted structure has been already manufactured, and because the decision process has already caused construction delays, the substitution will be acceptable.

As you are aware, we have spent time reviewing the original design selection against the proposed substitution (letter dated December 21, 2000). We have received information requested from Vortechnics and were informed by HIL Technology that they would be forwarding data this week. Now with this decision by Public Works, we assume that HIL will not forward the requested data; therefore, we will only forward Vortechnics data for your files.

For future reference, we would like to be informed, as both a reviewer and/or design engineer, which standards we should use, or will Public Works define the necessary requirements on an individual site plan basis. As you know, these systems are difficult to review and specify without a standardized evaluation. Although we agree with Public Works' decision for the "bigger picture", we still do not know if we could have made the same decision based on the "smaller" operational details and data. As noted above, not all the requested operational sizing or engineering calculations had been submitted for review. Our concern is that we originally approve a treatment tank operating with a 9' swirl chamber and end up with a treatment system with an 8' swirl chamber. This downsizing substitution trend could be precedent setting and could lead to more arguments between reviewers and manufacturers. Please be careful in your acceptance letter, or indicate that revisions to the City's standards will be forthcoming to address other future applications and site plans.

One Chabot Street P.O. Box 1339 Westbrook, Maine 04098-1339 207-856-0277 Fax 207-856-2206

Regardless of this outcome, we urge you to work with Public Works, MDEP and local consulting engineering firms to establish clear objectives. Each time we revisit this issue, we learn something new ourselves, as we hope you have too. We look forward to continuing our work with you and providing the City of Portland with engineering review services and technical consultation.

Sincerely,

SEBAGO TECHNICS, INC.

James R. Seymour

James R. Seymour
Project Engineer

JRS:jc

From: Anthony Lombardo
To: Kandi Talbot
Date: Wed, Jan 3, 2001 2:10 PM
Subject: Forest Ave. Shop n' Save.....

Kandi,
Public Works believes that this issue is no longer an issue. Two competing manufacturers of a "stormwater treatment" product have conflicting opinions of each of their respective products. Currrently, MDEP rates each of the products essentially equal in terms of treating runoff. This rating system may change in the near future, however, for the present, I am in agreement with Steve Bushey's recommendation to utilize the HIL Technology product for this site.

Perhaps the bigger issue here is that the City needs to tighten up its own technical standards regarding treatment of runoff. Our current language is much too vague and allows for situations, exactly like this one, to occur. More importantly, the site contractor, Shaw Bros. Construction, has already ordered the product and its has been custom fabricated, now awaiting delivery and installation. As a result, we are costing companies and individuals money in not providing an immediate positive response !! Therefore, I am urging you to send an e-mail to Steve Bushey, the developers and Shaw Bros. supporting the revision to the Site Plan, by using an HIL stormwater treatment unit instead of the original specified Vortecnics product.

CC: Internet: Bbrown@shawbrothers.com, internet:jseym...

295 Forest Ave
1999046
05-A-A-C-001

Vortechnics™

Engineered Products
FOR STORMWATER TREATMENT

December 22, 2000

Jim Seymour
Sebago Technics Inc
1 Chabot St
PO Box 1339
Westbrook, ME 04098

Re: Forest Avenue Shop & Save, Stormwater Treatment System

Dear Jim:

I am writing in response to your request for information to aid in your review of the above matter. Your requests were as follows:

1. Provide efficiency removal percentages of a 150 micron and a 50 micron sediment sample using the selected model and design flow rate.

2. Provide calculations using the design flow rate, the optimum loading rate (24 gpm/sf), to determine the swirl chamber and diameters.

3. Provide the maximum handling capacity (cfs) of the selected system based on an offline installation.

4. Provide results on testing or field measurements of the maximum settling velocity of the system, in the selected model during a 25 year storm event.

5. Please list storage volumes for grit/sediment and oil/grease. Also provide a suggested or average maintenance schedule for an installation based on the watershed area or flow rate of this project.

These items are addressed as follows:

Item 1: Enclosed is a a graph entitled "Vortechs Model 9000 Removal Efficiency for 150 micron and 50 micron Sediment Sample". This graph displays the removal efficiencies for both particle sizes throughout the full range of flow treated by the Vortechs Model 9000.

Item 2: Enclosed is a sheet of calculations entitled "Forest Avenue Shop & Save, Portland, Maine, Vortechs Model 9000 Sizing Calculations". The 2-month operating rate for the selected Vortechs Model 9000 as based on the design parameters provided by the design engineer is 20.88 gpm/sqft. This operating rate does not exceed the maximum of 24 gpm/sqft in that recurrence frequency as required.

Vortechnics™

Engineered Products
FOR STORMWATER TREATMENT

Item 3: Enclosed is a sheet of bypass calculations used in determining the design of the external bypass upstream of the Vortechs Model 9000. Based on the 25-year design storm of 23.74 cfs, the 100-yr flow was estimated as 29.7 cfs. The height of the bypass wall was calculated such that in the estimated 100-yr flow, 15.7 cfs will be bypassed and 14 cfs will be treated through the Vortechs Model 9000. In that the Vortechs Model 9000 has a treatment capacity of 14.0 cfs, the maximum flow through the Vortechs System will not exceed this capacity as discussed. Technical Bulletin #3A is also enclosed as a further explanation of the bypass design.

Item 4: Enclosed is a design detail of the proposed Vortechs Model 9000. In the 25-year storm event, the maximum velocities in the system will occur under the baffle wall. As discussed previously, the 25-year flow through the Vortechs System will not exceed 14 cfs. Therefore, calculating the opening under the baffled wall as 9 ft X 1.25 ft = 11.25 sf, the maximum velocity in the system will be 14 cfs / 11.25 ft = 1.24 fps.

Item 5: Enclosed is a list of oil and sediment storage capacities from our published literature. Also enclosed are inspection and maintenance recommendations. It is recommended that the Vortechs System be inspected on a seasonal basis for the first couple of years in order to develop a site specific maintenance schedule for subsequent years. It is also recommended that the system be cleaned when the sediment accumulation is within six inches of the water surface. Field experience has shown that the frequency of maintenance for typical sites may vary from once a year to once every three or four years.

Thank you very much for the opportunity to respond to your request. I hope that the above discussion and enclosed documentation will sufficiently address each item. Please do not hesitate to call anytime you have any questions regarding this matter.

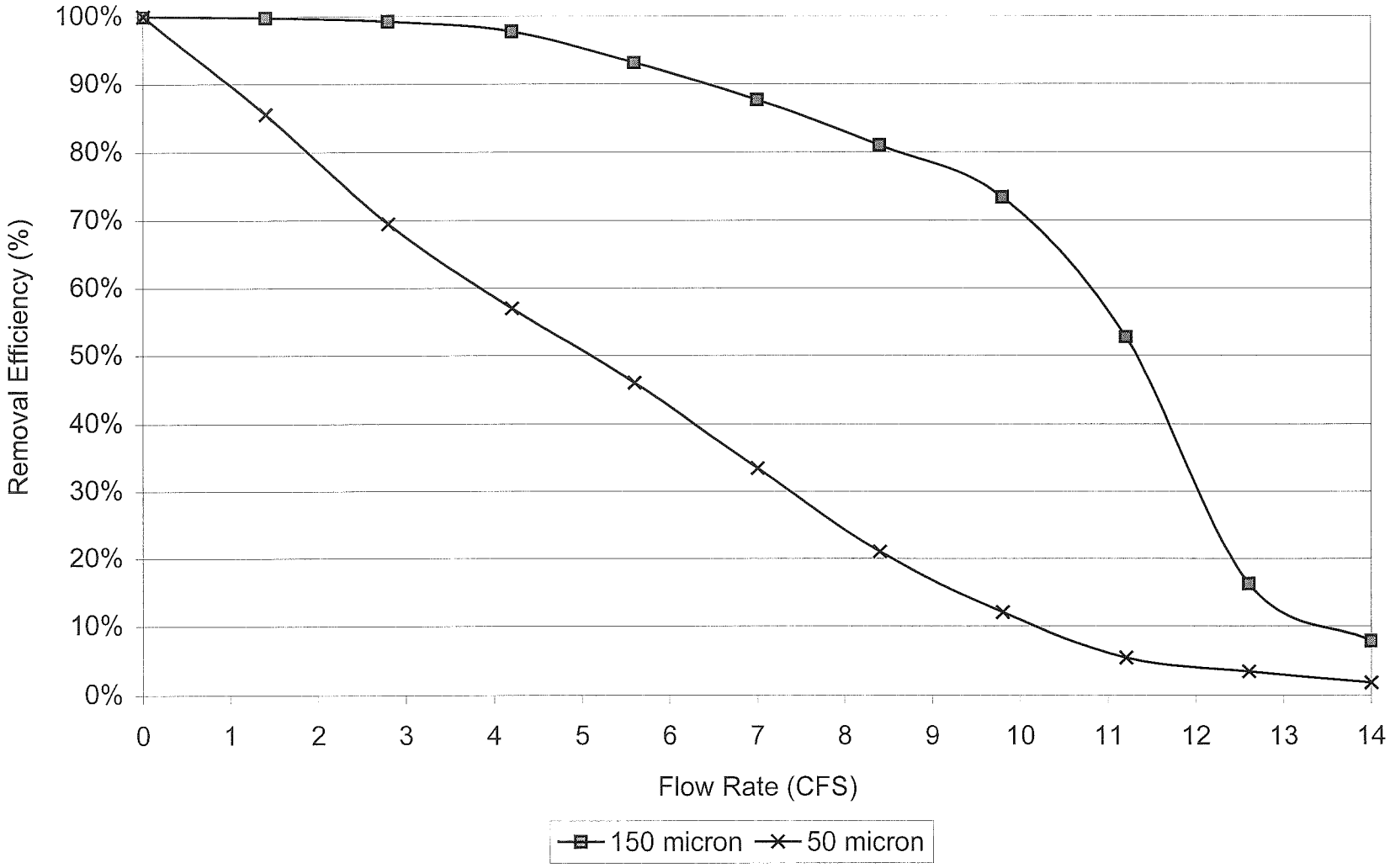
Sincerely,

Thomas P. Gorrivan
Regional Engineer

41 Evergreen Drive ▼ Portland, Maine 04103 ▼ Ph 207.878.3662 ▼ Fax 207.878.8507

Vortechnics

Vortechs™ Model 9000 Removal Efficiency for 150 micron and 50 micron Sediment Sample



Vortechnics

ENGINEERED PRODUCTS
FOR STORMWATER TREATMENT

Forest Avenue Shop & Save, Portland, Maine

Vortechs Model 9000 Sizing Calculations –

1. The appropriate offline Vortechs System should operate at no greater than 24 gpm/sqft of grit chamber surface area during the 2-Month storm. Given that the design storm, Q_{25}, equals 23.74 CFS, the 2-Month storm is determined using the ratios provided in Technical Bulletin No. 3 as follows:

$$\frac{Q25}{8} \approx Q2Month \Rightarrow \frac{23.74cfs}{8} = 2.97cfs \approx Q2Month$$

2. Therefore, the 2-Month storm operating rate is calculated as follows:

$$\frac{Q2Month}{Vortechs9000GritChamberSurfaceArea} * \frac{450gpm}{1cfs} = \frac{2.97cfs}{64sf} * \frac{450gpm}{1cfs} = 20.88gpm/sqft$$

Vortechnics™

Engineered Products

FOR STORMWATER TREATMENT

BYPASS CALCULATIONS
HANNAFORD BROTHERS
PORTLAND, ME
Model 9000
System SHT 4

Vortechs System Specifications and Site Specific Information:

Vortechs System flow capacity, Q_V =	14.0 cfs	Length of bypass weir crest, L_B =	5.0 ft
Design flow rate at recurrence interval, Q_D =	23.7 cfs	Water surface elev. for 100-yr storm, E_{100}=	98.0 ft
Recurrence Interval, I =	25 yr	Discharge coefficient, C_D =	3.3
Recurrence Interval Ratio, R_I =	8		

Notation:

Q_B = Flow over bypass weir, cfs

Q_{100} = Estimated peak flow rate for 100 year storm, cfs

E_B = Elevation of bypass weir crest, ft

h = Depth of flow over bypass weir crest, ft

R_I = Ratio of recurrence interval storm to a 2 month storm intensity

Calculations:

$Q_{100} = Q_D * (R_{100}/R_I)$ - Estimate the 100 year storm by applying applicable ratios.

$= 23.74 * (10/8)$

$=$ **29.7 cfs**

$Q_B = Q_{100} - Q_V$ - Calculate the flow over the bypass weir during the 100-year storm.

$= 29.7 - 14$

$=$ **15.7 cfs**

$Q_B = C_D L_B h^{3/2}$ - Francis formula for rectangular weir.

$h = (Q_B / 3.3L_B)^{2/3}$ - Use this arrangement of the Francis formula to solve for h.

$= (15.7 / 3.3 * 5)^{\wedge}2/3$

$=$ **1 ft**

$E_B = E_{100} - h$ - Solve for bypass weir crest elevation (E_B).

$= 98 - 1$

$=$ **97 ft**

Conclusion:

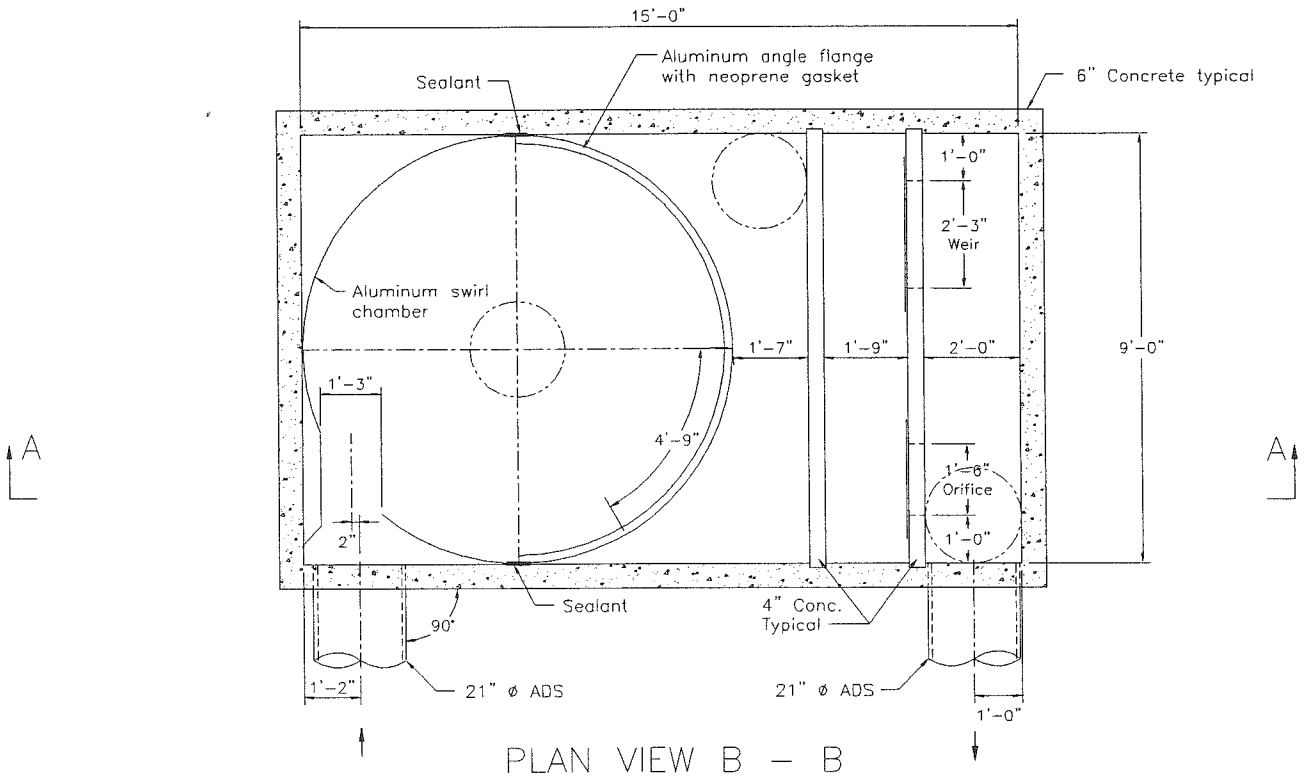
The bypass weir crest should be set at an elevation of 97 ft with a length of 5 ft.

Ratio of Stated Return Period Rainfall Intensity to Two-Month Intensity*

Recurrence Interval, I :	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Ratio, R :	5	6	7	8	9	10

*See Technical Bulletin 3A.

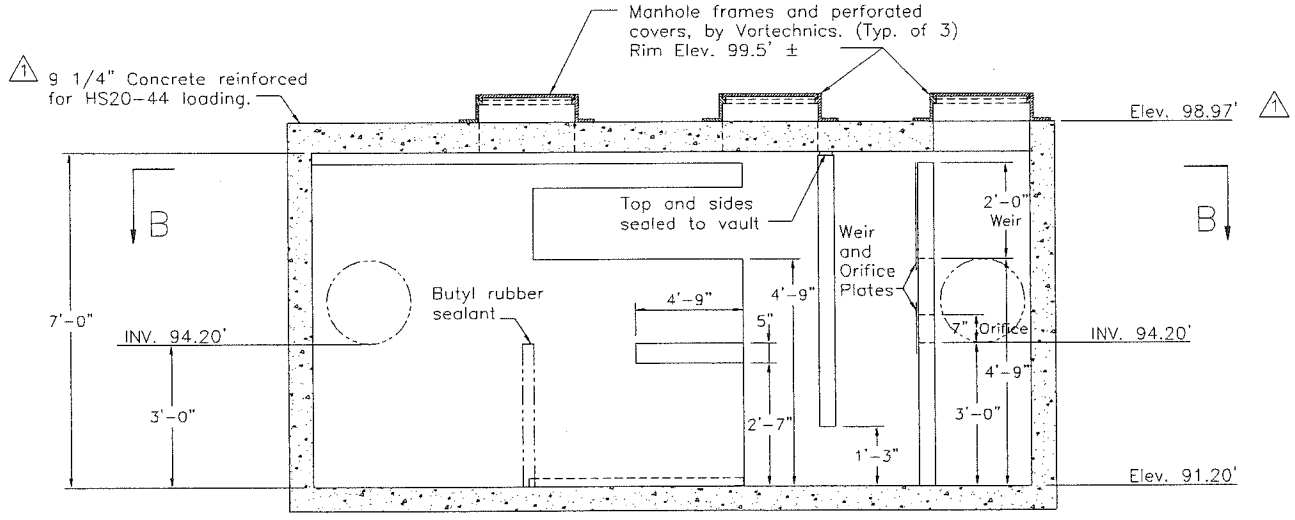
Calculated by: REC	Date: 12/22/00	Checked by: ASB	Date: 12/



PLAN VIEW B – B

DESIGN SPECIFICATIONS:

TREATMENT CAPACITY: 14.0 CFS
SEDIMENT STORAGE: 4.75 CU. YD.
SEDIMENT CHAMBER DIA.: 9'-0" MIN



SECTION A – A

Vortechnics™
41 Evergreen Drive
Portland, ME 04103
Tel.: 207-878-3662
Fax: 207-878-8507

HANNAFORD BROTHERS COMPANY, PORTLAND, ME
STORMWATER TREATMENT SYSTEM, SHT.4
VORTECHS™ MODEL 9000 U.S. PATENT No. 5,759,415

DATE: 08/25/99 rev:12/22/00	SCALE: 1/4" = 1'-0"	FILE NAME: 1202T	DRAWN BY: REC	CHECKED BY: NDG

TECHNICAL BULLETIN NO. 3-A

Determining Bypass Weir Elevation for Off-Line Vortechs™ Systems

Section 3a.1: Bypass Design

When sizing a Vortechs™ System and bypass, several factors must be taken into consideration regarding the specifics of the Vortechs System and the site where will be installed. The design approach is to first quantify the "worst case storm" and then to design the Vortechs System and bypass accordingly.

The worst case storm event is typically the 100-year storm (there can be other site-specific worst cases). To estimate the 100-year storm, a ratio between the 2-month rainfall intensity and the larger (design storm) intensity is used, see Table 3a.1. The ratio, when multiplied by the design flow rate will produce the flow rate during the 2-month storm. By further multiplying the 2-month flow rate by the 2-month/100-year ratio, the flow rate for a 100-year storm is determined. While these ratios, developed by Vortechnics, are both nominal and approximate, they are generally accurate to within 10% for rainfall durations under 30 minutes (see Technical Bulletin #3 for further discussion).

When designing the bypass, first determine the height of water flowing over the bypass weir during the 100-year storm. This is calculated using the bypass flow rate, which is the 100-year flow minus the Vortechs System flow capacity. Next, determine the water surface elevation at the 100-year storm. Normally, this is the same elevation as the top of the internal Cippoletti weir*. The water surface elevation in the Vortechs System and in the bypass structure *should always be the same*. The recommended bypass weir elevation is the water surface elevation minus the depth of flow over the bypass weir. See Section 3a.2: Bypass Weir Calculations.

A Cippoletti Weir is a trapezoidal weir with side slopes of 1:4 horizontal to vertical.

Table 3a.1

Ratio of Stated Return Period Rainfall Intensity to Two-Month Intensity							
Recurrence Interval, I	2-Yr	5-Yr	10-Yr	15-Yr	25-Yr	50-Yr	100-Yr
Ratio, R	5	6	7	7.5	8	9	10

Vortechnics™

Vortechnics, Inc.
41 Evergreen Drive
Portland, Maine 04103

Ph 207.878.3662
Fax 207.878.8507

Online
www.vortechnics.com

Section 3a.2: Bypass Weir Calculations

Q_{BYPASS} = Flow over bypass weir, cfs
Q_{DESIGN} = Vortechs System flow capacity, cfs
Q_{100} = Estimated flow for 100 year storm, cfs

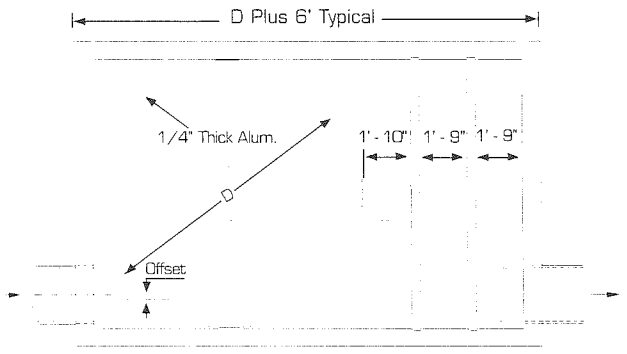
L_{BYWEIR} = Length of bypass weir crest, ft
DFR_I = Design flow rate at recurrence interval, I; from Specifiers' Worksheet, cfs
C_D = Discharge coefficient = 3.3 for rectangular weir
R_I = Ratio of recurrence interval storm to a 2 month storm intensity

E_{BYPASS} = Elevation of bypass weir crest, ft
WSE_{PEAK} = Water surface elevation for 100 year storm - generally equal to elevation at top of the Cippoletti weir, ft
H = Depth of flow over bypass weir crest, ft

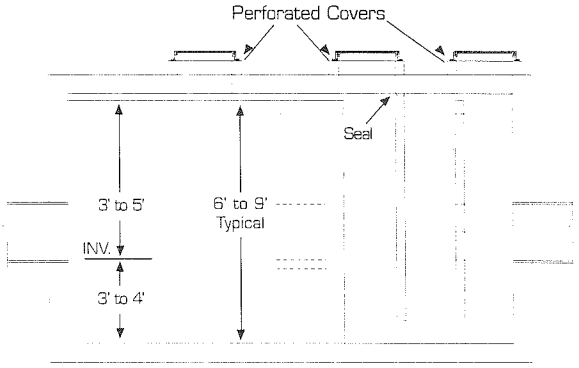
$Q_{BYPASS} = Q_{100} - Q_{DESIGN}$	Calculate the flow over the bypass weir during the 100 year storm.
$Q_{100} = DFR_I X (R_{100}/R_I)$	Estimate the 100 year storm by applying applicable ratios.
$Q_{BYPASS} = CL_{BYWEIR}H^{3/2}$	Francis formula for rectangular weir.
$H = (Q_{BYPASS}/3.3L_{BYWEIR})^{2/3}$	Use this arrangement of the Q_{BYPASS} equation to solve for H.
$E_{BYPASS} = WSE_{PEAK} - H$	Solve for bypass weir crest elevation (E_{BYPASS}).

Vortechnics™

Specifying the Vortechs Stormwater Treatment System



Plan View



Elevation View

To begin the design of your Vortechs System, refer to the sizing chart below and complete a Specifier's Worksheet to provide details about your site and design flows. Then simply fax or mail the worksheet to Vortechnics with your site plan, and we'll produce detailed Vortechs System scale drawings free of charge.

Vortechs™ Model	Grit Chamber Diameter / Area ft / ft²	Peak Design Flow[A] cfs	Sediment Storage[B] yds³	Oil Storage[B] gals	Approx. Size[D] L x W ft
1000	3/7	1.6	.75	270	9 x 3
2000	4/13	2.8	1.25	350	10 x 4
3000	5/20	4.5	1.75	500	11 x 5
4000	6/28	6.0	2.5	700	12 x 6
5000	7/38	8.5	3.25	900	13 x 7
7000	8/50	11.0	4.0	1,200	14 x 8
9000	9/64	14.0	4.75	1,500	15 x 9
11000	10/79	17.5	5.5	1,800	16 x 10
16000	12/113	25.0	7.0	2,500	18 x 12

Metric Specification Chart available by calling Vortechnics at (207) 878-3662.

Engineering Notes

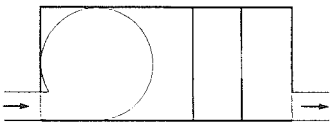
A) For in-line Vortechs Systems without a bypass, sizing criteria is based on providing one square foot of grit chamber surface area for each 100 gpm of peak design storm flow rate (i.e., 10-year storm). For more details about Vortechnics sizing criteria refer to Vortechnics Technical Bulletin 3.

B) Sediment and oil storage volumes assume a 3 foot sump and a 1 foot opening under the oil baffle.

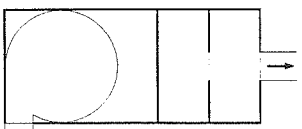
C) The sizing information above is representative of typical Vortechs Systems. Construction details may vary depending on the specific application. Any alterations to the sizing chart specifications will appear on Vortechnics dimensional and shop drawings. Please call Vortechnics for the weight of specific Vortex systems if needed.

Vortechs System Inlet/Outlet Configurations

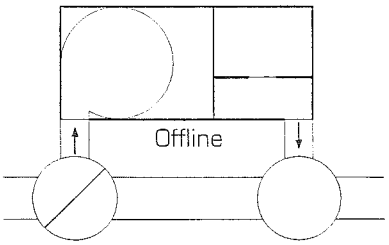
Vortechs Systems can be configured to accommodate various inlet and outlet pipe orientations. The inlet pipe can enter the end or side of the tank at right angles - outlet pipes can exit the end or the side of system at most angles. A side inlet optimizes grit chamber swirling action and is the preferred inlet configuration.

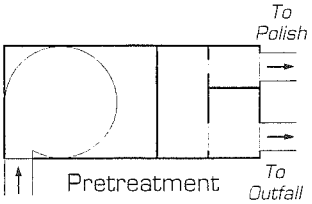


Retrofit



Preferred Standard





Vortechnics

Vortechs™ Stormwater Treatment System: Inspection & Maintenance

The Vortechs System requires minimal routine maintenance; however, it is important that the system be properly inspected and cleaned when necessary in order to function at its best. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, e.g., heavy winter sanding will cause the grit chamber to fill more quickly, but regular sweeping will slow accumulation.

Inspection

Inspection is the key to effective maintenance and it is easily performed. In the first year of operation, frequent inspections of the accumulated sediment volume within the grit chamber are necessary to establish an appropriate maintenance plan. Vortechnics recommends quarterly (e.g. seasonal) inspections during the first year of Vortechs System operation. Inspections should be performed more often in the winter months in climates where street sanding operations may lead to rapid accumulations, or in equipment washdown areas. After the first year, the inspection schedule should be reviewed and modified according to experience. It is very useful to keep a record of each inspection. A simple form for doing so is provided.

For sediment, the Vortechs System only needs to be cleaned when inspection reveals that it is nearly full; specifically, when sediment depth has accumulated to within six inches of the dry-weather water level. This determination can be made by taking 2 measurements with a stadia rod or similar measuring device: one measurement is the distance from the manhole opening to the water surface, and the other is the distance from the manhole opening to the top of the sediment pile. If the difference between the two measurements is less than six inches, the system should be cleaned out. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.

In Vortechs installations where the risk of large petroleum spills is small, liquid contaminants are not likely to accumulate as quickly as sediment. For oil and grease under normal conditions, Vortechs Systems should be pumped out when an appreciable layer of oil has accumulated. Vortechs Systems can be designed to trap catastrophic spill events, providing for oil storage of up to 3 feet.

Cleaning

Cleanout of the Vortechs System with a vacuum truck is generally the most effective and convenient method. Alternate cleanout methods include the use of absorbent materials for oil removal or a "clamshell" device for sediment removal. Cleanout should not occur within 6 hours of a significant rain event, to allow for the entire collection system to drain down.

Properly maintained Vortechs Systems will only require evacuation of sediment and oil/grease from the grit chamber portion of the system, in which case it is necessary to remove only the manhole cover nearest to the system inlet to remove water and contaminants. However, all chambers should be checked to ensure the integrity of the system. In cases where a "clamshell" is being utilized, prior to removing the grit (as described above), absorbent pads or pillows can be placed in the oil chamber through the center access manhole. Once the oil has been absorbed, the absorbent materials can be taken out of the system for disposal.

In some cases, it may be necessary to pump out all Vortechs System chambers. An important maintenance feature built into Vortechs Systems is that floatables remain trapped after a cleaning, due to a waterlock maintained between the grit chamber and the outlet panel which keeps the bottom of the baffle submerged. Therefore, in the event of cleaning all chambers, it is imperative that the grit chamber be drained first. It is important that the Vortechs System be filled to the outlet pipe with clean water to re-establish the water lock.

Manhole covers should be securely seated following cleaning activities to ensure that surface runoff does not leak into the unit from above.

Vortechnics

Vortechs™ Stormwater Treatment System Inspection & Maintenance Log

Model:			Location:		
Date	Depth from Water Surface to Sediment[1] – Max. Depth 6"	Floatable Layer Thickness[2] (approx)	Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement is the distance from the manhole opening to the water surface, and the other is the distance from the manhole opening to the top of the sediment pile. If the difference between the two measurements is less than six inches, the system should be cleaned out.

2. The system should be cleaned out when an appreciable layer of oil and/or other floating material has accumulated.

Vortechnics

Vortechs™ Stormwater Treatment System Inspection & Maintenance Log

Model: 7000			Location: 123 Main Street, Capitol City, USA		
Date	Depth from Water Surface to Sediment [1] – Max. Depth 6"	Floatable Layer Thickness [2] (approx)	Maintenance Performed	Maintenance Personnel	Comments
4/10/96	30"	0"	N/A	B. Johnson	Installed
8/15/96	26"	sheen	None	S. Riley	
11/15/96	22"	sheen	None	B. Johnson	
1/15/97	16"	sheen	None	B. Johnson	
2/15/97	7"	1"	Clean-out scheduled	S. Riley	3 snowstorms
2/18/97	30"	0"	System cleaned w/ Vactor truck	S. Riley	Cleaned
3/15/97	28"	Sheen		S. Riley	swept parking lot
4/15/97	27"	0.5"	Placed oil-absorbent material in system	B. Johnson	
5/16/97	23"	0"	Replaced oil-absorbent material w/new	B. Johnson	

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement is the distance from the manhole opening to the water surface, and the other is the distance from the manhole opening to the top of the sediment pile. Ifthe difference between the two measurements is less than six inches the system should be cleaned out.

2. The system should be cleaned out when an appreciable layer of oil and/or other floating material has accumulated.

REVIEW

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- TRAFFIC STUDIES AND MANAGEMENT
- PERMITTING
- AIRPORT ENGINEERING
- SITE PLANNING
- CONSTRUCTION ADMINISTRATION

June 30, 1999

Ms. Kandice Talbot
Planning Dept.
City of Portland
389 Congress Street
Portland, ME 04101

Re: Forest Avenue Shop 'n Save
Stormwater Treatment Device

Dear Kandi:

As we have discussed on the phone, the contractor for Hannaford Bros. Co. has requested a substitution for a Downstream Defender water quality treatment device by H.I.L. Technology in place of the Vortechnics #9,000. I have previously forwarded their shop drawing submission to Jim Seymour and Tony Lombardo for their review and Jim has issued a response letter dated December 18, 2000. Mr. David Mongeau of H.I.L. Technology has provided a written response to Jim's request for more information dated December 19, 2000, a copy of which you should have received.

With this letter I would like to clarify the original design basis for the treatment device. As you know, the proposed project did not involve any increases in impervious surface; therefore, it was assumed that while it is a permitted Site Development project, the applicant would not be subject to the Department of Environmental Protection Chapter 500 stormwater regulations since these generally apply only to impervious surfaces created after 1998. However, the project would be subject to the City's Section V – Stormwater Management Standards of the Technical and Design Review Standards which state that "Any parking facility for the equivalent of 25 cars or 10 trucks or greater shall be required to provide for on-site treatment to remove contaminants such as oils, grease, sediments and grits from the stormwater runoff."

For the project, it was proposed that a treatment device be installed along the major existing storm drain line serving this project. The site is generally served by two systems, one which drains to the north (serving 1/3 of the site) and the second which drains the majority of the site. The system serving the majority of the site was selected for incorporating a water quality treatment device. Our office determined the existing computed flows carried by the pipe system and provided those to the Vortechnics representatives for use in sizing an appropriate treatment device. I note that the device was not sized to meet a Sliding Scale method standard of 80% TSS removal for the entire site since, 1) the Chapter 500 regulations state that new construction on an impervious area created prior to July 1, 1997 is not counted when determining the amount of impervious area on a parcel, and 2) per Chapter 500 subsection 4.B(2) and 4.A(1)(b) which state that only projects located in the direct watershed of a coastal wetland most at risk must meet the

sliding scale TSS standard. The Shop 'n Save site discharges to Back Cove, which is not a watershed of a coastal wetland most at risk. The water quality treatment device, however, was sized to accommodate the existing pipe system and its computed flows and to provide treatment in accordance with the local standard.

We have reviewed the supporting data from H.I.L. Technology and conclude that they have provided sufficient information to support the 8' diameter Downstream Defender as a suitable substitution for water quality treatment. We look forward to your review, as well as Jim Seymour's and Tony Lombardo's regarding these matters so that work may continue in a timely manner.

If you have any questions, please call.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/ajs/JN1827/Talbot12-19

Enclosures

Attachments

c: Bill McKenney, Hannaford Bros. Co.
Bruce Brown, Shaw Bros. Construction
Jim Seymour, Sebago Technics
Tony Lombardo, City of Portland
David Mongeau – H.I.L. Technology

H.I.L. TECHNOLOGY, INC.
94 Hutchins Drive
Portland, ME 04102

PHONE (207) 756-6200
FAX (207) 756-6212
TOLL FREE 1-800-848-2706
E-MAIL: hiltech@hil-tech.com

H.I.L. TECHNOLOGY INC. ™

December 19, 2000 H.I.L. Ref. 2000/297

Steve Bushey
DeLuca-Hoffman Associates, Inc.
778 Main St.
Suite 8
South Portland, ME 04106

RE: Shop 'n Save Expansion – Portland, ME

Dear Steve:

This letter is written to address questions raised by Mr. James Seymour of Sebago Technics, Inc., regarding the proposed use of an 8-ft diameter Downstream Defender on the Shop 'n Save site on Forest Avenue in Portland.

The submittal information provided was based upon a performance comparison to the Vortechs 9000 due to a lack of site specific flow information at the time the package was prepared. It was assumed that the specified device is capable of meeting the regulatory requirements for water quality. Therefore, the substitute treatment device was sized to provide performance that is at least equivalent to the specified treatment device, to ensure that the regulatory requirements would still be met. I have also included a letter from MDEP referencing the substitution of three Downstream Defenders for three Vortechnics units on a recent project. The 8-ft diameter Downstream Defender referenced in the letter was substituted for a Vortechs 11000 on the Christmas Tree Shop project, making the substitution for a Vortechs 9000 on the Shop 'n Save project a more conservative alternative.

Having now received design flow information, sizing of the structure as it relates to MDEP regulations can be addressed. The standard for applications prior to October 1, 2000, states that "the system's size must be designed for the flow due to the 2-month peak intensity." Based upon a 25-year storm flow of 23.74 cfs for this particular site, the flow from a 2-month storm can be estimated to be 2.97 cfs (23.74 cfs/8). For applications prior to October 1, 2000, MDEP accepts sizing of the Downstream Defender where the 2-month flow is not greater than the design flow as stated on the Downstream Defender Design Chart (attached) . The design flow for an 8-ft diameter unit is 7 cfs. Additionally, I have attached a copy of a removal efficiency curve for the Downstream Defender indicating a removal efficiency of 97% for all particles with a

specific gravity of 2.65 down to 150 microns in size, and an overall removal efficiency of 93% at this 2-month flow. Please note that this methodology is consistent with the original sizing and selection of the Vortechs 9000 unit. Vortechnics literature states that the flow from the 2-month storm should not exceed 24 gpm/sq.ft. of grit chamber area. For a model 9000, this value would equal 3.4 cfs.

Any recommended physical changes to the storm drain system based on the use of the Downstream Defender are intended to present no adverse impact on the original drainage system design. In regard to the revised weir elevation, it is common practice to bypass the treatment structure at a flow rate approaching the hydraulic capacity of the stormwater treatment device, while avoiding any adverse impacts to the upstream system, such as possible flooding. The maximum flow diverted to the treatment structure is primarily based on the weir height combined with the size of the inlet pipe. Even with a reduction in inlet pipe size from 21" to 18", the Downstream Defender exhibits lower headloss than the specified Vortechs unit. Because of the reduced headloss, the recommended weir height is 6" lower than that originally proposed. Therefore, the weir creates less of an impact on the overall storm drain system. While we believe our recommendations follow sound guidelines, there is some flexibility in the actual placement of the weir height.

I trust that this additional information properly documents that the substitution of an 8-ft diameter Downstream Defender is appropriate for this particular site. If you any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

David Mongeau
Regional Sales Engineer

Cc: Kandi Talbot – City of Portland
Tony Lombardo – City of Portland
Bruce Brown – Shaw Bros.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S. KING, JR.
GOVERNOR

MARTHA KIRKPATRICK
COMMISSIONER

April 29, 2000

Pamela Deahl
H.I.L. Technology, Inc.
94 Hutchins Drive
Portland, Me 04102

Dear Pam:

This letter is a follow-up to today's meeting concerning your request to install Downstream Defender stormwater flow-through treatment systems at the Christmas Tree Shop Plaza in Scarborough.

Eighty percent TSS removal is required to meet the quality standards under the Stormwater Law for this project and 3 Vortechnic units were sized to provide treatment for the calculated flow rate. However, based on today's discussion, we came to the conclusion that, if appropriately sized, Downstream Defender systems would provide comparable results. Thus, 2 Downstream Defender units with a 6 foot diameter and one Downstream Defender unit with a 8 foot diameter can substitute the originally specified systems and can be installed at this project without further delay.

The project applicant will need to file a formal request for modification with Doug Burdick, the DEP project manager. We will not, however, require additional system data and by means of this letter do authorize a revision to the plan as described above.

If you need additional information or clarification concerning this document, please contact me at (207) 287-2111.

Sincerely,

David Van Wie, Director
Bureau of Land and Water Quality

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 760-3167

Downstream Defender™ Design Chart (Imperial)

UNIT DIAMETER (feet)	DESIGN FLOW[1]/ CAPACITY[2] (cfs)	(gpm)	INLET PIPE DIAMETER (inches)	OUTLET PIPE DIAMETER (inches)	HEADLOSS[3] @ DESIGN FLOW (inches)	HEADLOSS @ CAPACITY (inches)	WEIGHT FULL (lbs)	WEIGHT EMPTY[4] (lbs)	OIL STORAGE CAPACITY (gallons)	SEDIMENT STORAGE CAPACITY (cubic yards)	UNIT DIAMETER (feet)
4	0.75/3.0	330/1,350	8	12	<2	28	13,200	10,000	70	0.70	4
6	3.00/8.0	1,350/3,590	12	18	<5	39	32,800	22,400	230	2.10	6
8	7.00/15.0	3,140/6,730	16	24	<6	27	63,000	39,000	525	4.65	8
10	13.0/25.0	5,830/11,220	24	30	6	24	140,300	94,000	1,050	8.70	10

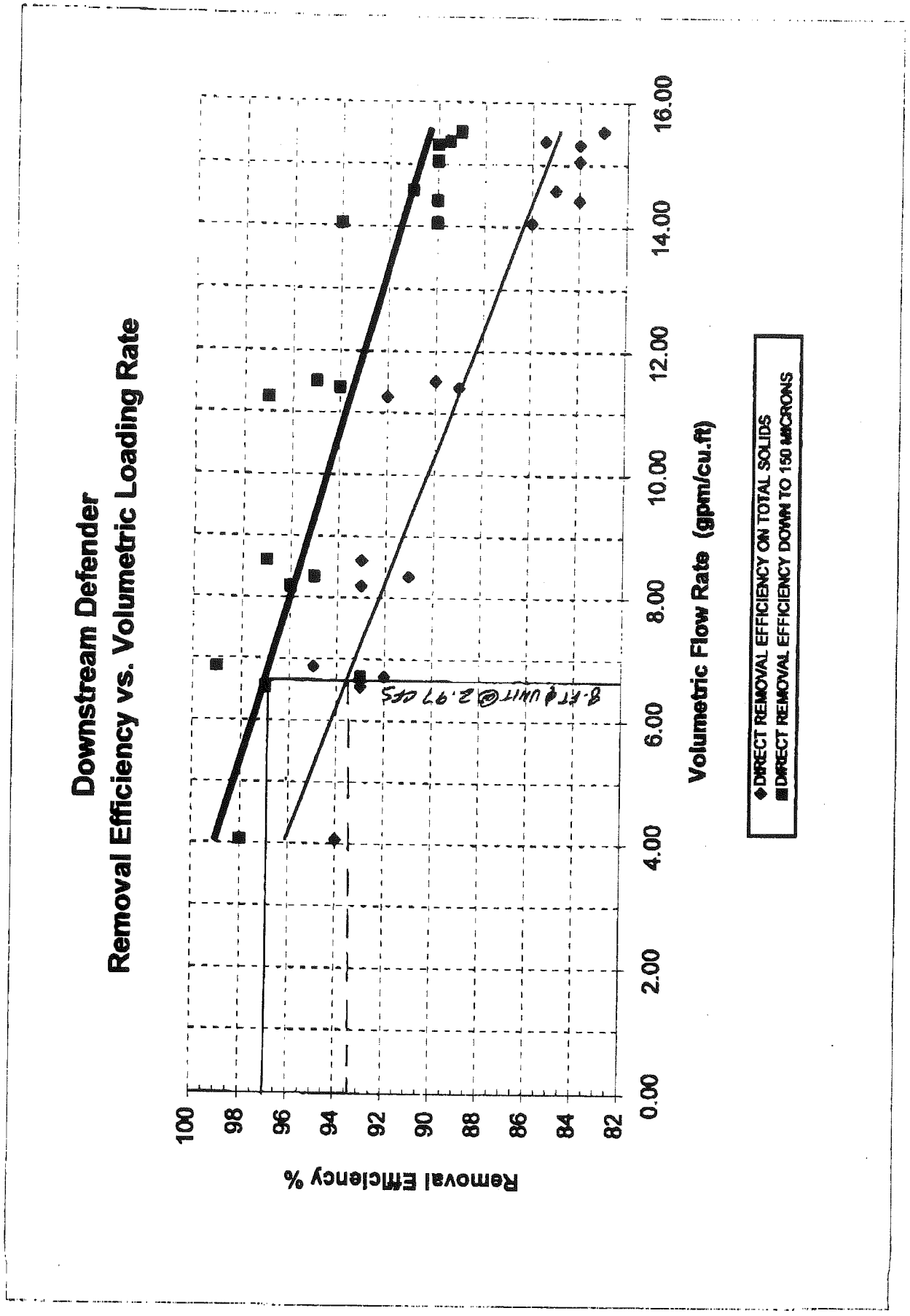
NOTES:

1. Design flow is based on 90% removal of all particles with specific gravity of 2.65 down to 150 microns, 84% overall removal efficiency.
2. Capacity flow rate is based on keeping headloss and removal efficiencies within a desirable range with a standard inlet pipe. Higher flow rates are possible if lower removal efficiciencies and higherheadlosses are acceptable.
3. Headloss is defined as the difference between the top water level upstream and the top water level downstream of the unit. Reducing headloss is possible by increasing the inlet pipe diameter.
4. Weights are calculated with internal components. Support frame, ledger angles, and mounting hardware are 304 stainless steel. Benching skirt, center cone and shaft, and dip plate are available in copolymer polypropylene or HDPE.

- AutoCAD drawings and Microsoft Word specifications available on disk.
- For pricing, delivery, and custom design, please call H.I.L. Technology, Inc., Proposal Engineering Department.

H.I.L. TECHNOLOGY, INC., 94 Hutchins Drive, Portland, ME 04102 • (207) 756-6200 • (207) 756-6212 (Fax) • E-mail: hiltech@hil-tech.com

H.I.L. TECHNOLOGY INC.™


Downstream Defender
Removal Efficiency vs. Volumetric Loading Rate
Removal Efficiency %
100
98
96
94
92
90
88
86
84
82
Volumetric Flow Rate (gpm/cu.ft)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
8-FT ϕ UNIT @ 2.97 CFS
◆DIRECT REMOVAL EFFICIENCY ON TOTAL SOLIDS
■DIRECT REMOVAL EFFICIENCY DOWN TO 150 MICRONS

Sebago Technics

Engineering & Planning for the Future

December 21, 2000
99280

Kandi Talbot, Planner
Planning and Urban Development
City of Portland
389 Congress Street
Portland, ME 04101

Forest Avenue Shop 'n Save, Stormwater Treatment System

Dear Kandi:

I have reviewed the latest round of information and letters submitted by DeLuca-Hoffman dated December 19, 2000. Steve Bushy makes several references to the Chapter 500 Stormwater Law and Site Location of Development Law, and the non-jurisdiction of those requirements, with which we agree. The difficulty is to interpret the City's Ordinance, which Steve also references, regarding treatment of new parking areas in excess of 25 spaces.

We mentioned the TSS sliding scale because of the past standard which has been imposed by DeLuca-Hoffman Consulting Engineers for stormwater quality when reviewing projects as the City's Engineer. However, one interesting point that Steve mentions is that the area to be treated is significantly greater than the area of the site representing the general improvements. This, I believe, is the strongest point. Since the City's standards are loose for interpretation, we feel that it is in the best interest of Shop 'n Save, the owner, and the City of Portland to look at the larger picture with common sense. They are proposing to treat an area that currently has no treatment (2/3 the entire parcel) and are required to treat an area much smaller than that proposed (approximately 1/5 of the entire lot). So, the issue is the City's standards and their interpretation, and not with Shop 'n Save's intent.

The loading rate and runoff capacity used for TSS removal with both the Vortechnics and H.I.L.'s treatment tank appears to be at the discretion of DeLuca-Hoffman, the design engineers. For the purpose of construction schedules and Shop 'n Save's intent to improve their runoff into the environment, I believe either product would have been initially acceptable. The problem is that the Vortechnics 9000 was specified originally. Therefore the H.I.L. system must equal the performance of the Vortech's system. In other words the Vortechnics 9000 system claimed performance becomes the standard which must be met by the H.I.L. 8' Downstream Defender to become the equal.

Our difficulty is that both manufacturers claim removal efficiencies based on their own individual test data. In conversations with the MDEP, test data should be based on small sediment particle sizes, particularly the sediment 150 microns or smaller. The size distribution of the overall sample appears to be a point of contention and confusion by each manufacturer.

So to conclude we feel that since both manufacturers have a vested interest in this decision we have requested each to submit the following data for an equal evaluation.

1. Provide efficiency removal percentages of a 150 micron and a 50 micron sediment sample using the selected model and design flow rate.

2. Provide calculations using the design flow rate, the optimum loading rate (24 gpm/sf), to determine the swirl chamber area and diameters.

3. Provide the maximum handling capacity (cfs) of the selected system based on an offline installation.

4. Provide results on testing or field measurements of the maximum settling velocity of the system, in the selected model during a 25 year storm event.

5. Please list storage volumes for grit/sediment and oil/grease. Also provide a suggested or average cleaning or maintenance schedule for an installation based on the watershed area or flow rate of this project.

If the above standards are equal or are exceeded by the H.I.L. unit to those of the Vortechnics unit then the substitution will be approved along with plans indicating the necessary revisions and additions. The final plan shall show the necessary piping system elevations, the type of tank system installed, and list the parameters by which it is chosen. Those parameters should include the treatment watershed area, design storm size and flow rate, and design storm removal efficiency.

Once the system's selected performance is documented and plans revised, it will be acceptable to proceed with construction using the substituted system. In the future, we hope the City can design a policy or regulation which will not allow the approved design treatment parameters to be revised or substituted using different techniques or system modeling. Additionally, we feel that the City needs to provide clearer standards and/or intent for the stormwater quality instead of leaving this arbitrary design with individual engineers. As you have seen, with no specific standards in place and requesting that the applicant follow DEP guidelines is a problem in that DEP standards apply for their impervious area thresholds or waterbodies and not the City's more stringent area/spacing requirements.

In the interim, we believe that the applicant (Shop 'n Save) has provided a substantial improvement with their stormwater quality and may proceed with the substituted system providing the information requested be equal or exceed that of the original approved treatment system.

Please call me if you have any questions or comments.

Sincerely,

SEBAGO TECHNICS, INC.

James R. Seymour

James R. Seymour
Project Engineer

JRS:jc/dlf

cc: Steve Bushey, P.E., DeLuca-Hoffman
Tony Lombardo, P.E., City of Portland
Tom Gorrivan – Vortechnics, Inc.
David Mongeau – H.I.L. Technology

H.I.L. TECHNOLOGY, INC.
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TOLL FREE 1-800-848-2706
E-MAIL: hiltech@hil-tech.com

H.I.L. TECHNOLOGY INC. ™

December 19, 2000

H.I.L. Ref. 2000/297

Steve Bushey
DeLuca-Hoffman Associates, Inc.
778 Main St.
Suite 8
South Portland, ME 04106

RE: Shop 'n Save Expansion – Portland, ME

Dear Steve:

This letter is written to address questions raised by Mr. James Seymour of Sebago Technics, Inc., regarding the proposed use of an 8-ft diameter Downstream Defender on the Shop 'n Save site on Forest Avenue in Portland.

The submittal information provided was based upon a performance comparison to the Vortechs 9000 due to a lack of site specific flow information at the time the package was prepared. It was assumed that the specified device is capable of meeting the regulatory requirements for water quality. Therefore, the substitute treatment device was sized to provide performance that is at least equivalent to the specified treatment device, to ensure that the regulatory requirements would still be met. I have also included a letter from MDEP referencing the substitution of three Downstream Defenders for three Vortechnics units on a recent project. The 8-ft diameter Downstream Defender referenced in the letter was substituted for a Vortechs 11000 on the Christmas Tree Shop project, making the substitution for a Vortechs 9000 on the Shop 'n Save project a more conservative alternative.

Having now received design flow information, sizing of the structure as it relates to MDEP regulations can be addressed. The standard for applications prior to October 1, 2000, states that "the system's size must be designed for the flow due to the 2-month peak intensity." Based upon a 25-year storm flow of 23.74 cfs for this particular site, the flow from a 2-month storm can be estimated to be 2.97 cfs (23.74 cfs/8). For applications prior to October 1, 2000, MDEP accepts sizing of the Downstream Defender where the 2-month flow is not greater than the design flow as stated on the Downstream Defender Design Chart (attached) . The design flow for an 8-ft diameter unit is 7 cfs. Additionally, I have attached a copy of a removal efficiency curve for the Downstream Defender indicating a removal efficiency of 97% for all particles with a

specific gravity of 2.65 down to 150 microns in size, and an overall removal efficiency of 93% at this 2-month flow. Please note that this methodology is consistent with the original sizing and selection of the Vortechs 9000 unit. Vortechnics literature states that the flow from the 2-month storm should not exceed 24 gpm/sq.ft. of grit chamber area. For a model 9000, this value would equal 3.4 cfs.

Any recommended physical changes to the storm drain system based on the use of the Downstream Defender are intended to present no adverse impact on the original drainage system design. In regard to the revised weir elevation, it is common practice to bypass the treatment structure at a flow rate approaching the hydraulic capacity of the stormwater treatment device, while avoiding any adverse impacts to the upstream system, such as possible flooding. The maximum flow diverted to the treatment structure is primarily based on the weir height combined with the size of the inlet pipe. Even with a reduction in inlet pipe size from 21" to 18", the Downstream Defender exhibits lower headloss than the specified Vortechs unit. Because of the reduced headloss, the recommended weir height is 6" lower than that originally proposed. Therefore, the weir creates less of an impact on the overall storm drain system. While we believe our recommendations follow sound guidelines, there is some flexibility in the actual placement of the weir height.

I trust that this additional information properly documents that the substitution of an 8-ft diameter Downstream Defender is appropriate for this particular site. If you any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

David Mongeau
Regional Sales Engineer

Cc: Kandi Talbot – City of Portland
Tony Lombardo – City of Portland
Bruce Brown – Shaw Bros.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AUGUSTUS S. KING, JR.
GOVERNOR

MARTHA KIRKPATRICK
COMMISSIONER

April 29, 2000

Pamela Deahl
H.I.L. Technology, Inc.
94 Hutchins Drive
Portland, Me 04102

Dear Pam:

This letter is a follow-up to today's meeting concerning your request to install Downstream Defender stormwater flow-through treatment systems at the Christmas Tree Shop Plaza in Scarborough.

Eighty percent TSS removal is required to meet the quality standards under the Stormwater Law for this project and 3 Vortechnic units were sized to provide treatment for the calculated flow rate. However, based on today's discussion, we came to the conclusion that, if appropriately sized, Downstream Defender systems would provide comparable results. Thus, 2 Downstream Defender units with a 6 foot diameter and one Downstream Defender unit with a 8 foot diameter can substitute the originally specified systems and can be installed at this project without further delay.

The project applicant will need to file a formal request for modification with Doug Burdick, the DEP project manager. We will not, however, require additional system data and by means of this letter do authorize a revision to the plan as described above.

If you need additional information or clarification concerning this document, please contact me at (207) 287-2111.

Sincerely,

David Van Wie, Director
Bureau of Land and Water Quality

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 764-1507

Downstream Defender™ Design Chart (Imperial)

UNIT DIAMETER (feet)	DESIGN FLOW/ CAPACITY[2] (cfs)	(gpm)	INLET PIPE DIAMETER (inches)	OUTLET PIPE DIAMETER (inches)	HEADLOSS[3] @ DESIGN FLOW (inches)	HEADLOSS @ CAPACITY (inches)	WEIGHT FULL (lbs)	WEIGHT EMPTY[4] (lbs)	OIL STORAGE CAPACITY (gallons)	SEDIMENT STORAGE CAPACITY (cubic yards)	UNIT DIAMETER (feet)
4	0.75/3.0	330/1,350	8	12	<2	26	13,200	10,000	70	0.70	4
6	3.00/8.0	1,350/3,590	12	18	<5	39	32,800	22,400	230	2.10	6
8	7.00/15.0	3,140/6,730	18	24	<6	27	63,000	39,000	525	4.65	8
10	13.0/25.0	5,830/11,220	24	30	6	24	140,300	94,000	1,050	8.70	10

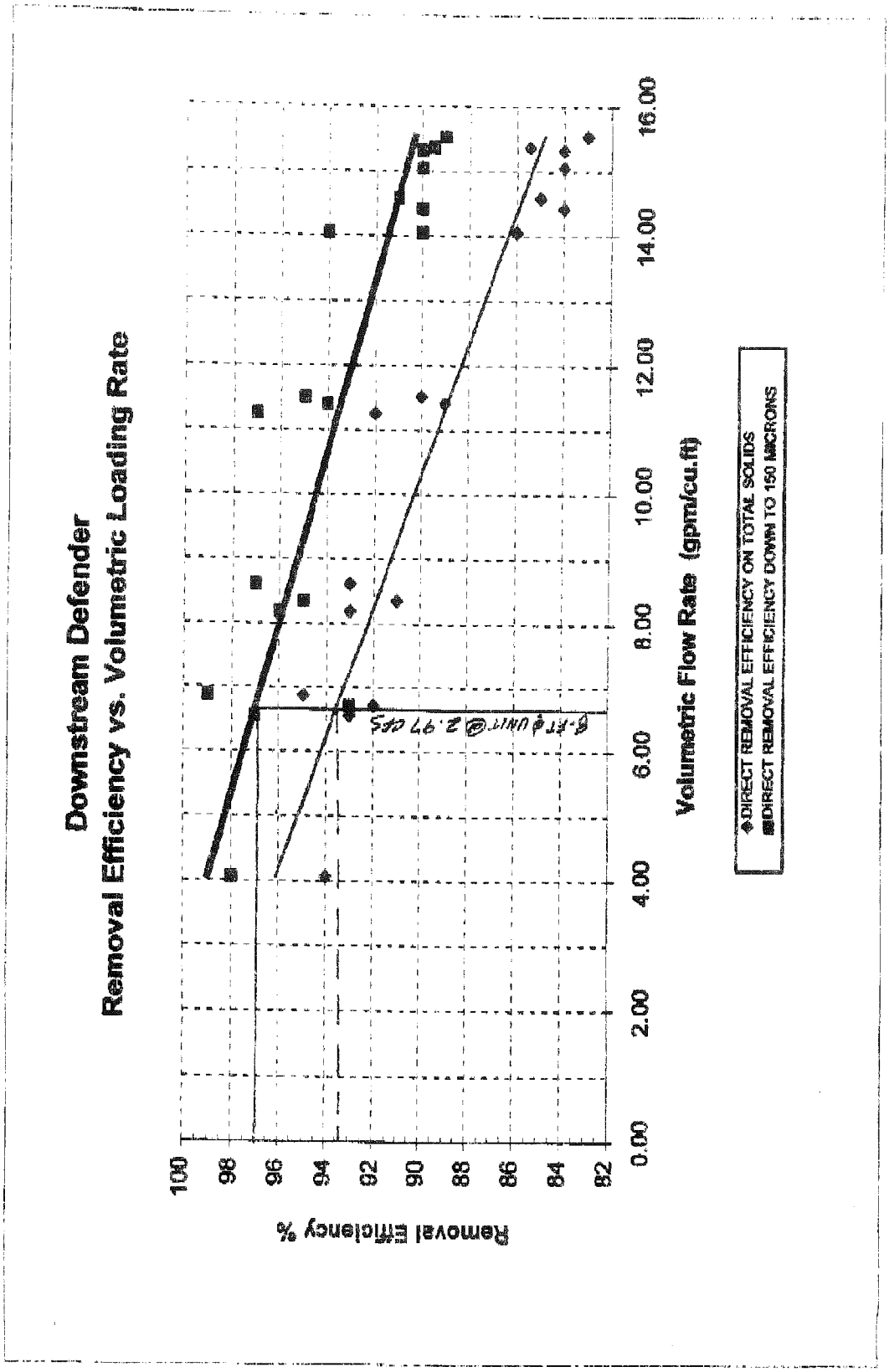
NOTES:

1. Design flow is based on 90% removal of all particles with specific gravity of 2.65 down to 150 microns, 84% overall removal efficiency.
2. Capacity flow rate is based on keeping headloss and removal efficiencies within a desirable range with a standard inlet pipe. Higher flow rates are possible if lower removal effciciencies and higherheadlosses are acceptable.
3. Headloss is defined as the difference between the top water level upstream and the top water level downstream of the unit. Reducing headloss is possible by increasing the inlet pipe diameter.
4. Weights are calculated with internal components. Support frame, ledger angles, and mounting hardware are 304 stainless steel. Benching skirt, center cone and shaft, and dip plate are available in copolymer polypropylene or HDPE.

- AutoCAD drawings and Microsoft Word specifications available on disk.
- For pricing, delivery, and custom design, please call H.I.L. Technology, Inc., Proposal Engineering Department.

H.I.L. TECHNOLOGY, INC., 94 Hutchins Drive, Portland, ME 04102 • (207) 756-6200 • (207) 756-6212 (Fax) • E-mail: hiltech@hil-tech.com

H.I.L. TECHNOLOGY INC.


Downstream Defender
Removal Efficiency vs. Volumetric Loading Rate
Removal Efficiency %
100
98
96
94
92
90
88
86
84
82
Volumetric Flow Rate (gpm/cu.ft)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
6-FT ϕ UNIT @ 2.97 CFS
DIRECT REMOVAL EFFICIENCY ON TOTAL SOLIDS
DIRECT REMOVAL EFFICIENCY DOWN TO 150 MICRONS

Downstream Defender
Sample Calculations

Treatment Volume

The treatment volume for each size Downstream Defender is defined as the space between the top of the sloping part of the benching skirt and the invert of the outlet pipe. See general arrangement drawing GA1.

For a 6-ft Ø unit the treatment volume equals:

6-FT Ø UNIT, TREATMENT VOLUME EQUALS 201.1 FT³

$V = \Pi r^2 h$ or Πr^3

r = h = radius of treatment unit or distance between top of sloping part of benching skirt and the invert of the outlet.

$V = 3.14 \times 3^3 = 84.8\ ft^3$

Volumetric Loading Rate

The volumetric loading rate is simply the flow rate in gpm divided by the treatment volume.

$$VLR = \frac{3.0 cfs \times 448.831 gpm/cfs}{84.8 ft^3}$$

$$= 15.9\ gpm/ft^3$$

Downstream Defenders will operate at 90% or higher removal efficiency (on particles with s.g. of at least 2.65 and diameters equaling or exceeding 150 microns) at volumetric loading rates equal to or less than 16.0 gpm/ft^3. The overall removal of all particle sizes at 16.0 gpm/ft^3 is 84%. At higher flow rates the efficiency decreases and at lower flow rates the removal efficiency increases. Refer to Removal Efficiency vs. Flow graph.

Sebago Technics
Engineering & Planning for the Future

December 18, 2000
99280

Ms. Kandi Talbot
Planning & Urban Development
City of Portland
389 Congress Street
Portland, ME 04101

Forest Avenue Shop 'n Save, Stormwater Treatment Substation

Dear Kandi:

I received the DeLuca-Hoffman package submittal on behalf of Steve Bushey for the substitution of an 8' HIL Downstream Defender for a Vortechnics Model 9000. Based on the documents submitted and experience working with stormwater treatment structures, I find the material inconclusive. It appears, by our review of the material, that this is more of a sales campaign and statistical argument against Vortechnics than proof that the choice is acceptable.

Due to the site having a previous DEP Site Location approval and given that the City of Portland has delegated authority, it should be maintained that the system chosen abide by City stormwater standards. However, the City's Ordinance refers to Best Management Practices as published by MDEP. Therefore, it should be fairly simple to determine if the system is acceptable. The site should have been required (as have other site plan applications within Portland) to abide by the TSS Sliding Scale Method for TSS removal which, we believe, will require 80% removal. In the past few months, these treatment system manufacturers have been involved with a revised evaluation by DEP to address sizing and treatment efficiencies. We feel that, since this application's standards predate the above October 1, 2000 re-evaluation, the tank manufacturer needs to provide an MDEP evaluation from before October 1, 2000 which documents the allowed performance removal efficiency of the tank. This should not be lower than the necessary removal efficiency required as calculated through the Sliding Scale method using a design storm of a 2-year magnitude.

To further clarify any functional changes due to the revised weir elevations or invert elevations of the substituted system, you should re-evaluate the storm drain system's capacity (especially with the reduction of a 21" to an 18" diameter pipe from CB-3). It would also be beneficial if they verified the required removal efficiency from the Sliding Scale Method. We believe that, since this is a DEP modification or amendment, the standards mentioned should be instituted as it would also be required by the City's Ordinance since 25 or more new parking spaces were created.

As you are aware, these manufacturers utilize different methods and statistics to justify their installations. The only fair way we can conclude the substitution is legitimate is to involve the DEP rating system or request DEP's direct assistance. Hopefully, DEP will determine in the near future a standard by which these manufactured systems can be equally evaluated to eliminate this confusion for design engineers.

Please feel free to contact me if you have questions In the interim, I will send copies to Tony Lombardo, PE of Public Works in case he has more expertise with this matter and may provide some valuable assistance.

Sincerely,

SEBAGO TECHNICS, INC.

James R. Seymour

James R. Seymour
Project Engineer

JRS:jc

cc: Steve Bushey, P.E., DeLuca-Hoffman
Tony Lombardo, P.E., City of Portland

DeLUCA-HOFFMAN ASSOCIATES, INC.
Consulting Engineers
778 Main Street
Suite 8
SOUTH PORTLAND, MAINE 04106

(207) 775-1121
FAX (207) 879-0896

LETTER OF TRANSMITTAL

TO Sebago Technics

DATE	JOB NO.
12/12/00	1827

ATTENTION Jim Seymour

RE: Forest Ave Shop N Save
Portland, ME

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Shop Dwg for Downstream Defender

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Jim

Show Bros has submitted a shop drawing for an 8' dia. downstream defender as an alternate for the Model 900 Vortechnics water quality treatment device. This office has approved the submittal, however, we request your review as part of the Planning Dept review. Please give me a call if you have any questions.

COPY TO Kandi Talbot - Planning - City of Portland

SIGNED: Steve Bushey

If enclosures are not as noted, kindly notify us at once.

(1827/45)

Transmittal Cover Sheet

John A. Russell Corporation
Shop 'N Save - Forest Avenue Expansion
003013
P O Box 1728
Portland, ME 04104

to Deluca Hoffman

Transmitted To	Date	Reference Number	Transmitted For	Transmitted By
Andy Boyt Hannaford Bros Co. 145 Pleasant Hill Road Scarborough, ME 04074 Tel: 207 885-2786 Fax: 207 885-2192	11/16/2000	0010	Approval	Hand

Qty	Item	Description	Notes
4	Shop Drawing	Downstream Defender	2605-01
5	Shop Drawing	Reinforcing Steel	3300-01 (R01)

Remarks	Copies To

Submitted By: Michael D. Costain

H.I.L. TECHNOLOGY, INC.
94 Hutchins Drive
Portland, ME 04102

PHONE (207) 756-6200
FAX (207) 756-6212
TOLL FREE 1-800-848-2706
E-MAIL: hiltech@hil-tech.com

#4
11/27/45

H.I.L. TECHNOLOGY INC. ™

November 14, 2000

H.I.L. Ref. 2000/297

Bruce Brown
Shaw Brother's Construction
511 Main St.
Gorham, ME 04038

RE: Downstream Defender Submittal (shop drawings) for the Shop 'n Save Expansion - Portland, ME

Dear Mr. Brown:

We have enclosed shop drawings of the 8-ft diameter Downstream Defender proposed as an equivalent to the Vortechs model 9000 specified for the Shop 'n Save Expansion in Portland, ME. This submittal package includes supporting documentation as outlined in the Table of Contents and ancillary documents such as installation instructions and an O&M manual.

Site Information

Please refer to drawing GA2 and the marked up photocopy of the site plan.

We have proposed placing an 8-ft dia. Defender approximately 6' o.d to o.d on the Preble St. Ext. side of DMH5. We have configured the system so that the Defender's overflow pipe will enter DMH5 approximately perpendicular to the 21" storm main. Similar to the Vortechs proposal, a weir wall with an effective length of 5 feet in CB3 would divert flow to the Defender for treatment. **It is very important that the contractor notify H.I.L. Technology as soon as possible if separator system cannot be laid out as shown by the enclosed shop drawings. The drawings can be modified accordingly to ensure that the Defender is fabricated to fit the location properly.** Apart from the location of the unit, we have also made a few minor recommendations that we would like to make you aware of:

- Because of lower head losses through the Defender, we have recommended lowering the weir crest elevation in CB3 from El. 97.0 to El. 96.5.

- We have proposed running an 18" pipe to the unit from CB3 rather than a 21" pipe. As the Defender has a submerged inlet, we have also recommended dropping the inlet elevation at the Defender from El. 94.35 to El. 92.85.

- As an 8-ft Defender has a standard 24" overflow pipe stub, we have proposed running a 24" pipe rather than 21" pipe from the Defender to DMH5.

- Please note that as a result of locating the Defender adjacent to DMH5, CB3 will need to be modified to accommodate the proposed 18" pipe running to the Defender. (The angle of entry will be different than the angle shown by the 6'-0" catch basin detail shown on sheet 6 of the site plan.)

Installation

Please refer to the enclosed installation instructions and dwg GA2.

There are a few important items that we would like to bring to your attention:

- We anticipate that the heaviest pick weight will be approximately 8-9 tons. We recommend that the contractor arrange to have the appropriate gear on hand to offload and place the Defender manhole sections.

- As base thickness and riser heights vary from one precast facility to another, the actual sump elevation may also vary slightly from the elevation shown on the section view (dwg. GA3). As a consequence, H.I.L. Technology recommends that the contractor use the invert of the overflow pipe stub as a reference, rather than the elevation of the sump, when setting the Defender manhole.

- The contractor will need to supply a coupling to connect the Defender's overflow pipe stub to the storm drain system. The overflow pipe stub dimensions are as follows: WQI #1-8-ft Defender: o.d.=24 13/16", i.d.=24 7/16", length=6"

- The inlet pipe will need to enter the Defender manhole so that the i.d. of the inlet pipe is tangent to the inside wall of the manhole. In addition, the inlet pipe will need to be cut off at a 30° inside the Defender manhole.

- Both the inlet and overflow pipes will need to be grouted in with non-shrink grout to ensure a water tight connection.

Sizing an Equivalent Treatment Unit

Removal Efficiency

H.I.L. Technology sizes each Downstream Defender to provide treatment that equals or exceeds the solids removal efficiency of competing flow-through treatment devices. For example, at 7.0 cfs an 8-ft Defender can remove approximately 90% of all sediment with a specific gravity of 2.65 down to 150 microns inclusive (84% removal overall). Please refer to the Removal Efficiency vs. Flow Rate curve in Appendix B. As with any flow-through sedimentation device, as flow rates increase removal efficiencies decrease.

In comparison, Vortechnics' Technical Bulletin No. 4 (see Appendix C) indicates that a Vortechs model 9000 loaded at 7.0 cfs (49.4 gpm per square foot of grit chamber area) will remove approximately 35% of 250 micron grit. (Vortechnics' Technical Bulletin No. 4 explains that removal efficiencies are based on particles with settling velocities of 3 cm/s, which equates to 250 micron particles with a s.g. of 2.65) (See H.I.L. Technology's TSS Technical Note - Appendix A, for additional information.)

Hydraulic Capacity

Manufacturers frequently cite a hydraulic capacity for their units that has very little to do with grit removal efficiency. Rather, the hydraulic capacity is more a function of maintaining reasonable headlosses or minimizing the risk of re-entraining previously captured sediment. An 8-ft dia. Downstream Defender has a recommended hydraulic capacity of 15.0 cfs. Risk of re-entrainment of previously captured sediment is minimal because captured sediment is stored beneath the vortex chamber and flow is directed up and away from the grit sump by the center cone and benching skirt.

In comparison, Vortechnics' recommended peak loading rate is 14.0 cfs (100 gpm per square foot of grit chamber area). At peak flow rates the risk of pollutant re-entrainment may increase as previously captured sediment is stored unprotected within the vortex chamber.

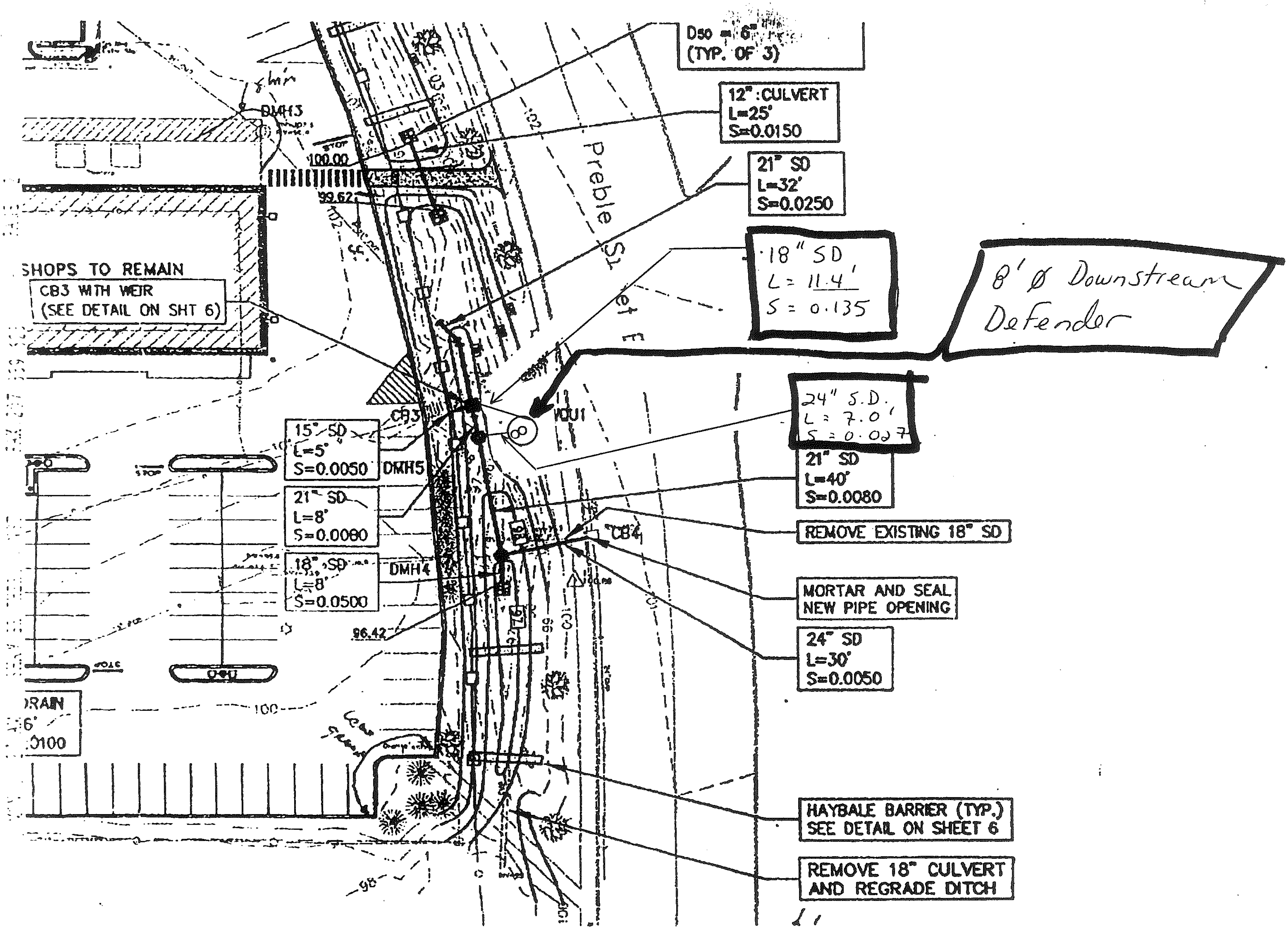
To conclude, we hope that the shop drawings, our recommendations, and the material we have presented to facilitate a comparison of the two units are acceptable. If you have any questions or need further assistance, please do not hesitate to call us. We would be happy to assist you.

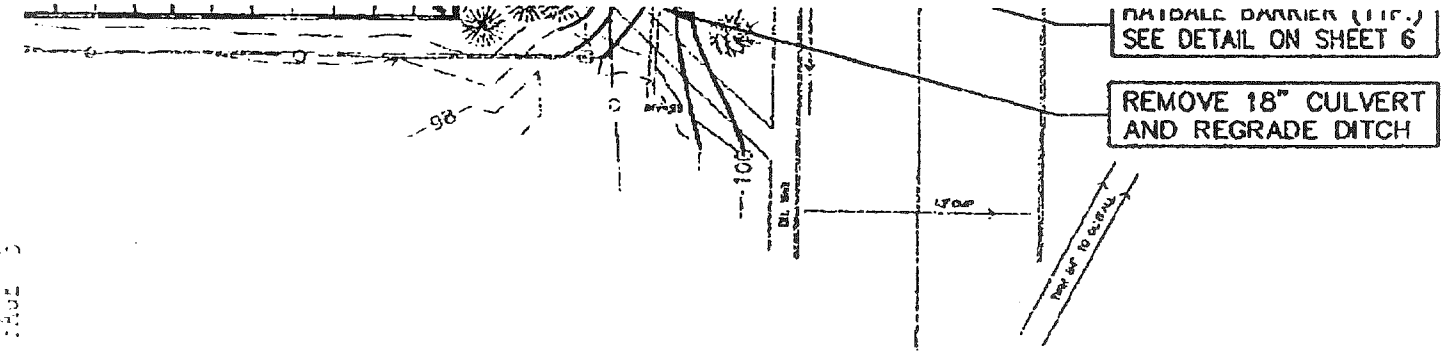
Sincerely,

Mark R Johnston

Mark R. Johnston
Proposal Engineer

TABLE OF CONTENTS


D50 = 6"
(TYP. OF 3)
12" CULVERT
L=25'
S=0.0150
21" SD
L=32'
S=0.0250
18" SD
L = 11.4'
S = 0.135
8' Ø Downstream
Defender
24" S.D.
L = 7.0'
S = 0.027
21" SD
L=40'
S=0.0080
REMOVE EXISTING 18" SD
MORTAR AND SEAL
NEW PIPE OPENING
24" SD
L=30'
S=0.0050
HAYBALE BARRIER (TYP.)
SEE DETAIL ON SHEET 6
REMOVE 18" CULVERT
AND REGRADE DITCH
Preble St
SHOPS TO REMAIN
CB3 WITH WEIR
(SEE DETAIL ON SHT 6)
15" SD
L=5'
S=0.0050
DMH5
21" SD
L=8'
S=0.0080
18" SD
L=8'
S=0.0500
DMH4
DMH3
CB3
CB4
VOU1
100.00
99.62
96.42



BID SET

STORM DRAIN APPURTENANCE SCHEDULE

STRUCTURE	SIZE	RIM	INV IN/SIZE(FROM)	INV OUT/SIZE(TO)	STATION	OFFSET
CB1(EXIST)	4'ø	99.2	95.08/15"(DMH1)	95.0/15"(EXIST SD)	–	–
CB2	4'ø	98.93	–	95.97/8"(DMH1)	–	–
CB3	6'ø	98.60	95.50/21"(EXIST 21"CMP) 94.52/15"(EXIST SD)	94.39/~~21"(WQU1)~~ 18" 94.39/21"(DMH5)	10+19.74	46.72' LT
CB4(EXIST)	4'ø	100.2	93.50/24"(DMH4) EXISTING	EXISTING	–	–
DMH1	4'ø	EXIST. GRADE	95.87/15"(DMH2) 95.87/8"(CB2)	95.37/15"(CB1)	–	–
DMH2	4'ø	EXIST. GRADE	96.55/15"(BLDG)	96.45/15"(DMH1)	–	–
DMH3(EXIST)	4'ø	102.5	EXISTING	96.4/21"(WQU1)	–	–
DMH4	4'ø	97.40	94.01/21"(DMH5) 94.50/18"(INLET) 93.90/24"(EXIST RCP)	93.65/24"(CB4)	10+75.38	56.58' LT
DMH5	4'ø	EXIST. GRADE	94.26/21"(CB3) 94.16/~~21"(WQU1)~~ 24"	94.06/21"(DMH4)	10+31.52	48.99' LT
WQU1	~~4'x6'~~	EXIST. GRADE	~~94.35/24"~~(CB3)	94.35/~~24"~~(DMH5)	10+24.34	57.58' LT

GRANITE
GRANITE

8' Defender

92.85/18"

24"

IR CONTRACTOR PRICING
OR CLIENT REVIEW
R OWNER REVIEW
R OWNER REVIEW
SC COMMENTS
AND PLANNING

STATE OF MAINE
STEPHEN R. BUSHEY
#7429
REGISTERED PROFESSIONAL ENGINEER

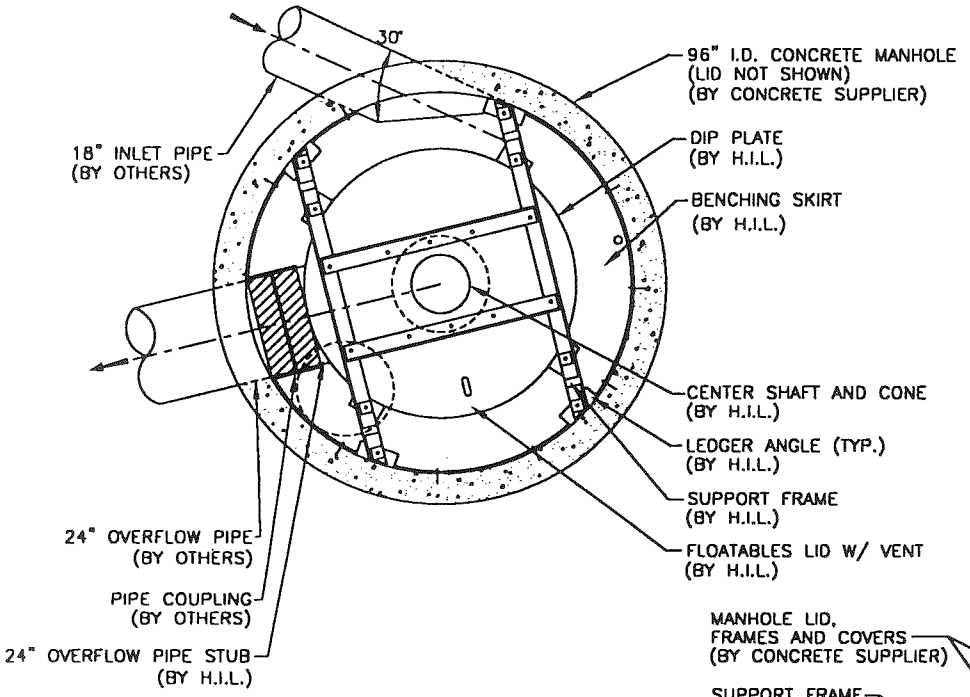
PROJECT
SHOP 'n SAVE EXPANSION
FOREST AVENUE – PORTLAND, ME

SHEET TITLE
GRADING & DRAINAGE PLAN

CLIENT
HANNAFORD BROS. CO.

DeLUCA-HOFFMAN ASSOCIATES, INC.
778 MAIN ST., SUITE 8
SO. PORTLAND, ME 04106
(207) 775-1121

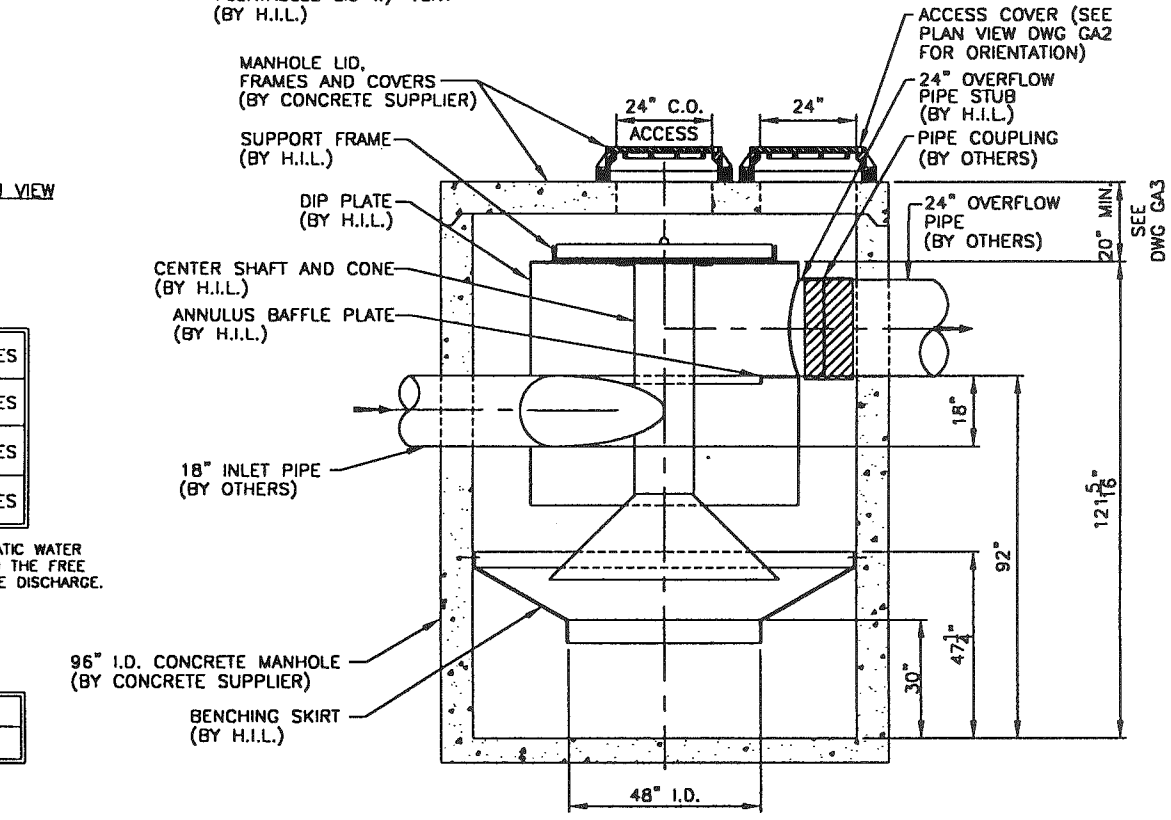
DRAWN:	DB
DESIGNED:	SRB
DATE:	MAY 1999
SCALE:	1"=40'
JOB NO.	1827
SHEET	C-4



PLAN VIEW

COMPONENT MATERIALS LIST

1. CONCRETE–4000 PSI @ 28 DAYS. REINFORCED TO WITHSTAND HS–20 LOADING.
2. FRAMES AND COVERS–CAST IRON FABRICATED TO WITHSTAND HS–20 LOADING.
3. INTERNAL COMPONENTS:
DIP PLATE, CENTER SHAFT AND CONE, BENCHING SKIRT–HDPE OR COPOLYMER POLYPROPYLENE.
SUPPORT FRAME, LEDGER ANGLES AND MOUNTING HARDWARE–304 STAINLESS STEEL.



GENERAL SECTION VIEW

HYDRAULIC PARAMETERS

DEPTH OF FLOW IN OVERFLOW PIPE AT 7.0 cfs	7	INCHES
DEPTH OF FLOW IN OVERFLOW PIPE AT 12.0 cfs	9.4	INCHES
ESTIMATED HEADLOSS* AT 7.0 cfs	6	INCHES
ESTIMATED HEADLOSS* AT 12.0 cfs	17	INCHES

* HEADLOSS IS DEFINED AS THE DIFFERENCE BETWEEN STATIC WATER LEVEL AT THE INLET OF THE DOWNSTREAM DEFENDER TO THE FREE WATER SURFACE IN THE OVERFLOW PIPE, ASSUMING FREE DISCHARGE.

DOWNSTREAM DEFENDER WEIGHT

EMPTY WEIGHT	39,000	Lbs.
OPERATIONAL WEIGHT	63,000	Lbs.

Notes

1. THIS DRAWING IS A LETTER SIZE ORIGINAL.

Rev	By	Date	Description
	MRJ	11/10/00	FIRST ISSUE

Date 11/10/00	Scale 1/4"=1'–0"
Drawn by MRJ	Checked Eng.
Checked Prod.	Approved by

Title

8–FT. DIA. DOWNSTREAM DEFENDER™

SHOP 'N SAVE
PORTLAND, ME

GENERAL ARRANGEMENT

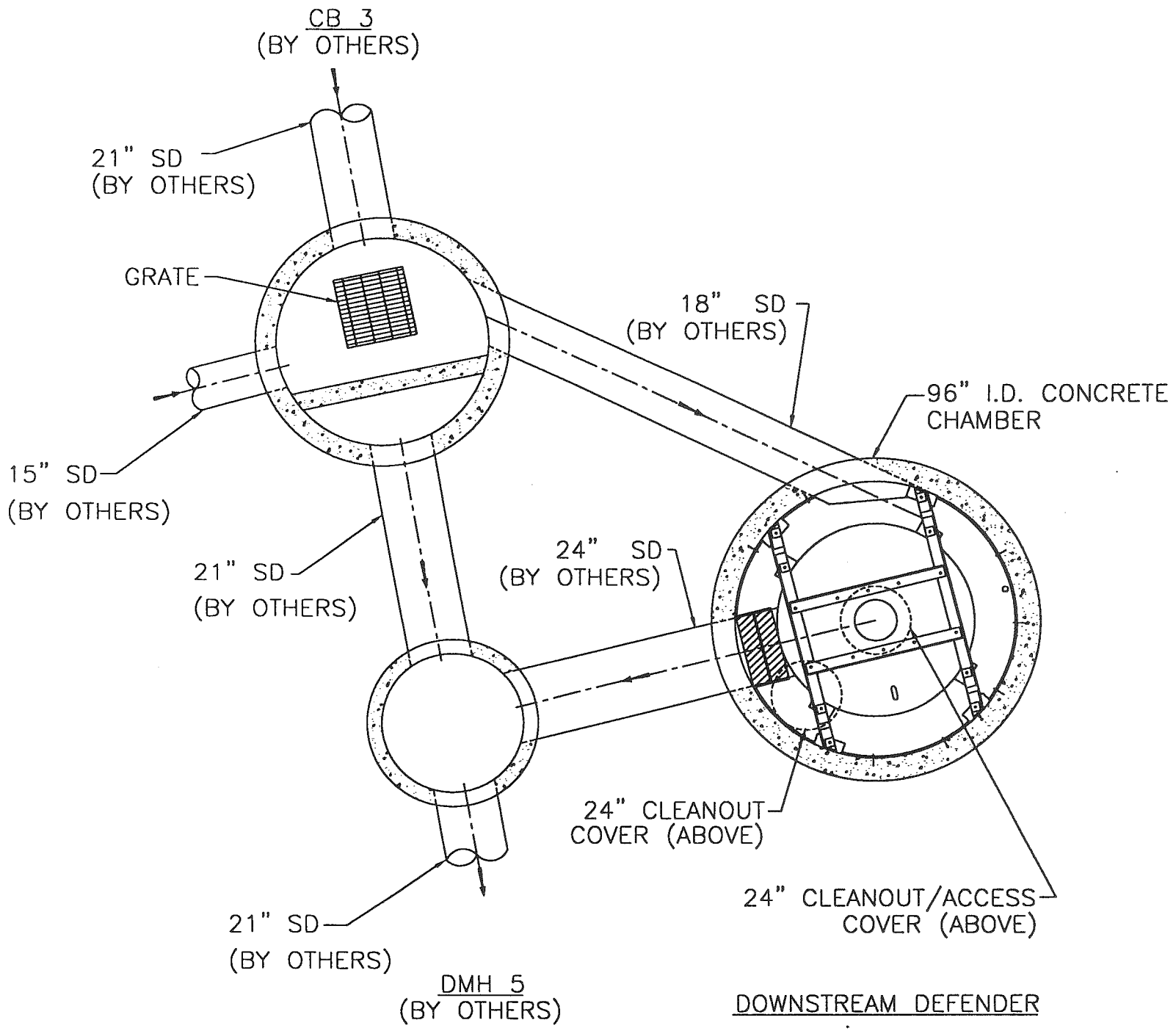
H.I.L. TECHNOLOGY INC.
94 Hutchins Drive
Portland, Maine 04102

TEL – (207) 756–6200
FAX – (207) 756–6212
E–mail: HILTECH@HIL–TECH.COM

CAD Ref: 8GA1A

Wipe No. 2000/297

Drawing No. GA1 Rev.



DOWNSTREAM DEFENDER

Notes
1. THIS DRAWING IS A LETTER SIZE ORIGINAL.

Rev	By	Date	Description
	MRJ	11/10/00	FIRST ISSUE

Date 11/10/00	Scale 1/4"=1'-0"
Drawn by MRJ	Checked Eng.
Checked Prod.	Approved by

Title
8-FT. DIA.
DOWNSTREAM
DEFENDER™

SHOP 'N SAVE
PORTLAND, ME

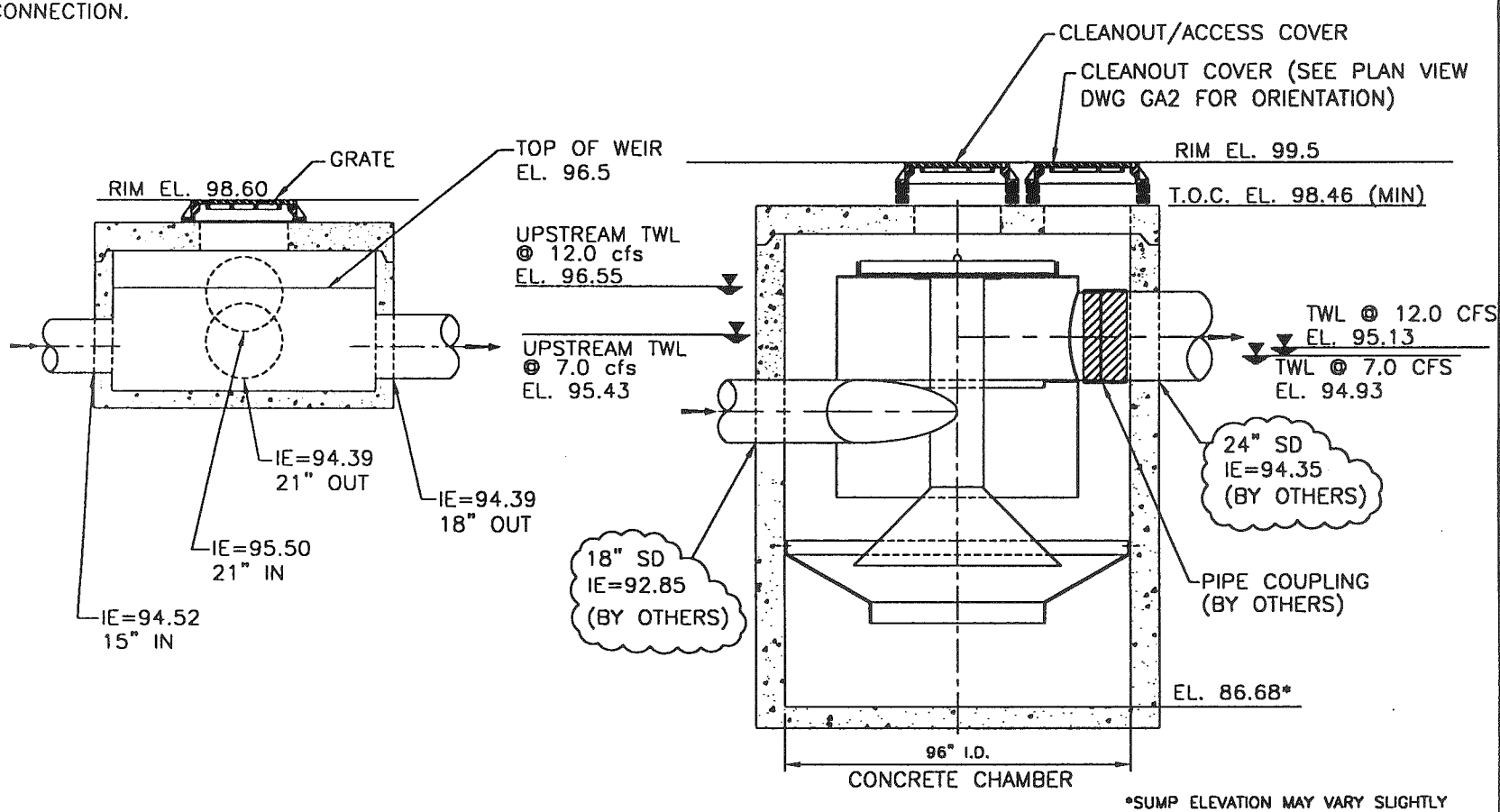
PLAN VIEW

H.I.L. TECHNOLOGY INC.
TM
H.I.L. TECHNOLOGY INC.
94 Hutchins Drive
Portland, Maine 04102
TEL - (207) 756-6200
FAX - (207) 756-6212
E-mail: HILTECH@HIL-TECH.COM

CAD Ref: DDp1
Wipe No. 2000/297
Drawing No. GA2 Rev.

DEFENDER PIPE CONNECTIONS;

1. RECOMMEND RCP OR PVC OVERFLOW PIPE.
2. LARGE DIAMETER COUPLING REQUIRED TO CONNECT OVERFLOW PIPE TO OVERFLOW PIPE STUB. OVERFLOW PIPE STUB DIMENSIONS: O.D.=24 13/16", I.D.=24 7/16", STUB LENGTH=6"
3. INLET PIPE ENTERS UNIT TANGENT TO INSIDE OF DEFENDER MANHOLE. CUT PIPE OFF AT 30° ANGLE. (SEE INSTALLATION INSTRUCTIONS.)
4. GROUT INLET AND OVERFLOW PIPES WITH NON-SHRINK GROUT TO ENSURE A WATERTIGHT CONNECTION.



*SUMP ELEVATION MAY VARY SLIGHTLY FROM ELEVATION SHOWN BY THIS DRAWING. USE ELEVATION OF THE OVERFLOW PIPE STUB AS A REFERENCE WHEN SETTING DEFENDER MANHOLE.

CB 3
(BY OTHERS)

DOWNSTREAM DEFENDER

Notes
1. THIS DRAWING IS A LETTER SIZE ORIGINAL.

Rev	By	Date	Description
	MRJ	11/10/00	FIRST ISSUE

Date 11/10/00	Scale 1/4"=1'-0"
Drawn by MRJ	Checked Eng.
Checked Prod.	Approved by

Title
8-FT. DIA.
DOWNSTREAM
DEFENDER™

SHOP 'N SAVE
PORTLAND, ME

SECTION VIEW

H.I.L. TECHNOLOGY INC.
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CAD Ref: DDp1s
Wipe No. 2000/297
Drawing No. GA3 Rev.

SIZING A FLOW-THROUGH STORM WATER SEPARATION DEVICE ▸

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H.I.L. TECHNOLOGY INC. ™

SIZING A FLOW-THROUGH STORMWATER SEPARATION DEVICE

The removal efficiency of any flow-through sedimentation device depends on the **flow rate** through the device and the **settling velocity of the influent solids**. The settling velocity, in turn, is a function of particle size and particle density, combined with the efficiency of the sedimentation device

Design Flow Rate

The first step in sizing a flow-through stormwater treatment device is to determine the design flow. Flow through treatment systems are typically designed to treat the "first-flush" associated with impervious surfaces in highly urbanized areas. Volume based "first-flush" calculations (based on the first inch or first 1/2-inch of rainfall) are appropriate for detention systems, which are sized to hold a certain volume of rainfall. However, flow-through systems do not detain large volumes of rainfall; they treat stormwater runoff and discharge it. Therefore, the "first-flush" must be defined as the flow rate associated with a rainfall of sufficient intensity and duration to wash the majority of pollutants off of the impervious surfaces and transport them through the storm sewer, to the treatment device. The design storm is typically referred to in terms of a frequency interval or return period (i.e., 6-month, 1-year or 2-year storm). A "first-flush" rainfall intensity (inches per hour), associated with the design storm, must be determined in order to calculate the runoff rate for a particular site.

Settling Velocity of Influent Solids

Stormwater pollutants must be characterized in terms of the settleability of the influent solids (particle size distribution and particle densities). Most states have adopted total suspended solids (TSS) removal requirements as the performance standard used for design purposes. The *TSS Technical Note* included in Appendix A discusses the settleability of TSS in more detail.

Once the first-flush flow rate and the settleability of influent solids have been determined, the device can be sized to provide the required solids removal efficiency at the design flow. Although wet weather discharges are variable, reasonable assumptions can be made to define typical design requirements.

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Downstream Defender - H.I.L. Technology

Appendix B includes the *Downstream Defender Design Chart*, a graph of *Removal Efficiency vs. Volumetric Loading Rate* and *Downstream Defender Sample Calculations*.

The *Downstream Defender Design Chart* indicates the flow rates for 90% removal of all particles with specific gravities of 2.65 down to and including 150 microns. (Most DOT Road Sand particle size distributions specify the majority of sand particles to be larger than 150 microns.) The units have total solids removal efficiency of over 80% at the design flow rates. Higher flows may be passed through the unit, with a small reduction in removal efficiency, to avoid an upstream bypass. The design chart indicates a recommended hydraulic capacity of each unit. Headlosses, based on standard inlet pipe diameters, are also indicated for design and peak hydraulic capacity and should be checked, particularly at the peak design flow of the storm sewer, to determine if major storm flows (beyond the first flush) should bypass the treatment system. Headlosses will be lower than those indicated if larger inlet pipe diameters are used.

Example:

The 6-ft. diameter Downstream Defender can remove 90% of particles down to an including 150 microns with specific gravities of 2.65 at a flow rate of 3 cfs (or a volumetric flow rate of 16 gpm/ft^3). The 6-ft. unit has an overall removal efficiency of all particles with specific gravities of 2.65 of 84% at 3 cfs. As flow rates decrease, retention time increases and the removal efficiencies of all particle sizes increase. As flow rates increase, removal efficiencies decrease. The recommended peak hydraulic flow for a 6-ft. diameter Downstream Defender is 8 cfs. The headloss through a 6-ft diameter unit with a 12-in. diameter inlet pipe is less than 7 inches at 3 cfs and less than 33 inches at 8 cfs. Higher flows through our units are possible if larger headlosses and lower treatment efficiencies are acceptable.

The Downstream Defender has internal components that create a complex but stable three dimensional vortex flow pattern through the unit to maximize solids separation. Storm flows must first swirl around and down the perimeter and then swirl around and upwards inside the dip plate to travel from the inlet pipe to the outlet. As treatment flows increase and Downstream Defender diameters increase, depths also increase. Therefore, sediment removal efficiencies are based on a combination of surface loading rates, volumetric loading rates, and retention rather than simply surface loading rates. Example calculations for determining the loading rate for a 6-ft diameter unit are shown in the attached *Downstream Defender Sample Calculations*.

The graph of *Removal Efficiency vs. Volumetric Loading Rate* shows results of full-scale laboratory performance testing on the Downstream Defender. The tests were conducted on field samples collected in Scarborough, Maine, which had a particle size distribution similar to typical DOT road sand specifications. Data supporting Downstream Defender removal efficiencies is available on request.

Although the Downstream Defender Design chart recommends design flows for each standard size based on an assumed particle size distribution of influent solids, H.I.L. can easily custom size a unit to meet either more or less stringent removal requirements.

Vortechs – Vortechnics

Appendix C contains the following excerpts from Vortechnic's literature: *Specification Chart*, *Technical Bulletin No. 3* and *Technical Bulletin No.4*.

The Vortechs unit employs a two-dimensional flow pattern through a simple sediment chamber with no internal components. Vortechs units do not get deeper as treatment flows and diameters increase. Therefore, the removal efficiencies of Vortechs units are based on surface loading rates.

According to *Technical Bulletin No. 3*, in order to achieve an overall 80%TSS removal efficiency, the Vortechs models must be sized so that the sediment chamber surface-loading rate at the 2-month storm flow (defined as the first flush) does not exceed 24 gallons per minute per square foot (gpm/sq. ft.). However, Engineering Note A. of the *Specification Chart* indicates that the peak design flow shown for each Vortechs model is based on a significantly higher loading rate of 100 gpm/sq. ft. of grit chamber.

Technical bulletin No. 4 calculates a hypothetical net annual TSS removal efficiency of 80% based on the following:

- low intensity storm events occur more frequently than high intensity storm events,
- removal efficiency of their treatment units increases as the flow rates decrease,
- the 80% net annual TSS removal is a weighted average calculation based on precipitation data.

According to the TSS removal efficiency graph, the 2-month storm event represents less than 10% of the total rainfall. The graph further indicates that the Vortechs System will achieve 98% removal for 49.6 % of rainfall, when the sediment chamber-loading rate is only 5 gpm/sq. ft. This describes a weighted average calculation that is heavily skewed towards low intensity events (much lower than the two-month storm).

It is important to note that the 80% net annual TSS removal is a theoretical removal efficiency calculation for 250-micron particle size sediment, applied to precipitation data rather than real inputs to the treatment units. In order to achieve the 80% net annual removal efficiency, 49.6% of mass annual TSS would have to be transported to the system at rainfall events which produce surface loading rates of 5 gpm/sq.ft. This is significantly less intense than the 24-gpm/sq. ft. loading rate associated with the 2-month storm (first flush).

Any sedimentation device will achieve removal efficiencies approaching 100% at extremely low flow rates. Sizing a treatment device to achieve an 80% net annual TSS removal, as described above, rather than an 80% TSS removal at a given design flow will result in a significantly smaller unit, unless the design flow is less than the 2-month storm.

Example:

For Vortechs Models 4000 and 5000, 24 gpm/sq.ft. equates to a treatment flow of 1.58 cfs and 2.15 cfs respectively. At a loading rate of 24 gpm/sq.ft., each unit has a removal efficiency of 53% for particle sizes down to 250 microns. (See *Technical Bulletin No. 4* and Stormwater Treatment Systems Comparative Data-*Appendix B*). However, the Vortechs *Specification Chart* indicates a model 4000 peak design flow of 6.0 cfs a model 5000 peak design flow of 8.5 cfs. These flow rates correspond to a sediment chamber surface-loading rate of 100 gpm/sq.ft.

In summary, *Technical Bulletin No. 4* indicates that Vortechs units are 53% efficient at removing particles down to 250 microns at a flow rate that is 24% of the peak design flow indicated for each Vortechs model number in the *Specification Chart* . As flow rates increase, removal efficiencies decrease. To compare a Downstream Defender to a Vortechs unit, it is very conservative to compare the Downstream Defender's 90% removal down to 150-micron flow rate to the Vortechs 53% removal down to 250-micron flow rate (24 gpm/sq. ft. x sq. ft. of sediment chamber). This flow rate is simply 24% of the flow rate given in the Vortechs *Specification Chart.*

APPENDIX A - TOTAL SUSPENDED SOLIDS TECHNICAL NOTE ▸

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Technical Note: Total Suspended Solids (TSS)

The removal efficiency of any sedimentation device is a function of the settling velocity of the solids in the influent stream and the flow rate through the unit. The settling velocity of influent solids, in turn, is a function of particle size and particle density. Because of the variable nature of wet weather discharges, the characteristics of non-point source pollutants and pollutant loadings vary from site to site and from event to event. Therefore, two assumptions should be made when sizing "flow-through" treatment equipment. The first is in regards to the settling characteristics of the solids delivered to the unit during the first flush. The second is the runoff rate associated with the first flush that will mobilize the majority of the pollutants to the treatment device. No consensus has been reached regarding how the first flush is defined. Some researchers say volume (i.e. first half inch or first inch), others say rainfall intensity (i.e. return period storm). The first flush phenomenon cannot be defined as rainfall volume or rainfall intensity alone. Other factors such as land use, antecedent conditions, catchment topography, soil type and urban density are just some of the factors that can impact the "first flush".

To comply with Phase I and Phase II stormwater regulations, many states are developing and revising Best Management Practices for dealing with nonpoint source pollution. Treatment guidelines typically refer to total suspended solids (TSS) removals without defining TSS. TSS comprises two distinct fractions: a settleable fraction and a non-settleable fraction. **Solids Classification (Figure 1)** illustrates the various solids fractions that comprise Total Solids and TSS; and **Effects of Decreasing Size of Spheres on Settling (Figure 2)** illustrates the relative settling times for different size particles with different specific gravities. Very fine particles with low specific gravities require extremely long residence times to settle. Pollutants of concern, such as heavy metals and phosphorous tend to be associated with the finest particles.

The settleable fraction of TSS can be removed using either gravity settlement or devices that augment gravitational settlement with rotary or vortex motion. Rotary devices tend to be more efficient than purely gravitational settlement devices and consequently have a smaller footprint for a given flow rate.

No settlement device will remove the non-settleable fraction of TSS. To remove the non-settleable fraction, filtration or chemical precipitation is required.

Consequently, without defining the settling characteristics of influent TSS, accurately predicting specific removal efficiency at a specific flow rate is practically impossible. For example, if more than 51% of particles fall under the definition of non-settleable then 50% removal of TSS may never be accomplished. Conversely, if settleable solids dominate the influent stream, 80-90% TSS removals may easily be achieved at the design flow rate.

The U.S. EPA *Assessment of Vortex Solid Separators for the Control of Treatment of Wet Weather Flow:* Section 5 Summary of Findings (October, 1996), concludes that vortex separators are an attractive process where high rate separation of gritty and heavy particles and floatables is required. However, if a significant portion of pollutants have settling velocities < 0.14 cm/sec., or are dissolved or colloidal, vortex separators are not appropriate. **Particle Settling Velocities (Figure 3)** from the report indicate that 40-micron sand particles and 150-micron organic particles have settling velocities of around 0.14 cm/sec. Fine particles tend to be mobilized at low runoff rates associated with frequent storm events. At low flows, the removal efficiency of all settleable solids including fine particles, increases. At very low flows, the overall sediment removal efficiency of any sedimentation device approaches 100%. As flow rates increase, the residence times decrease and the portion of fine material removed by a flow-through treatment device also decreases.

SOLIDS CLASSIFICATION

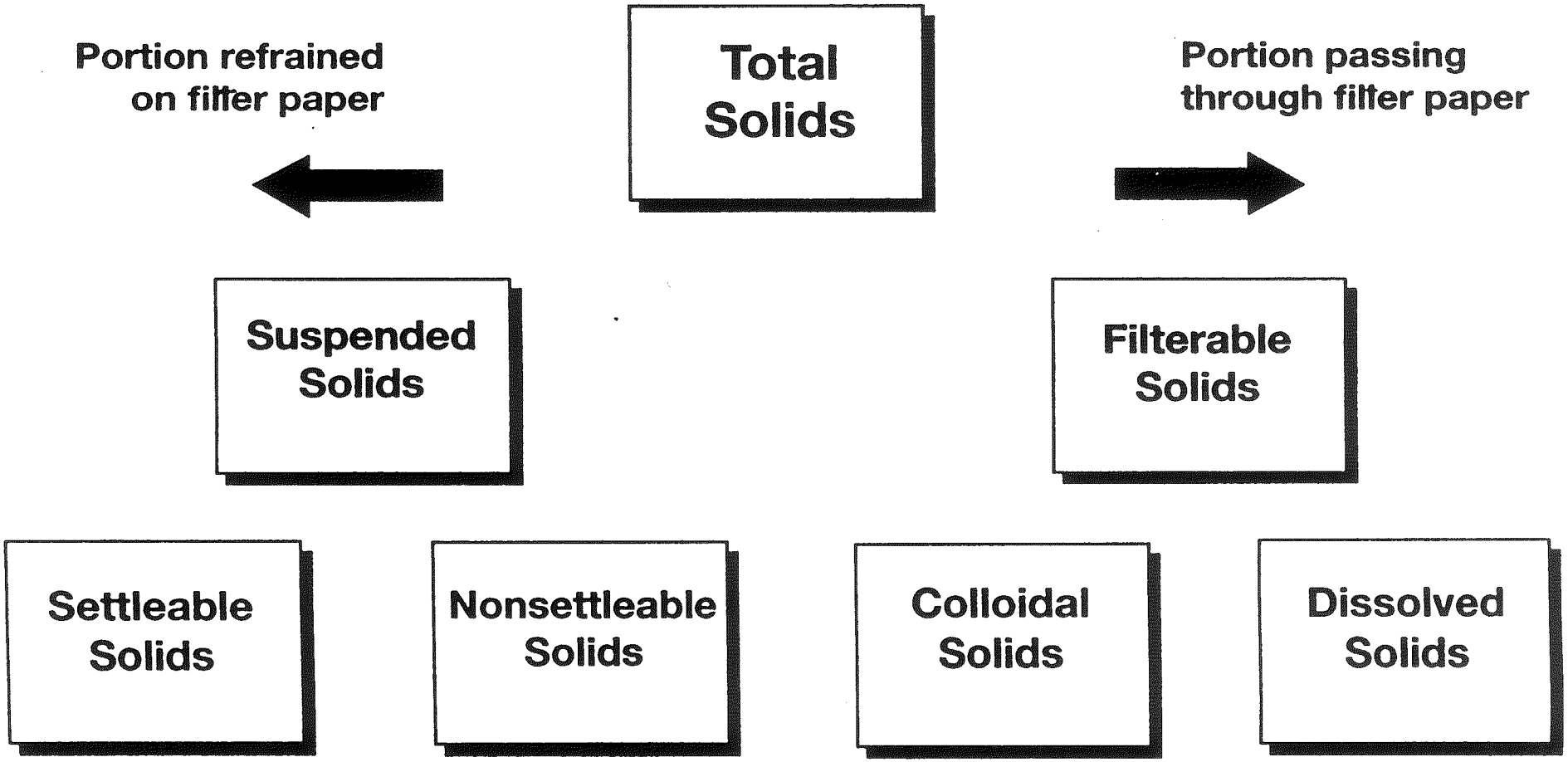
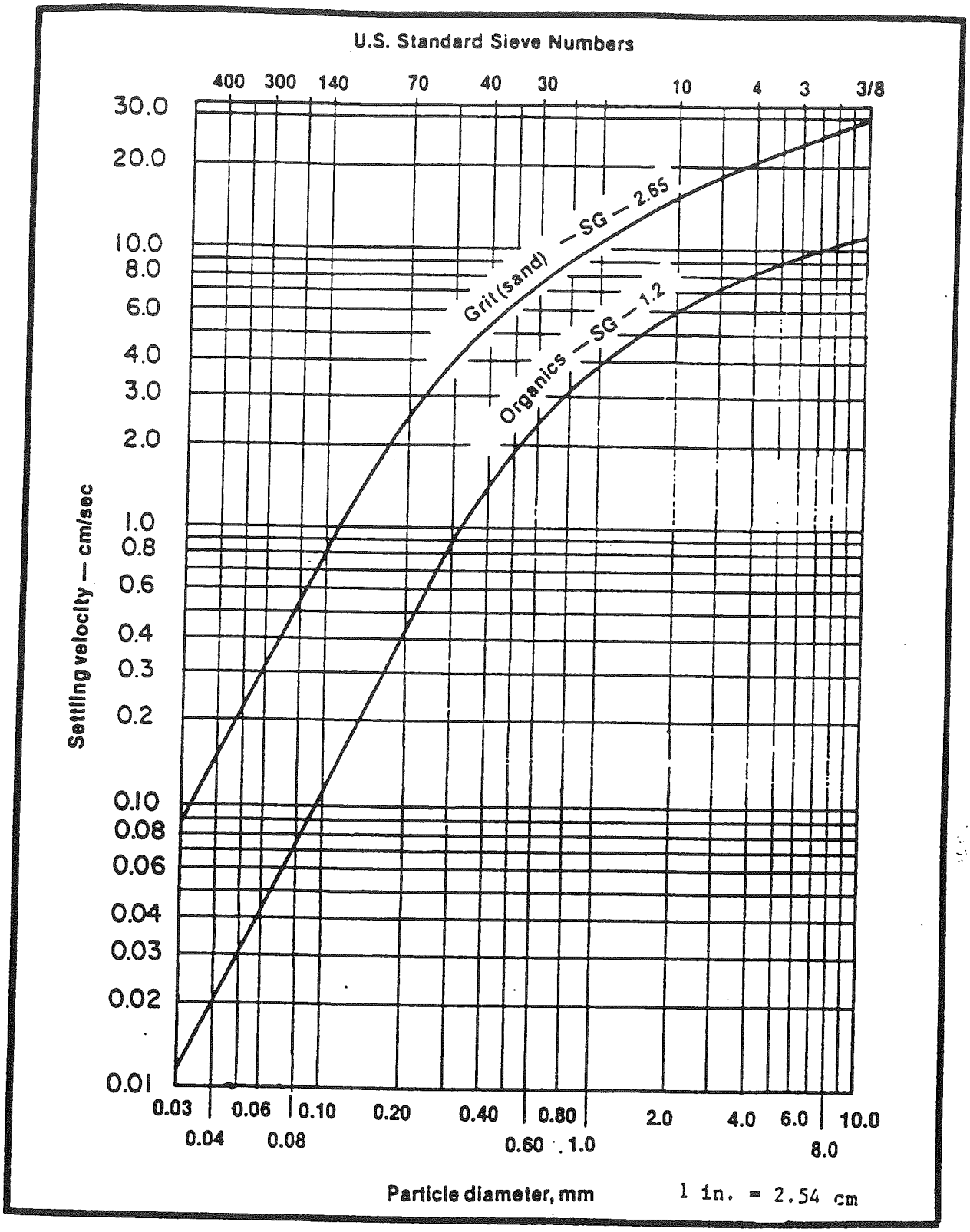


FIGURE 1

Effects of Decreasing Size of Spheres on Settling

Diameter of Particle		Order of Size	Time required to Settle (SG=2.65)	Time required to Settle (SG=1.2)
mm	microns			
10	10,000	Gravel	0.4 sec	1.2 sec
1	1,000	Coarse Sand	3.0 sec	9 sec
0.1	100	Fine Sand	34 sec	5 min
0.01	10	Silt	56 mins	8 hours
0.001	1	Bacteria	4 days	32 days
0.0001	0.1	Colloidal	1 year	9 years
0.00001	0.01	Colloidal	>50 years	>50 years
0.000001	0.001	Colloidal	>50 years	>50 years

FIGURE 2



Particle Settling Velocities for Grit and Organic Material in Still Water

FIGURE 3

APPENDIX B - DOWNSTREAM DEFENDER ▸

Downstream Defender™ Design Chart (Imperial)

UNIT DIAMETER (feet)	DESIGN FLOW[1]/ CAPACITY[2] (cfs)	(gpm)	INLET PIPE DIAMETER (inches)	OUTLET PIPE DIAMETER (inches)	HEADLOSS[3] @DESIGN FLOW (inches)	HEADLOSS @CAPACITY (inches)	WEIGHT FULL (lbs)	WEIGHT EMPTY[4] (lbs)	OIL STORAGE CAPACITY (gallons)	SEDIMENT STORAGE CAPACITY (cubic yards)	UNIT DIAMETER (feet)
4	0.75/3.0	330/1,350	8	12	2	28	13,200	10,000	70	0.70	4
6	3.00/8.0	1,350/3,590	12	18	5	39	32,800	22,400	230	2.10	6
8	7.00/15.0	3,140/6,730	18	24	6	27	63,000	39,000	525	4.65	8
10	13.0/25.0	5,830/11,220	24	30	6	24	140,300	94,000	1,050	8.70	10

NOTES:

1. Design flow is based on 90% removal of all particles with specific gravity of 2.65 down to 150 microns, 84% overall removal efficiency.
2. Capacity flow rate is based on keeping headloss and removal efficiencies within a desirable range with a standard inlet pipe. Higher flow rates are possible if lower removal efficiencies and higher headlosses are acceptable.
3. Headloss is defined as the difference between the top water level upstream and the top water level downstream of the unit.
4. Weights are calculated with internal components.
   Support frame, ledger angles, and mounting hardware are 304 stainless steel.
   Benching skirt, center cone and shaft, and dip plate are available in copolymer polypropylene or HDPE.

- AutoCAD drawings and Microsoft Word specifications available on disk.
- For pricing, delivery, and custom designs, please call H.I.L. Technology, Inc., Proposal Engineering Department.

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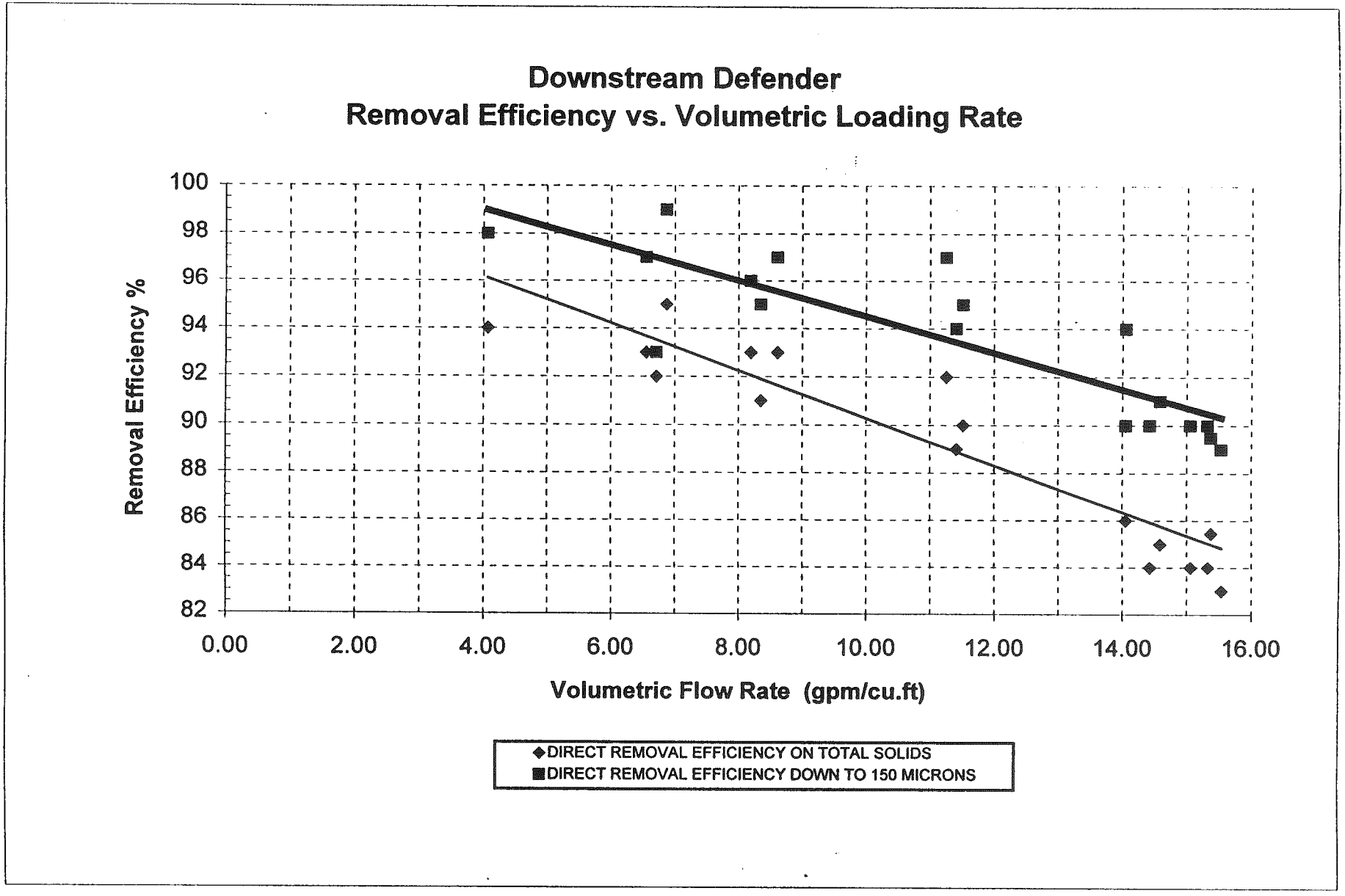

Downstream Defender
Removal Efficiency vs. Volumetric Loading Rate
Removal Efficiency %
100
98
96
94
92
90
88
86
84
82
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
Volumetric Flow Rate (gpm/cu.ft)
DIRECT REMOVAL EFFICIENCY ON TOTAL SOLIDS
DIRECT REMOVAL EFFICIENCY DOWN TO 150 MICRONS

Downstream Defender
Sample Calculations

Treatment Volume

The treatment volume for each size of Downstream Defender is defined as the space between the top of the sloping part of the benching skirt and the invert of the outlet pipe. (It excludes the benching and sediment storage areas.) See general arrangement drawing GA1.

For an 8-ft ∅ unit the treatment volume equals:

$V = \Pi r^2 h$ or Πr^3 (r=h)

r = radius of treatment unit
h = distance between top of sloping part of benching skirt and the invert of the outlet.

$V = 3.14 \times 4^3 = 201.1\ ft^3$

Volumetric Loading Rate

The volumetric loading rate is simply the flow rate in gpm divided by the treatment volume.

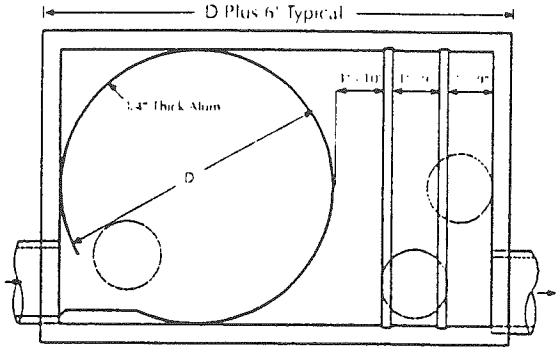
$$VLR = \frac{7.0\,cfs \times 448.831\,gpm/cfs}{201.1\,ft^3}$$

$= 15.6\ gpm/ft^3$

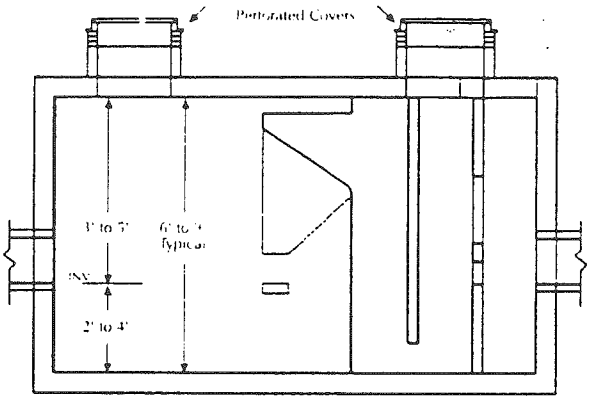
Downstream Defenders will operate at 90% or higher removal efficiency (on particles with s.g. of at least 2.65 and diameters equaling or exceeding 150 microns) at volumetric loading rates equal to or less than 16.0 gpm/ft^3. The overall removal efficiency of all particle sizes at 16.0 gpm/ft^3 is 84%. At higher flow rates the efficiency decreases and at lower flow rates the removal efficiency of all particle sizes increases. Refer to Removal Efficiency vs. Flow graph.

APPENDIX C - VORTECHNICS

the Vortechs Stormwater Treatment System



PLAN VIEW



ELEVATION VIEW

To begin the design of your Vortechs System, refer to the sizing chart below and complete a Specifier's Worksheet to provide details about your site and design flows. Then simply fax or mail the worksheet to Vortechnics with your site plan, and we'll produce detailed Vortechs System scale drawings free of charge.

100 gpm/ft.²

Vortechs™ Model	Grit Chamber Diameter/Area ft/ft²	Peak Design Flow[A] cfs	Sediment Storage[B] yds³	Oil Storage[B] gal.s	Approx. Size[C] L x W ft
1000	3/7	1.6	.75	270	9 x 3
2000	4/13	2.8	1.25	350	10 x 4
3000	5/20	4.5	1.75	500	11 x 5
4000	6/28	6.0	2.5	700	12 x 6
5000	7/38	8.5	3.25	900	13 x 7
7000	8/50	11.0	4.0	1,200	14 x 8
9000	9/64	14.0	4.75	1,500	15 x 9
11000	10/79	17.5	5.5	1,800	16 x 10
16000	12/113	25.0	7.0	2,500	18 x 12

Metric Specification Chart available by calling Vortechnics at (207) 878-3662.

Engineering Notes

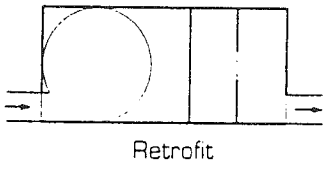
A) For in-line Vortechs Systems without a bypass, sizing criteria is based on providing one square foot of grit chamber surface area for each 100 gpm of peak design storm flow rate (i.e., 10-year storm). For more details about Vortechnics sizing criteria refer to Vortechnics Technical Bulletin 3.

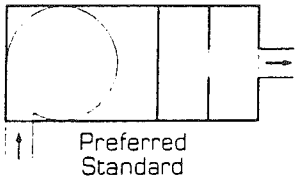
B) Sediment and oil storage volumes assume a 3 foot sump and a 1 foot opening under the oil baffle.

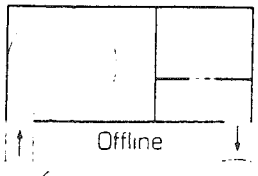
C) The sizing information above is representative of typical Vortechs Systems. Construction details may vary depending on the specific application. Any alterations to the sizing chart specifications will appear on Vortechnics dimensional and shop drawings. Please call Vortechnics for the weight of specific Vortechs systems if needed.

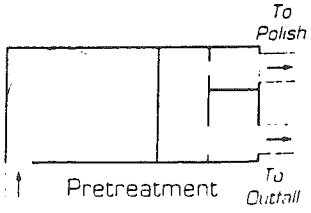
Vortechs System Inlet/Outlet Configurations

Vortechs Systems can be configured to accommodate various inlet and outlet pipe orientations. The inlet pipe can enter the end or side of the tank at right angles - outlet pipes can exit the end or the side of system at most angles. A side inlet optimizes grit chamber swirling action and is the preferred inlet configuration.


Retrofit


Preferred Standard


Offline



CHNICAL BULLETIN NO. 3

Vortechs™ Stormwater Treatment System Sizing

SIZING FOR LARGE, INFREQUENT DESIGN STORMS

Vortechs Stormwater Treatment Systems are specifically designed to treat all runoff including the peak flows from low-frequency storms (e.g., 5-year storms). To size Vortechs Systems for these low-frequency events simply use the sizing chart provided in the *Product Literature* section of the Vortechnics design binder. These peak flow ratings are based on a peak Vortechs System operating rate of 100 gpm/sq.ft. (i.e., the ratio of peak flow rate to grit chamber surface area) as discussed in Vortechnics' Technical Bulletin No. 1. Unique flow surge controls designed into every Vortechs System provide such effective retention of trapped particles during high flow conditions that a "service factor" of up to 1.40 (i.e. peak Vortechs System operating rate of 140 gpm/sq.ft.) can be used when sizing Vortechs Systems for large, infrequent design storms.

SIZING FOR FREQUENT STORMS AND BY-PASSES

Vortechs Systems incorporate an energy-dissipating swirl concentrator and carefully engineered flow controls to ensure that contaminants captured during routine storm activity are not washed out during peak flow periods. During peak flows removal efficiencies level off to approximately 40% (for silt sized particles). In order to achieve an overall removal efficiency of 80% for a wide range of flow rates, Vortechs Systems must be sized so that during the 2-month storm the flow rate through the system does not exceed 24 gpm/sq.ft. of grit chamber surface area. When sizing Vortechs Systems for small storms, (or the so-called "first-flush"), of for sites where some flow will bypass the Vortechs System during large storm events, it is important to consider this design requirement. To assist with approximating the 2-month runoff rate Vortechnics suggests the following ratios:

$I_{2\text{-MO}} \cong I_{25\text{-yr}} \div 8$; $I_{2\text{-MO}} \cong I_{10\text{-yr}} \div 7$; $I_{2\text{-MO}} \cong I_{5\text{-yr}} \div 6$; $I_{2\text{-MO}} \cong I_{2\text{-yr}} \div 5$

These approximations are suitable for storm durations under 30 minutes. They also prove accurate enough for use across the country in regions of varying precipitation patterns. For example, a 25-year storm intensity in New Orleans is no doubt much larger than the 25-year storm intensity in Seattle, but the 2-month storm intensity is larger too. The premise holds that the ratio of low-frequency events to higher-frequency events does not vary too greatly. On the basis of this premise, it is a simple matter to calculate a 2-month storm and size a Vortechs System so that it will operate at 24 gpm/sq.ft. or less during these critical high-frequency events.

By-pass Design Example:
$Q_{25\text{-yr}}$ = 16 cfs. $\therefore Q_{2\text{-MO}}$ = 2 cfs = 900gpm. $\therefore$ required area @ 24gpm/sq.ft. = 38 sq.ft.
$\therefore$ specify the 7-foot diameter model 5,000 (surface area = 38.5 sq. ft.) with 8.5 cfs capacity and bypass flows in excess of 8.5 cfs.

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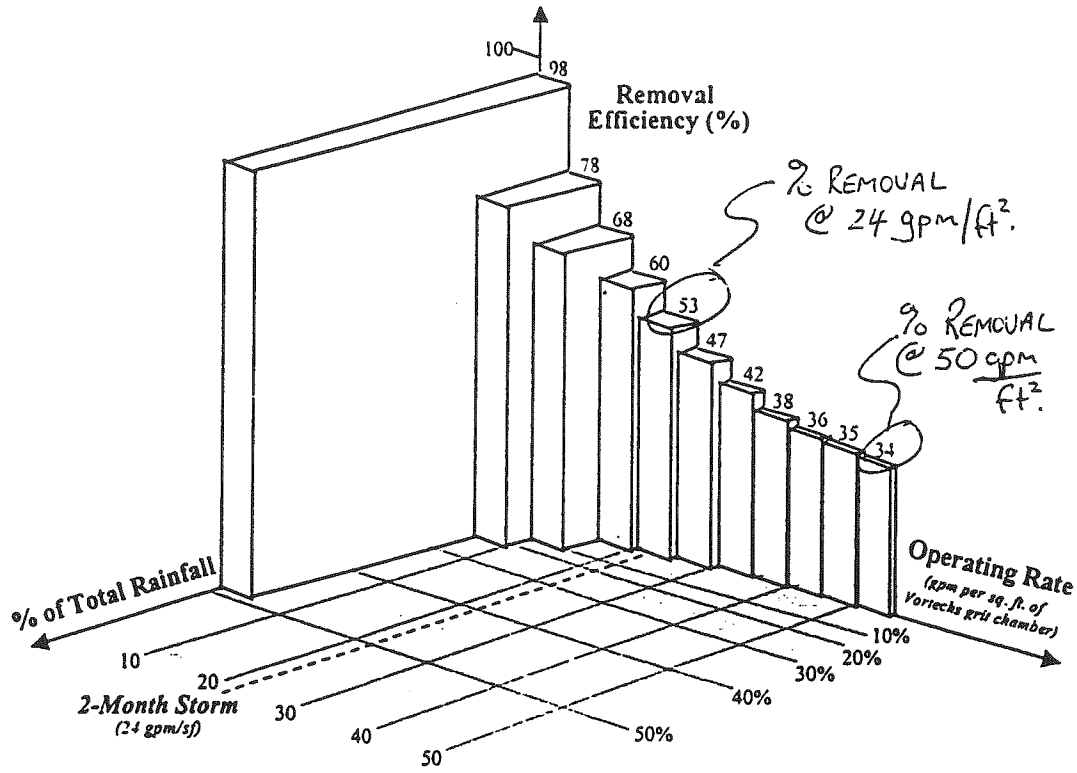
Vortechnics

HNICAL BULLETIN NO. 4

Comparison of Removal Efficiency Rates at Varying Rainfall Intensities



This graph documents the TSS removal efficiency of the Vortechs Stormwater Treatment System. Previously compiled Vortechs System removal efficiencies for a range of system operating rates was compared to 5 years of actual precipitation data to determine an cumulative net removal efficiency. This analysis revealed a net TSS removal efficiency in excess of 80%.

$\Sigma(0.98)(0.496) + (0.78)(0.212) + \ldots + (\%\ \text{Efficiency}_n)(\%\ \text{Rainfall}_n) >$ **80% "Net" TSS Removal**

•Rainfall data compiled by the City of South Portland, Maine Engineering Department over the 5-year period of 1991 to 1996, from two rainfall gauges (one coastal, one inland). Rainfall figures collected continuously at 15-minute intervals.

•Removal efficiencies calculated using sediment particles with 3.3cm/sec. settling velocity. ≈ 250 micron

•These performance curves were produced under the auspices of the EPA-funded Maine Environmental Internships program of the Maine Science and Technology Commission. The square footage on which Vortechs Systems are rated is the water surface area within the grit chamber only (not the overall tank "footprint").

Vortechnics, Inc.
41 Evergreen Dr.
Portland, Maine
04103

Phone
207.878.3662

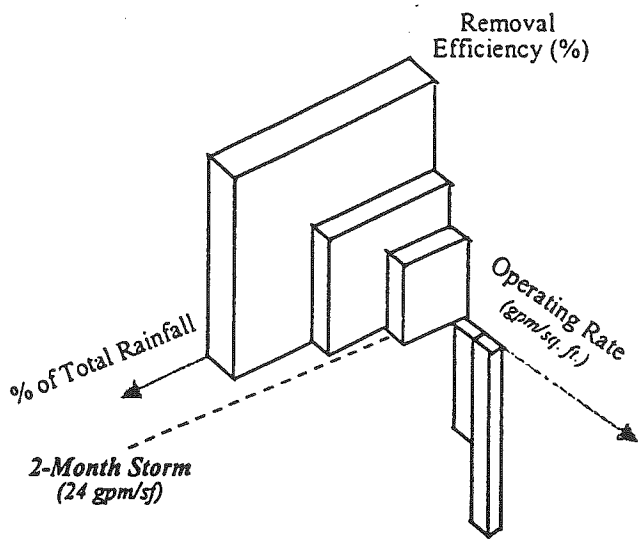
Fax
207.878.8507

Online
www.
vortechnics.com

Most conventional oil/grit separators and water quality inlets fail to achieve the EPA and state requirements for 80% removal efficiency over the full range of operating rates. These systems fail because they wash-out (i.e., the efficiencies begin to drop off with the onset of the 2-month storm - *Schueler and Shepp, April 1993*) or because the peak flows are bypassed at higher rates . Vortechs Systems provide positive treatment efficiencies at all rates, albeit somewhat reduced during extreme conditions.

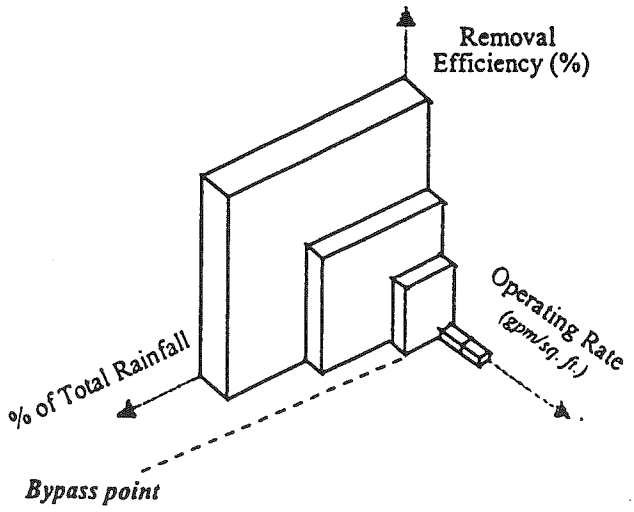
Treatment efficiency graph for convential plug-flow systems without a by-pass:

Over time the "net" efficiency rating will approach zero



Treatment efficiency graph for systems with an internal bypass:

Over time the "net" efficiency will remain positive,
but will not meet the 80% removal target



H.I.L. TECHNOLOGY, INC.
94 Hutchins Drive
Portland, ME 04102

PHONE (207) 756-6200
FAX (207) 756-6212
TOLL FREE 1-800-848-2706
E-MAIL: hiltech @ hil-tech.com

H.I.L. TECHNOLOGY INC.™

DOWNSTREAM DEFENDER™

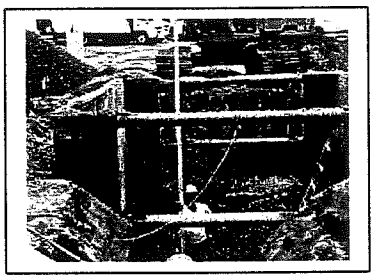
HANDLING, STORAGE, AND
INSTALLATION INSTRUCTIONS

HANDLING & STORAGE:

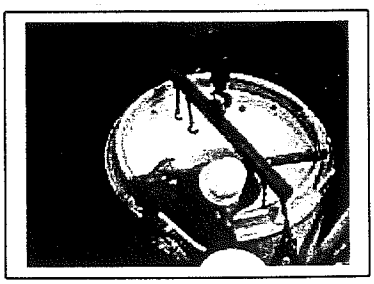
Although H.I.L. Technology's ***DOWNSTREAM DEFENDER***™ internal components are manufactured utilizing highly durable thermoplastics, improper handling can result in damage to components and accessories. Failure to comply with handling, storage, and installation instructions voids warranties.

1. Upon delivery of the ***DOWNSTREAM DEFENDER***™ components, inspect immediately for defects or shipping damage. If any discrepancies or product problems are found, notify H.I.L. prior to unloading to initiate corrective action. Unloading of a damaged unit without notifying H.I.L. voids all warranties and releases liability of costs to repair or replace from H.I.L.
2. At all times during unloading and installation, avoid unnecessary and extreme impacts to the internal components. Do not allow components to be dropped, rolled, or pushed. All components shall be lifted and carried with firm and complete support. At no time shall anyone step, stand, or otherwise place an unnecessary load on the components.
3. The ***DOWNSTREAM DEFENDER***™ shall be, as far as practical, installed as soon after delivery as possible. Pending installation, the components shall be stored in an area protected from dirt, ultraviolet (uv) light, and impact.

INSTALLATION – reference engineering drawings.

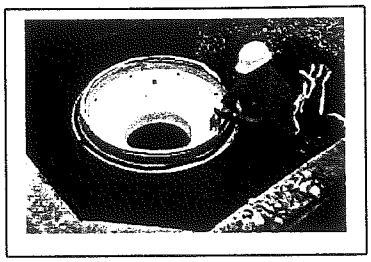


1. Trench excavation shall be properly prepared in advance so that unit may be installed as soon as practical upon delivery. Trench excavation shall meet all government minimum specifications for standards of construction. A sub-base of compacted stone must be level and at correct elevation.

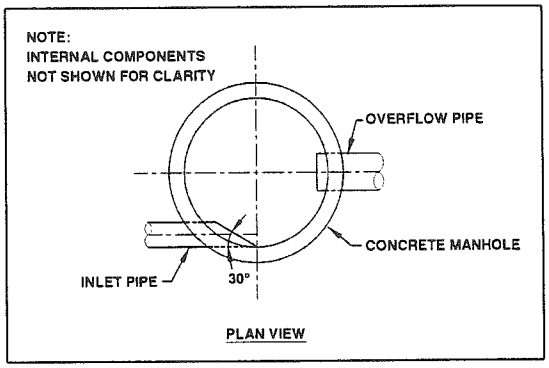


1. Offload the ***DOWNSTREAM DEFENDER***™ pre-cast base unit containing benching skirt and install in properly prepared trench. Base unit must be level prior to installation of successive risers. If benching skirt was not pre-installed, install base and sufficient risers and install skirt at location of predrilled holes. Do not tighten nuts sequentially, but rather opposite of each other until entire mounting flange has a slight, consistent gap between itself and pre-cast wall.

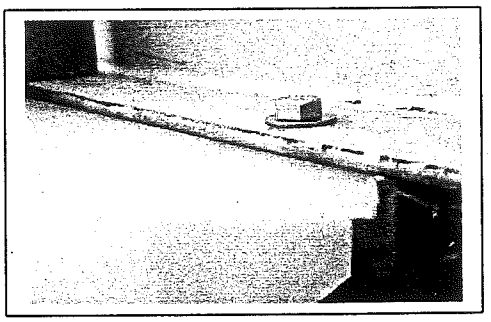
2. Install successive risers, placing rubber butyl sealant on the outer perimeter of both surfaces of riser shiplap joints. Ensure that the risers containing the inlet and overflow pipe holes are orientated correctly as per alignment shown on the engineering drawings. Do not install chamber lid.



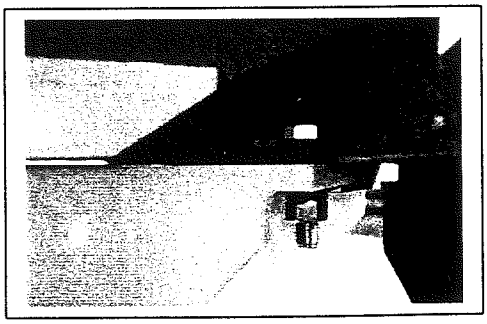
3. Cut off the end of the inlet pipe (by others) at a 30° angle and connect the inlet pipe i.d. tangentially to the pre-cast i.d. as shown on the engineering drawings. Grout manhole knock-out with non-shrink grout (by others). Placement of the pipe should be such that the pipe end is cut back from centerline of chamber 30° as shown. Inlet pipe shall not protrude further into the unit than indicated on the engineering drawings. On the pre-cast interior, grout must be finished to a uniform, smooth surface flush with the pre-cast interior wall. Do not allow any grout to spill inside the unit. If required, plug inlet pipe and overflow pipe hole and test for watertightness. The cause of any leaks must be determined and corrected prior to backfilling. Failure to properly perform and pass test if required, releases H.I.L. from liability ensuing from such failure.



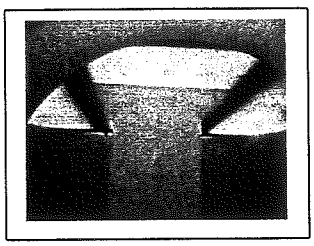
4. Support Frame (4' and 6' units): If not already in place, attach stainless steel support frame angles to poly dip plate support angles using required number of type 304 stainless steel bolts, flat washers, lock washers, and nuts. Ensure that bolt runs, top to bottom, through flat washer, s.s. angle, poly support angle, flat washer, lock washer, and nut. Install rest of s.s. bolt complement with exception of the four bolts that connect center shaft top plate. Attach the four stainless ledger angles to the support frame hand tight.



5. Support Frame (8' and 10' units): Attach stainless steel support frame angles to poly dip plate support angles using required number of type 304 stainless steel bolts, flat washers, square plate washers, lock washers, and nuts. Ensure that at each of the four poly dip plate support angles, one square plate washer is placed on top of support frame and one beneath poly support angle so that bolt runs, top to bottom, through square plate washer, s.s. angle, poly support angle, plate washer, lock washer, and nut. Install rest of s.s. bolt complement with exception of six bolts that connect center shaft top plate. Attach the four stainless ledger angles to the support frame hand tight.

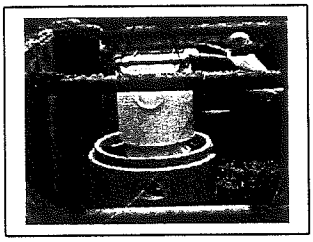


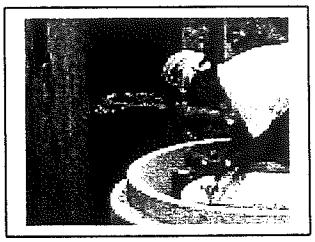
6. Center Shaft & Cone (4' and 6' units): Attach center shaft and cone to underside of floatables lid using required number of type 304 stainless steel bolts, flat washers, lock washers and nuts.

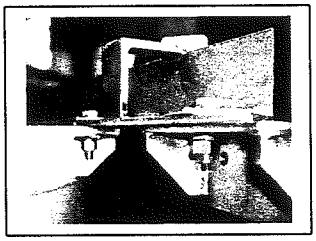


7. Center Shaft & Cone (8' and 10' units):
a)Attach center shaft to underside of floatables lid using required number of type 304 stainless steel bolts, flat washers, lock washers and nuts.
b)Attach center cone to center shaft using required number of type 304 stainless steel bolts, flat washers, lock washers and nuts.

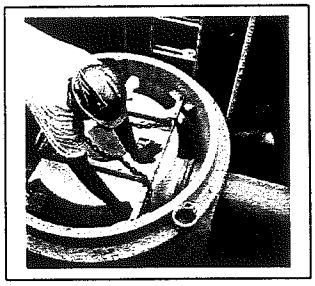
8. Dip Plate Assembly: a)Using the four lifting points on the support frame, carefully lower the dip plate assembly onto the four stainless steel ledger angle attached to the interior wall of the pre-cast chamber. Orientate so that overflow pipe stub aligns with overflow pipe knockout. b)Attach the support frame to the ledger angles using required number of type 304 stainless steel bolts, flat washers, lock washers and nuts. c)For 8 foot and 10 foot units, place a square plate washer in place of a flat washer on top of support frame angle.



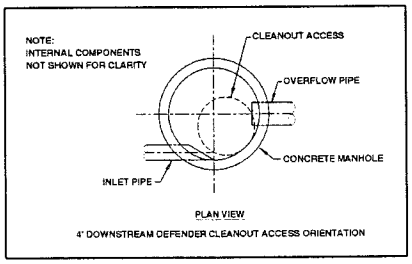




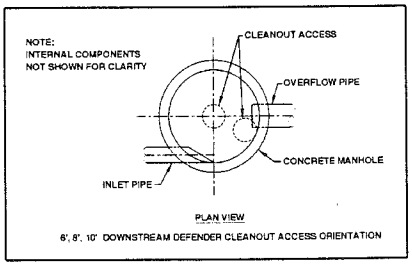
9. a)Connect the overflow pipe stub to the outlet pipe using an approved pipe coupling (by others). b)Grout manhole knock-out (and pick holes if applicable) with non-shrink grout (by others). On the pre-cast interior, grout must be finished to a uniform, smooth surface flush with pre-cast interior wall. Do not allow any grout to spill inside the unit.



10. Seal the upper most shiplap joint with two strips of supplied butyl mastic sealant and install pre-cast lid. Ensure that floatables access is located to the side of the overflow pipe which will be in the direct path of influent flow.



11. Install cast frame(s) and cover(s) using standard accepted construction methods of adjusting to grade. Carefully backfill around unit..



H.I.L. TECHNOLOGY, INC.
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H.I.L. TECHNOLOGY INC. ™

OPERATION AND MAINTENANCE OF THE DOWNSTREAM DEFENDER

OPERATION

The Downstream Defender operates on simple fluid hydraulics. It is self-activating, has no moving parts and no external power requirement. Therefore, no procedures are required to operate the unit.

As stormwater flows through the Downstream Defender, sediment is directed towards the center and base where it is stored in the collection facility, beneath the vortex chamber. Sediment is contained outside of the treatment flow path and protected by the center cone. Floatables are trapped in the outer annular space between the cylindrical dip plate and the concrete manhole wall at the top water level. Treated effluent is released from the inner annular space, between the dip plate and center shaft, through the outlet pipe, near the top of the vessel. The floatables lid isolates separated and stored oil and floatables from the treated effluent.

The Downstream Defender is unique in that the sediment and oil storage areas are outside the treatment flow path. Previously collected solids, oils and floatables are thereby protected from re-entrainment into the effluent during major storms or surcharge conditions. Furthermore, as sediment, floatables and oil are collected and stored over a period of several months, treatment capacities are not reduced as pollutants accumulate between clean-outs.

After a storm event, the water level in the Downstream Defender drains down to the invert of the outlet pipe, keeping the unit wet. Maintaining a wet unit has two major advantages:

1. It keeps the oil and floatables stored on the water surface separate from sediment stored below the vortex chamber, providing the option for separate oil disposal, such as passive skimmers, if desired.

2. It prevents stored sediment from solidifying in the base of the unit. The clean-out procedure becomes much more difficult and labor intensive if the system

allows fine sediment to dry-out and consolidate. When this occurs, clean-out crews must enter the chamber and manually remove the sediment; a labor intensive operation in a hazardous environment.

The Downstream Defender has large clear openings and no internal restrictions or weirs, minimizing the risk of blockage and hydraulic losses. Orifices and internal weirs can create two serious hydraulic problems:

1. Increased risk of blockage - Small orifices tend to collect debris and trash such as soda cans, sticks and Styrofoam cups which further reduce opening size and may even block openings completely. This alters the hydraulics in a flow-through treatment device, adversely affecting operation and performance and can eventually lead to system back-ups and maintenance issues. Removing debris from a submerged orifice may require pumping down the chamber.

2. Increased headlosses - Internal restrictions and weirs significantly increase hydraulic losses in a flow-through treatment device. The higher the flow through the system, the higher the headloss. This problem is exacerbated during the more intense storm events, backing up the storm sewer and increasing the risk for upstream flooding.

MAINTENANCE PROCEDURE

A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole. The floatables access port is above the area between the concrete manhole wall and the dip plate. The sediment removal access port is located directly over the hollow center shaft. Floatables and oil should be removed prior to the removal of the sediment.

The frequency of the sump vac procedure is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A probe can be used to determine the level of solids in the sediment storage facility. When approximately 1.5 / 2 / 2.5 / 3.0 ft. of sediment depth has accumulated, the contents should be removed by sump vac. It is recommended that the units be cleaned annually.

Although a small portion of water is removed along with the pollutants during the clean-out process, the units are typically not completely dewatered- minimizing disposal costs. The sump vac procedure for a typical 6-ft diameter Downstream Defender with one foot of sediment depth and two inches of oil and debris takes about 25 minutes and removes about 150 gallons of water in the process.

H.I.L. TECHNOLOGY, INC.
94 Hutchins Drive
Portland, ME 04102

PHONE (207) 756-6200
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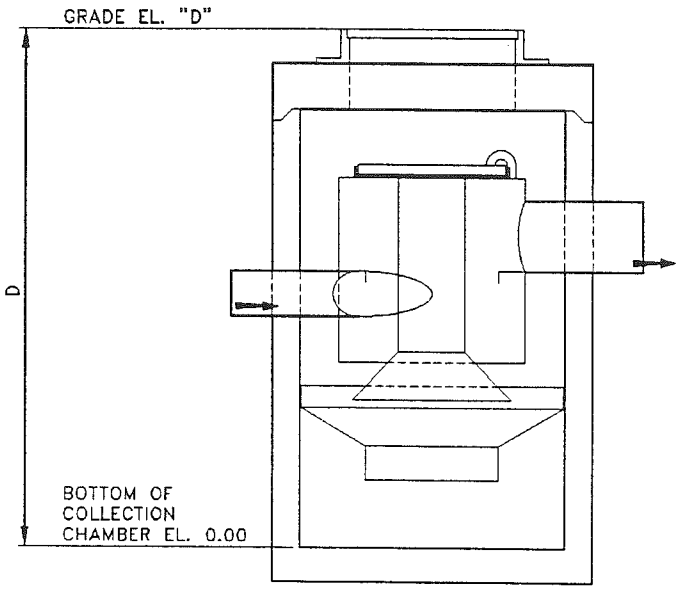
TOLL FREE 1-800-848-2706
E-MAIL: hiltech@hil-tech.com

H.I.L. TECHNOLOGY INC. ™

DOWNSTREAM DEFENDER MAINTENANCE LOG

H.I.L. Ref: Site Name: Site Location:			
Owner:		Contractor:	
Contact Name:		Contact Name:	
Company. Name:		Company Name:	
Address:		Address:	
Telephone:		Telephone:	
Fax:		Fax:	



Installation Date:

___/___/___

Downstream Defender Diameter:

_____

Downstream Defender Depth:

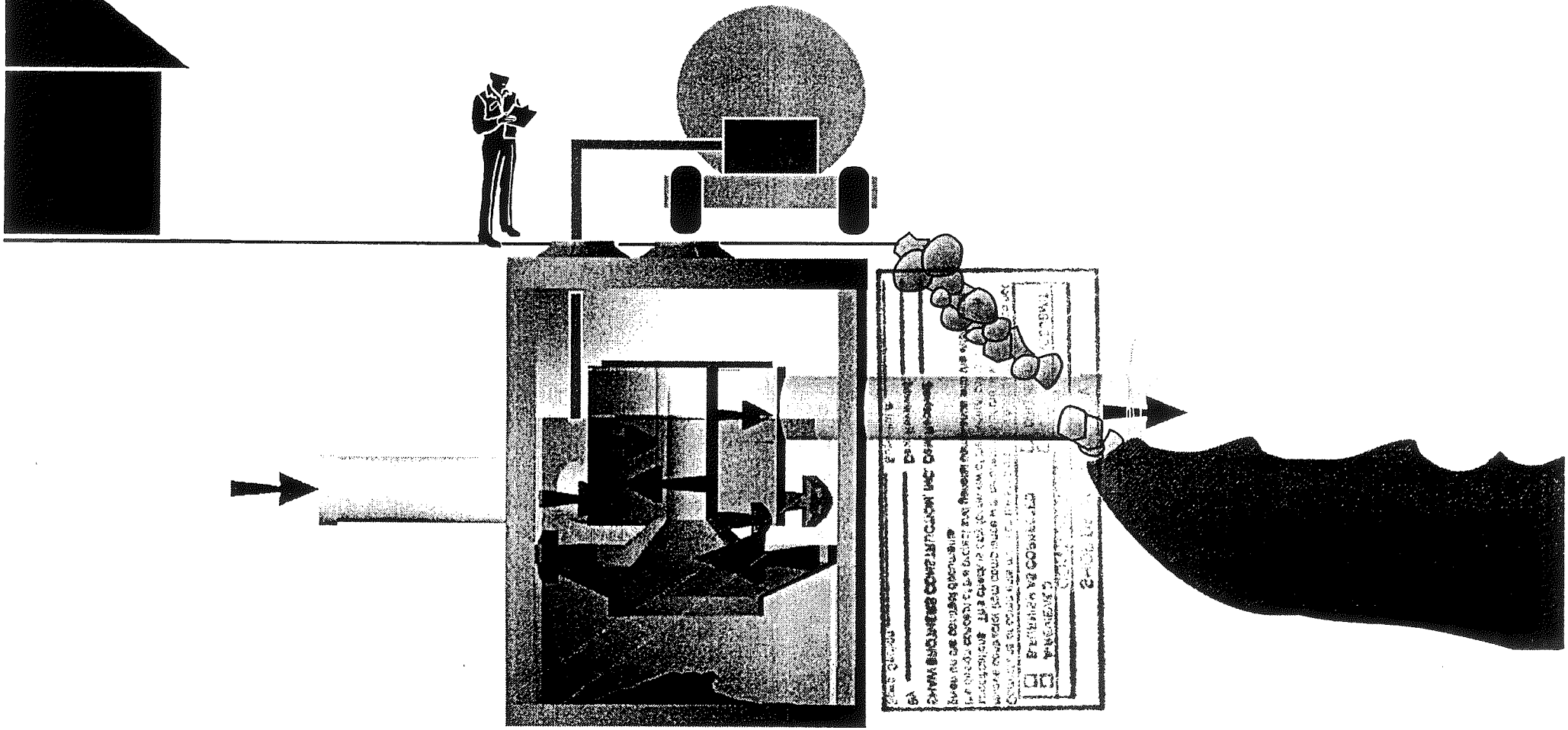
("D"):_____

HYDRO INTERNATIONAL

H.I.L. Technology, Inc. is a subsidiary of Hydro International plc.

Date	Initials	Depth of Floatables and Oils	Sediment Depth ("D" less measurement)	Volume of Sediment Removed	Site Activity/Comments

Downstream Defender Clean Out Procedure



Planning & Urban Development

Joseph E. Gray Jr.
Director

CITY OF PORTLAND

April 19, 2000

Ms. Mary Gamage
Real Estate Representative
Hannaford Brothers Co.
P.O. Box 1000
Portland ME 04104

Dear Ms. Gamage:

Thank you for your recent letter requesting an extension on your Planning Board approval for your Forest Avenue Shop 'n Save.

In my capacity as Director of Planning and Urban Development for the City of Portland, I am extending your approval to June 8, 2001.

If you have any questions please do not hesitate to contact me.

Sincerely,

Joseph E. Gray, Jr.
Director of Planning and Urban Development

O:\PLAN\CORRESP\JOE\LETTERS\GAMAGE.JMD

Hannaford Bros. Co.

April 13, 2000

Via US Mail

Mr. Joseph E. Gray
Director of Planning and Urban Development
City of Portland
389 Congress Street
Portland, Maine 04101

Re: Shop 'n Save Expansion
Planning Board Approval # 23-99 - Portland, Maine

Dear Mr. Gray:

On June 8, 1999, Hannaford Bros. Co. obtained the above referenced Portland Planning Board Approval to expand the existing Shop 'n Save Store at 295 Forest Avenue, Portland, Maine. One of the conditions of the approval was that the site plan approval will expire unless work has commenced within one year of the approval. At this point, we do intend to commence construction prior to June 8, 2000; however, the construction start date may be delayed beyond June 8th as a result of finalizing our construction contractor bidding process, and resolving some final tenant issues. Because of this possible delay, this letter is to request that the condition regarding time frame for work to commence be extended for one year, which would be June 8, 2001.

Please notify me in writing regarding the City's decision of this request at your earliest convenience. Please feel free to call me at 207-885-3356 with any questions you may have.

Sincerely,

Mary E. Gamage
Real Estate Representative

cc: A. Aleshire, A. Couch, B. McKenney

Hannaford Bros. Co.

30 November 1999

Ms. Kandice Talbot
Planning Department
Portland City Hall
389 Congress Street
Portland, ME 04101

RE: Shop 'n Save Expansion
295 Forest Avenue

Dear Kandi:

Enclosed is Travelers Casualty & Surety Company of America Bond No. 103163781, in the amount of $31,800, for site improvements associated with the proposed Shop 'n Save expansion, as approved by the Planning Board on June 22, 1999.

Per our phone conversation today, it is my understanding that all conditions of Planning Board approval have been satisfied and that we can commence construction once we secure a building permit.

Thank you for you assistance throughout the permitting process.

Sincerely,

HANNAFORD BROS. CO.
William E. McKenney

enclosures

cc: Fred Conlogue
Mary Gamage
George Wood

P.O. Box 1000 Portland, Maine 04104 Telephone 207-883-2911

TRAVELERS CASUALTY & SURETY COMPANY OF AMERICA

BOND NO. 103163781

KNOW ALL MEN BY THESE PRESENTS, that we, **Hannaford Bros. Co.** , as **Principal**, and **Travelers Casualty and Surety Company of America**, a corporation organized under the laws of the State of Connecticut, and duly authorized to transact business in the State of Maine, as **Surety**, are held and firmly bound unto **The City of Portland, Maine**, as **Obligee**, in the sum of ****Thirty One Thousand Eight Hundred Dollars *** ($31,800)**, for the payment whereof, well and truly made, the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, in conjunction with the development of **Shop N'Save, Forest Ave., Portland, Maine** , said Principal shall make, and ensure the fulfillment of, all site improvements required by Section 14-499, as well as the requirements of Article III of Chapter 25 of the City of Portland Land Use Code.

NOW, THEREFORE, the condition of the foregoing obligation is such that if the Principal shall indemnify the Obligee for all loss that the Obligee may sustain by reason of the Principal's failure to fulfill all improvements as required by Section 14-499 and Article III of Chapter 25 of the City of Portland Land Use Code, then this obligation shall be void; otherwise, it shall remain in full force and effect.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this **24th** day of **November, 1999.**

Principal
Hannaford Bros. Co.

by: _____
V.P. Controller and Treasurer

Surety :Travelers Casualty and Surety Company of America

by: _____
Eugene J. Miliard, Attorney-in-Fact

IN WITNESS WHEREOF, TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA has caused this instrument to be signed by its Vice President, and its corporate seal to be hereto affixed this 1st day of July, 1997.

STATE OF CONNECTICUT } SS. Hartford

COUNTY OF HARTFORD

TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA

By _____

George W. Thompson
Vice President

On this 1st day of July, 1997, before me personally came GEORGE W. THOMPSON to me known, who, being by me duly sworn, did depose and say: that he/she is Vice President of TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA, the corporation described in and which executed the above instrument; that he/she knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; and that he/she executed the said instrument on behalf of the corporation by authority of his/her office under the Standing Resolutions thereof.

Marie C. Tetreault

My commission expires June 30, 2001 Notary Public
Marie C. Tetreault

CERTIFICATE

I, the undersigned, Assistant Secretary of TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA, a stock corporation of the State of Connecticut, DO HEREBY CERTIFY that the foregoing and attached Power of Attorney and Certificate of Authority remains in full force and has not been revoked; and furthermore, that the Standing Resolutions of the Board of Directors, as set forth in the Certificate of Authority, are now in force.

Signed and Sealed at the Home Office of the Company, in the City of Hartford, State of Connecticut. Dated this 24th day of November, 19 99

By: _____

Rose Gonsoulin
Assistant Secretary

Department of Planning and Urban Development
SUBDIVISION/SITE DEVELOPMENT

COST ESTIMATE OF IMPROVEMENTS TO BE COVERED BY PERFORMANCE GUARANTEE

Date Oct 1, 1999 (REVISED OCT 27, 1999)

Name of Project Hannaford Brothers Co. Expansion

Address/Location Shop N Save Plaza - Forest Avenue

Developer Hannaford Bros. Co.

Form of Performance Guarantee

Type of Development Subdivision ✓ Site Plan (Major/Minor)

TO BE FILLED OUT BY APPLICANT:

Item	PUBLIC Quantity	PUBLIC Unit Cost	PUBLIC Subtotal	PRIVATE Quantity	PRIVATE Unit Cost	PRIVATE Subtotal
1. STREET/SIDEWALK						
(Road - Paving)				110 Ton	$42/Ton	$4620
Granite Curbing				150 L.F.	$22/L.F.	$3300
Sidewalks	25 S.Y.	$20/SY	$500			
Esplanades						
Monuments						
Street Lighting	16 units	225.00	$3600			
Other Grass (per 1000 s.f.) (Guiderail)				60 L.F.	$15/L.F.	$900
2. SANITARY SEWER						
Manholes						
Piping	144 L.F.	$40/L.F.	$5760			
Connections						
Other						
3. STORM DRAINAGE						
Manholes	2 each	$2200	$4400	2 each	$2200	$4400
Catchbasins	1 each	$2000	$2000	1 each	$2000	$2000
Piping	144 L.F.	$40/L.F.	$5760	152 L.F.	$40/L.F.	$6080
Detention Basin						
Other WQU	1 each	$12,000	$12,000			
SITE LIGHTING				1 L.S.	$7500	$7500
EROSION CONTROL	1 L.S.	$1500	$1500			
RECREATION AND OPEN SPACE AMENITIES						

Item	PUBLIC Quantity	PUBLIC Unit Cost	PUBLIC Subtotal	PRIVATE Quantity	PRIVATE Unit Cost	PRIVATE Subtotal
7. LANDSCAPING (Attach breakdown of plant materials, quantities, and unit costs)				L.S.	$3,000	$3,000
8. MISCELLANEOUS						
TOTAL:	$37,760			$31,800		
GRAND TOTAL:						

$ 69,560

INSPECTION FEE (to be filled out by City)

	PUBLIC	PRIVATE	TOTAL
A. 1.7% of totals:	$642	$541	$1183
or			
B. Alternative Assessment:			
Assessed by:	(name)	J Seymour (name) 10/28/99	

City of Portland
Planning Department

389 Congress Street, 4th Floor
Portland, ME 04101
207-874-8721 or 207-874-8719
Fax: 207-756-8258

FAX TRANSMISSION COVER SHEET

Date: October 28, 1999

To: Jim Seymour

Company: Sebago Technics

Fax #: 856-2206

From: Kandi Talbot

RE: Hannaford Bros.

YOU SHOULD RECEIVE 3 PAGE(S),
INLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES,
PLEASE CALL 207-874-8721 OR 207-874-8719.

Sebago Technics
Engineering & Planning for the Future

City of Portland
389 Congress Street
Portland, ME 04101

September 28, 1999
Invoice No: 9909117
Project No: 99280

Terms: Net 30

RE: Shop 'n Save, 295 Forest Ave.

For professional services from July 3, 1999 through September 24, 1999

Final billing for engineering review services through September 24, 1999 of plans and supporting documentation for the building addition and expansion of the Shop'n Save site at 295 Forest avenue.

Engineering Review	1.0 Hrs.	$50.00
Clerical	0.25 Hrs.	$10.50
Reimbursable Expenses		$1.01
Total Current Billing		$61.51
Previous Billing 7/16/99		$381.60
Balance Due		$443.11

Thank you for your business. Please contact me if you have any questions regarding this invoice.

James R. Seymour
Project Manager

Sent to Debbie 10/6/99

1 Chabot Street P.O. Box 1339 Westbrook, Maine 04098-1339 207-856-0277 Fax 207-856-2206

Sebago Technics
Engineering & Planning for the Future

City of Portland
389 Congress Street
Portland, ME 04101

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James R. Seymour
Project Manager

Sent to Debbie 10/6/99

DH

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL: 207 775 1121
FAX 207 879 0896

- ROADWAY D
- ENVIRONMEN
- TRAFFIC STUDY
- PERMITTING
- AIRPORT ENGINE
- SITE PLANNING
- CONSTRUCTION ADV

May 26, 1999

Post-it® Fax Note 7671	Date May 27	# of pages ▶ 6
To Kandy Talbot	From Randy Dow	
Co./Dept.	Co. Deluca Hoffman	
Phone #	Phone #	
Fax # 756-8258	Fax #	

Ms. Marybeth Richardson
Maine Department of Environmental Protection
312 Canco Road
Portland, Maine 04103

Re: Forest Avenue Shop 'n Save
Maine DEP File No. 003713, 1985

Dear Marybeth:

We are seeking an opinion on the need for a traffic permit with regard to Hannaford Bros. Co.'s proposal to expand their grocery store located between Forest Avenue and Preble Street in Portland. The City of Portland will review the site aspects of the project under their delegated review authority. We understand that the City was recently given delegated review authority for traffic projects generating between 100 and 200 trip ends.

However, the DEP retains final review authority and would need to concur with our methodology in determining traffic volumes associated with the proposed expansion. We contend that the proposed project, which would convert 9,690 s.f. of office and 9,070 s.f. of retail to supermarket space and add 13,140 s.f. of building footprint as supermarket space, would not significantly affect traffic generation at the site. The purpose of this expansion is to better accommodate the existing customer traffic rather than draw new traffic to the site. The facility currently experiences traffic volumes in excess of those typical of a Shop 'n Save, as well as those presented in the ITE Trip Generation Manual, 6th Edition.

Traffic counts were collected at this facility on Friday, April 23, 1999 from 3:30 – 6:00 PM. A total of 1,058 peak hour trip ends were counted from 4:30 – 5:30 PM. The resultant trip rate for the 64,200 s.f. supermarket/retail component of the center was 15.58 trips per thousand square feet. The 20,500 s.f. of existing office was assumed to generate at the ITE rate and these trips were deducted from the counts prior to determining the retail/grocery store existing trip rate. Adding the additional building footprint area to the retail/supermarket component would reduce the trip rate to 12.93 trip ends per thousand square feet, assuming no additional traffic. We also reviewed historical summer counts at Shop 'n Saves in Scarborough, Wells and Standish. The maximum trip rate realized in these summertime counts was 12.09 per thousand square feet in Wells. The average trip rate in the ITE Trip Generation Manual, 6th Edition, is 11.51 trip ends per thousand square feet. This data is summarized below:

Trip Generation Rates
PM Peak Hour of Generator

Source	Rate: Trips/ Thousand Square Feet
Forest Avenue Shop 'n Save/Retail	
Existing	15.58
Proposed	12.93
Wells Shop 'n Save	12.09
ITE Supermarket	11.51

SebagoTechnics
Engineering & Planning for the Future

September 24, 1999
99411

Ms. Kandice Talbot
Planning Department
City of Portland
389 Congress Street
Portland, ME 04101

295 Forest Avenue – Shop 'n Save Expansion

Dear Kandice:

I have reviewed the revised information and site plan of the Shop 'n Save expansion proposed at their 295 Forest Avenue address. Based on the information requested during my last review and the revisions received from Steve Bushey, P.E. of DeLuca-Hoffman Associates, Inc., I believe the engineering plans and conditions of approval to be acceptable and complete.

Should the applicant, contractor, or engineer decide to alter the approved Vortechnics Stormwater Treatment System to a system different than what was submitted, I strongly recommend that the revised tank and sizing criteria require additional review and approval prior to installation.

Sincerely,

SEBAGO TECHNICS, INC.

James R. Seymour

James R. Seymour
Project Engineer

JRS:jc

12 Westbrook Common P.O. Box 1339 Westbrook, Maine 04098-1339 207-856-0277 Fax 207-856-2206

Hannaford Bros. Co.

21 September 1999

Ms. Kandice Talbot
Planning Department
City of Portland
389 Congress Street
Portland, ME 04101

RE: Shop 'n Save
295 Forest Avenue

Dear Kandi,

As part of our response to the conditions of Planning Board approval for the proposed Shop 'n Save expansion, specifically item *iii. That the applicant submit a drainage maintenance agreement for review and approval for the staff,* we submitted a drainage and maintenance for the proposed Vortechs storm water treatment facility to the City on September 2, 1999.

Since that time, Steve Bushey of Deluca-Hoffman has forwarded a form agreement for drainage maintenance that he obtained from the City. This form agreement does not appear to reflect the storm water system for our project. The form agreement specifically addresses the need for the owner to maintain the detention pond and outlets and grants the right to the City to enter the property and maintain these improvements if the owner fails to do so. The agreement also protects the owner from use of the facility by others and from any obligation to enlarge the facility.

For our project, we are not proposing any significant changes to the existing storm drainage system, nor do we have a detention pond. As part of our proposed expansion plans, the only substantial change to the storm drainage system is the addition of a Vortechs storm water treatment facility, which was specifically requested by the City. Per our correspondence to you, dated August 1, 1999, we agreed to maintain this unit in perpetuity, and we provided a detailed maintenance plan as defined by the manufacturer. Since the unit will be located on the City's property, there is no need for the City to obtain a right of entry to their own land. Also, we are not concerned that the City will use the unit for others, or that we will need to enlarge the unit.

For these reasons, we believe that the agreement for drainage maintenance that we prepared on August 1, 1999 is appropriate, as it addresses the specific concerns of the City regarding the addition of the storm water treatment facility and complies with the intent of the condition of Planning Board. As we plan to begin construction soon, please let me know as soon as possible if we have not satisfied the five conditions of Planning Board approval.

Sincerely,

HANNAFORD BROS. CO.
William E. McKenney

cc: Steve Bushey, Deluca-Hoffman
Fred Conlogue
Mary Gamage

Hannaford Bros. Co.

1 August 1999

Ms. Kandice Talbot
Planning Department
City of Portland
389 Congress Street
Portland, Maine 04101

RE: Shop 'n Save Expansion
295 Forest Avenue

Dear Ms. Talbot:

Enclosed herewith are the recommended maintenance requirements as specified by Vortechs, the manufacturer for the proposed stormwater treatment unit. Hannaford Bros. Co. agrees to maintain the unit in accordance with these recommendations. This maintenance agreement is an integral part of our site plan application and satisfies condition *iii*, site plan approval granted by the Planning Board on June 8, 1999.

Sincerely,

HANNAFORD BROS. CO.
Timothy Ellsworth
Mechanical Services Operations Manager

cc: Portland Public Works
Mary Gamage
Bill McKenney

Vortechs™
STORMWATER TREATMENT SYSTEM

MAINTENANCE

The Vortechs System requires minimal routine maintenance. However, it is important that the system be inspected at regular intervals and cleaned when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, e.g., heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping will slow accumulation.

Inspection

Inspection is the key to effective maintenance and it is easily performed. In the first year of operation, frequent inspections of the accumulated sediment volume within the aluminum grit chamber are necessary to establish an appropriate maintenance plan. Vortechnics recommends seasonal inspections during the first year. Inspections should be performed more often in the winter months in climates where sanding operations may lead to rapid accumulations, or in equipment washdown areas. After the first year, the inspection schedule should be reviewed and modified according to experience. It is very useful to keep a record of each inspection. A simple form for doing so is provided.

The Vortechs System only needs to be cleaned when inspection reveals that it is nearly full; specifically, when sediment depth has accumulated to within six inches of the dry-weather water level. This determination can be made by taking 2 measurements with a stadia rod or similar measuring device: one measurement is the distance from the manhole opening to the top of the sediment pile and the other is the distance from the manhole opening to the water surface. If the difference between the two measurements is less than six inches the system should be cleaned out. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.

In Vortechs installations where the risk of large petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, an oil or gasoline spill should be cleaned out immediately. Oil or gas that accumulates on a more routine basis should be removed when an appreciable layer has been captured.

Cleaning

Cleanout of the Vortechs System with a vacuum truck is generally the most effective and convenient method. Cleanout should not occur within 6 hours of a rain event to allow for the entire collection system to drain down. Properly maintained Vortechs Systems will only require evacuation of the grit chamber portion of the system, in which case only the manhole cover nearest to the system inlet need be opened to remove water and contaminants. However, all chambers should be checked to ensure the integrity of the system. In installations where a "clamshell" is being utilized for solids removal, prior to removing the grit, absorbent pads or pillows can be placed in the oil chamber to remove floating contaminants. After the floating contaminants have been removed sediment may be easily removed with the clamshell.

Vortechs™
STORMWATER TREATMENT SYSTEM

In some cases, it may be necessary to pump out all chambers. An important maintenance feature built into Vortechs Systems is that floatables remain trapped after a cleaning. A pocket of water between the grit chamber and the outlet panel keeps the bottom of the baffle submerged, so that all floatables remain trapped when the system begins to fill up again. Therefore, in the event of cleaning other chambers it is imperative that the grit chamber be drained first. Manhole covers should be securely seated following cleaning activities, to ensure that surface runoff does not leak into the unit from above.

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

September 2, 1999

Ms. Kandice Talbot
Planning Dept.
City of Portland
389 Congress Street
Portland, ME 04101

Re: 295 Forest Avenue Shop 'n Save Expansion

Dear Kandi:

On behalf of Hannaford Bros. Co., DeLuca-Hoffman Associates, Inc. is providing this letter to address the conditions of approval i.-v. attached to the June 22, 1999 Planning Board Decision. Specifically, we offer the following evidence for each approval condition:

i. That the applicant provide any necessary permits required by the Army Corps of Engineers to City staff.

Response:

The project will not require approval from the Army Corps of Engineers since the wetlands within the ditch, between the parking lot and Preble Street, are less than 4,300 s.f. in size and in addition are unregulated since they are essentially manmade wetlands resulting from the construction of Preble Street and the Shop 'n Save store. No further documentation is required for this condition.

ii. That the applicant submit utility letters to staff from Portland Water District and Portland Sewer Division.

Response:

DeLuca-Hoffman Associates, Inc. has previously provided letters from each utility regarding their ability to serve this project. Copies of these letters are again attached to this letter for your files.

iii. That the applicant submit a drainage maintenance agreement for review and approval by staff.

Response:

The applicant has prepared the attached letter summarizing their commitment to maintain the drainage system and water quality treatment unit. The maintenance program will be in

accordance with the recommended guidelines by the water quality treatment unit manufacturer, Vortechnics. A copy of their standard maintenance program is attached to this letter for your files.

iv. *That the applicant negotiate with Public Works regarding the location of stormwater treatment system and if Public Works agrees, the stormwater treatment system may remain where proposed as long as the City bears no maintenance responsibility for the stormwater treatment system.*

Response:

DeLuca-Hoffman Associates, Inc. has contacted Mr. Tony Lombardo of the Public Works Department and reviewed the location of the proposed water quality treatment system and also the improvements proposed with the Preble Street right-of-way. Based on the condition that the applicant will provide maintenance to the stormwater system, Public Works will allow placement of the system as proposed. A copy of the maintenance agreement will be forwarded a copy to Public Works for their records.

v. *That the applicant revise plans in accordance with the DRC memo dated 6/4/99 in regard to stormwater treatment system selection and location, erosion control plan, details and information on a new gas line and electrical connections.*

Response:

The following responses are provided to the DRC comments of June 4, 1999.

Response to DRC Comment #1:

DeLuca-Hoffman Associates, Inc. has completed the attached stormwater calculations for the proposed stormwater system and water quality treatment unit. DeLuca-Hoffman Associates, Inc. has coordinated with Tom Gorrivan of Vortechnics, the selected product manufacturer, and he has confirmed that a Model 9000 offline is an appropriate unit. DeLuca-Hoffman Associates, Inc. has revised the site plan to include proper installation of the Vortechnics unit and bypass structure detail. Copies of these plans are attached to this letter.

Response to DRC Comment #2:

DeLuca-Hoffman Associates, Inc. has prepared the attached erosion control and sedimentation plan which includes long-term maintenance provisions for the stormwater management system and construction schedule.

Response to DRC Comment #3:

The proposed 1,260 s.f. addition to the building front will be at the same finish floor elevation as the rest of the building, at elevation 103.43. The sidewalk is an integral part of the foundation

and floor slab as it is all constructed on a grade beam placed on piles. There is no curb in the front of the building. The grades along the front of the building will remain the same. Pedestrian barricades along the building front to separate the work zone will consist of either jersey barriers or orange poly construction fencing.

Response to DRC Comment #4:

The applicant is working with Northern Utilities to determine the gas service main extension location. The service will either be from Forest Avenue or from Baxter Boulevard and will extend to the rear of the building, where the gas will enter the building at or near the existing LP gas service locations. The new gas main will be installed along the edge of the existing travelway and is not anticipated to result in significant traffic disruption. Orange cones and temporary signage will be used to route customer traffic around the utility crew during installation. It is anticipated that gas main installation will take no longer than one week.

Response to DRC Comment #5:

The applicant proposes to install new 16' tall pole-mounted area lights in front of the store. New secondary power cable will be trenched to each light. Secondary circuiting (schematic) has been added to the plans. Trench restoration will include sawcutting and repairing the trenches.

If you have any questions regarding these responses, please call this office. We trust the above information satisfies the conditions of approval. We look forward to your review of this letter and startup of construction.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN1827/Talbot8-31

Attachments

C: James Seymour, DRC Sebago Technics
Mary Gamage, Hannaford Bros. Co.
Bill McKenney, Hannaford Bros. Co.

Department of Public Works

William J. Bray, P. E.
Director

CITY OF PORTLAND

29 June 1999

Mr. Stephen R. Bushey, PE, Senior Engineer,
DeLuca-Hoffman Associates, Incorporated,
778 Main Street, Suite 8,
South Portland, Maine 04106

RE: Sanitary Sewer Capacity of the City Sewer System and the Portland Water District Sewage Treatment Facilities to Handle Anticipated Wastewater Flows, from the Proposed Shop n' Save Supermarket Expansion, at 295 Forest Avenue.

Dear Mr. Bushey:

Both the existing eight inch diameter vitrified clay sanitary sewer pipe, in Baxter Boulevard, and the Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to transport and treat the anticipated wastewater flows of 560 GPD, from your proposed expansion. The design flow was calculated by dividing the highest monthly flow (176,528) by the number of days the facility was in use during the month with the highest flow (27) and then multiplying by 1.5. The proposed increase in wastewater flows for this store expansion project was calculated by dividing the proposed increase in total square footage (4,876) by the existing total square footage (83,894) and then multiplying the design flow (9,807) by this quotient (0.0581).

Anticipated Wastewater Flows from the Proposed Expansion

Design Flow = Highest Monthly Flow (176,528)/Days in Month (27) X 1.5	= 9,807 GPD
Total Proposed Increase in Wastewater Flows for this Project (See Above)	**= 0,560 GPD**

If I can be of further assistance, please call me at 874-8832.

Post-it® Fax Note 7671	Date 6/29/99	# of pages ▶ One
To Stephen Bushey	From Frank Brancely	
Co./Dept. DeLuca-Hoffman	Co. City of Portland	
Phone # 775-1121	Phone # 874-8832	
Fax # 879-0896	Fax # 874-8852	

Sincerely,
CITY OF PORTLAND

Frank Brancely

Frank J. Brancely, BA, MA
Senior Engineering Technician

FJB

cc: Joseph E. Gray, Director, Department of Planning & Urban Development, City of Portland
Kandi Talbot, Planner, Dept. of Planning & Urban Development, City of Portland
Katherine A. Staples, PE, City Engineer, City of Portland
Bradley A. Roland, PE, Environmental Projects Engineer, City of Portland
Anthony W. Lombardo, PE, Project Engineer, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
Desk File

O:\Engshare\CSO\295Frest.Doc

Portland Water District

225 Douglass St. • P.O. Box 3553 • Portland, ME 04104-3553

(207) 774-596
FAX (207) 761-83
www.pwd.c

June 14, 1999

Mr. Stephen R. Bushey, P.E.
DeLuca-Hoffman Assoc., Inc.
778 Main Street
So. Portland, Maine 04106

Re: Shop 'n Save Supermarket, Forest Ave/Preble St, Portland

Dear Steve:

The Portland Water District has an 8" water main in Baxter Blvd., Portland, near the proposed site. A test on a nearby hydrant produced the following results: static pressure 97 psi; residual pressure 52 psi; with a flow of 1210 gpm. With these results in mind, the District feels we have a healthful and sufficient capacity available to serve this proposed project and meet all normal fire protection and domestic water service demands.

With certification by the developer that all required permits have been received, we look forward to serving this project.

Sincerely,

PORTLAND WATER DISTRICT

David W. Coffin, PLS
Engineering Supervisor

DeLUCA-HOFFMAN ASSOCIATES, INC.
Consulting Engineers
778 Main Street Suite 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121
FAX (207) 879-0896

JOB 1827 - HANNAFORD BROS. / FOREST AVE.
SHEET NO. 1 OF
CALCULATED BY JPC DATE 9/2/99
CHECKED BY DATE
SCALE

TASK:

TO ESTIMATE STORMWATER RUNOFF VOLUME FOR THE FOREST AVENUE HANNAFORD BROS. CO. SHOP 'N' SAVE.

REFERENCES:

TR-55, URBAN HYDROLOGY FOR SMALL WATERSHEDS; U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE; JUNE 1986.

"OVERALL SITE PLAN," DELUCA-HOFFMAN ASSOCIATES, INC., JN # 1827, MAY 1999.

HydroCAD™, STORMWATER VOLUME COMPUTATION COMPUTER PROGRAM, Applied Microcomputer Systems, DATA SHEET PAGE #5, 2 SEPTEMBER 1999. (SEE ATTACHMENT)

COMPUTATIONS:

WATERSHED CHARACTERISTICS:

TOTAL AREA = 5.01 ACRES

COMPRISED OF:

SOILS = Cu - CUT AND FILL LANDS ⇒ HSG - C

0.45 ACRES OF LAWN - C SOILS CN = 74

4.56 ACRES OF IMPERVIOUS PAVEMENT CN = 98

WEIGHTED CN = 96

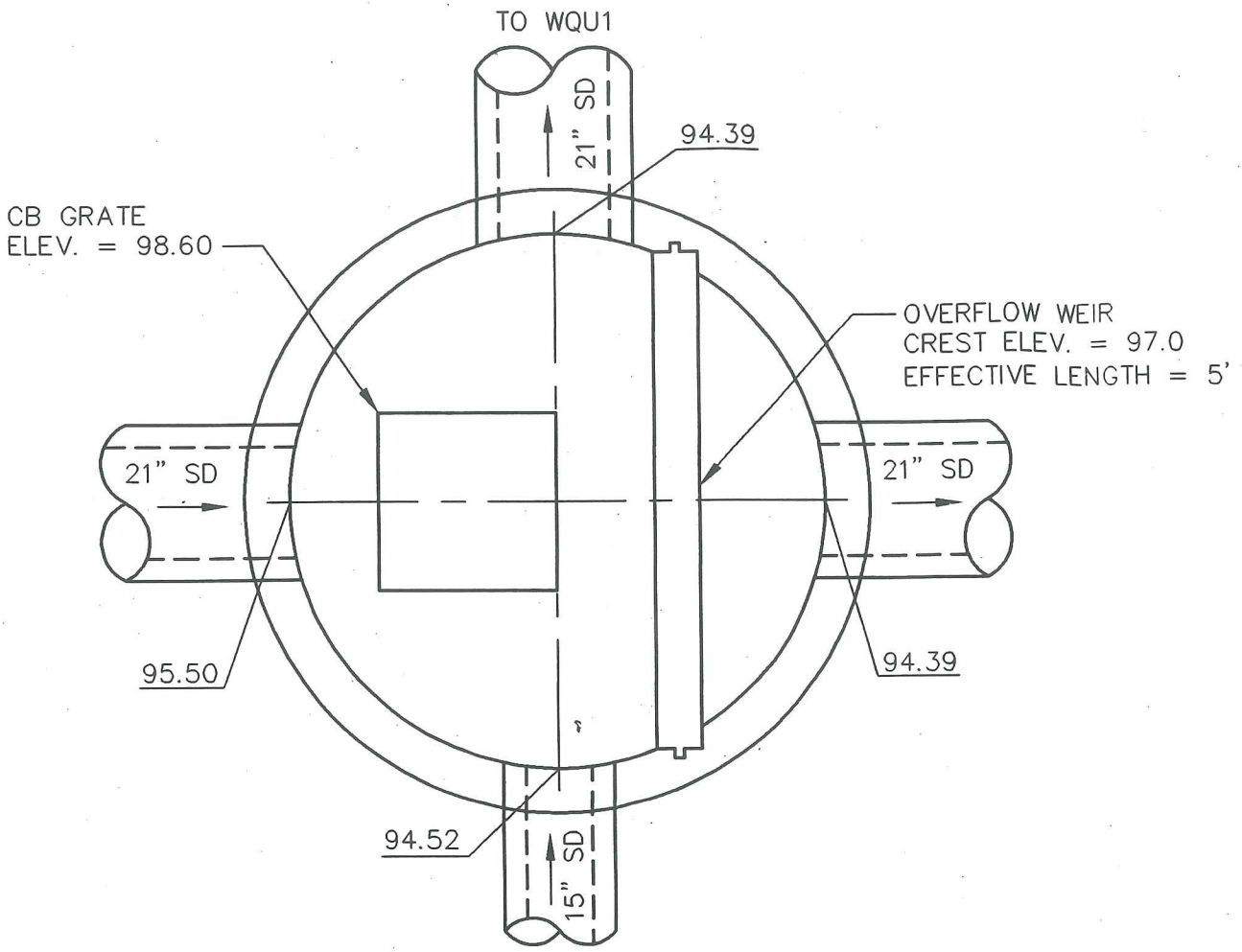
Tc: SHEET FLOW, L = 225', n = 0.011, S = 0.0102, ⇒ Tc = **3.1** MIN.

CIRCULAR CHANNEL FLOW, L = 455', DIAM. = 21", N = 0.024, S = 0.005 ⇒ Tc = 3.0 MIN

TOTAL L = 680' Tc = 6.1 MINUTES.

PEAK FLOW = 23.74 CFS @ 12.03 HOURS

VOLUME = 2.00 ACRE-FEET.



6'-0" PRECAST CATCH BASIN #3

N.T.S.

6' PRECAST CATCH BASIN #3	SHOP 'n SAVE EXPANSION FOREST AVENUE - PORTLAND, ME

DH
DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
(207) 775-1121
DHAI@MAINE.RR.COM

DRAWN:	DB	DATE:	SEP 1999	FIGURE
DESIGNED:	SRB	SCALE:	NONE	1
CHECKED:	SRB	JOB NO.	1827	
FILE NAME:	1827-DET1.DWG			

EROSION AND SEDIMENT CONTROL

I. INTRODUCTION

DeLuca-Hoffman Associates, Inc. has been retained by Hannaford Bros. Co. to prepare plans and permit applications for a 14,590 sq. ft. proposed building addition. The project site is located in Portland, Maine between Forest Avenue, Preble Street Extension, and Baxter Boulevard. The proposed development will consist of a building expansion and installation of various site amenities including curbing, light poles, water quality treatment measures, and erosion and sedimentation control measures. Portions of the drive aisles and parking areas will also be rebuilt.

The site is comprised of an existing Shop 'n Save store and existing retail stores. The lot is approximately 9.77 acres and is zoned business B2 and B3. Drainage on the site is facilitated by several catch basins which discharge into three different areas, but ultimately all the storm water is discharged into Back Cove. Two drainage swales exist along Preble Street Extension. To the south of the Preble Street Extension entrance/exit the drainage swale is the discharge point of two closed drainage systems. This swale discharges into a field inlet which feeds into a catch basin on Preble Street Extension. The northern portion of the parking area drains via catch basins into one of three drain manholes located off the pavement to the north on a landscaped berm. This system discharges to an open swale along Preble Street Extension. Another storm drain system services the drive aisle associated with the Baxter Boulevard entrance/exit. This system believed to tie into the existing drainage system for the street, which outfalls into Back Cove.

II. DESCRIPTION AND LOCATION OF THE LIMITS OF PROPOSED EARTH MOVEMENT

The proposed project will require improvements to the site. Portions of the parking and drive aisle area are proposed to be excavated to a depth of 8", regraded and compacted, and resurfaced. This does not pose a significant erosion or sedimentation problem due to the fact that there is not a significant amount of elevation drop over the parking area upon removal of the existing surface and subsurface. The exposed material will be compacted then resurfaced in a timely manner, minimizing the period of exposure. The exposed material will be compacted, then resurfaced. Catch basins and curbing will be protected and sediment traps will be installed over all catch basins.

The project will also include maintenance and regrading of the drainage swale along Preble Street Extension, south of the Preble Street Extension entrance/exit. Area disturbed in the swale will receive 4" of topsoil, seed and mulch. Hay bale barriers will temporarily be installed across the swale drain lines and storm drain structures.

III. EROSION AND SEDIMENTATION CONTROL DEVICES

The primary emphases of the erosion and sedimentation control plan for this project are as follows:

1. Development of a careful construction sequence which recognizes areas which are potentially more sensitive to erosion and sedimentation.

2. Rapid revegetation of denuded areas to minimize the period of soil exposure.

3. Rapid stabilization of all drainage paths to avoid rill and gully erosion.

4. The use of on-site measures to capture sediment (haybale barriers, rip rap aprons, silt fence, and stormwater treatment).

The following erosion and sedimentation control devices are planned for this project during the construction period. These devices shall be installed as indicated on the plans.

1. **Hay Bale Barriers:** Hay bale barriers will be installed within disturbed areas to trap runoff-borne sediments until the site is stabilized. These measures will remain in place until all denuded areas are stabilized with vegetation.

2. **Sediment Traps:** Sediment traps shall be installed at each catch basin inlet to prevent sediment from entering the storm drain system. Installation details are provided on the erosion and sedimentation control detail sheets.

3. **Loam, Seed, & Mulch:** All disturbed areas, which are not otherwise treated, shall receive permanent seeding and mulch to stabilize the disturbed areas. The disturbed areas will be revegetated within 5 days of final grading. Seeding requirements are provided at the end of this report. Straw or hay mulch is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch shall be placed on slopes of 15% or less and shall be anchored by applying water. In all cases, soil is not to be visible regardless of the application rate specified. Mulch application rates are provided in Appendix A of this section.

4. **Stormwater Treatment:** A Vortechs Model #9000 water quality treatment unit will be installed to remove sediment, floatables, and oil and grease. The unit has a design capability of removing 80% TSS (total suspended solids). The system is designed to trap and store sediment and other particulates and inhibit the resuspension of sediment.

IV. TEMPORARY EROSION/SEDIMENT CONTROL MEASURES

The following are planned as temporary erosion/sedimentation control measures during construction of the development:

1. Hay bale barriers shall be installed within the drainage swale, and shall remain in place until the site is revegetated.

2. Temporary stockpiles of grubbings, or common excavation will be protected as follows:

   a) Soil stockpile side slopes shall not exceed 2:1.

   b) Temporary stockpiles shall not be in areas with slopes over 10 percent, and should not be stored within 25 feet of a resource or storm drain inlet.

c) The stockpile shall be stabilized within 15 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch.

d) If stockpiles must remain in place for more than 60 days, filter fabric shall be used in place of mulch or temporary vegetation.

e) Any stockpiled topsoil shall be surrounded by siltation fence.

3. All denuded areas which have been rough graded and are not located within the building pad, or parking and driveway subbase area, shall receive mulch within 30 days of initial disturbance of soil or within 15 days after completing the rough grading operations. In the event that the Contractor completes final grading and installation of loam and seed within the time periods presented above, installation of mulch and netting, where applicable, would not be required.

4. If work is conducted between October 15 and April 15, all denuded areas are to be covered with hay mulch, applied at least at twice the normal application rate, or as much as required to provide complete coverage of the soil surface so that no soil is visible, and anchored with fabric netting. The period between final grading and mulching shall be reduced to a 15-day maximum. It is anticipated that construction will begin in the fall of 1999 and continue for 4-6 months thereafter.

5. Temporary erosion control measures shall be removed once the site has been stabilized or in areas where permanent erosion control measures have been installed.

V. PERMANENT EROSION CONTROL MEASURES

The following permanent control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized and seeded. All areas shall receive protection within 30 days. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.

2. All culvert inlets and outlets will be riprapped in accordance with the details provided in the plan set.

VI. TIMING AND SEQUENCE OF EROSION/SEDIMENTATION CONTROL MEASURES

The site work is anticipated to be completed by summer 2000. The Contractor will be required to have the least possible area exposed to the elements and will be required to maintain the erosion control elements on a regular maintenance schedule. The anticipated sequence of events is:

1. Install erosion control measures as illustrated.

2. Immediately stabilize slopes and excavate material onsite.

3. Clear and grub site.

4. Construct storm drain system as required.

5. Strip and stockpile topsoil and seed stockpile with temporary seed mix.

6. Perform earthwork operations and bring to subgrade elevations.

7. Install hay bale barriers and stone check dams as necessary.

8. Install extension to the outlet pipe of the northern detention basin that will be located under the proposed expansion.

9. Complete fine grading of paved area and place base pavement course to stabilize area.

10. Begin installation of landscaping.

VII. PROVISIONS FOR MAINTENANCE OF THE EROSION/SEDIMENTATION CONTROL FEATURES

The project will be contracted by the Owner. The Contractor shall prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection and maintenance of all erosion control measures identified within this section as contained on the contract drawings. Specific responsibilities of the inspector(s) will include:

1. Inspection of this project work site on a weekly basis and after each significant rainfall event (0.5 inches or more within any consecutive 24-hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of the project work site shall include:

    - Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.

    - Determine whether each erosion control measure is properly operating. If not, identify damage to the control device and determine remedial measures.

    - Identify areas which appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.

    - Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 75 percent is required prior to removal of erosion control measures.

    Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.

2. If inspection of the site indicates a change should be made to the erosion control plan, either to improve effectiveness or correct a site-specific deficiency, the inspector shall immediately implement the corrective measure and notify the owner of the change.

3. Once construction has been completed, long-term maintenance of the drainage system and catch basins will be the responsibility of the applicant. The catch basin sumps shall be inspected in April and October of each year. Sediment shall be removed when the depth of sediment reaches one half the depth of the sump. The water quality treatment unit shall be inspected and maintained in accordance with the manufacturer's recommendations.

DeLUCA-HOFFMAN ASSOCIATES, INC.
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- CONSTRUCTION ADMINISTRATION

June 30, 1999

Ms. Kandice Talbot
Planning Dept.
City of Portland
389 Congress Street
Portland, ME 04101

Re: Proposed Shop 'n Save Expansion
Forest Avenue
Ability to Serve Letters

Dear Kandi:

Enclosed are letters from the Portland Water District and Portland Public Works Department stating their ability to provide service for the proposed Shop 'n Save expansion. Please call this office if you have any questions.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN1827/Talbot6-30

Enclosures

c: Bill McKenney, Hannaford Bros. Co.
Mary Gamage, Hannaford Bros. Co.

Portland
Water District

225 Douglass St. • P.O. Box 3553 • Portland, ME 04104-3553

(207) 774-5961
FAX (207) 761-8307
www.pwd.org

June 14, 1999

Mr. Stephen R. Bushey, P.E.
DeLuca-Hoffman Assoc., Inc.
778 Main Street
So. Portland, Maine 04106

Re: Shop 'n Save Supermarket, Forest Ave/Preble St, Portland

Dear Steve:

The Portland Water District has an 8" water main in Baxter Blvd., Portland, near the proposed site. A test on a nearby hydrant produced the following results: static pressure 97 psi; residual pressure 52 psi; with a flow of 1210 gpm. With these results in mind, the District feels we have a healthful and sufficient capacity available to serve this proposed project and meet all normal fire protection and domestic water service demands.

With certification by the developer that all required permits have been received, we look forward to serving this project.

Sincerely,

PORTLAND WATER DISTRICT

David W Coffin

David W. Coffin, PLS
Engineering Supervisor

JUN 16 1999

H:\DEPTS\TECH\ENG\DCOFFIN\Ability to Serve\Portland\Shop 'n Save.doc

Department of Public Works

William J. Bray, P. E.
Director

CITY OF PORTLAND

29 June 1999

Mr. Stephen R. Bushey, PE, Senior Engineer,
DeLuca-Hoffman Associates, Incorporated,
778 Main Street, Suite 8,
South Portland, Maine 04106

RE: Sanitary Sewer Capacity of the City Sewer System and the Portland Water District Sewage Treatment Facilities to Handle Anticipated Wastewater Flows, from the Proposed Shop n' Save Supermarket Expansion, at 295 Forest Avenue.

Dear Mr. Bushey:

Both the existing eight inch diameter vitrified clay sanitary sewer pipe, in Baxter Boulevard, and the Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to transport and treat the anticipated wastewater flows of 560 GPD, from your proposed expansion. The design flow was calculated by dividing the highest monthly flow (176,528) by the number of days the facility was in use during the month with the highest flow (27) and then multiplying by 1.5. The proposed increase in wastewater flows for this store expansion project was calculated by dividing the proposed increase in total square footage (4,876) by the existing total square footage (83,894) and then multiplying the design flow (9,807) by this quotient (0.0581).

Anticipated Wastewater Flows from the Proposed Expansion

Design Flow = Highest Monthly Flow (176,528)/Days in Month (27) X 1.5	= 9,807 GPD
Total Proposed Increase in Wastewater Flows for this Project (See Above)	**= 0,560 GPD**

If I can be of further assistance, please call me at 874-8832.

Sincerely,
CITY OF PORTLAND

Frank Brancely

Frank J. Brancely, BA, MA
Senior Engineering Technician

FJB

cc: Joseph E. Gray, Director, Department of Planning & Urban Development, City of Portland
✓Kandi Talbot, Planner, Dept. of Planning & Urban Development, City of Portland
Katherine A. Staples, PE, City Engineer, City of Portland
Bradley A. Roland, PE, Environmental Projects Engineer, City of Portland
Anthony W. Lombardo, PE, Project Engineer, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
Desk File

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CITY OF PORTLAND, MAINE
PLANNING BOARD

June 22, 1999

Ms. Mary Gamage
Hannaford Bros. Co.
P.O. Box 1000
Portland ME 04104

RE: 295 Forest Avenue Shop 'n Save Expansion

Dear Ms. Gamage:

On June 8, 1999 the Portland Planning Board voted 6-0 (Krichels absent) to approve the site plan for a 13,140 sq. ft. expansion of the Shop 'n Save supermarket located at 295 Forest Avenue. The approval was granted for the project with the following conditions:

i. That the applicant provide any necessary permits required by Army Corp of Engineers to City staff.

ii. That the applicant submit utility letters to staff from Portland Water District and Portland Sewer Division.

iii. That the applicant submit a drainage maintenance agreement, for review and approval by staff.

iv. That the applicant negotiate with Public Works regarding the location of stormwater treatment system and if Public Works agrees the stormwater treatment system may remain where proposed as long as the City bears no maintenance responsibility for the stormwater treatment system.

v. That the applicant revise the plans in accordance with the DRC's memo dated 6/4/99 in regards to stormwater treatment system selection and location, erosion control plan, details, and information on new gas line and electrical connections.

The Planning Board also voted 6-0 (Krichels absent) that the site plan was in conformance with the Site Location of Development Law. The approval is based on the submitted site plan and the findings related to site plan review standards as contained in Planning Report #23-99, which is attached.

Please note the following provisions and requirements for all site plan approvals:

1. A performance guarantee covering the site improvements as well as an inspection fee payment of 1.7% of the guarantee amount and 7 final sets of plans must be submitted to and approved by the Planning Division and Public Works prior to the release of the building permit. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.

2. The site plan approval will be deemed to have expired unless work in the development has commenced within one (1) year of the approval or within a time period agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the expiration date.

3. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

4. Prior to construction, a preconstruction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the preconstruction meeting.

5. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

The Development Review Coordinator (874-8300 ext. 8722) must be notified five (5) working days prior to date required for final site inspection. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact the Planning Staff.

Sincerely,

John H. Carroll, Chair
Portland Planning Board

cc: Joseph E. Gray, Jr., Director of Planning and Urban Development
Alexander Jaegerman, Chief Planner
Kandice Talbot, Planner
P. Samuel Hoffses, Building Inspector
Marge Schmuckal, Zoning Administrator
Tony Lombardo, Project Engineer
Development Review Coordinator
William Bray, Director of Public Works
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Inspection Department
Kathleen Brown, Director of Economic Development
Susan Doughty, Assessor's Office
Approval Letter File

DeLUCA-HOFFMAN ASSOCIATES, INC.
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June 4, 1999

Ms. Kandice Talbot
Planning Dept.
City of Portland
389 Congress Street
Portland, ME 04101

Re: Hannaford Bros. Co., Shop 'n Save Plaza, Forest Avenue

Dear Kandi:

DeLuca-Hoffman Associates, Inc. and Jim Seymour have reviewed the latest submission plans for the Hannaford Bros. Co. project. DeLuca-Hoffman Associates, Inc. has revised the plans based on the following comments by Mr. Seymour:

Comment 1:

Spot grades should be provided around the building perimeter.

Comment 2:

Riprap aprons should be provided at each culvert/pipe inlet and outlet.

Comment 3:

The 6" underdrain exiting the proposed expansion should be connected to the existing catch basin rather than the 15" storm drain.

Comment 4:

The propane tanks at the rear of the Shop 'n Save store should be removed or relocated to accommodate the proposed curb alignment.

Comment 5:

A drainage area plan identifying the tributary area of the proposed water quality unit should be provided to the DRC for review and for their records.

DeLuca-Hoffman Associates, Inc. has completed revisions to the plans to address each comment. A copy of the revised plans has been provided to Mr. Seymour for his review. Three sets of full size plans and one 11" x 17" set of drawings are included with this letter for your review and use in advance of the June 8, 1999 Planning Board meeting.

If you have any questions regarding the revised plans, please call this office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN1827/Talbot6-4

Enclosure

c: Mary Gamage, Hannaford Bros. Co.
Bill McKenney, Hannaford Bros. Co.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S. KING, JR.
GOVERNOR

EDWARD O. SULLIVAN
COMMISSIONER

June 4, 1999

Peter A. Hedrich
DeLuca-Hoffman Associates, Inc.
778 Main St., Suite 8
South Portland, ME 04106

RE: Forest Ave. Shop 'n Save, Portland

Dear Peter:

I have received and reviewed your letter, dated May 26, 1999 regarding the above-referenced project. I have also discussed specific aspects of your letter with Bruce Ibarguen of the Maine Department of Transportation (MDOT).

In the letter, you concluded that the proposed project will not generate a net increase in passenger car equivalents during the peak hour such that a permit pursuant to 38 M.R.S.A. Sections 481 - 490, and Department regulations Chapter 374, would be required. This conclusion is based on existing traffic patterns and trip generation numbers, both at the Forest Avenue store and at other nearby Shop 'n Save supermarkets. Because of its location and current undersized footprint, the Forest Avenue store exhibits an unusually high trip rate. The Department, in consultation with MDOT, concurs with your assessment that the proposed expansion will not result in an increase in traffic volume sufficient to require a traffic permit, but will serve to better accommodate existing trips.

Please do not hesitate to call me if you have any questions.

Sincerely,

Marybeth Richardson, project manager
Division of Land Resource Regulation
Bureau of Land and Water Quality

C: Nancy Beardsley

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
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Sebago Technics
Engineering & Planning for the Future
12 WESTBROOK COMMON
WESTBROOK, ME 04092-1339
TEL (207) 856-0277

MEMORANDUM

99280

To: Kandice Talbot, Planner

From: James Seymour, Alternate Development Review Coordinator JPS

Date: June 4, 1999

Subject: Shop 'n Save Expansion, Forest Avenue, Portland, Maine

---

I have reviewed the Site Plan drawings for the Shop 'n Save Expansion located on Forest Avenue by Hannaford Bros. Co. Based on my review, there are a few items which need to be revised prior to final approval. The following items are:

1. Prior to final selection of the stormwater treatment system, the stormwater calculations and watershed map shall be reviewed. The applicant's letter dated June 1, 1999 states that the 10-year storm generates 15.5 cfs. We would like to verify the 10-year and 25-year storm event peak rates of runoff to assure the tank is sized properly and will not surcharge or exceed recommended flows in a larger, 25-year storm event. Since the final selection has not been made, it is difficult to determine the type of overflow or bypass options the system has for higher flow rates. Also, the final detail shall be placed on the plans, reviewed and approved prior to issuance of the building permit. It is my understanding, as well, that the location of the treatment system in the Preble Street right-of-way may not be acceptable to Public Works and the final location may change. Prior to approval, Tony Lombardo, P.E. (Public Works) or myself should approve the final location.

2. Even though this is a relatively minor site construction project, an erosion control and sedimentation plan should be attached to discuss in detail maintenance of the permanent structures such as catch basins and treatment tank for sediment removal during and after construction activities. The manufacturers usually provide a plan if the applicant needs assistance in generation of a plan. Also, the sequence of construction dates and activities should be added to the erosion control plan.

3. The proposed 1,260 square foot addition to the front needs to include finish floor elevation, curb spot grades, and details of the replaced sidewalk, curbing, fence and handicap ramps. Also, a pedestrian barricade should be shown on the plan to indicate work limits during construction.

4. A gas line has been shown to enter the building from the northwest corner as an option for natural gas service. If this option becomes chosen, the applicant should submit a construction schedule and traffic routing plan during construction of the gas main.

5. New lights are proposed in the islands along the main frontage. Do electrical connections exist, or will a new underground electric services be needed; and, if so, how will it affect the existing pavement? Will it be trench cut and patched, or patched and entirely overlaid in conjunction with a gas main installation.

Please feel free to contact my office if you have any questions. I have had conversations regarding these comments with the design engineer, Stephen Bushey, P.E. of DeLuca-Hoffman Assoc., Inc. I just received revisions prior to my formal memo which was to be sent with my original comments. I have not had a chance to review the stormwater calculations and mapping, but will try to complete it prior to your meeting on Tuesday. I would appreciate your sending Stephen Bushey a copy of this memo which has been updated to match the plans submitted this morning, June 4, 1999.

JRS:jc

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

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June 1, 1999

Ms. Kandice Talbot
Planning Dept.
City of Portland
389 Congress Street
Portland, ME 04101

Re: Shop 'n Save Plaza
Forest Avenue/Preble Street
Portland, Maine

Dear Kandi:

On behalf of Hannaford Bros. Co., DeLuca-Hoffman Associates, Inc. is pleased to provide the attached plans for staff review. The plans highlight the proposed development for an approximately 13,140 s.f. building expansion onto the existing Shop 'n Save supermarket. Hannaford Bros. Co. representatives have previously outlined the proposed project to the City and Planning Board in their original application. The following additional information is provided based on your review memorandum to the Planning Board dated May 11, 1999.

It is our understanding that the Public Works Department has recommended the Applicant install a water quality treatment unit to treat stormwater runoff prior to discharge into the Preble Street ditch and drainage system. DeLuca-Hoffman Associates, Inc. has reviewed the existing drainage system on the site and concluded that it is possible to install a water quality treatment device in the vicinity of two storm drain outlets off the southeast building corner. As suggested by Mr. Lombardo of Public Works, a 21" storm drain, which serves catch basins in front of the store, and a 15" storm drain, which serves to drain areas behind the store, would be connected into a new water quality unit. The Applicant proposes to install the proposed water quality treatment unit in the existing Preble Street drainage swale. The Applicant proposes to perform maintenance and grading improvements to the swale along Preble Street in order to allow placement of the water quality treatment unit and to remove invasive plant growth and sediments which have clogged the swale. The drainage swale currently discharges stormwater into the storm drain system along Preble Street. This includes an 18" field inlet draining to a 24", then 42" storm drain in Preble Street. The 42" storm drain discharges to an 84" outfall pipe which was reconstructed by the City last year. The 84" pipe discharges to Back Cove. The Applicant proposes to install a closed drainage system within the swale and regrade by raising the grade 2-4 feet in the swale. It is our opinion the work will improve the appearance of the swale and allow easier access for mowing and long term maintenance. It is noted that the applicant currently cuts the grass in the swale where possible, despite its being in the Preble Street right-of-way. The proposed work will also include the construction of a new 6' wide bituminous asphalt sidewalk from the Preble Street sidewalk to the front of the existing store. The sidewalk will be installed in the vicinity of a footpath between Preble Street and the parking lot. The Applicant also proposes to remove the existing bituminous sidewalk at the site's southeast corner in order to dissuade pedestrian foot traffic through the rear parking lot.

The water quality unit will treat stormwater for an approximately 3.25-acre area of the site. This includes the front parking lot and a portion of the rear parking area. DeLuca-Hoffman Associates, Inc. has

evaluated the use of two possible water quality units, one provided by Vortechnics and the other a Stormceptor™ unit. At this time, the Applicant proposes to solicit quotations from a number of vendors for the unit, as several are available. In general, the following criteria will be used for the treatment unit design:

Design Storm	-	10 year
Approximate Flow	-	15.5 cfs (Rational Method)
Efficiency	-	80% TSS removal

Based on these design criteria, examples of possible treatment units include the following:

Vortechs Model #9000 or Model #11000 by Vortechnics
Stormceptor™ Model #4800

At this time, DeLuca-Hoffman Associates, Inc. requests that staff level approval of the water quality unit be made a condition of the Planning Board approval. Upon selection by the Applicant, field design computations and specifications for the water quality unit will be made to the Planning Staff, DRC and Public Works staff.

Regarding other issues raised in your memorandum; the existing facility is managed by Hannaford Bros. Co. They currently have a contract with Yarmouth Rubbish & Recycling to provide solid waste disposal for the Shop 'n Save supermarket. Other rubbish contractors currently remove solid waste for the various tenants; however, Yarmouth Rubbish & Recycling will continue to remove solid waste for Hannaford Bros. Co. after the proposed expansion. No significant increase in solid waste removal is anticipated as a result of the proposed expansion.

At this time, DeLuca-Hoffman Associates, Inc. has requested an ability-to-serve letter from Frank Brancely of the Public Works Department for wastewater disposal. We will be providing their response letter to you immediately upon receipt.

Finally, DeLuca-Hoffman Associates, Inc. has requested an opinion from the Maine Department of Environmental Protection (MeDEP) regarding the need for a traffic permit. The attached letter to the MeDEP summarizes the traffic-related issues for the proposal.

DeLuca-Hoffman Associates, Inc. is pleased to submit seven copies of the plans for staff and Planning Board review. If you have any questions regarding the project, please call this office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN1827/Talbot6-1

Enclosure

C: Mary Gamage, Hannaford Bros. Co.

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

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May 26, 1999

Ms. Marybeth Richardson
Maine Department of Environmental Protection
312 Canco Road
Portland, Maine 04103

Re: Forest Avenue Shop 'n Save
Maine DEP File No. 003713, 1985

Dear Marybeth:

We are seeking an opinion on the need for a traffic permit with regard to Hannaford Bros. Co.'s proposal to expand their grocery store located between Forest Avenue and Preble Street in Portland. The City of Portland will review the site aspects of the project under their delegated review authority. We understand that the City was recently given delegated review authority for traffic projects generating between 100 and 200 trip ends.

However, the DEP retains final review authority and would need to concur with our methodology in determining traffic volumes associated with the proposed expansion. We contend that the proposed project, which would convert 9,690 s.f. of office and 9,070 s.f. of retail to supermarket space and add 13,140 s.f. of building footprint as supermarket space, would not significantly affect traffic generation at the site. The purpose of this expansion is to better accommodate the existing customer traffic rather than draw new traffic to the site. The facility currently experiences traffic volumes in excess of those typical of a Shop 'n Save, as well as those presented in the ITE Trip Generation Manual, 6th Edition.

Traffic counts were collected at this facility on Friday, April 23, 1999 from 3:30 – 6:00 PM. A total of 1,058 peak hour trip ends were counted from 4:30 – 5:30 PM. The resultant trip rate for the 64,200 s.f. supermarket/retail component of the center was 15.58 trips per thousand square feet. The 20,500 s.f. of existing office was assumed to generate at the ITE rate and these trips were deducted from the counts prior to determining the retail/grocery store existing trip rate. Adding the additional building footprint area to the retail/supermarket component would reduce the trip rate to 12.93 trip ends per thousand square feet, assuming no additional traffic. We also reviewed historical summer counts at Shop 'n Saves in Scarborough, Wells and Standish. The maximum trip rate realized in these summertime counts was 12.09 per thousand square feet in Wells. The average trip rate in the ITE Trip Generation Manual, 6th Edition, is 11.51 trip ends per thousand square feet. This data is summarized below:

Trip Generation Rates PM Peak Hour of Generator	
Source	**Rate: Trips/ Thousand Square Feet**
Forest Avenue Shop 'n Save/Retail	
Existing	15.58
Proposed	12.93
Wells Shop 'n Save	12.09
ITE Supermarket	11.51

The above discussion and table show that even with the proposed expansion, and assuming no additional traffic to the site, the trip rate to the site exceeds the summer rate in Wells and the ITE average rate. This reinforces our point that the expansion will actually accommodate existing traffic, not generate additional volume. Additionally, the store is located in an area with established shopping patterns which are not likely to be affected by a 13,140 square foot expansion. Therefore, simply applying the ITE trip rate of 11.51 to the expansion area, which would result in an increase of approximately 125 trip ends when taking credit for elimination of second-floor office space, does not seem to be appropriate.

We request that you issue an opinion with regard to the need for a traffic permit for the proposed expansion. Please call with any questions.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Peter Hedrich RED

Peter A. Hedrich, P.E., P.T.O.E.
Senior Engineer

PAH/sq/JN1827/Richardson5-26

Enclosures

c: Nancy Beardsley, Maine
Bruce Ibarguen, Maine DOT
Bill McKenney, Hannaford Bros. Co.

Attachment 5

CITY OF PORTLAND, MAINE
PLANNING BOARD

TO RESIDENTS AND PROPERTY OWNERS IN THE VICINITY OF
295 FOREST AVENUE

On Tuesday, May 11, 1999, the Portland Planning Board will consider a plan by Hannaford Bros. Co. to construct a 13,140 sq. ft. expanion of the existing Shop 'n Save supermarket located at 295 Congress Street. The site is approximately 9.77 acres and zoned B-2.

The meeting is a workshop session and is scheduled to begin at 3:30 p.m. in Room 209, City Hall, 389 Congress Street, Portland, Maine. The workshop is an opportunity for the applicant to present a plan to the Planning Board in an informal session, which is open to the public. Public comments are not generally received at the workshop meeting. If you wish to submit written comments on the proposal, please address your comments to Joseph E. Gray, Jr., Director of Planning and Urban Development, City Hall, 4th Floor, 389 Congress Street, Portland, Maine 04101.

Alexander Jaegerman
Chief Planner

5/5/1999

We support this proposal.

Linda and Earl Stevens
25 Belmeade Road

Attachment 3

PUBLIC WORKS ENGINEERING MEMORANDUM

To: *Kandi Talbot Senior Planner*
From: *Anthony Lombardo, P.E., Project Engineer*
Date: *May 5, 1999*
Subject: *Shop 'n Save Plaza...Forest Ave....Store Expansion*

The following comments were generated during Public Works Engineering's second review of proposed commercial development on Forest Ave.. The plans and application were dated April 22, 1999.

Public Works is requesting the applicant provide stormwater treatment of the runoff being discharged from the site. This can be achieved by redirecting the northerly parking area outfall pipe (21" dia. CMP), which currently discharges into a roadside swale, in an appropriately sized Vortechnics Stormwater Treatment Tank. In addition, the southerly parking area outfall pipe (15" dia. CMP), which also drains in the roadside swale adjacent to Preble St., can be redirected into the same stormwater treatment tank. Stormwater treated in the Vortechnics Tank can then be discharged through a single pipe into the Preble St. swale. Public Works feels that this is a reasonable request based on the size of the Shop 'n Save impervious drainage area and the close proximity of the receiving wetland, Back Cove.

Engineer Review and Site Inspection Fee Invoice Worksheet

Address: ***Shop 'n Save..Forest Ave.....DATE:5/5/99***

Engineering Review

To be filled out by Development Review Coordinator and Public Works at time of application.

Planning	**Public Works**
# of Hours Estimated: (Private Improvements) Improvements)	**# of Hours Estimated: (Public**
Field Work _____	Field Work ***1.0***
Memos/Corresp. _____	Memos/Corresp. _____ ***20***
Review/Analysis _____ ***20***	Review/Analysis
Meetings/phone calls _____ ***1.0***	Meetings/phone calls
Total Hours _____ at _____ per hour	Total Hours ***6.0*** at ***$35*** per hour
Review Fee (Private): $ _____ ***$210***	Review Fee (Public): $
_____	_____
Development Review Coordinator Signature	Public Works Engineer Signature

Site Inspection

To be filled out by DRC and Public Works at time of Performance Guarantee approval.

Planning	**Public Works**
____ Accept 1.7% of Private Improvements P.G. P.G.	**___ Accept 1.7% of Private Improvements**
$ _____ (dollar amount)	**$ _____ (dollar amount)**
# of Hours Estimated:	**# of Hours Estimated:**
Field Work _____ ***6.0***	Field Work

Memos/Corresp. _____ *1.0*

Review/Analysis _____

Meetings/phone calls _____ *1.0*

Total Hours _____ at _____ per hour

Alternate Inspection Fee (Private): $ _____ *$280*

_____

Development Review Coordinator Signature

Memos/Corresp.

Review/Analysis

Meetings/phone calls

Total Hours *8.0* at *$35* per hour

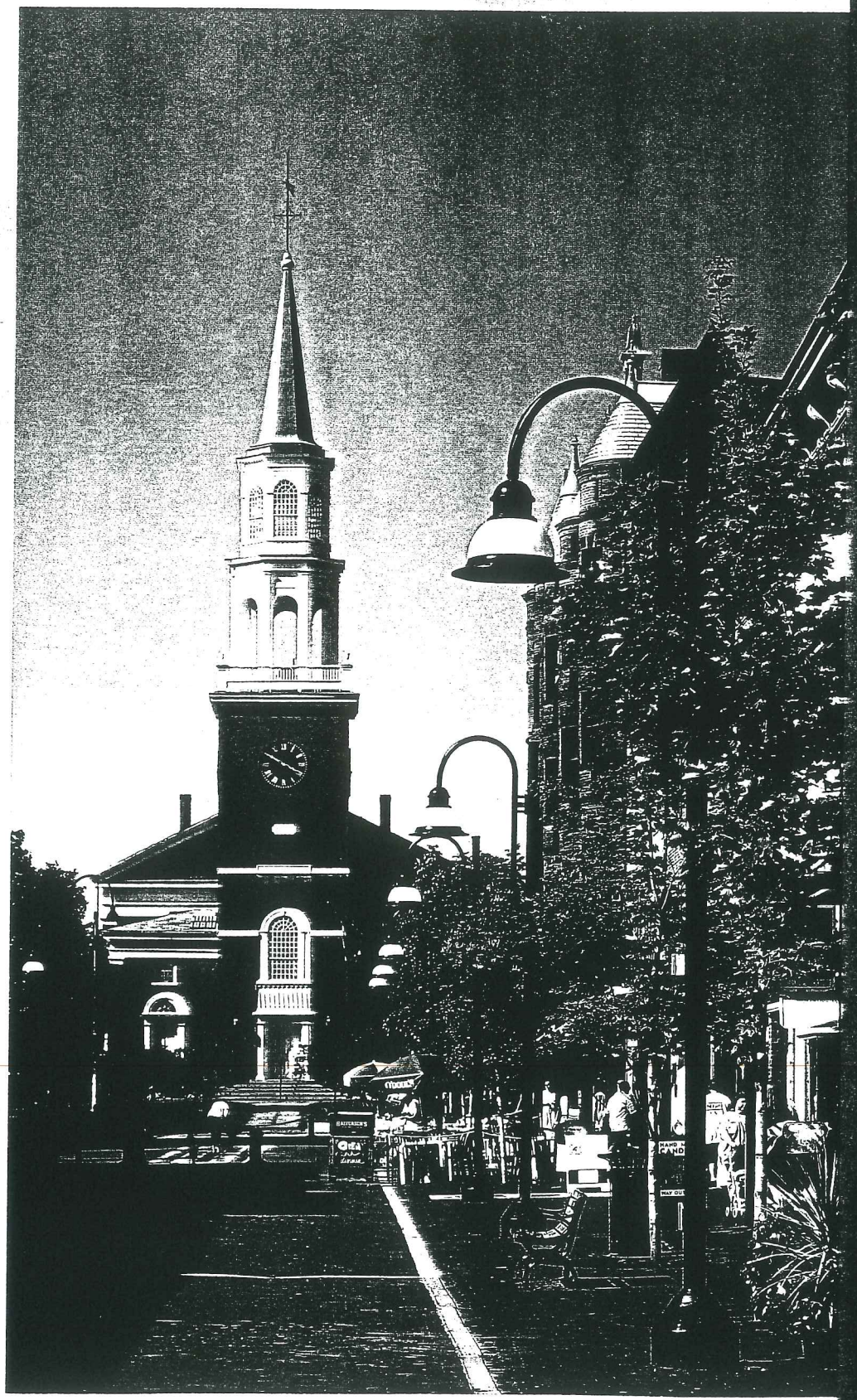
Alternate Inspection Fee (Public): $

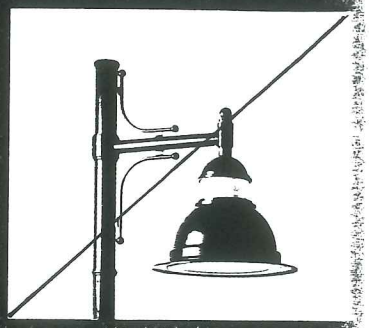
_____

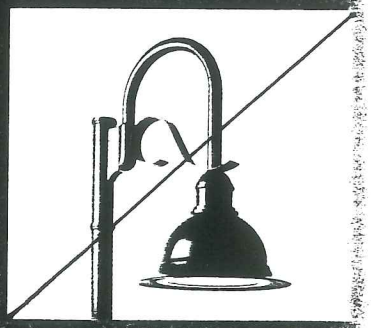
Public Works Engineer Signature

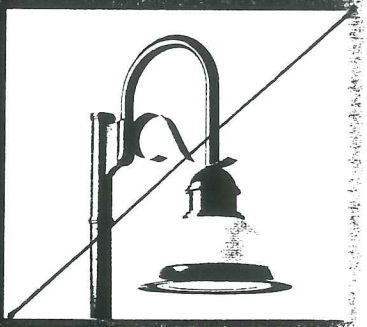
Domus Series

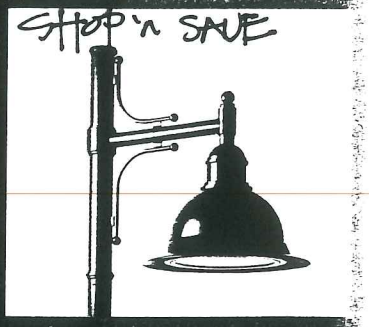
DMS10/20/30/40











LUMEC

Church Street, Burlington, Vermont - DMS30™ - LD

LUMEC INC.

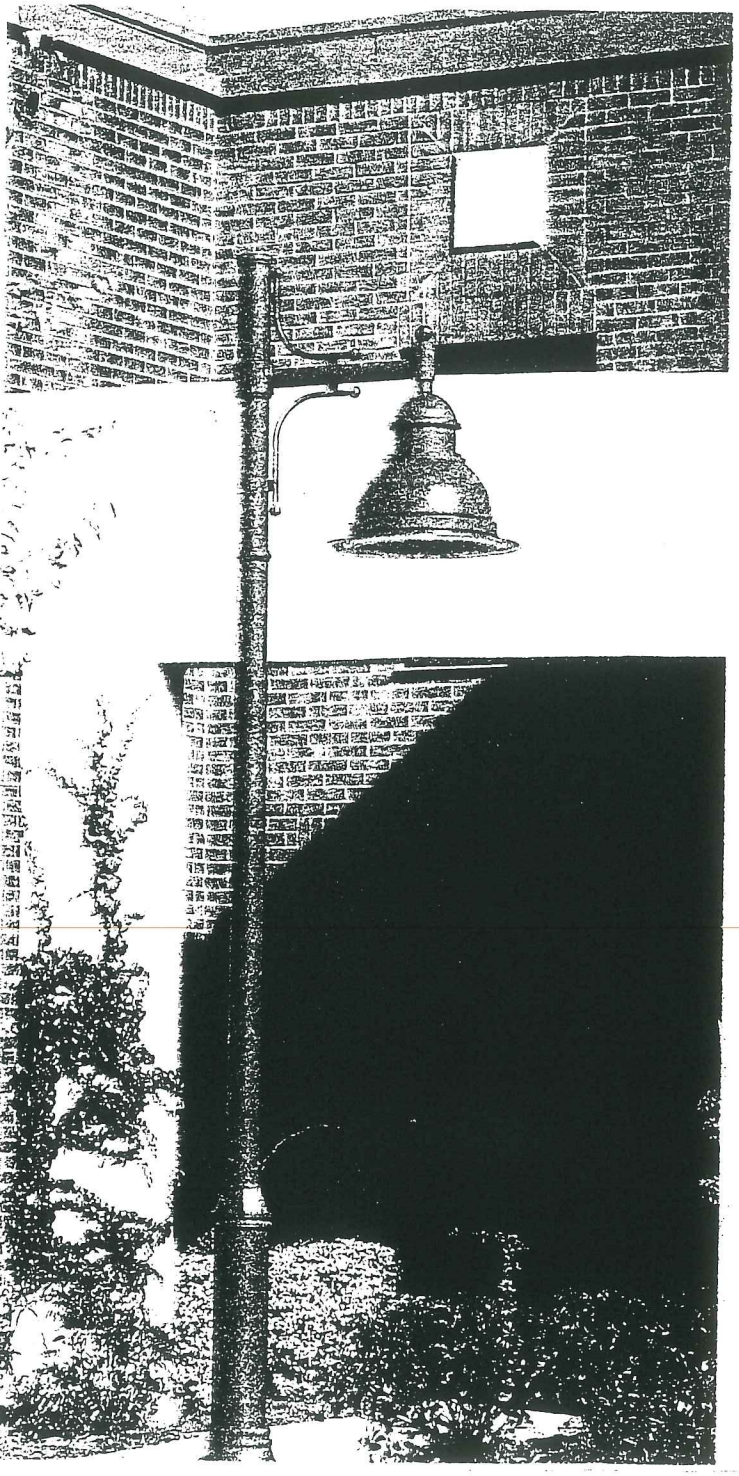
Domus Series

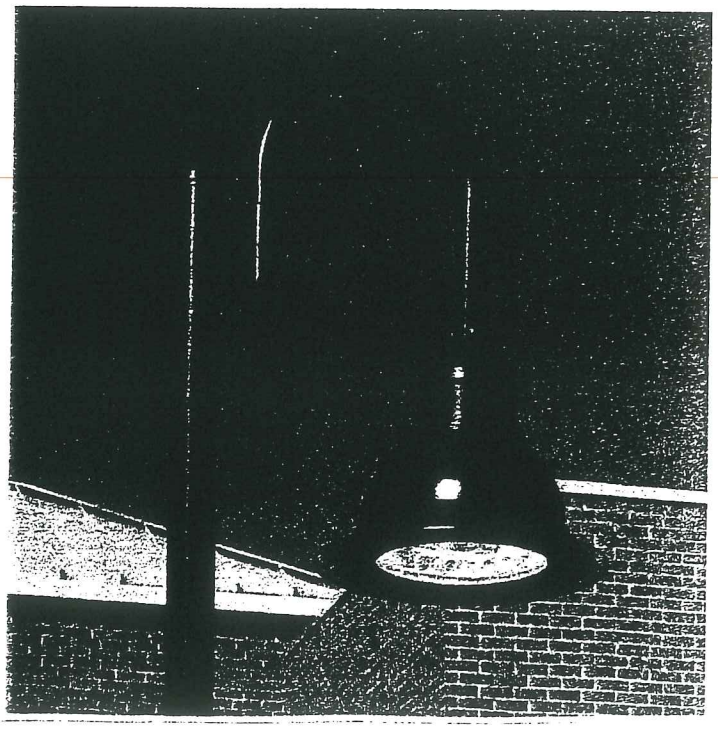
Superior styling and cut-off performance are the hallmarks of this outstanding series of luminaires.

These highly-decorative luminaires have been created to harmonize beautifully with any urban setting.

Their photometrics provide designers and architects with superior cut-off optical systems and all the flexibility they seek i units this photogenic.

Light up your projects with Domus luminaires.





DMS10/20/30/40

DMS10™, DMS20™, DMS30™ and DMS40™ models in the Domus series of luminaires feature a spun and cast-aluminum housing fitted with a large or small cast-aluminum mounting adaptor/heat sink as well as a flat or bell-shaped spun-aluminum skirt.

DMS10 and DMS30 luminaires can be fitted with a decorative luminous dome (**LD**) or optional luminous ring (**LR**) for greater nighttime presence and visual effect.

Optical systems
These luminaires are equipped with **SG** segmented cut-off reflectors set in triple-stage, multifaceted arc-image duplicating patterns. Developed for maximum light control, these systems deliver outstanding optical performance and application versatility.

Ease of maintenance
Units in this series feature a lens assembly consisting of a tempered glass lens and corrosion-resistant hardware along with memory-retentive silicone gasket which extends the lifespan of the components by weatherproofing the optical and electrical chamber.

The lens assembly is secured by two captive quarter-turn screws and pivots to allow easy access to the lamp and/or ballast.

A unitized ballast tray with quick-disconnect terminals is integrated into the housing of the luminaires for ease of maintenance (see lamp guide for maximum wattage).

Lumital Surface treatment
All luminaires, mountings and poles are protected by the **Lumital™** surface treatment, which involves the chemical treatment of all surfaces prior to the application of a coating of polyester-base textured powder for superior resistance.

Luminaire

The **DMS10** luminaire consists of a spun and cast-aluminum exterior housing with large built-in cast-aluminum mounting adaptor/heat sink and flat, spun-aluminum skirt.

It can accommodate ballasts up to 400W. When used with a decorative luminous ring (**LR** option) or luminous dome (**LD** option) the 250W or 400W ballasts must be remote in the mounting or pole base.

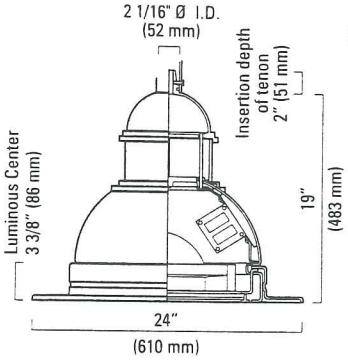
The lens assembly, thanks to silicone gaskets along the lens and frame, keeps the housing watertight and is secured by two quarter-turn captive screws. The lens pivots, providing easy access to the lamp and/or ballast.

Similar to the DMS10, the **DMS30** is distinguished by its bell-shaped spun-aluminum skirt.

The **DMS20**, on the other hand, features a smaller mounting adaptor than the DMS10, accepts ballasts of no more than 175W and is not available with the LD and LR options.

The **DMS40** is similar to the DMS30 except for its smaller mounting adaptor. It accepts ballast up to 175W only and is not available with the LD and LR options.

DMS10, DMS20, DMS30 *and* ***DMS40*** *luminaires are UL and CSA approved.*



EPA : 1.00 sq.ft.
Weight : 40 lbs (18.1 kg)

DMS10

Lamp Guide

Wattage Options	DMS10/30	DMS20/40 DMS10/30 LD/LR
70 MH	—	—
100 MH	—	—
175 MH	—	—
250 MH	—	●
400 MH*	—	●
35 HPS	—	—
50 HPS	—	—
70 HPS	—	—
100 HPS	—	—
150 HPS	—	—
250 HPS	—	●
400 HPS*	—	●

Remote ballast in mounting or pole base.
* *Consult factory as this wattage requires a remote ballast in a special pole base. 400 MH must use a reduced jacket lamp.*

DMS10™, DMS20™, DMS30™ and **DMS40™** luminaires accommodate H.I.D. or incandescent lamps as shown in the above table.

The UL or CSA-recognized CWA-type ballast features a -30F° (-34C°) lamp-starting capacity, a power factor of 90% or better and a regulation of lamp within ±10% of rated input voltage. HPS ballasts operate within ANSI trapezoidal limits.

The luminaire's lens frame, secured by two captive quater-turn screws, pivots along an hinge to permit easy lamp and/or ballast access.

The ballast is integrated in the hood of the luminaire, on a unitized ballast tray, or is remote in the mounting or the pole base.

Optical Systems

SG optics
Segmented cut-off reflector system set in faceted arc-image duplicating patterns


SG1: Asymmetrical (I)


SG2: Asymmetrical (II)


SG3: Asymmetrical (III)


SGQ: Symmetrical (V)


SGFM: Forward-throw

(Clear lamps not included)

SE optics
Small hydro-formed cut-off reflector system set in faceted arc-image duplicating patterns are also available in type III, IV and V distributions. Please consult factory for details.

For further information, refer to the Photometric Guide.

Mountings

IF

A 180° bent section of extruded aluminum 2 3/8" (60 mm) O.D., mechanically assembled to the side of a pole.
- Accepts no ballast.

LM

A 180° bent section of extruded aluminum 2 3/8" (60 mm) O.D., welded to a cast-aluminum pole adaptor and a flat rolled aluminum spiral.
- 2 ballasts, max. 175W.

MM

A 2 3/8" (60 mm) round aluminum arm welded to a 4 1/2" (114 mm) O.D. pole adaptor. The mounting is complete with two bent decorative rods, spheres and a cast-aluminum luminaire adaptor.
- 2 ballasts, max. 175W.

NM

A 180° bent section of extruded aluminum 2 3/8" (60 mm) O.D., with cast-aluminum decorative spirals, and a pole adaptor. The mounting slip fits into a 4" (102 mm) pole.
- Accepts no ballast.

OM

Two straight 1 5/8" (41 mm) O.D. aluminum side-arms welded to a 4" (102 mm) round aluminum pole adaptor and to a cast-aluminum luminaire adaptor.
- 2 ballasts, max. 100W.

Ordering Sample

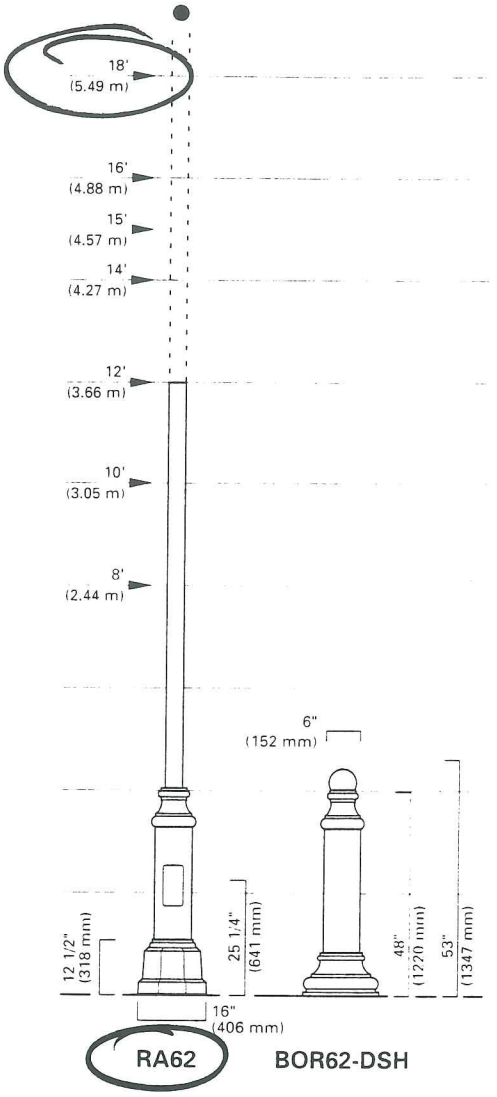
Lamp	Luminaire	Optical System	Voltage	Mounting & Configuration	Pole	Finish	Options
100 HPS	DMS30	SG3	120V	IF-1A	R80-15	GN-TX	FS-LD

RA62

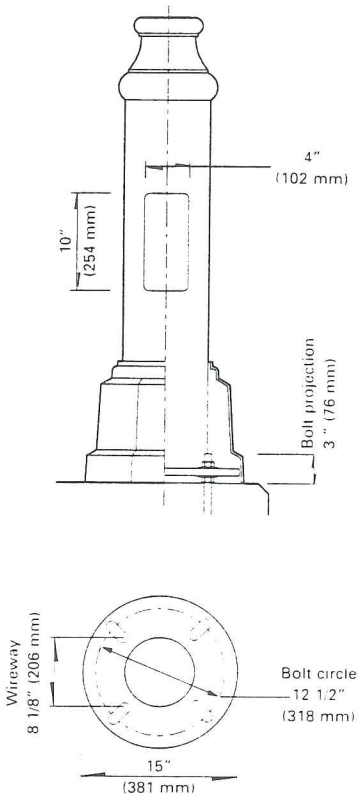
Traditional Aluminum Poles

Pole Guide

LUMEC



Base Details:



Comes with 4 anchor bolts, 8 nuts and 8 washers.

Specifications:

Pole: made from a one-piece, seamless 4"-round (102 mm) tube of extruded aluminum welded over an 8 5/8"-round (219 mm) extruded-aluminum pole base.

The assembly is welded to both the top and bottom of a reinforced base cast from zinc-rich aluminum.

A 4" by 10" (102 by 254 mm) maintenance opening, complete with cover and copper ground lug, is centered 25 1/4" (641 mm) from the ground.

Joint cover: made from two pieces of cast aluminum mechanically fastened to the junction with stainless steel screws.

Base cover: made from two pieces of cast aluminum mechanically fastened to the base with stainless steel screws.

Finish: "Hot Dip" chemical etching preparation. Lumital polyester powder coat textured finish. Available in 16 standard colors.

Durable UV-resistant exterior finish as per # ASTM G7 and outstanding salt-spray resistance according to # ASTM D2247 testing procedures.

Options:

DE: Pole base buried 5' (1524 mm) in the ground. See details on page 65.
LS: Provision for loudspeaker outlet
PH7: Button-type photoelectric cell (specify operating voltage)
PH8: Quarter-turn type photoelectric cell (specify operating voltage)
PH9: Shorting cap for single phase only
DR: Duplex receptacle (120V line volt. only)
GFI: DR with common ground fault interrupter (120V line voltage only)
BAS-22: One single banner arm
BABS-22: One single break-away banner arm
BAD-20: One double banner arm
BABD-20: One double break-away banner arm

Notes: EPA recommendations are calculated according to AASHTO standards and include a 30% gust factor, with a 50-lb (22.7 kg) load applied 1' (305 mm) above the center of the pole.

The maximum EPA rating shown is 30.0 sq. ft. Some poles may exceed this rating.

Bollard: The pole base is available with a **DSH** cast-aluminum decorative sphere (non-luminous). For other options, please consult the factory.

Ordering Information

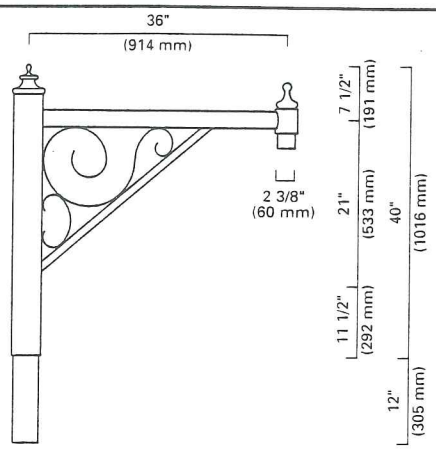
Catalogue number	Nominal height		Section		Wall thickness		Weight		EPA rating 70mph	EPA rating 80mph	EPA rating 100mph	Base size		Bolt circle		Anchor bolts	
	ft.	m	in.	mm	in.	mm	lbs	kg	ft.²	ft.²	ft.²	in.	mm	in.	mm	in.	mm
RA62F-8	8	2.44	4	102	0.125	3.2	34	15	19.9	15.5	10.0	15	381	12 1/2	318	3/4-20	19-508
RA62U-8	8	2.44	4	102	0.226	5.7	41	19	30.0	27.0	17.7	15	381	12 1/2	318	3/4-20	19-508
RA62F-10	10	3.05	4	102	0.125	3.2	38	17	14.1	10.9	6.9	15	381	12 1/2	318	3/4-20	19-508
RA62U-10	10	3.05	4	102	0.226	5.7	47	21	24.7	19.3	12.5	15	381	12 1/2	318	3/4-20	19-508
RA62F-12	12	3.66	4	102	0.125	3.2	42	19	10.5	8.0	4.9	15	381	12 1/2	318	3/4-20	19-508
RA62U-12	12	3.66	4	102	0.226	5.7	53	24	18.9	14.6	9.0	15	381	12 1/2	318	3/4-20	19-508
RA62F-13	13	3.97	4	102	0.125	3.2	43	20	9.2	7.0	4.1	15	381	12 1/2	318	3/4-20	19-508
RA62U-13	13	3.97	4	102	0.226	5.7	56	25	15.8	11.8	7.3	15	381	12 1/2	318	3/4-20	19-508
RA62F-14	14	4.27	4	102	0.125	3.2	45	20	6.1	4.6	2.7	15	381	12 1/2	318	3/4-20	19-508
RA62U-14	14	4.27	4	102	0.226	5.7	60	27	10.5	7.8	4.7	15	381	12 1/2	318	3/4-20	19-508
RA62F-15	15	4.57	4	102	0.125	3.2	47	21	5.0	3.5	2.0	15	381	12 1/2	318	3/4-20	19-508
RA62U-15	15	4.57	4	102	0.226	5.7	63	29	8.7	6.4	3.7	15	381	12 1/2	318	3/4-20	19-508
RA62F-16	16	4.88	4	102	0.125	3.2	49	22	4.0	2.8	1.4	15	381	12 1/2	318	3/4-20	19-508
RA62U-16	16	4.88	4	102	0.226	5.7	66	30	7.1	5.2	3.0	15	381	12 1/2	318	3/4-20	19-508
RA62W-16	16	4.88	4	102	0.318	8.1	103	47	9.5	7.0	4.1	15	381	12 1/2	318	3/4-20	19-508
RA62U-18	18	5.49	4	102	0.226	5.7	72	33	5.0	3.5	1.7	15	381	12 1/2	318	3/4-27	19-686
RA62W-18	18	5.49	4	102	0.318	8.1	111	50	6.8	5.7	2.6	15	381	12 1/2	318	3/4-27	19-686
RA62U-20	20	6.10	4	102	0.226	5.7	79	36	3.3	2.2	—	15	381	12 1/2	318	3/4-27	19-686
RA62W-20	20	6.10	4	102	0.318	8.1	120	54	4.8	3.3	1.5	15	381	12 1/2	318	3/4-27	19-686

Other pole thickness are available for use with banner arms, consult factory.
Lumec neither designs nor makes recommendations as to the design of concrete bases.

CRG, CRH

Suspended Luminaire Mountings (Traditional)

CRG



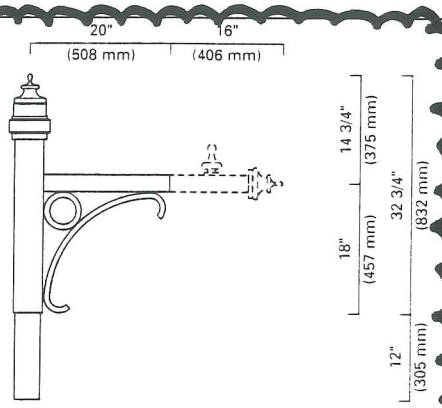
EPA: 2.38 sq.ft.
Weight: 15 lbs (6.8 kg)

Specifications
Mounting: features one 2"-square (51 mm) extruded-aluminum arm welded to the side of a 4"-round (102 mm) console.
A 1 1/8"-square (29 mm) extruded-aluminum tube is welded at an angle to the side of the console and the bottom of the arm. Two decorative rolled sections of a flat aluminum band are welded between the arm, console and angled tube.
A cast-aluminum 2 3/8" (60 mm) luminaire adaptor is inserted and welded in the arm.
The mounting will accept a luminaire equipped with a 2 1/16"-O.D. (52 mm) adaptor (secured by three screws at 120°). The mounting can also accommodate suspended traditional luminaires.
All mountings are pre-wired for greater installation ease.
See below for Finish and Options details.

Configurations

1A 2 2A 3B M

CRH



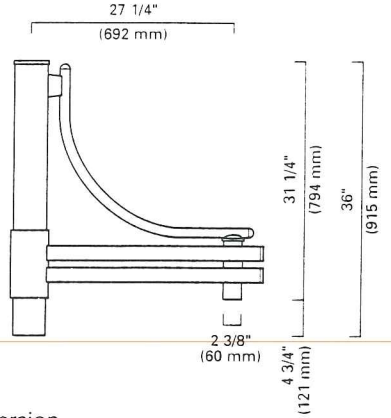
EPA: 1.84 sq.ft.
Weight: 12.0 lbs (5.4 kg)

Specifications
Mounting: features one 2 3/8"-round (60 mm) extruded-aluminum arm welded to the side of a 4"-round (102 mm) console. Both are closed by a decorative cast-aluminum cover.
Two decorative rolled sections of aluminum rods are welded between the arm and the console.
An extruded-aluminum 2 3/8" (60 mm) luminaire adaptor is inserted and welded in the arm. A cast-aluminum decorative piece is welded over the luminaire adaptor.
The mounting will accept a luminaire equipped with a 2 1/16"-O.D. (52 mm) adaptor (secured by three screws at 120°). The mounting can also accommodate suspended traditional luminaires.
All mountings are pre-wired for greater installation ease.
See below for Finish and Options details.

Configurations

1A 2 2A 3B M

OV Version



Specifications:
OV version mounting: features a 4 1/2"-O.D. (114 mm) aluminum pole adaptor that can accommodate up to two 175W ballasts.
The pole adaptor slip-fits 9" (229 mm) over a 4"-round (102 mm) pole or tenon.
All other specifications of the appropriate mounting remain unchanged.
Check mounting specifications to see if OV option applies.

CN1 shown in **CN1-OV** version

Specifications
common to all mountings illustrated on pages 57 through 61
Finish: "Hot Dip" chemical etching preparation.
Lumital polyester powder coat textured finish.
Available in 16 standard colors.
Durable UV-resistant exterior finish as per # ASTM G7 and outstanding salt-spray resistance according to # ASTM D2247 testing procedures.

Options: no options can be installed directly on an arm or base.
The following options are available only if the mounting arms are mounted on a central console that slip-fits into or over a pole.
Options are always oriented on the same axis as the access door.

- **LS:** Provision for loudspeaker outlet
- **PH7:** Button-type photoelectric cell (specify operating voltage)
- **PH8:** Quarter-turn type photoelectric cell (specify operating voltage)
- **PH9:** Shorting cap for single phase only
- **DR:** Duplex receptacle (120V line voltage only)
- **GFI:** DR with common ground fault interrupter (120V line voltage only)

Note: Indicate Mounting and Configuration information after the Pole information in the luminaire ordering number (see luminaire specification sheet).

Hannaford Bros. Co.

April 22, 1999

Ms. Kandice Talbot, Planner
Planning & Urban Development
389 Congress Street
Portland, ME 04101

hand delivered

re: Shop 'n Save Plaza
Forest Avenue
Portland, Maine

Dear Ms. Talbot:

Hannaford Bros. Co. is pleased to submit a *major development* revision, for a 13,140 square foot expansion of the existing Shop 'n Save supermarket at the above referenced location. In accordance with Article V, Section 14-524, we submit herewith seven copies of the site plans for Staff and Planning Board review. A brief narrative of the project follows:

The existing supermarket will be expanded into the adjacent retail shops. The common stair and elevator hallway and shops to the east of the hallway will remain. The existing office space on the second floor within the expanded supermarket footprint will be removed. The office space over the other retail shops will remain. A new vestibule area is proposed along the front of the store and a building addition and loading dock are proposed at the rear of the store.

No additional impervious surface will be added. Landscaped islands at the rear of the store impacted by the expansion have been relocated to maintain an equivalent amount of green space. Landscaped islands are included at the rear hallway entrance, near the transformer at the rear corner of the supermarket, and four islands are included in the rear parking area.

Ornamental light fixtures are proposed along the front of the shopping center, similar to the fixtures used by the City along the public walk extending from the East End near Tukey's Bridge to Commercial Street, near BIW.

A flagpole, with American flag, is proposed in an existing landscaped island at the front right corner of the store.

The following is in response to Section 14-525 (c)of the Portland Maine Land Use Code:

The estimated cost of the project is $5,000,000.

1. No change of the proposed uses on the site are proposed.
2. The total land area of the site is 9.77 acres. The total floor area of the expanded building will be 88,770 square feet. The ground coverage of the expanded building will be 79,080 square feet.
3. Existing easements are depicted on the survey. No additional easements are proposed as part of this project.
4. The type of solid waste generated by the supermarket will not change. Additional cardboard and produce related wastes are expected as part of the expanded supermarket.
5. Evidence of the availability of off-site facilities, including sewer, water and streets are depicted on the survey. Natural gas will be extended to the building from an existing 4" main in Baxter Boulevard.
6. The existing surface and subsurface drainage on the site will not change. A catch basin will be added to a new truck well at the rear of the proposed building addition.
7. Due to the limited scope of site related construction, sequencing of the site work will correspond to areas directly adjacent to the proposed building additions. The underground electric service will be relocated prior to commencing construction of the rear building addition. Construction will begin once permits have been secured.
8. This project requires a modification to the original Site Location of Development permit from the MeDEP.
9. The financial and technical capacity of the applicant, Hannaford Bros. Co. is evident in the enclosed annual report. Similar projects include shopping centers in surrounding Greater Portland communities, including Scarborough, South Portland, and Yarmouth, and a store currently under construction in Falmouth.
10. Hannaford Bros. Co. has owned the project site since 1981. See enclosed survey for recorded deed references.
11. No unusual natural areas, wildlife and fisheries habitats, or archaeological sites are located on the site.
12. Final submission drawings will be submitted in electronic .dwg form.
13. Materials currently recycled by the supermarket include cardboard, plastic shrink wrap and plastic bags. These materials are stored in the store. The amount of recyclable materials will increase somewhat as a function of the expanded supermarket.

PBR1

Planning Report
24-84

Planning Department Report
Revision to a Site Plan and Subdivision for
Back Cove Plaza - Hannaford Brothers

Submitted to:

Portland Planning Board
April 10, 1984

I INTRODUCTION

Hannaford Brothers is requesting approval of a revised subdivision and site plan for Back Cove Plaza. The final plan was approved by the Planning Board on February 10, 1981. The applicant is seeking to expand the parking lot by 0.55 acres and create an additional 31 parking spaces.

Eighty (80) notices were sent to area residents.

II. SUMMARY OF PROJECT

ZONING:	I-2 INDUSTRIAL
LAND AREA:	
Previous Total	10.8 acres
Additional Area	0.55 acres
Revised Total	11.35 acres
PARKING:	
Previous Total	389 spaces
Additional Spaces	31 spaces
Revised Total	420 spaces
Required Spaces	359

LAND USES: Back Cove Plaza is located along the Preble Street Extension and it is adjacent to I-295 (northerly side of the highway). Across Preble Street is Back Cove Park, the snow disposal site and the beginning of the Baxter Boulevard pedestrian pathway. The Plaza has an entrance from Baxter Boulevard. Along Baxter Boulevard there are professional office buildings, Oakleigh Park, Business Equipemnt Unlimited, Lopez and Church, Inc, Allstate and a vacant auto body shop. A residential neighborhhod extends northerly from Baxter Boulevard.

III. BACKGROUND

The subdivision and site plan for the Hannaford Brothers Back Cove Plaza Shopping Center were approved by the Planning Board on February 10, 1981. The ground floor area was 63,718 square feet and the size of the site was 10.8 acres. Hannaford Brothers has recently acquired a triangular piece of property from the Maine Department of Transportation which has a total area of 0.55 acres. The property is situated between the Plaza's former property line and I-295. Thirty-one (31) additional parking spaces will be created for staff at the rear of the building. The revised site plan has been reviewed and approved by the Maine Department of Environmental Protection (see attachment A).

IV. STAFF REVIEW

The revised plan has been reviewed by staff for complaince with the review criteria set forth in the Subdivision and Site Plan Ordinances. The plan has been reviewed and approved by Building and Inspection Services, the Fire Department and the City Traffic Engineer. Memos from the Planning Engineer and the Vegetation Management Coordinator are attached.

1. Traffic
William Bray, Traffic Engineer has reviewed and approved the traffic related concerns of the project.

2. Bulk, location, height, paved areas, sewers, storm drains and water.

The proposed revisions are for an expansion of the parking area at the rear of the shopping center. There are no alterations proposed for the existing building. The site will be expanded by 0.55 acres so the total area of the site will be 11.35 acres. The area will accommodate 31 additional parking spaces so the shopping center will have a total of 420 spaces. Zoning requires 359 parking spaces. A continuous bituminous curb will edge the perimeter of the expanded parking area. Each space is 9' by 19' which complies with City standards. A six foot high chain link fence will be erected along the new property line between the shopping center and I-295.

There are no revisions to the original utility plan. Two additional catch basins are proposed in the expanded lot. These catch basins will channel stormwater runoff into an existing swale along Preble Street Extension. The revised Plan also indicates that a drainage swale between the Plaza and the Maine Department of Transportation property will be relocated so that it is parallel to the new property line and again located on MDOT's property. Bob Roy, Planning Engineer has reviewed the revised plan and has found it to be acceptable. Mr. Roy recommends that the disturbed drainage swale be loamed and seeded. (refer to Attachment B.)

3. Landscaping

The proposed landscaping along the Preble Street Extension includes junipers, austrian pines, arborvitae and rogusa rosa. A landscaped island within the parking area is proposed with two honeylocust trees, cranberry cotoneasters and two varieties of junipers. The propane tanks at the rear of the lot will be screened with a six foot high wooden picket fence. Carmela Guizio, Vegetation Management Coordinator, has reviewed the plan and her comments are attached. In general, she is recommending that trees which are removed due to the expansion should be replaced along the property line and that the transformer should be screened with same fencing as is proposed for the propane tanks.

4. Soil and Drainage

For soil and drainage see Section 2

5. Exterior Lighting

Three light poles previously approved will be removed and two 30 foot high poles with double light fixtures will be installed within the expanded parking area. The poles are dark bronze with 400 watt lights which will have a luminaire at ground level of 1.3 footcandles. The exterior lighting is adequate for the site.

6. Fire Department

Lieutenant Collins of the Fire Department has reviewed and approved the revised plan.

7. City Project

The proposal does not interfere with any known City Projects.

8. Revision of Subdivision Plat

The applicant has submitted an amended plan for the Planning Board's approval. The revised plan shows the rearrangement of a lot line which expands lot number one (1) of the recorded plat by 0.55 acres. The rearrangement of the lot line does not increase the number of lots within the subdivision nor does it affect any street, alley, utility easement or drainage easement. The revision meets all zoning requirements and has been approved by Public Works and the Fire Department.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

STAFF ORDER

IN THE MATTER OF

ANALYTICAL SERVICES INC.	)	SITE LOCATION ORDER
Portland, Maine	)	
BACK COVE PLAZA REVISED	)	
#59-3713-05170	)	FINDINGS OF FACT AND ORDER

Pursuant to the provision of Title 38, M.R.S.A., Section 483, the Department of Environmental Protection has considered the application of ANALYTICAL SERVICES INC. with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

1. The applicant received final Board approval in January 1982 to develop Back Cove Plaza Shopping Center in Portland, Maine.

   Presently, the applicant has purchased an additional 24,000 square feet of land at the rear of the property to accommodate 31 additional parking spaces.

   The revised plans dated March 1983 provide for additional landscaping in the new area.

BASED on the above findings of fact, the Department concludes that the proposed additional parking will satisfy the requirements of Title 38, M.R.S.A., Section 484, for the issuance of a revised Site Location Permit in that:

A. The applicant has provided adequate evidence of financial capacity and technical ability to meet air and water pollution control standards.

B. The applicant has made adequate provision for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

C. The applicant has made adequate provision for traffic movement of all types into, out of or within the development area.

D. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character or natural resources in the municipality or in neighboring municipalities.

E. The proposed development will be built on soil types which are suitable to the nature of the undertaking.

F. The proposed development will not pose an unreasonable risk that a discharge to a significant ground water aquifer will occur.

ANALYTICAL SERVICES INC.
Portland, Maine
BACK COVE PLAZA REVISED
#59-3713-05170

) SITE LOCATION ORDER
)
)
) FINDINGS OF FACT AND ORDER

G. Findings and conclusions of the October 28, 1981 order are unchanged by this revision.

THEREFORE, the Department APPROVES WITH THE ATTACHED CONDITIONS the revised application of ANALYTICAL SERVICES INC. to add 31 additional parking spaces to the existing parking lot in Portland, Maine in accordance with the following conditions:

1. The Standard Conditions of Approval, a copy attached.

2. Applicant shall abide by special conditions 2 and 3 of the October 28, 1981 Board Order.

DONE AND DATED AT AUGUSTA, MAINE, THIS 3rd DAY OF JANUARY, 1984.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: David Tudor Dep.
HENRY E. WARREN, Commissioner

PLEASE NOTE ATTACHED SHEET FOR APPEAL PROCEDURES....

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Barbara Barhydt, Planner

DATE: 4/4/84

FROM: Robert Roy, Planning Engineer RJR

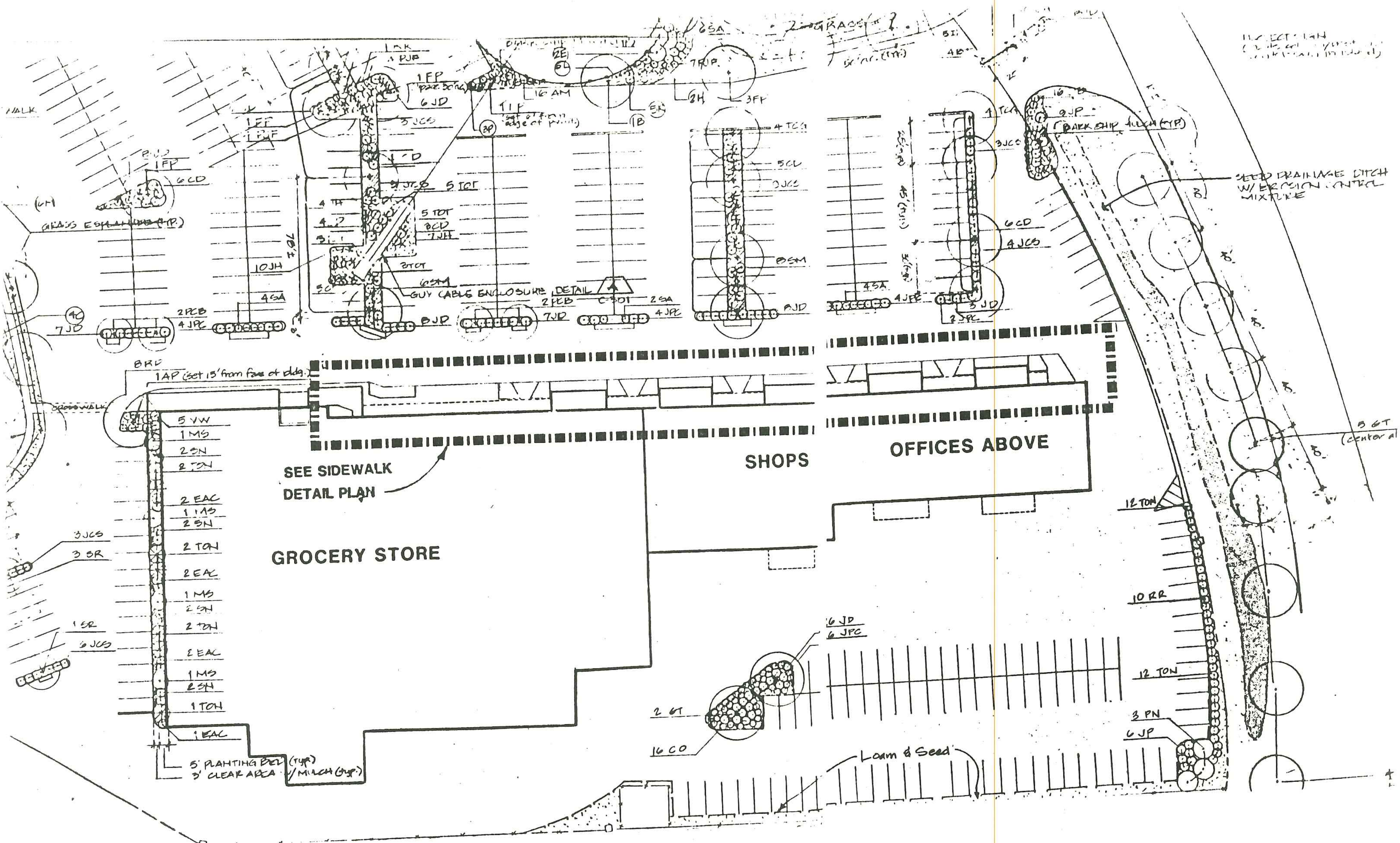
SUBJECT: Hannaford Bros. Site Plan Revision

I have reviewed the revised site plan and find it to be acceptable to this Department with the condition that the entire disturbed area southerly of the parking lot addition be loamed and seeded.

It appears on the plan that only the area within the Hannaford property is to be loamed and seeded. However, the existing drainage swale will be relocated back onto State Highway property and it is this area which we want to ensure is treated to prevent erosion.

Please let me know if I can be of any further assistance.

RR/bjk
cc: William Boothby, Principal Engineer, Services



GROCERY STORE
SHOPS
OFFICES ABOVE
SEE SIDEWALK
DETAIL PLAN
GUY CABLE ENCLOSURE DETAIL
C-501
1AP (set 15' from face of bldg.)
5' PLANTING BED (typ)
3' CLEAR AREA
MULCH (typ.)
Loam & Seed
SEED DRAINAGE DITCH
W/ EROSION CONTROL
MIXTURE
BARK CHIP MULCH (TYP)
5 YW
1 MS
2 SN
2 TON
2 EAC
1 EAC
1 TON
12 TON
10 RR
3 PN
6 JP
16 JD
6 JPC
2 GT
16 CO

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Barbara Barhyte, Planner **DATE:** 4/6/84

FROM: Carmela T. Giuzio, Vegetation Management Coordinator C.T.G.

SUBJECT: Parking lot extension at Back Cove Plaza Substitute for Back Cove Plaza

The extension of this parking lot would result in the elimination of several valuable trees presently in existence. Therefor, I feel that an equivilant amount of trees (being seven deciduous and five to seven evergreens) should be replaced along the outer edege of this extension which runs parallel to I295. The species of all trees to be planted in this area will be subject to my final approval, with all deciduous trees being of a minimal $2\frac{1}{2}$" caliper and all evergreens of a minimal 4' height.

Some sort of fencing should be placed around the exposed transformers located in the back side of these buildings, whether it be a wooden fence or plant material.

There is some confusion on the quantity of Thuja occidentalis 'Techny' v.s. the T.o. 'Nigra' indicated in the plant list and depicted on the diagram. I would like to insure that whichever is intended for planting along Preble St. will be planted at 5' on center.

cc: File

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Barbara Barhydt, Planner DATE: 4/4/84

FROM: Robert Roy, Planning Engineer RJR

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RR/bjk
cc: William Boothby, Principal Engineer, Services

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Barbara Barhyte, Planner **DATE:** 4/6/84

FROM: Carmela T. Giuzio, Vegetation Management Coordinator C.T.G.

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cc: File

PORTLAND PREBLE STREET:
M.D.O.T. TRIANGLE

PREVIOUSLY:

10.8 ACRES OR 470,448 ☐'
PARKING FOR 389 CARS

M.D.O.T. TRIANGLE:

.55 ACRES OR 24,000 ☐'
PARKING FOR 31 ADDITIONAL CARS

INCREASED %

5.1 % INCREASED LAND AREA
8% INCREASED PARKING

Hannaford
(80)
Barbara

TO RESIDENTS AND PROPERTY OWNERS IN THE VICINITY OF

Back Cove Plaza on the Preble Street Extension

The Portland Planning Board will hold a public hearing on Tuesday evening, April 10, 1984. The meeting begins at 7:30 p.m., in room 209, City Hall, Portland, Maine

The Board will consider a proposal by Hannaford Brothers for an expansion of the Back Cove Plaza parking area, which is a revision to the original Site Plan approved by the Planning Board on February 10, 1981. A triangular piece of property has recently been acquired and it is located along Preble Street between the Plaza and I-295. The piece of property is 0.55 acres and the revised total land area for the shopping area will be 11.35 acres. Thirty-one additional parking spaces will be created. The site is in the I-2 Industrial Zone and it will be reviewed for compliance with the Site Plan Ordinance.

Should you wish to review the plans in advance, they are available in the Portland Planning Department, room 211 of City Hall. If you are unable to attend the Public Hearing of the Planning Board, please send your comments in writing to Joseph E. Gray, Jr., Director of Planning & Urban Development, City Hall, 389 Congress Street, Portland, Maine 04101.

Sincerely,

Alexander Jaegerman

Alexander Jaegerman
Chief Planner

/dmm
cc: John L. Barker, Chairman, Planning Board
Joseph E. Gray, Jr., Dir. of Planning & Urban Development

CITY OF PORTLAND

JOSEPH E. GRAY, JR.
DIRECTOR OF PLANNING
AND URBAN DEVELOPMENT

TO RESIDENTS AND PROPERTY OWNERS IN THE VICINITY OF

Back Cove Plaza on the Preble Street Extension

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Sincerely,

Alexander Jaegerman

Alexander Jaegerman
Chief Planner

/dmm
cc: John L. Barker, Chairman, Planning Board
Joseph E. Gray, Jr., Dir. of Planning & Urban Development

CITY OF PORTLAND

JOSEPH E. GRAY, JR.
DIRECTOR OF PLANNING
AND URBAN DEVELOPMENT

TO RESIDENTS AND PROPERTY OWNERS IN THE VICINITY OF

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Should you wish to review the plans in advance, they are available in the Portland Planning Department, room 211 of City Hall. If you are unable to attend the Public Hearing of the Planning Board, please send your comments in writing to Joseph E. Gray, Jr., Director of Planning & Urban Development, City Hall, 389 Congress Street, Portland, Maine 04101.

Sincerely,

Alexander Jaegerman

Alexander Jaegerman
Chief Planner

/dmm
cc: John L. Barker, Chairman, Planning Board
Joseph E. Gray, Jr., Dir. of Planning & Urban Development

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Chairman and Planning Board Members

DATE 3/9/84

FROM: Barbara Barhydt, Planner BB

SUBJECT: Workshop Agenda Items for March 13, 1984

1. Bank American Financial Corporation

The Bank American Financial Corporation is proposing to construct a bank at the corner of Middle and Hampshire Streets. There is currently a temporary structure for the bank on that parcel. The proposed building has a ground floor area of 1320 square feet and it is a two-story structure. The site has 7,150 square feet and it is located in the B-2 Business Zone. Access to the site will be primarily over Middle Street and a one-way vehicular circulation pattern with a drive-up window is proposed. There is a ten foot right-of-way alongside an abutting structure which must be maintained with a curb cut on Hampshire Street (shown on plan). Eight parking spaces are provided. The proposed architectural design is compatible with the buildings on Middle Street. The applicant may want to consider providing the same type of detailing on the sides of the structure as is shown on the front of the building, since the sides will be visible from the Franklin Arterial and Hampshire Street. This site plan is scheduled for a hearing on March 27, 1984.

2. Olde Birch Lane Subdivision

Tim Flaherty is proposing an 18 lot subdivision off Summit Street. The land is adjacent to the Oat Nuts subdivision. The proposed subdivision is in the R-2 Residence Zone which has a minimum lot size requirement of 8,000 square feet (proposed zoning would require 10,000 square feet). The lots in this proposal range in size from 10,858 square feet to 14,970 square feet. The lots front on a cul-de-sac of approximately 950 feet in length which will be named Olde Birch Lane. The developer is requesting a waiver of the sidewalk requirements so that only one sidewalk will be installed along the street. The subdivision is scheduled for a public hearing on March 27, 1984.

3. Hannaford Brothers - Back Cove Plaza

A. Expansion of parking area
B. Revision to Subdivision Plat and Arby's Site Plan

A. Expansion of Parking Area

Hannaford Brothers are proposing to expand the parking area at Back Cove Plaza. Land adjacent to the plaza and located along Preble Street has recently been acquired by Hannaford. The triangular piece of property which is being acquired is 0.55

triangular piece of property which is being acquired is 0.55 acres. Previously, the total acreage of the site was 10.8 acres. Thirty-one (31) additional parking spaces will be created. This will raise the total number of parking spaces from 389 to 420.

B. Arby's

Arby's is proposing to revise Hannaford Brother's subdivision plat on Hannaford's behalf and Arby's is proposing to construct a restaurant along Forest Avenue. The ground floor area is 3,450 square feet and it will be 24 feet in height. The new lot that is being proposed in the Back Cove Plaza subdivision is approximately 0.68 acres. Access to the parcel will be over an access road within the shopping center. There are two curb cuts along the private roadway and there will be a single drive-through window. The building will be very similar to other Arby's restaurants. It will have a dark brown mansard roof with split-rib concrete block for the exterior. There will also be a lamenated wood arch and white columns. A greenhouse will be located along the front of the structure facing Forest Avenue.

Both the expansion of the parking lot and Arby's are being presented to th Board at the same time; however, the applicants have requested that the items be considered and acted upon spearately. The two requests are scheduled for public hearings on March 27, 1984.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DRAFT

STAFF ORDER

IN THE MATTER OF

ANALYTICAL SERVICES INC.
~~Portland, Maine~~
BACK COVE PLAZA REVISED — Preble St
#59-3713-05170

) SITE LOCATION ORDER
)
)
) FINDINGS OF FACT AND ORDER

Pursuant to the provision of Title 38, M.R.S.A., Section 483, the Department of Environmental Protection has considered the application of ANALYTICAL SERVICES INC. with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

1. The applicant received final Board approval in January 1982 to develop Back Cove Plaza Shopping Center in Portland, Maine.

   Presently, the applicant has purchased an additional 24,000 square feet of land at the rear of the property to accommodate 31 additional parking spaces.

   The revised plans dated March 1983 provide for additional landscaping in the new area.

BASED on the above findings of fact, the Department concludes that the proposed additional parking will satisfy the requirements of Title 38, M.R.S.A., Section 484, for the issuance of a revised Site Location Permit in that:

A. The applicant has provided adequate evidence of financial capacity and technical ability to meet air and water pollution control standards.

B. The applicant has made adequate provision for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

C. The applicant has made adequate provision for traffic movement of all types into, out of or within the development area.

D. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character or natural resources in the municipality or in neighboring municipalities.

E. The proposed development will be built on soil types which are suitable to the nature of the undertaking.

F. The proposed development will not pose an unreasonable risk that a discharge to a significant ground water aquifer will occur.

ANALYTICAL SERVICES INC. Portland, Maine BACK COVE PLAZA REVISED #59-3713-05170	))))	SITE LOCATION ORDER FINDINGS OF FACT AND ORDER

G. Findings and conclusions of the October 28, 1981 order are unchanged by this revision.

THEREFORE, the Department APPROVES WITH THE ATTACHED CONDITIONS the revised application of ANALYTICAL SERVICES INC. to add 31 additional parking spaces to the existing parking lot in Portland, Maine in accordance with the following conditions:

1. The Standard Conditions of Approval, a copy attached.

2. Applicant shall abide by special conditions 2 and 3 of the October 28, 1981 Board Order.

DONE AND DATED AT AUGUSTA, MAINE, THIS 3rd DAY OF JANUARY, 1984.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: David E. Tudor Dep.
for HENRY E. WARREN, Commissioner

PLEASE NOTE ATTACHED SHEET FOR APPEAL PROCEDURES....

CITY OF PORTLAND

JOSEPH E. GRAY, JR.
DIRECTOR OF PLANNING
AND URBAN DEVELOPMENT

TO RESIDENTS AND PROPERTY OWNERS IN THE VICINITY OF

Back Cove Plaza on the Preble Street Extension

The Portland Planning Board will hold a public hearing on Tuesday evening, April 10, 1984. The meeting begins at 7:30 p.m., in room 209, City Hall, Portland, Maine

The Board will consider a proposal by Hannaford Brothers for an expansion of the Back Cove Plaza parking area, which is a revision to the original Site Plan approved by the Planning Board on February 10, 1981. A triangular piece of property has recently been acquired and it is located along Preble Street between the Plaza and I-295. The piece of property is 0.55 acres and the revised total land area for the shopping area will be 11.35 acres. Thirty-one additional parking spaces will be created. The site is in the I-2 Industrial Zone and it will be reviewed for compliance with the Site Plan Ordinance.

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Sincerely,

Alexander Jaegerman

Alexander Jaegerman
Chief Planner

/dmm
cc: John L. Barker, Chairman, Planning Board
Joseph E. Gray, Jr., Dir. of Planning & Urban Development

Hannaford

Hannaford Bros. Co.
P.O. Box 1000
Portland, Maine 04104
Tel. 207 | 883-2911

April 6, 1984

HAND DELIVER

Ms. Barbara Barhydt
Planning Department
Portland City Hall
Room 211
Portland ME

Dear Ms. Barhydt:

Enclosed is a copy of the DEP Board order regarding Shop 'n Save Plaza, as requested in our telephone conversation of today.

If you have any questions or if we can be of any further assistance, please do not hesitate to contact this office.

Sincerely,

Cheryl L. Joy, Secretary
Real Estate Department

clj

Enclosure

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

BOARD ORDER

IN THE MATTER OF

RECEIVED
NOV - 3 1981
CORPORATE DEVELOPMENT

HANNAFORD BROTHERS CO. Portland, Maine, Cumberland County SHOPPING CENTER #59-3713-05170	) SITE LOCATION ORDER))) FINDINGS OF FACT AND ORDER

After reviewing the project file which includes the application with its supportive data, agency review comments, comments from the public, transcript of public hearing held June 12, 1981, staff summary and other related materials on file with regard to the above noted project, under provisions of Title 38, M.R.S.A., Sec. 483, the Board finds the following facts:

1. Hannaford Brothers Company (Hannaford) proposes to construct a shopping center in Portland, Maine. The site proposed is surrounded by the following roadways: Interstate 295 to the south; Preble Street Extension to the East and North; Baxter Boulevard to the North; Forest Avenue to the West.

   The shopping center will consist of a 41,500 square foot supermarket, a 6,100 square foot drug store, 16,000 square feet of retail shops, 20,000 square feet of second story office space, 359 parking spaces, a landscaped berm along Preble Street Extension, a cedar fence around the base of the existing radio tower, chain link fences around the tower guy wires, three access points, lighting structures, signs, utilities and other landscaping.

   Solid waste will be taken to Regional Waste Systems in Scarborough. Water and sewer services will be provided by the City of Portland.

2. The cost of the proposed project is approximately $5.5 million.

   Hannaford has submitted with the Site Location Application a copy of the Annual Report pursuant to Section 13 of the Securities and Exchange Act of 1934 for the Fiscal Year Ended January 3, 1981 as well as the Hannaford Brothers Company Annual Report for 1979 and Interim Reports for periods ending March 29, 1981 and June 28, 1981.

   In 1980, Hannaford had 20 wholly owned stores; 52 Equity Partner Stores; 32 Other Customer Stores and 26 Welby Stores.

3. The three access points to the proposed center are from Preble Street Extension, Baxter Boulevard and Forest Avenue. The Forest Avenue access is right turn in and right turn out only. The Preble Street Extension access is both left and right turn in and out. The Baxter Boulevard access is both left and right turn in and out with trucks prohibited.

   The parking lot contains landscaped barriers, crosswalks and directional signs.

   Sight distances at the access points are: Preble Street to the North 720 plus feet; Preble Street to the South 720 plus feet; Baxter Boulevard to the Northeast 420 plus feet; Baxter Boulevard to the Southwest 420 plus feet; Forest Avenue to the South 620 plus feet.

4. The site is bounded by a chain link fence along the south and southwest sides with a large area surrounding the radio tower also fenced. Much of the open area contains mounds of dirt with a few piles of broken concrete, some building and paving blocks and some trash. The area supports upland grasses, immature birch and cherry trees as well as a number of vegetative species capable of surviving in either wet or dry soils. There are also some locations which support cattails indicating wet areas. Much of this site formerly consisted of intertidal wetlands. On May 1, 1968 the State of Maine Wetlands Control Board issued a permit to the then State Highway Commission. The Portland Harbor Commissioners and Corps of Engineers also issued permits to fill this area of Back Cove, a part of which is now the Hannaford site. Information from the Department of Transportation shows that the submerged land or ship channel was covered by what is now I-295 and Preble Street Extension.

   The area is commonly used by small mammals such as skunk, muskrat, racoon and mink. Of the species of birds that use the site only a pair of Red-winged blackbirds has been confirmed as actually nesting on the site. Seabirds, waterfowl, shorebirds and wading birds prefer the marsh and intertidal areas to the North and East of the site. The site is not considered critical habitat for birds or mammals.

5. Soil borings in the areas show that the general subsurface profile consists of miscellaneous fill, silty clay; silty sand; and glacial till with bedrock ranging from approximately 70 to 150 feet below the existing ground level. The building foundation will be set on piles and the parking lot areas will be surcharged prior to paving to reduce settlement.

6. During the hearing of June 12, 1981 the Board received testimony from a number of business representatives on the economic effects of the proposed project on their businesses.

BASED on the above noted facts, the Board makes the following conclusions:

1. The applicant has sufficient Title, Right or Interest in the property for the Board to act on this application.

2. The applicant has provided adequate evidence of financial capacity and technical ability to meet air and water pollution control standards.

3. The applicant has made adequate provision for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

4. The applicant has made adequate provision for traffic movement of all types out of or into the development area provided:

   a. maximum Sight distances are maintained at all access points and,

b. a traffic control signal is installed at the Preble Street Extension access should traffic conditions warrant

5. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character or natural resources in the municipality or in neighboring municipalities.

6. The proposed development will be built on soil types which are suitable to the nature of the undertaking.

THEREFORE, the Board APPROVES the application of HANNAFORD BROTHERS COMPANY to construct a shopping center as described in Finding of Fact #1 above subject to the following terms and conditions:

1. The Standard Conditions of Approval, a copy attached.

2. Sight distances as noted in Finding #3 shall be maintained at all access points.

3. Hannaford Brothers Company shall finance the installation of a traffic control signal at the Preble Street Extension access if and when in the decision of the City of Portland or Maine Department of Transportation or Maine Department of Environmental Protection a signal is warranted.

DONE AND DATED AT AUGUSTA, MAINE, THIS 28TH DAY OF OCTOBER, 1981.

BOARD OF ENVIRONMENTAL PROTECTION

BY: _____
Henry E. Warren, Chairman

PLEASE NOTE ATTACHED SHEET FOR APPEAL PROCEDURES....

STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL.

1. This approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from the plans, proposals and supporting documents is subject to the review and approval of the Board prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited, without prior approval by the Board of Environmental Protection, and the applicant shall include deed restrictions to this effect.

2. The applicant shall secure and comply with all applicable Federal, State and local licenses, permits, authorizations, conditions, agreements, and orders, prior to or during construction and operation as appropriate.

3. The applicant shall submit all reports and information requested by the Board or Department demonstrating that the applicant has complied or will comply with all conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

4. Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

5. Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.

6. If the construction or operation of the activity is not begun within two years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. Reapplications for approval shall state the reasons why the development was not begun within two years from the granting of the initial approval and the reasons why the applicant will be able to begin the activity within two years from the granting of a new approval, if granted. Reapplications for approval may include information submitted in the initial application by reference.

7. If the approved development is not completed within five years from the date of the granting of approval, the Board may reexamine its approval and impose additional terms or conditions or prescribe other necessary corrective action to respond to significant changes in circumstances which may have occurred during the five-year period.

8. A copy of this approval must be included in or attached to all contract bid specifications for the development.

9. Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

STATE OF MAINE
Department of Environmental Protection

MAIN OFFICE: RAY BUILDING, HOSPITAL STREET, AUGUSTA
MAIL ADDRESS: STATE HOUSE, AUGUSTA 04333

Henry E. Warren
COMMISSIONER
289-2811

ADMINISTRATIVE SERVICES:
289-2691

BUREAUS:

AIR QUALITY CONTROL
289-2437

LAND QUALITY CONTROL
289-2111

WATER QUALITY CONTROL
289-2591

OIL POLLUTION CONTROL
289-2591

REGIONAL OFFICES:

31 CENTRAL STREET
BANGOR 04401
947-6746

634 MAIN STREET
PRESQUE ISLE 04769
764-3737

OIL POLLUTION CONTROL
17 COMMERCIAL STREET
PORTLAND
773-6491

OIL SPILL REPORTS ONLY
(TOLL FREE) 1-800-482-0777

CITIZENS' ENVIRONMENTAL
ASSISTANCE SERVICE
289-2691
(TOLL FREE) 1-800-452-1942

AIR QUALITY CONTROL
17 COMMERCIAL STREET
PORTLAND
773-0196

LAND QUALITY CONTROL
17 COMMERCIAL STREET
PORTLAND
773-0196

RIGHTS OF REVIEW AND APPEAL

Any person aggrieved by a decision by the Board of Environmental Protection ("Board") or Department of Environmental Protection ("Department") has the following rights of review and appeal:

I. As to any decision by the Board:

A. Request for hearing:

Within 30 days of the applicant's receipt of a Board decision made without public hearing, any person aggrieved by the decision may make a request for a hearing. Such a request shall set forth in detail the basis of the petitioner's aggrievement; the findings, conclusions or conditions to which the petitioner objects; the basis of the objections; and the nature of the evidence or argument to be offered.

B. Reconsideration by the Board:

Within 30 days of the applicant's receipt of a decision of the Board any person aggrieved by the decision may petition the Board, in writing, to secure reconsideration of the decision. The petition shall include, but need not be limited to, the findings, conclusions or conditions objected to or believed to be in error, the basis of the objections or challenge and the remedy sought.

The Board shall, within 30 days of the receipt of such a petition and after appropriate notice grant the petition in full or in part; order a public hearing to be held within 45 days; or dismiss the petition in full or in part. See 38 M.R.S.A. §344.5 and Chapter 1.15 of the Department Regulations.

C. Judicial appeal:

Any person aggrieved by a final Board decision is entitled to judicial review by filing a petition in Superior Court for Kennebec County or in Superior Court for the county where (1) the aggrieved person resides or has his principal place of business; or (2) the activity or property which is the subject of the proceeding is located.

The petition for review shall be filed within 30 days after receipt of notice if taken by a party to the proceeding of which review is sought. Any other person aggrieved shall have 40 days from the date the decision was rendered to petition for review.

The petition for review shall be served by certified mail, return receipt requested, upon D.E.P., all parties to the proceeding, and the Attorney General.

II. As to a decision by the Department:

A. The Board has delegated authority to Department staff to act on certain applications.

Any person aggrieved by a staff decision may request in writing, within 30 days of receipt of the order by the applicant, that the Board review such decision. Such request for review must set forth the reasons why the review is requested and the actions which the person making the request desires to be taken by the Board. When review of a staff determination is requested, it shall be conducted as if it were an application filed with the Board and not subject to delegation.

NOTE:

1. Because a person other than the applicant may file an appeal, as stated above, any action to commence work according to the terms of the permit prior to the expiration of the appeal or review period entails a risk that the approval may be altered. Applicants must assess the likelihood and extent of such a risk.

2. The filing of a petition for review or appeal does not operate as a stay of the final agency action

3. Further information concerning review and appeal may be found in the Maine Administrative Procedure Act (5 M.R.S.A. §8001 et seq.) and Department statutes (38 M.R.S.A. §341 et seq. and regulations.

4. You may contact D.E.P. if you have any question about the rights of review and appeal procedures.

PBM1

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Chair Carroll and Members of the Portland Planning Board

FROM: Kandice Talbot, Planner

DATE: May 11, 1999

SUBJECT: Shop 'n Save Plaza Expansion, 295 Forest Avenue

Introduction

Hannaford Bros. Co. has requested site plan review for a 13,140 sq. ft. expansion of the existing Shop 'n Save supermarket located at 295 Forest Avenue. The site is approximately 9.77 acres and zoned B-2.

Currently there is 17,480 sq. ft. of retail space located next to the supermarket. The supermarket will expand into approximately 9,070 sq. ft. of the existing retail space. The applicant is proposing an 11,880 sq. ft. addition and loading dock to the rear of the building and a 1,260 sq. ft. vestibule area along the front of the store. Existing second floor office space within the expanded supermarket footprint will be removed, the office space over the retail shops will remain.

Site Design

This site is bounded by I-295, Forest Avenue, Baxter Boulevard and Preble Street. Access is provided along Baxter Boulevard, Forest Avenue and Preble Street. No additional impervious surface will be added to the site. The expansion will be built on existing pavement. Existing landscaped islands at the rear of the building, which will be impacted by the expansion, will be relocated.

The applicant is proposing seven ornamental light fixtures along the front of the shopping center. The height of the light poles will be 18 ft. Catalogue cuts of the lighting are included as Attachment 4.

As a result of the expansion, a total of 38 parking spaces will be removed from the rear of the building. That will leave a total of 462 parking spaces. The required number of parking spaces are 420 spaces. The applicant shall provide information to staff determining whether any additional traffic will be generated by the proposed expansion of the supermarket.

The applicant is not proposing any changes to the drainage on the site. A catch basin will be added to the new truck well at the rear of the proposed addition. This project will require a modification to the original Site Location of Development permit from the MeDEP. As part of this modification, staff will be reviewing whether the proposed expansion will create impacts on existing traffic, stormwater, solid waste and waste water. Public Works has reviewed the site plan and feels that based on the size of the Shop 'n Save impervious drainage area and the close proximity of the receiving wetland, Back Cove, the applicant should provide stormwater treatment of the runoff being discharged from the site. This can be done by redirecting the northerly parking area outfall pipe into an appropriately sized Vortechnics Stormwater Treatment Tank. Additionally, the southerly parking area outfall pipe can be redirected into the same stormwater treatment tank.

Attachments:

1. Vicinity Map
2. Letter from Applicant
3. Public Works' Memo
4. Lighting Catalogue Cuts
5. Letter from Resident
6. Plans

Attachment 6

BUILDING AREA

EXISTING SHOP 'N SAVE:	48,180 SF
PROPOSED EXPANSION (existing building):	9,070 SF
PROPOSED EXPANSION (proposed building):	13,140 SF
RETAIL SHOPS TO REMAIN:	8,980 SF
SECOND FLOOR OFFICE TO REMAIN:	9,880 SF
TOTAL BUILDING AREA	89,770 SF

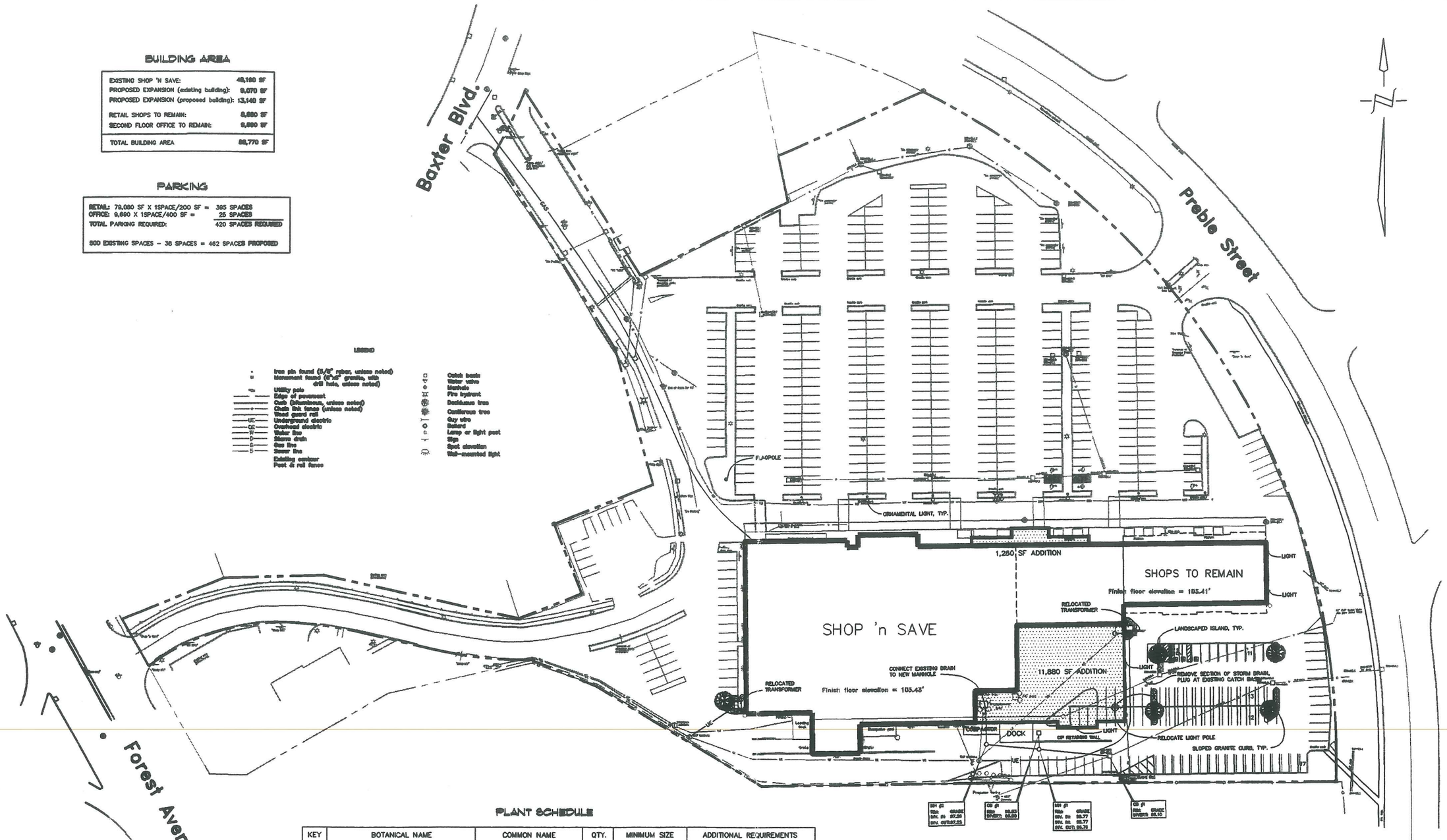
PARKING

RETAIL: 79,080 SF X 1SPACE/200 SF =	395 SPACES
OFFICE: 9,880 X 1SPACE/400 SF =	25 SPACES
TOTAL PARKING REQUIRED:	420 SPACES REQUIRED

800 EXISTING SPACES - 38 SPACES = 462 SPACES PROPOSED

LEGEND

- Iron pin found (5/8" rebar, unless noted)
- Monument found (4"x4" granite, with drill hole, unless noted)
- Utility pole
- Edge of pavement
- Curb (bituminous, unless noted)
- Chain link fence (unless noted)
- Wood guard rail
- UE Underground electric
- OE Overhead electric
- Water line
- Storm drain
- Gas line
- Sewer line
- Existing contour
- Post & rail fence
- Catch basin
- Water valve
- Manhole
- Fire hydrant
- Deciduous tree
- Coniferous tree
- Guy wire
- Bollard
- Lamp or light post
- Sign
- Spot elevation
- Wall-mounted light



PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	QTY.	MINIMUM SIZE	ADDITIONAL REQUIREMENTS
GT	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	HONEYLOCUST	5	2-1/2 CAL.	HIGH BRANCHING
TC	TAXUS CUSPIDATA 'LOW SPREADING'	LOW SPREADING YEW	51	24-30" SPD.	

NOTES

1. OWNER OF PROPERTY IS HANNAFORD BROS. CO., P.O. BOX 1000, PORTLAND, MAINE 04104.
2. EXISTING BUILDING MOUNTED LIGHT FIXTURES TO BE REPLACED WITH MCPHILBEN 140 LINE SUPER SCONCE, WITH 250 WATT HPS LAMPS

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

HANNAFORD BROS. CO.
ENGINEERING DESIGN SERVICES

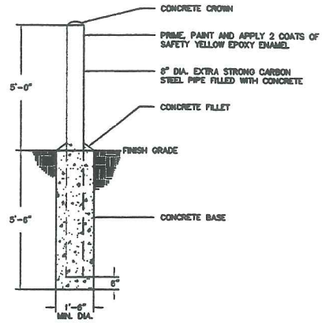
NO.	REVISION	DATE
	SUBMITTED TO CITY FOR SITE PLAN REVIEW	4-22-99

SHEET TITLE: SITE PLAN

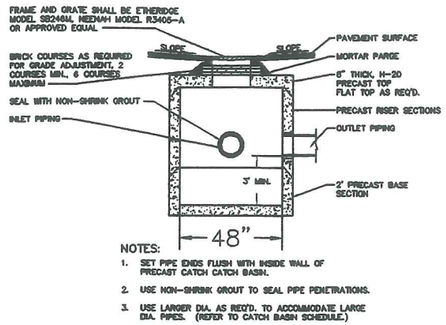
PROJECT TITLE: SHOP 'N SAVE EXPANSION
FOREST AVENUE
PORTLAND, MAINE

scale	1"=40'
design	WM
drawn	WM
proj. mgr.	WM
date	4-22-1999

SHEET C-1
proj. no.

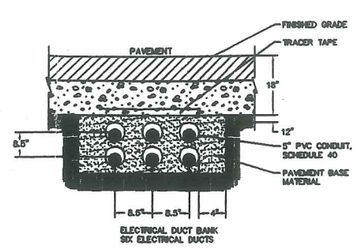


BOLLARD DETAIL (DETAIL SHEET)
NOT TO SCALE



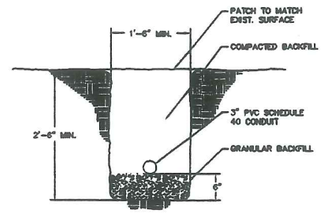
NOTES:
1. SET PIPE ENDS FLUSH WITH INSIDE WALL OF PRECAST CATCH CATCH BASIN.
2. USE NON-SHRINK GROUT TO SEAL PIPE PENETRATIONS.
3. USE LARGER DIA. AS REQ'D. TO ACCOMMODATE LARGE DIA. PIPES. (REFER TO CATCH BASIN SCHEDULE.)

TYPICAL PRECAST CATCH BASIN (DETAIL SHEET)
NOT TO SCALE

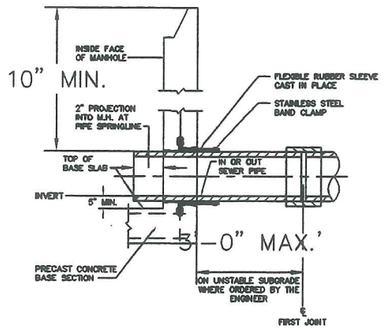


NOTE
1. CONDUIT BANK WILL EXTEND 5' BEYOND FOUNDATION WALL. CAP ALL CONDUITS.
2. THE 480/277V TRANSFORMER PAD SHALL HAVE 6 CONDUITS.

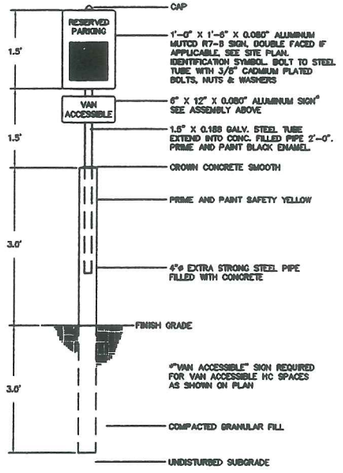
SECONDARY CONDUIT BANK DETAIL (DETAIL SHEET)
NOT TO SCALE



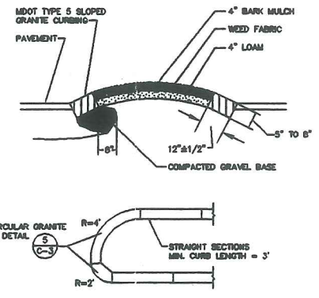
ELECTRICAL CONDUIT TRENCH (DETAIL SHEET)
NOT TO SCALE



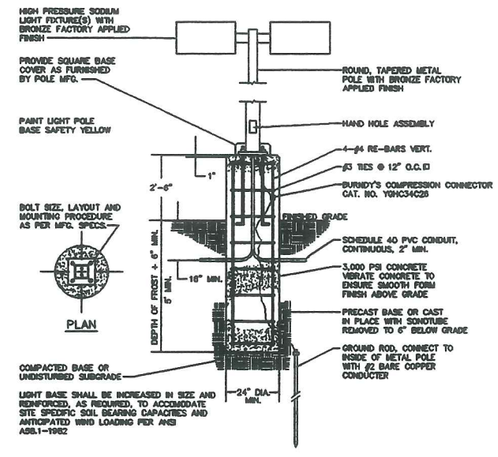
FLEXIBLE MANHOLE SLEEVE (DETAIL SHEET)
NOT TO SCALE



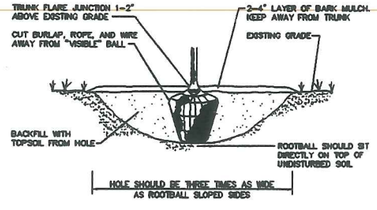
ELEVATION: BOLLARD HANDICAP SIGN (DETAIL SHEET)
NOT TO SCALE



TYPICAL ISLAND END TREATMENT (DETAIL SHEET)
NOT TO SCALE

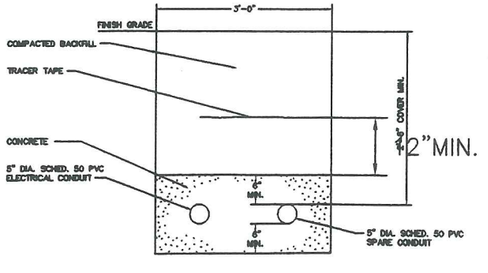


LIGHT POLE BASE DETAIL (DETAIL SHEET)
NOT TO SCALE

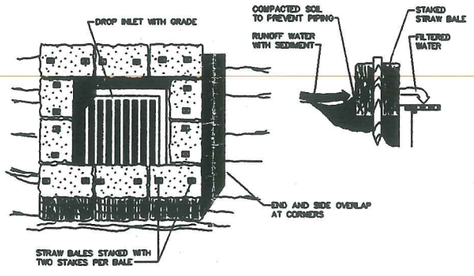


SHRUB PLANTING DETAIL (DETAIL SHEET)
NOT TO SCALE

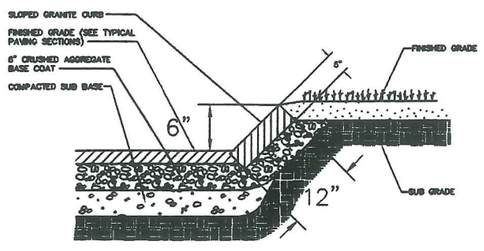
SDHCSIGN



UNDERGROUND PRIMARY ELECTRICAL CONDUIT DETAIL (DETAIL SHEET)
NOT TO SCALE



STRAW BALE SEDIMENT BARRIER (DETAIL SHEET)
NOT TO SCALE



SLOPED GRANITE CURB DETAIL (DETAIL SHEET)
NOT TO SCALE

HANNAFORD BROS. CO.
ENGINEERING DESIGN SERVICES

NO.	REVISION	DATE
	SUBMITTED TO CITY FOR SITE PLAN REVIEW	4-22-99

SHEET TITLE: SITE DETAILS

PROJECT TITLE: SHOP 'N SAVE EXPANSION
FOREST AVENUE
PORTLAND, MAINE

scale	1"=40'
design	WM
drawn	WM
proj. mgr.	WM
date	4-22-1999

SHEET C-2
proj. no.

CITY OF PORTLAND, MAINE

PLANNING BOARD

April 12, 1984

Mr. Larry Plotkin
Hannaford Brothers Co.
Portland, ME 04104

Dear Mr. Plotkin:

The Portland Planning Board voted unanimously (4-0) to approve the revised site plan and subdivision plat for the Back Cove Plaza at the April 10, 1984 meeting. Approval of the revised site plan is subject to the following conditions:

1. All disturbed areas, south of the expanded parking lot, including the Maine Department of Transportation property, must be loamed and seeded;

2. The plantings along Preble Street Extension shall be planted five feet on center; and

3. The trees that will be removed shall be replaced with an equal number of trees (approximately seven deciduous and five to seven evergreens) generally along the property line on the Maine Department of Transportation (MDOT) property. This condition is subject to Hannaford Brothers obtaining permission from MDOT. The species and size of all plantings are subject to the approval of the Vegetation Management Coordinator.

The revised subdivision plat was also approved by the Planning Board. The Subdivision Ordinance specifies that the revised plat must be properly recorded in the Cumberland County Registry of Deeds within thrity days of approval by the Board or the revisions will be null and void. A mylar copy of the subdivision plat and four prints with the book and page number on each copy must be submitted

to the Planning Office after the original has been recorded. The signed linen is available in the Planning Office.

Sincerely,

John L. Barker

John L. Barker, Chairman
Portland Planning Board

cc: Joseph E. Gray, Director Planning & Urban Development
Alex Jaegerman, Chief Planner
Barbara Barhydt, Planner
Sam Hoffses, Chief Inspection Services
George Flaherty, Director Parks and Public Works
Marc Guimont, City Engineer
William Boothby, Principal Engineer
Robert Roy, Planning Engineer
Carmela Guizio, Vegetation Management Coordinator

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER

BB

Do we know about this?

IN THE MATTER OF

ANALYTICAL SERVICES, INC. Portland, Maine BACK COVE PLAZA #L-003713-23-B-M* CORRECTION	)	SITE LOCATION ORDER FINDINGS OF FACT AND ORDER

Pursuant to the provision of Title 38, M.R.S.A., Section 483, the Department of Environmental Protection has considered the application of ANALYTICAL SERVICES, INC. with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

1. Bask Cove Shopping Center received Board approval October 28, 1982.

   The applicant proposes to create an out-parcel of 28,984 square feet in size and identify said parcel as Lot 6.

   *Access to said Lot is via Baxter Boulevard.

   All other aspects of the Site Location Law have either, not changed or do not apply to the creation of an out-parcel.

   Further review of parcel 6 will be required of the new owner.

CITY CLERK
PORTLAND, MAINE
Nov 10 | 14 PM '85

BASED on the above findings of fact, the Department makes the following conclusions,

A. The applicant has provided adequate evidence of financial capacity and technical ability to meet air and water pollution control standards.

B. The applicant has made adequate provision for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

C. The applicant has made adequate provision for traffic movement of all types into, out of or within the development area.

D. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character or natural resources in the municipality or in neighboring municipalities provided additional review of future development is conducted prior to construction or development of Lot 5.

E. The proposed development will be built on soil types which are suitable to the nature of the undertaking.

F. The proposed development will not pose an unreasonable risk that a discharge to a significant ground water aquifer will occur.

ANALYTICAL SERVICES, INC.	2	SITE LOCATION ORDER
Portland, Maine	)	
BACK COVE PLAZA	)	
#L-003713-23-B-M*	)	FINDINGS OF FACT AND ORDER

THEREFORE, the Department APPROVES WITH THE ATTACHED CONDITIONS the revised application of ANALYTICAL SERVICES, INC. to create Lot 6 of Back Cove Plaza Shopping Center in Portland, Maine in accordance with the following conditions:

1. The Standard Conditions of Approval, a copy attached.

2. Lot 6 shall be conveyed only with a deed covenant or Lease term requiring further review and approval by this Department of any future construction or development of said Lot 6.

DONE AND DATED AT AUGUSTA, MAINE, THIS 30TH DAY OF OCTOBER, 1985.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
HENRY E. WARREN, Commissioner

PLEASE NOTE ATTACHED SHEET FOR APPEAL PROCEDURES....

MISC1

City Clerks Office
April 30, 1985
10:30 AM

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER

IN THE MATTER OF

ANALYTICAL SERVICES, INC. Portland, Maine BACK COVE PLAZA #L-003713-23-A-M	)	SITE LOCATION ORDER FINDINGS OF FACT AND ORDER

Pursuant to the provision of Title 38, M.R.S.A., Section 483, the Department of Environmental Protection has considered the application of ANALYTICAL SERVICES, INC. with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

1. Back Cove Plaza Shopping Center received Board approval October 28, 1982.

   The applicant proposes to create an out-parcel of 1.20 acres in size and identify said parcel as Lot 5.

   Access to said lot is via the shopping center road or by Baxter Boulevard.

   All other aspects of the Site Location Law have either, not changed or do not apply to the creation of an out-parcel.

   Further review of parcel 5 will be required of the new owner.

BASED on the above findings of fact, the Department makes the following conclusions,

A. The applicant has provided adequate evidence of financial capacity and technical ability to meet air and water pollution control standards.

B. The applicant has made adequate provision for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

C. The applicant has made adequate provision for traffic movement of all types into, out of or within the development area.

D. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character or natural resources in the municipality or in neighboring municipalities provided additional review of future development is conducted prior to construction or development of Lot 5.

E. The proposed development will be built on soil types which are suitable to the nature of the undertaking.

F. The proposed development will not pose an unreasonable risk that a discharge to a significant ground water aquifer will occur.

ANALYTICAL SERVICES, INC.) 2 SITE LOCATION ORDER
Portland, Maine)
BACK COVE PLAZA)
#L-003713-59-A-M) FINDINGS OF FACT AND ORDER

THEREFORE, the Department APPROVES WITH THE ATTACHED CONDITIONS the revised application of ANALYTICAL SERVICES, INC. to create Lot 5 of Back Cove Plaza Shopping Center in Portland, Maine, in accordance with the following conditions:

1. The Standard Conditions of Approval, a copy attached.

2. Lot 5 shall be conveyed only with a deed covenant or lease term requiring further review and approval by this Department of any future construction or development of said Lot 5.

DONE AND DATED AT AUGUSTA, MAINE, THIS 19TH DAY OF APRIL, 1985.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
HENRY E. WARREN, Commissioner

PLEASE NOTE ATTACHED SHEET FOR APPEAL PROCEDURES....

PLANNING BOARD REPORT #23-99

SHOP 'N SAVE PLAZA EXPANSION
VICINITY OF 295 FOREST AVENUE
SITE PLAN REVIEW
HANNAFORD BROS. CO., APPLICANT

Submitted to:

Portland Planning Board
Portland, Maine

June 8, 1999

I. INTRODUCTION

Hannaford Bros. Co. has requested site plan review for a 13, 140 sq. ft. expansion of the existing Shop 'n Save supermarket located at 295 Forest Avenue. The site is approximately 9.77 acres and zoned B-2.

Currently there is 17,480 sq. ft. of retail space located next to the supermaket. The supermarket will expand into approximately 9,070 sq. ft of the existing retail space. The applicant is proposing an 11,880 sq. ft. addition and loading dock to the rear of the building and a 1,260 sq. ft. vestibule area along the front of the store. Existing second floor office space within the expanded supermarket footprint will be removed, the office space over the retail shops will remain. No additional impervious surface will be added to the site. The expansion will be built on existing pavement.

This project will require a modification to the original Site Location of Development permit from the MeDEP. As part of this modification, staff will be reviewing whether the proposed expansion will create impacts on existing traffic, stormwater, solid waste and waste water.

Notice of this public hearing consisted of 106 notices sent to the area property owners.

II. FINDINGS

Zoning:	B-2
Land Area:	9.77 acres
Number of Parking Spaces:	
Required:	420 spaces
Proposed:	462 spaces

III. STAFF REVIEW

The proposal has been reviewed for compliance with the Site Plan Ordinance of the Land Use Code. The plan has been reviewed by the Inspections, Traffic, Fire, Public Works, and Planning Department.

IV. SITE PLAN REVIEW

1. Traffic/Circulation/Parking

The site is bounded by I-295, Forest Avenue, Baxter Boulevard and Preble Street. Access is provided along Baxter Boulevard, Forest Avenue and Preble Street. Sidewalk and curb is existing along the frontage of the site. The applicant is proposing to construct a new 6 ft. wide bituminous asphalt sidewalk from the Preble Street parking lot to the front of the existing store. This is in the vicinity of a worn footpath between Preble Street and the parking lot. There is an existing asphalt sidewalk that runs from the Preble Street sidewalk into the rear parking lot, which the applicant is proposing to remove to dissuade pedestrian foot traffic through the rear parking lot.

As a result of the expansion, a total of 38 parking spaces will be removed from the rear of the building. That will leave a total of 462 parking spaces. The required number of parking spaces are 420 spaces.

Staff had requested from the applicant further information as to whether the proposed expansion would generate any additional traffic to the site. The applicant has stated that the purpose of this expansion is to better accommodate the existing customer traffic rather than draw new traffic to the site. Traffic counts were compiled recently at this facility. A total of 1,058 peak hour trip ends were counted from 4:30 - 5:30 p.m. The applicant has summarized that the trip rates will decrease from 15.58 trips per thousand square feet existing to 12.93 trips per thousand square feet proposed. The applicant is currently seeking an opinion on the need for a traffic permit from Maine DEP. A potential condition of approval is:

- that the applicant provide any necessary permit required by DEP for traffic, to City staff.

Larry Ash, Traffic Engineer, has reviewed the plan, and does not have any concerns with what the applicant has submitted in regards to traffic.

2. Bulk, Location, Height of Building and Uses Thereof

As mentioned previously, there is currently 17,480 sq. ft. of retail space located next to the supermarket. The supermarket will expand into approximately 9,070 sq. ft. of the existing retail space. The applicant is proposing an 11,880 sq. ft. addition and loading dock to the rear of the building and a 1,260 sq. ft. vestibule area along the front of the store. Existing second floor office space within the expanded supermarket footprint will be removed, the office space over the retail shops will remain. The applicant will provide conceptual plans at the meeting.

3. Utilities

The applicant is proposing to tie into existing utilities. These utilities include sanitary sewer, water, underground electric, and gas. The applicant is in the process of acquiring utility capacity letters. A potential condition of approval is:

- that the applicant submit utility capacity letters to staff from Portland Water District and Portland Sewer Division.

4. Landscaping

The only change to landscaping will be within the rear parking lot. Existing landscaped islands at the rear of the building will be relocated within the remaining parking area at the rear of the building.

5. Drainage

The applicant originally did not propose any changes to the drainage on the site. Public Works reviewed the site plan and felt that based on the size of the Shop 'n Save impervious drainage area and the close proximity of the receiving wetland, Back Cove, the applicant should provide

stormwater treatment of the runoff being discharged from the site. Public Works felt that this could be done by redirecting the northerly parking area outfall pipe into an appropriately sized Vortechnics Stormwater Treatment Tank. Additionally, the southerly parking area outfall pipe could be redirected into the same stormwater treatment tank.

The applicant has reviewed this recommendation and is proposing to install the proposed water quality treatment unit in the existing Preble Street drainage swale which is located within the Preble Street right of way. The applicant is proposing to install a closed drainage system within the swale and regrade by raising the grade 2-4 feet in the swale. This would remove plant growth and sediments which have clogged the swale. This filling of the swale may require a wetlands permit. At this time the applicant is unsure of the type of unit to be used at this site. Also the applicant would need to supply staff with a drainage maintenance agreement for the treatment tank. A potential condition of approval is:

- that the applicant submit a drainage maintenance agreement, for review and approval by staff.

The Development Review Coordinator has reviewed the plan and is recommending that the applicant provide an erosion control plan. Also that the site plan be revised to include finish floor elevations, curb spot grades, and details of sidewalk, curbing, fence and handicap ramps for the proposed 1,260 sq. ft. addition. The applicant should also provide information regarding the new gas line and electrical connections for the new lights. The DRC's memo is included as Attachment 7.

Public Works has reviewed the proposal and is recommending that the applicant install the proposed stormwater treatment tank within its own property. This would then make the applicant responsible for the structure's maintenance. Public Works' memo is included as Attachment 8. A potential condition of approval is:

- that the applicant revise the plans in accordance with the DRC's memo dated 6/4/99 in regards to stormwater treatment system selection and location, erosion control plan, details, and information on new gas line and electrical connections.

6. Lighting

The applicant is proposing seven ornamental light fixtures along the front of the shopping center. The height of the light poles will be 18 ft. Catalogue cutes of the lighting are included as Attachment 4.

7. Fire Safety

The site plan has been reviewed and approved by the Fire Department.

8. Solid Waste

The applicant currently has a contract with Yarmouth Rubbish and Recycling to provide solid waste disposal. No significant increase in solid waste removal is anticipated as a result of the proposed expansion.

V. MOTIONS FOR THE BOARD TO CONSIDER

On the basis of plans and materials submitted by the applicant and on the basis of information provided in Planning Board Report #23-99 relevant to standards for site plan review, the Board finds:

i. That the plan is/is not in conformance with the Site Plan Standards of the Land Use Code.

Potential Conditions of Approval:

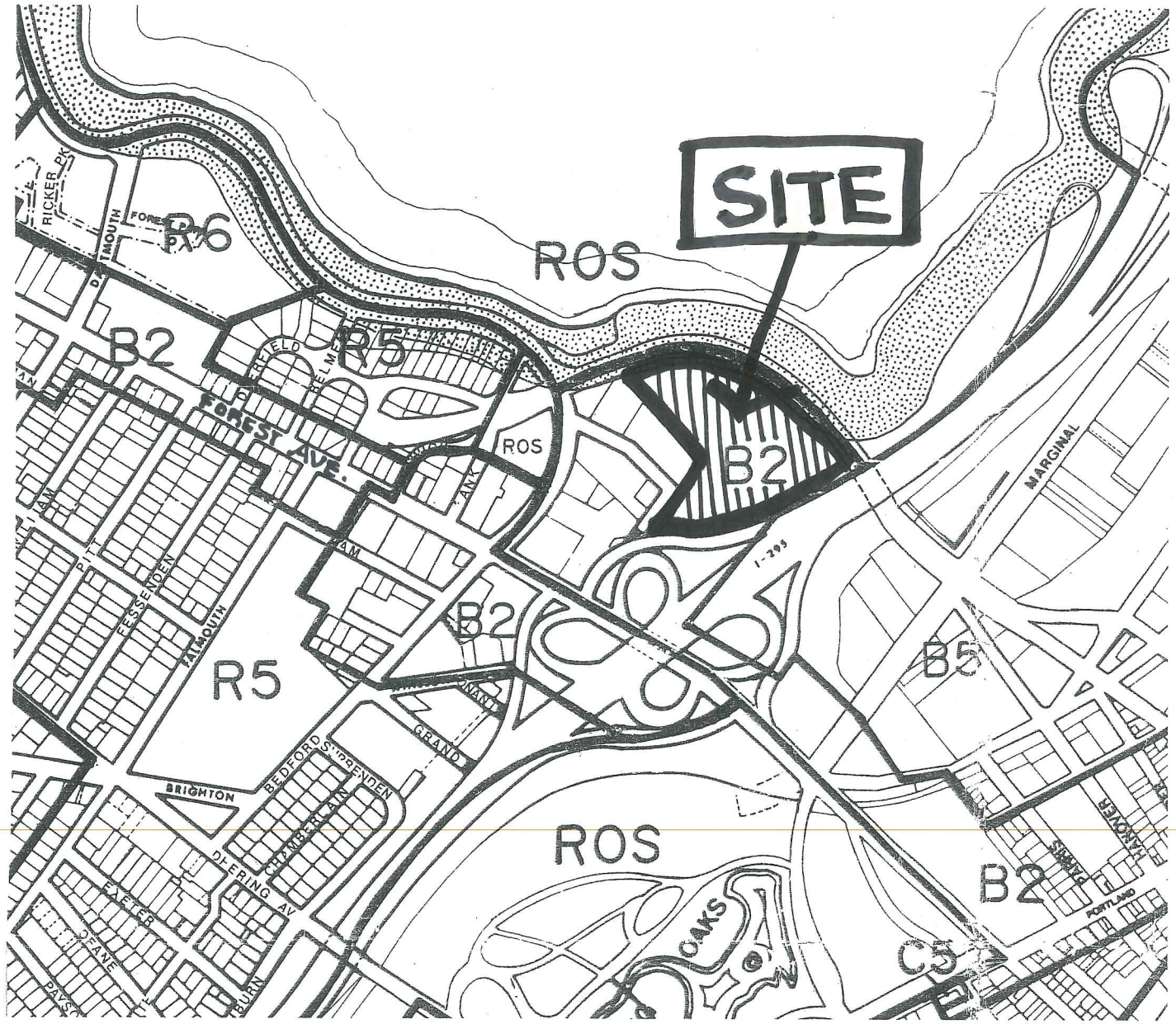
- that the applicant provide any necessary permits required by DEP or Army Corp of Engineers regarding traffic or drainage, to City staff.
- that the applicant submit utility capacity letters to staff from Portland Water District and Portland Sewer Division.
- that the applicant submit a drainage maintenance agreement, for review and approval by staff.
- that the applicant revise the plans in accordance with the DRC's memo dated 6/4/99 in regards to stormwater treatment system selection and location, erosion control plan, details, and information on new gas line and electrical connections.

ii. That the plan is/is not in conformance with The Site Location of Development Law.

Attachments:

1. Vicinity Map
2. Letter from Applicant
3. Public Works' memo dated 5/5/99
4. Catalogue Cuts of Lighting
5. Applicant's Letter dated 6/1/99
6. Traffic Letter to DEP
7. DRC's Memo dated 6/4/99
8. Public Works' Memo dated 6/4/99
9. Plans

Attachment 1



Attachment 2

Hannaford Bros. Co.

April 22, 1999

Ms. Kandice Talbot, Planner
Planning & Urban Development
389 Congress Street
Portland, ME 04101

hand delivered

re: Shop 'n Save Plaza
Forest Avenue
Portland, Maine

Dear Ms. Talbot:

Hannaford Bros. Co. is pleased to submit a *major development* revision, for a 13,140 square foot expansion of the existing Shop 'n Save supermarket at the above referenced location. In accordance with Article V, Section 14-524, we submit herewith seven copies of the site plans for Staff and Planning Board review. A brief narrative of the project follows:

The existing supermarket will be expanded into the adjacent retail shops. The common stair and elevator hallway and shops to the east of the hallway will remain. The existing office space on the second floor within the expanded supermarket footprint will be removed. The office space over the other retail shops will remain. A new vestibule area is proposed along the front of the store and a building addition and loading dock are proposed at the rear of the store.

No additional impervious surface will be added. Landscaped islands at the rear of the store impacted by the expansion have been relocated to maintain an equivalent amount of green space. Landscaped islands are included at the rear hallway entrance, near the transformer at the rear corner of the supermarket, and four islands are included in the rear parking area.

Ornamental light fixtures are proposed along the front of the shopping center, similar to the fixtures used by the City along the public walk extending from the East End near Tukey's Bridge to Commercial Street, near BIW.

A flagpole, with American flag, is proposed in an existing landscaped island at the front right corner of the store.

P.O. Box 1000 Portland, Maine 04104 Telephone 207-883-2911

2a

The following is in response to Section 14-525 (c)of the Portland Maine Land Use Code:

The estimated cost of the project is $5,000,000.

1. No change of the proposed uses on the site are proposed.
2. The total land area of the site is 9.77 acres. The total floor area of the expanded building will be 88,770 square feet. The ground coverage of the expanded building will be 79,080 square feet.
3. Existing easements are depicted on the survey. No additional easements are proposed as part of this project.
4. The type of solid waste generated by the supermarket will not change. Additional cardboard and produce related wastes are expected as part of the expanded supermarket.
5. Evidence of the availability of off-site facilities, including sewer, water and streets are depicted on the survey. Natural gas will be extended to the building from an existing 4" main in Baxter Boulevard.
6. The existing surface and subsurface drainage on the site will not change. A catch basin will be added to a new truck well at the rear of the proposed building addition.
7. Due to the limited scope of site related construction, sequencing of the site work will correspond to areas directly adjacent to the proposed building additions. The underground electric service will be relocated prior to commencing construction of the rear building addition. Construction will begin once permits have been secured.
8. This project requires a modification to the original Site Location of Development permit from the MeDEP.
9. The financial and technical capacity of the applicant, Hannaford Bros. Co. is evident in the enclosed annual report. Similar projects include shopping centers in surrounding Greater Portland communities, including Scarborough, South Portland, and Yarmouth, and a store currently under construction in Falmouth.
10. Hannaford Bros. Co. has owned the project site since 1981. See enclosed survey for recorded deed references.
11. No unusual natural areas, wildlife and fisheries habitats, or archaeological sites are located on the site.
12. Final submission drawings will be submitted in electronic .dwg form.
13. Materials currently recycled by the supermarket include cardboard, plastic shrink wrap and plastic bags. These materials are stored in the store. The amount of recyclable materials will increase somewhat as a function of the expanded supermarket.

Attachment 3

PUBLIC WORKS ENGINEERING MEMORANDUM

To: *Kandi Talbot Senior Planner*
From: *Anthony Lombardo, P.E., Project Engineer*
Date: *May 5, 1999*
Subject: *Shop 'n Save Plaza...Forest Ave....Store Expansion*

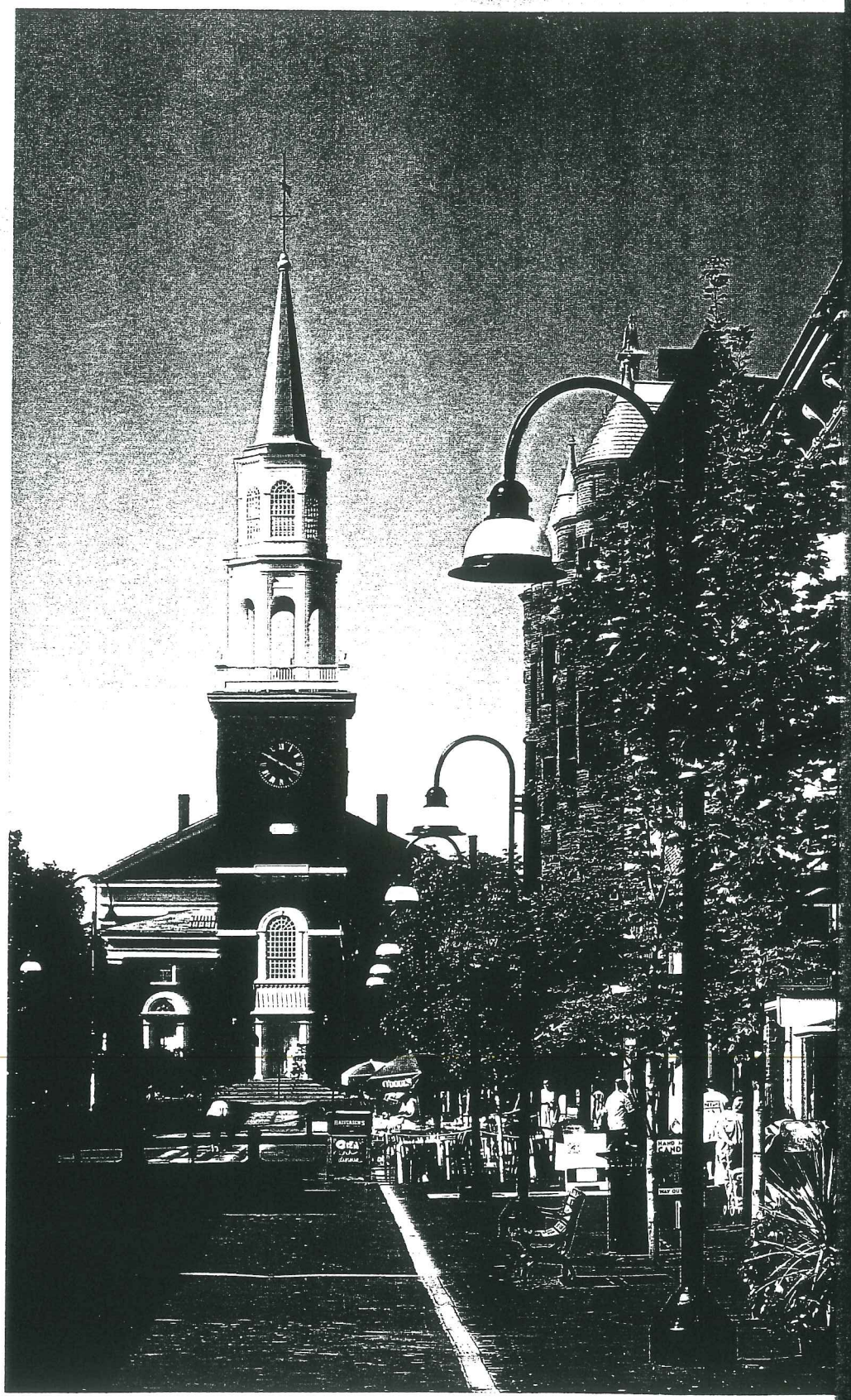
The following comments were generated during Public Works Engineering's second review of proposed commercial development on Forest Ave.. The plans and application were dated April 22, 1999.

- *Public Works is requesting the applicant provide stormwater treatment of the runoff being discharged from the site. This can be achieved by redirecting the northerly parking area outfall pipe (21" dia. CMP), which currently discharges into a roadside swale, in an appropriately sized Vortechnics Stormwater Treatment Tank. In addition, the southerly parking area outfall pipe (15" dia. CMP), which also drains in the roadside swale adjacent to Preble St., can be redirected into the same stormwater treatment tank. Stormwater treated in the Vortechnics Tank can then be discharged through a single pipe into the Preble St. swale. Public Works feels that this is a reasonable request based on the size of the Shop 'n Save impervious drainage area and the close proximity of the receiving wetland, Back Cove.*

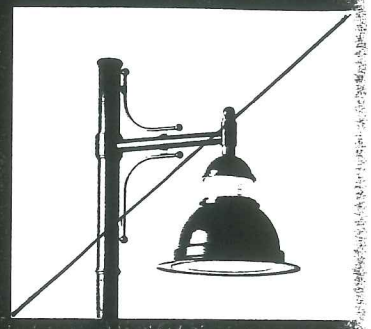
Attachment 4

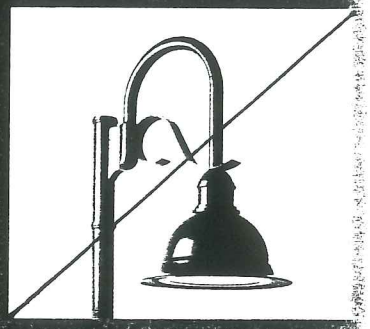
Domus Series

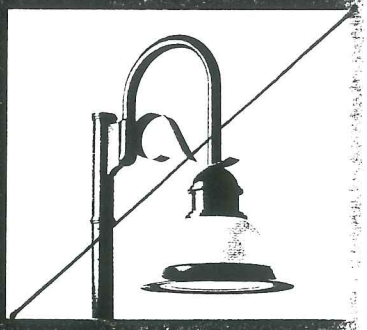
DMS10/20/30/40



Church Street, Burlington, Vermont - DMS30™ - LD







Shop 'n Save

LUMEC

4a

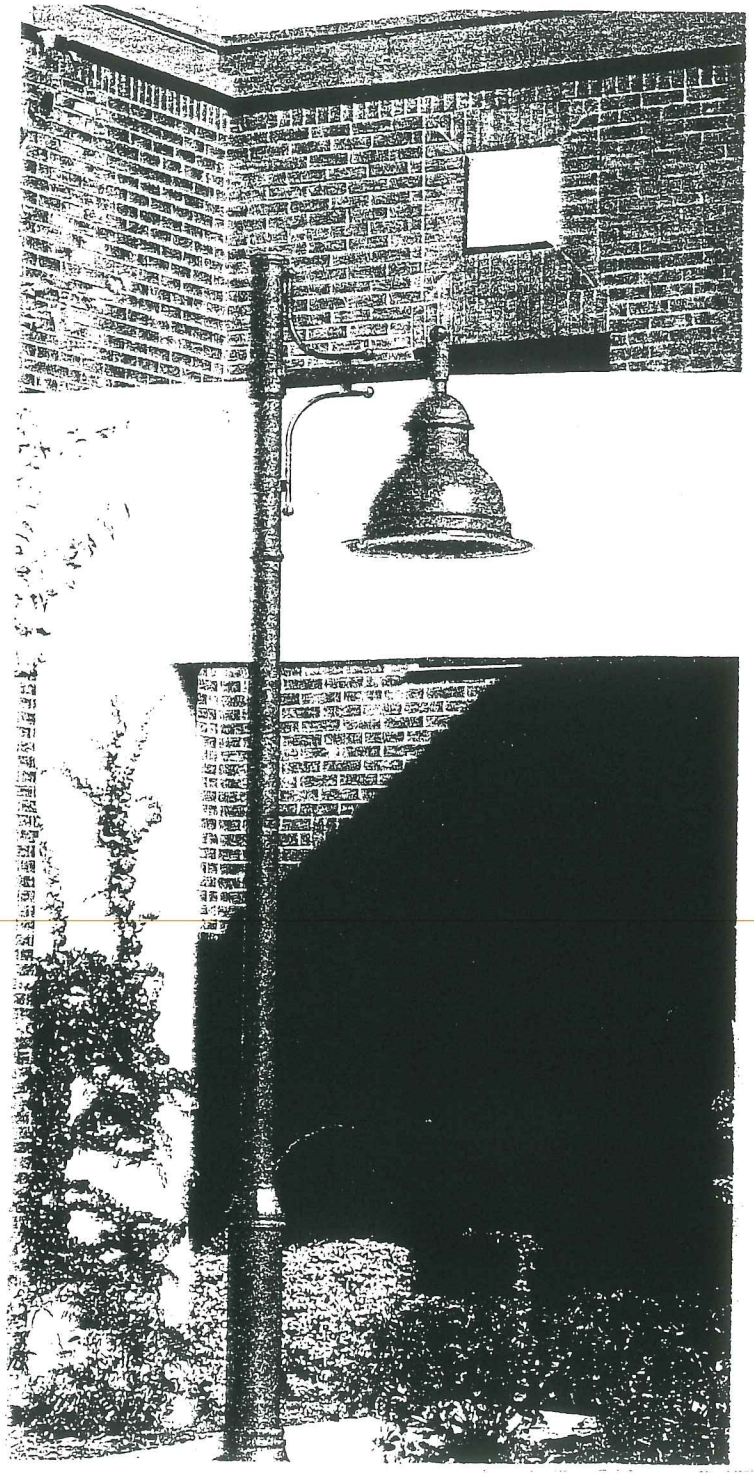
Domus Series

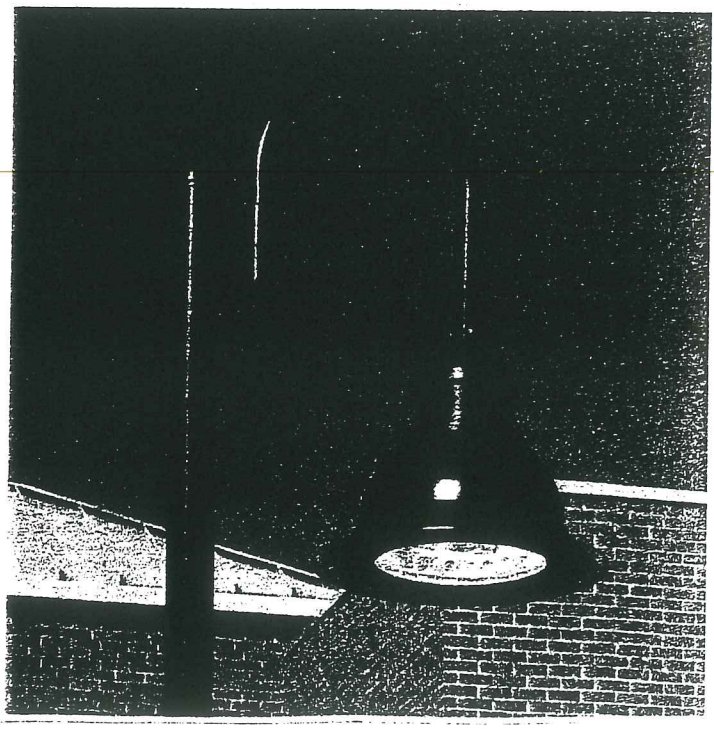
Superior styling and cut-off performance are the hallmarks of this outstanding series of luminaires.

These highly-decorative luminaires have been created to harmonize beautifully with any urban setting.

Their photometrics provide designers and architects with superior cut-off optical systems and all the flexibility they seek i units this photogenic.

Light up your projects with Domus luminaires.





4b

DMS10/20/30/40

DMS10™, DMS20™, DMS30™ and DMS40™ models in the Domus series of luminaires feature a spun and cast-aluminum housing fitted with a large or small cast-aluminum mounting adaptor/heat sink as well as a flat or bell-shaped spun-aluminum skirt.

DMS10 and DMS30 luminaires can be fitted with a decorative luminous dome (**LD**) or optional luminous ring (**LR**) for greater nighttime presence and visual effect.

Optical systems
These luminaires are equipped with **SG** segmented cut-off reflectors set in triple-stage, multifaceted arc-image duplicating patterns. Developed for maximum light control, these systems deliver outstanding optical performance and application versatility.

Ease of maintenance
Units in this series feature a lens assembly consisting of a tempered glass lens and corrosion-resistant hardware along with memory-retentive silicone gasket which extends the lifespan of the components by weatherproofing the optical and electrical chamber.

The lens assembly is secured by two captive quarter-turn screws and pivots to allow easy access to the lamp and/or ballast.

A unitized ballast tray with quick-disconnect terminals is integrated into the housing of the luminaires for ease of maintenance (see lamp guide for maximum wattage).

Lumital Surface treatment
All luminaires, mountings and poles are protected by the **Lumital™** surface treatment, which involves the chemical treatment of all surfaces prior to the application of a coating of polyester-base textured powder for superior resistance.

Luminaire

The **DMS10** luminaire consists of a spun and cast-aluminum exterior housing with large built-in cast-aluminum mounting adaptor/heat sink and flat, spun-aluminum skirt.

It can accommodate ballasts up to 400W. When used with a decorative luminous ring (**LR** option) or luminous dome (**LD** option) the 250W or 400W ballasts must be remote in the mounting or pole base.

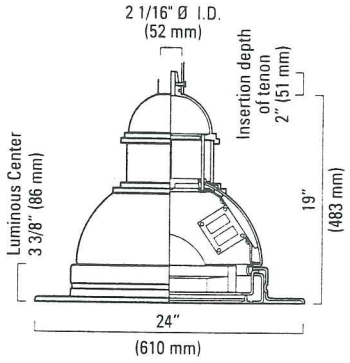
The lens assembly, thanks to silicone gaskets along the lens and frame, keeps the housing watertight and is secured by two quarter-turn captive screws. The lens pivots, providing easy access to the lamp and/or ballast.

Similar to the DMS10, the **DMS30** is distinguished by its bell-shaped spun-aluminum skirt.

The **DMS20**, on the other hand, features a smaller mounting adaptor than the DMS10, accepts ballasts of no more than 175W and is not available with the LD and LR options.

The **DMS40** is similar to the DMS30 except for its smaller mounting adaptor. It accepts ballast up to 175W only and is not available with the LD and LR options.

***DMS10, DMS20, DMS30** and **DMS40** luminaires are UL and CSA approved.*



EPA : 1.00 sq.ft.
Weight : 40 lbs (18.1 kg)

DMS10

Lamp Guide

Wattage Options	DMS10/30	DMS20/40 DMS10/30 LD/LR
70 MH	—	—
100 MH	—	—
175 MH	—	—
250 MH	—	•
400 MH*	—	•
35 HPS	—	—
50 HPS	—	—
70 HPS	—	—
100 HPS	—	—
150 HPS	—	—
250 HPS	—	•
400 HPS*	—	•

Remote ballast in mounting or pole base.
* *Consult factory as this wattage requires a remote ballast in a special pole base. 400 MH must use a reduced jacket lamp.*

DMS10™, DMS20™, DMS30™ and **DMS40™** luminaires accommodate H.I.D. or incandescent lamps as shown in the above table.

The UL or CSA-recognized CWA-type ballast features a -30F° (-34C°) lamp-starting capacity, a power factor of 90% or better and a regulation of lamp within ±10% of rated input voltage. HPS ballasts operate within ANSI trapezoidal limits.

The luminaire's lens frame, secured by two captive quater-turn screws, pivots along an hinge to permit easy lamp and/or ballast access.

The ballast is integrated in the hood of the luminaire, on a unitized ballast tray, or is remote in the mounting or the pole base.

Optical Systems

SG optics
Segmented cut-off reflector system set in faceted arc-image duplicating patterns


SG1: Asymmetrical (I)


SG2: Asymmetrical (II)


SG3: Asymmetrical (III)


SGQ: Symmetrical (V)


SGFM: Forward-throw

(Clear lamps not included)

SE optics
Small hydro-formed cut-off reflector system set in faceted arc-image duplicating patterns are also available in type III, IV and V distributions. Please consult factory for details.

For further information, refer to the Photometric Guide.

Mountings

IF

A 180° bent section of extruded aluminum 2 3/8" (60 mm) O.D., mechanically assembled to the side of a pole.
- Accepts no ballast.

LM

A 180° bent section of extruded aluminum 2 3/8" (60 mm) O.D., welded to a cast-aluminum pole adaptor and a flat rolled aluminum spiral.
- 2 ballasts, max. 175W.

MM

A 2 3/8" (60 mm) round aluminum arm welded to a 4 1/2" (114 mm) O.D. pole adaptor. The mounting is complete with two bent decorative rods, spheres and a cast-aluminum luminaire adaptor.
- 2 ballasts, max. 175W.

NM

A 180° bent section of extruded aluminum 2 3/8" (60 mm) O.D., with cast-aluminum decorative spirals, and a pole adaptor. The mounting slip fits into a 4" (102 mm) pole.
- Accepts no ballast.

OM

Two straight 1 5/8" (41 mm) O.D. aluminum side-arms welded to a 4" (102 mm) round aluminum pole adaptor and to a cast-aluminum luminaire adaptor.
- 2 ballasts, max. 100W.

Ordering Sample

Lamp	Luminaire	Optical System	Voltage	Mounting & Configuration	Pole	Finish	Options
100 HPS	DMS30	SG3	120V	IF-1A	R80-15	GN-TX	FS-LD

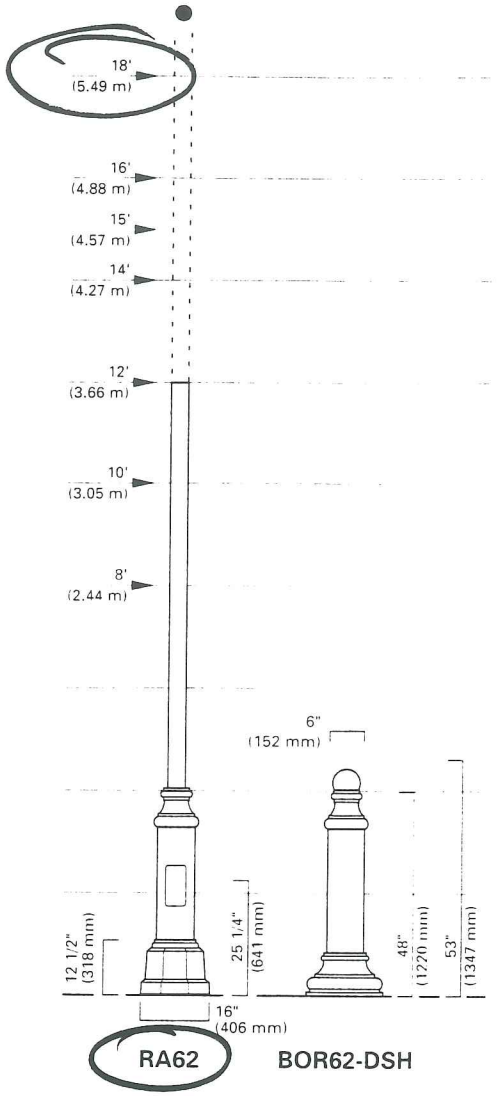
4c

RA62

Traditional Aluminum Poles

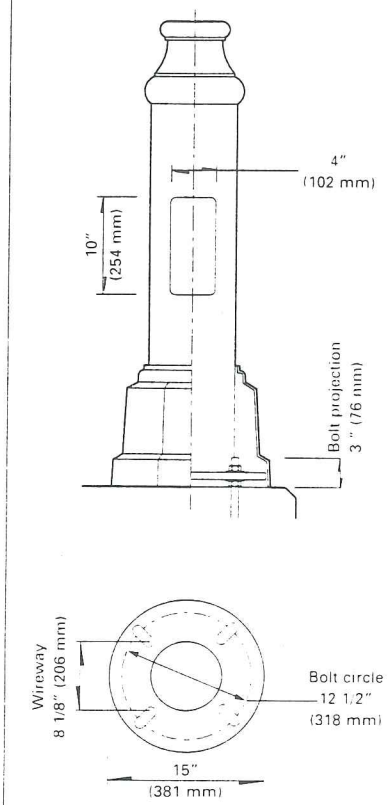
Pole Guide

LUMEC



RA62 BOR62-DSH

Base Details:



Comes with 4 anchor bolts, 8 nuts and 8 washers.

Specifications:

Pole: made from a one-piece, seamless 4"-round (102 mm) tube of extruded aluminum welded over an 8 5/8"-round (219 mm) extruded-aluminum pole base.

The assembly is welded to both the top and bottom of a reinforced base cast from zinc-rich aluminum.

A 4" by 10" (102 by 254 mm) maintenance opening, complete with cover and copper ground lug, is centered 25 1/4" (641 mm) from the ground.

Joint cover: made from two pieces of cast aluminum mechanically fastened to the junction with stainless steel screws.

Base cover: made from two pieces of cast aluminum mechanically fastened to the base with stainless steel screws.

Finish: "Hot Dip" chemical etching preparation. Lumital polyester powder coat textured finish. Available in 16 standard colors.

Durable UV-resistant exterior finish as per # ASTM G7 and outstanding salt-spray resistance according to # ASTM D2247 testing procedures.

Options:

- **DE:** Pole base buried 5' (1524 mm) in the ground. See details on page 65.
- **LS:** Provision for loudspeaker outlet
- **PH7:** Button-type photoelectric cell (specify operating voltage)
- **PH8:** Quarter-turn type photoelectric cell (specify operating voltage)
- **PH9:** Shorting cap for single phase only
- **DR:** Duplex receptacle (120V line volt. only)
- **GFI:** DR with common ground fault interrupter (120V line voltage only)
- **BAS-22:** One single banner arm
- **BABS-22:** One single break-away banner arm
- **BAD-20:** One double banner arm
- **BABD-20:** One double break-away banner arm

Notes: EPA recommendations are calculated according to AASHTO standards and include a 30% gust factor, with a 50-lb (22.7 kg) load applied 1' (305 mm) above the center of the pole.

The maximum EPA rating shown is 30.0 sq. ft. Some poles may exceed this rating.

Bollard: The pole base is available with a **DSH** cast-aluminum decorative sphere (non-luminous). For other options, please consult the factory.

Ordering Information

Catalogue number	Nominal height		Section		Wall thickness		Weight		EPA rating 70mph	EPA rating 80mph	EPA rating 100mph	Base size		Bolt circle		Anchor bolts	
	ft.	m	in.	mm	in.	mm	lbs	kg	ft.²	ft.²	ft.²	in.	mm	in.	mm	in.	mm
RA62F-8	8	2.44	4	102	0.125	3.2	34	15	19.9	15.5	10.0	15	381	12 1/2	318	3/4-20	19-508
RA62U-8	8	2.44	4	102	0.226	5.7	41	19	30.0	27.0	17.7	15	381	12 1/2	318	3/4-20	19-508
RA62F-10	10	3.05	4	102	0.125	3.2	38	17	14.1	10.9	6.9	15	381	12 1/2	318	3/4-20	19-508
RA62U-10	10	3.05	4	102	0.226	5.7	47	21	24.7	19.3	12.5	15	381	12 1/2	318	3/4-20	19-508
RA62F-12	12	3.66	4	102	0.125	3.2	42	19	10.5	8.0	4.9	15	381	12 1/2	318	3/4-20	19-508
RA62U-12	12	3.66	4	102	0.226	5.7	53	24	18.9	14.6	9.0	15	381	12 1/2	318	3/4-20	19-508
RA62F-13	13	3.97	4	102	0.125	3.2	43	20	9.2	7.0	4.1	15	381	12 1/2	318	3/4-20	19-508
RA62U-13	13	3.97	4	102	0.226	5.7	56	25	15.8	11.8	7.3	15	381	12 1/2	318	3/4-20	19-508
RA62F-14	14	4.27	4	102	0.125	3.2	45	20	6.1	4.6	2.7	15	381	12 1/2	318	3/4-20	19-508
RA62U-14	14	4.27	4	102	0.226	5.7	60	27	10.5	7.8	4.7	15	381	12 1/2	318	3/4-20	19-508
RA62F-15	15	4.57	4	102	0.125	3.2	47	21	5.0	3.5	2.0	15	381	12 1/2	318	3/4-20	19-508
RA62U-15	15	4.57	4	102	0.226	5.7	63	29	8.7	6.4	3.7	15	381	12 1/2	318	3/4-20	19-508
RA62F-16	16	4.88	4	102	0.125	3.2	49	22	4.0	2.8	1.4	15	381	12 1/2	318	3/4-20	19-508
RA62U-16	16	4.88	4	102	0.226	5.7	66	30	7.1	5.2	3.0	15	381	12 1/2	318	3/4-20	19-508
RA62W-16	16	4.88	4	102	0.318	8.1	103	47	9.5	7.0	4.1	15	381	12 1/2	318	3/4-20	19-508
RA62U-18	18	5.49	4	102	0.226	5.7	72	33	5.0	3.5	1.7	15	381	12 1/2	318	3/4-27	19-686
RA62W-18	18	5.49	4	102	0.318	8.1	111	50	6.8	5.7	2.6	15	381	12 1/2	318	3/4-27	19-686
RA62U-20	20	6.10	4	102	0.226	5.7	79	36	3.3	2.2	—	15	381	12 1/2	318	3/4-27	19-686
RA62W-20	20	6.10	4	102	0.318	8.1	120	54	4.8	3.3	1.5	15	381	12 1/2	318	3/4-27	19-686

Other pole thickness are available for use with banner arms, consult factory.

Lumec neither designs nor makes recommendations as to the design of concrete bases.

THOMAS

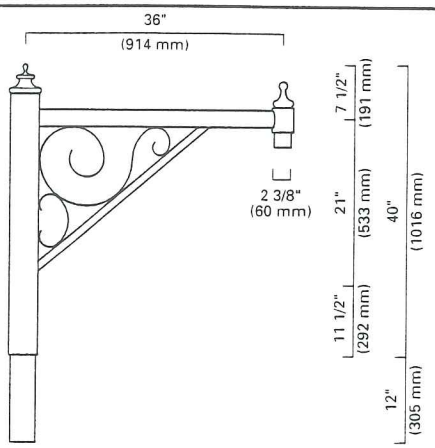
Note: Lumec reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice.

4d

CRG, CRH

Suspended Luminaire Mountings (Traditional)

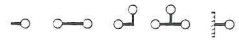
CRG



EPA: 2.38 sq.ft.
Weight: 15 lbs (6.8 kg)

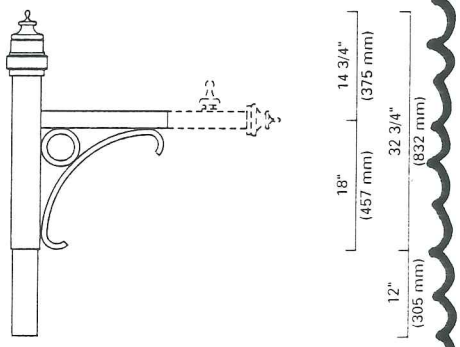
Specifications
Mounting: features one 2"-square (51 mm) extruded-aluminum arm welded to the side of a 4"-round (102 mm) console.
A 1 1/8"-square (29 mm) extruded-aluminum tube is welded at an angle to the side of the console and the bottom of the arm. Two decorative rolled sections of a flat aluminum band are welded between the arm, console and angled tube.
A cast-aluminum 2 3/8" (60 mm) luminaire adaptor is inserted and welded in the arm.
The mounting will accept a luminaire equipped with a 2 1/16"-O.D. (52 mm) adaptor (secured by three screws at 120°). The mounting can also accommodate suspended traditional luminaires.
All mountings are pre-wired for greater installation ease.
See below for Finish and Options details.

Configurations



1A 2 2A 3B M

CRH



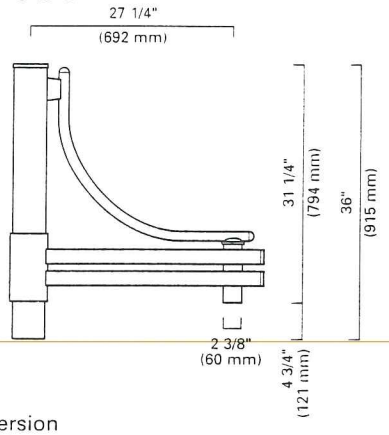
EPA: 1.84 sq.ft.
Weight: 12.0 lbs (5.4 kg)

Specifications
Mounting: features one 2 3/8"-round (60 mm) extruded-aluminum arm welded to the side of a 4"-round (102 mm) console. Both are closed by a decorative cast-aluminum cover.
Two decorative rolled sections of aluminum rods are welded between the arm and the console.
An extruded-aluminum 2 3/8" (60 mm) luminaire adaptor is inserted and welded in the arm. A cast-aluminum decorative piece is welded over the luminaire adaptor.
The mounting will accept a luminaire equipped with a 2 1/16"-O.D. (52 mm) adaptor (secured by three screws at 120°). The mounting can also accommodate suspended traditional luminaires.
All mountings are pre-wired for greater installation ease.
See below for Finish and Options details.

Configurations

1A 2 2A 3B M

OV Version



Specifications:
OV version mounting: features a 4 1/2"-O.D. (114 mm) aluminum pole adaptor that can accommodate up to two 175W ballasts.
The pole adaptor slip-fits 9" (229 mm) over a 4"-round (102 mm) pole or tenon.
All other specifications of the appropriate mounting remain unchanged.
Check mounting specifications to see if OV option applies.

CN1 shown in **CN1-OV** version

Specifications
common to all mountings illustrated on pages 57 through 61
Finish: "Hot Dip" chemical etching preparation.
Lumital polyester powder coat textured finish.
Available in 16 standard colors.
Durable UV-resistant exterior finish as per # ASTM G7 and outstanding salt-spray resistance according to # ASTM D2247 testing procedures.

Options: no options can be installed directly on an arm or base.
The following options are available only if the mounting arms are mounted on a central console that slip-fits into or over a pole.
Options are always oriented on the same axis as the access door.

- **LS:** Provision for loudspeaker outlet
- **PH7:** Button-type photoelectric cell (specify operating voltage)
- **PH8:** Quarter-turn type photoelectric cell (specify operating voltage)
- **PH9:** Shorting cap for single phase only
- **DR:** Duplex receptacle (120V line voltage only)
- **GFI:** DR with common ground fault interrupter (120V line voltage only)

Note: Indicate Mounting and Configuration information after the Pole information in the luminaire ordering number (see luminaire specification sheet).

Attachment 5

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- TRAFFIC STUDIES AND MANAGEMENT
- PERMITTING
- AIRPORT ENGINEERING
- SITE PLANNING
- CONSTRUCTION ADMINISTRATION

June 1, 1999

Ms. Kandice Talbot
Planning Dept.
City of Portland
389 Congress Street
Portland, ME 04101

Re: Shop 'n Save Plaza
Forest Avenue/Preble Street
Portland, Maine

Dear Kandi:

On behalf of Hannaford Bros. Co., DeLuca-Hoffman Associates, Inc. is pleased to provide the attached plans for staff review. The plans highlight the proposed development for an approximately 13,140 s.f. building expansion onto the existing Shop 'n Save supermarket. Hannaford Bros. Co. representatives have previously outlined the proposed project to the City and Planning Board in their original application. The following additional information is provided based on your review memorandum to the Planning Board dated May 11, 1999.

It is our understanding that the Public Works Department has recommended the Applicant install a water quality treatment unit to treat stormwater runoff prior to discharge into the Preble Street ditch and drainage system. DeLuca-Hoffman Associates, Inc. has reviewed the existing drainage system on the site and concluded that it is possible to install a water quality treatment device in the vicinity of two storm drain outlets off the southeast building corner. As suggested by Mr. Lombardo of Public Works, a 21" storm drain, which serves catch basins in front of the store, and a 15" storm drain, which serves to drain areas behind the store, would be connected into a new water quality unit. The Applicant proposes to install the proposed water quality treatment unit in the existing Preble Street drainage swale. The Applicant proposes to perform maintenance and grading improvements to the swale along Preble Street in order to allow placement of the water quality treatment unit and to remove invasive plant growth and sediments which have clogged the swale. The drainage swale currently discharges stormwater into the storm drain system along Preble Street. This includes an 18" field inlet draining to a 24", then 42" storm drain in Preble Street. The 42" storm drain discharges to an 84" outfall pipe which was reconstructed by the City last year. The 84" pipe discharges to Back Cove. The Applicant proposes to install a closed drainage system within the swale and regrade by raising the grade 2-4 feet in the swale. It is our opinion the work will improve the appearance of the swale and allow easier access for mowing and long term maintenance. It is noted that the applicant currently cuts the grass in the swale where possible, despite its being in the Preble Street right-of-way. The proposed work will also include the construction of a new 6' wide bituminous asphalt sidewalk from the Preble Street sidewalk to the front of the existing store. The sidewalk will be installed in the vicinity of a footpath between Preble Street and the parking lot. The Applicant also proposes to remove the existing bituminous sidewalk at the site's southeast corner in order to dissuade pedestrian foot traffic through the rear parking lot.

The water quality unit will treat stormwater for an approximately 3.25-acre area of the site. This includes the front parking lot and a portion of the rear parking area. DeLuca-Hoffman Associates, Inc. has

evaluated the use of two possible water quality units, one provided by Vortechnics and the other a Stormceptor™ unit. At this time, the Applicant proposes to solicit quotations from a number of vendors for the unit, as several are available. In general, the following criteria will be used for the treatment unit design:

Design Storm	-	10 year
Approximate Flow	-	15.5 cfs (Rational Method)
Efficiency	-	80% TSS removal

Based on these design criteria, examples of possible treatment units include the following:

Vortechs Model #9000 or Model #11000 by Vortechnics
Stormceptor™ Model #4800

At this time, DeLuca-Hoffman Associates, Inc. requests that staff level approval of the water quality unit be made a condition of the Planning Board approval. Upon selection by the Applicant, field design computations and specifications for the water quality unit will be made to the Planning Staff, DRC and Public Works staff.

Regarding other issues raised in your memorandum; the existing facility is managed by Hannaford Bros. Co. They currently have a contract with Yarmouth Rubbish & Recycling to provide solid waste disposal for the Shop 'n Save supermarket. Other rubbish contractors currently remove solid waste for the various tenants; however, Yarmouth Rubbish & Recycling will continue to remove solid waste for Hannaford Bros. Co. after the proposed expansion. No significant increase in solid waste removal is anticipated as a result of the proposed expansion.

At this time, DeLuca-Hoffman Associates, Inc. has requested an ability-to-serve letter from Frank Brancely of the Public Works Department for wastewater disposal. We will be providing their response letter to you immediately upon receipt.

Finally, DeLuca-Hoffman Associates, Inc. has requested an opinion from the Maine Department of Environmental Protection (MeDEP) regarding the need for a traffic permit. The attached letter to the MeDEP summarizes the traffic-related issues for the proposal.

DeLuca-Hoffman Associates, Inc. is pleased to submit seven copies of the plans for staff and Planning Board review. If you have any questions regarding the project, please call this office.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Stephen R. Bushey, P.E.
Senior Engineer

SRB/sq/JN1827/Talbot6-1

Enclosure

C: Mary Gamage, Hannaford Bros. Co.

Attachment 6

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS

778 MAIN STREET
SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207 775 1121
FAX 207 879 0896

- ROADWAY DESIGN
- ENVIRONMENTAL ENGINEERING
- TRAFFIC STUDIES AND MANAGEMENT
- PERMITTING
- AIRPORT ENGINEERING
- SITE PLANNING
- CONSTRUCTION ADMINISTRATION

May 26, 1999

Ms. Marybeth Richardson
Maine Department of Environmental Protection
312 Canco Road
Portland, Maine 04103

Re: Forest Avenue Shop 'n Save
Maine DEP File No. 003713, 1985

Dear Marybeth:

We are seeking an opinion on the need for a traffic permit with regard to Hannaford Bros. Co.'s proposal to expand their grocery store located between Forest Avenue and Preble Street in Portland. The City of Portland will review the site aspects of the project under their delegated review authority. We understand that the City was recently given delegated review authority for traffic projects generating between 100 and 200 trip ends.

However, the DEP retains final review authority and would need to concur with our methodology in determining traffic volumes associated with the proposed expansion. We contend that the proposed project, which would convert 9,690 s.f. of office and 9,070 s.f. of retail to supermarket space and add 13,140 s.f. of building footprint as supermarket space, would not significantly affect traffic generation at the site. The purpose of this expansion is to better accommodate the existing customer traffic rather than draw new traffic to the site. The facility currently experiences traffic volumes in excess of those typical of a Shop 'n Save, as well as those presented in the ITE Trip Generation Manual, 6th Edition.

Traffic counts were collected at this facility on Friday, April 23, 1999 from 3:30 – 6:00 PM. A total of 1,058 peak hour trip ends were counted from 4:30 – 5:30 PM. The resultant trip rate for the 64,200 s.f. supermarket/retail component of the center was 15.58 trips per thousand square feet. The 20,500 s.f. of existing office was assumed to generate at the ITE rate and these trips were deducted from the counts prior to determining the retail/grocery store existing trip rate. Adding the additional building footprint area to the retail/supermarket component would reduce the trip rate to 12.93 trip ends per thousand square feet, assuming no additional traffic. We also reviewed historical summer counts at Shop 'n Saves in Scarborough, Wells and Standish. The maximum trip rate realized in these summertime counts was 12.09 per thousand square feet in Wells. The average trip rate in the ITE Trip Generation Manual, 6th Edition, is 11.51 trip ends per thousand square feet. This data is summarized below:

Trip Generation Rates
PM Peak Hour of Generator

Source	Rate: Trips/ Thousand Square Feet
Forest Avenue Shop 'n Save/Retail	
Existing	15.58
Proposed	12.93
Wells Shop 'n Save	12.09
ITE Supermarket	11.51

The above discussion and table show that even with the proposed expansion, and assuming no additional traffic to the site, the trip rate to the site exceeds the summer rate in Wells and the ITE average rate. This reinforces our point that the expansion will actually accommodate existing traffic, not generate additional volume. Additionally, the store is located in an area with established shopping patterns which are not likely to be affected by a 13,140 square foot expansion. Therefore, simply applying the ITE trip rate of 11.51 to the expansion area, which would result in an increase of approximately 125 trip ends when taking credit for elimination of second-floor office space, does not seem to be appropriate.

We request that you issue an opinion with regard to the need for a traffic permit for the proposed expansion. Please call with any questions.

Sincerely,

DeLUCA-HOFFMAN ASSOCIATES, INC.

Peter Hedrich RED

Peter A. Hedrich, P.E., P.T.O.E.
Senior Engineer

PAH/sq/JN1827/Richardson5-26

Enclosures

c: Nancy Beardsley, Maine
Bruce Ibarguen, Maine DOT
Bill McKenney, Hannaford Bros. Co.

Attachment 7

Sebago Technics
Engineering & Planning for the Future
12 WESTBROOK COMMON
WESTBROOK, ME 04092-1339
TEL (207) 856-0277

MEMORANDUM

99280

To: Kandice Talbot, Planner

From: James Seymour, Alternate Development Review Coordinator JPS

Date: June 4, 1999

Subject: Shop 'n Save Expansion, Forest Avenue, Portland, Maine

---

I have reviewed the Site Plan drawings for the Shop 'n Save Expansion located on Forest Avenue by Hannaford Bros. Co. Based on my review, there are a few items which need to be revised prior to final approval. The following items are:

1. Prior to final selection of the stormwater treatment system, the stormwater calculations and watershed map shall be reviewed. The applicant's letter dated June 1, 1999 states that the 10-year storm generates 15.5 cfs. We would like to verify the 10-year and 25-year storm event peak rates of runoff to assure the tank is sized properly and will not surcharge or exceed recommended flows in a larger, 25-year storm event. Since the final selection has not been made, it is difficult to determine the type of overflow or bypass options the system has for higher flow rates. Also, the final detail shall be placed on the plans, reviewed and approved prior to issuance of the building permit. It is my understanding, as well, that the location of the treatment system in the Preble Street right-of-way may not be acceptable to Public Works and the final location may change. Prior to approval, Tony Lombardo, P.E. (Public Works) or myself should approve the final location.

2. Even though this is a relatively minor site construction project, an erosion control and sedimentation plan should be attached to discuss in detail maintenance of the permanent structures such as catch basins and treatment tank for sediment removal during and after construction activities. The manufacturers usually provide a plan if the applicant needs assistance in generation of a plan. Also, the sequence of construction dates and activities should be added to the erosion control plan.

3. The proposed 1,260 square foot addition to the front needs to include finish floor elevation, curb spot grades, and details of the replaced sidewalk, curbing, fence and handicap ramps. Also, a pedestrian barricade should be shown on the plan to indicate work limits during construction.

4. A gas line has been shown to enter the building from the northwest corner as an option for natural gas service. If this option becomes chosen, the applicant should submit a construction schedule and traffic routing plan during construction of the gas main.

5. New lights are proposed in the islands along the main frontage. Do electrical connections exist, or will a new underground electric services be needed; and, if so, how will it affect the existing pavement? Will it be trench cut and patched, or patched and entirely overlaid in conjunction with a gas main installation.

Please feel free to contact my office if you have any questions. I have had conversations regarding these comments with the design engineer, Stephen Bushey, P.E. of DeLuca-Hoffman Assoc., Inc. I just received revisions prior to my formal memo which was to be sent with my original comments. I have not had a chance to review the stormwater calculations and mapping, but will try to complete it prior to your meeting on Tuesday. I would appreciate your sending Stephen Bushey a copy of this memo which has been updated to match the plans submitted this morning, June 4, 1999.

JRS:jc

PUBLIC WORKS ENGINEERING MEMORANDUM

To: *Kandi Talbot Senior Planner*
From: *Anthony Lombardo, P.E., Project Engineer*
Date: *June 4, 1999*
Subject: *Shop 'n Save Plaza...Forest Ave....Store Expansion*

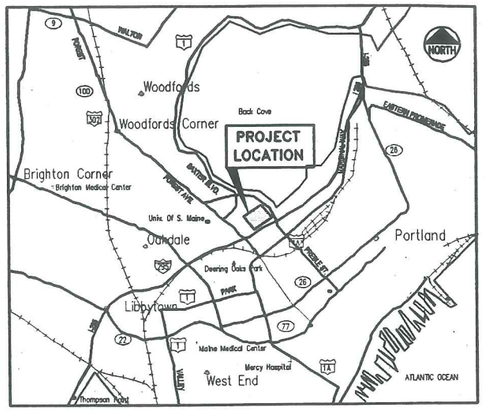
The following comments were generated during Public Works Engineering's second review of proposed commercial development on Forest Ave.. The plans and application were dated June 3, 1999.

Public Works is requesting the applicant install the proposed stormwater treatment tank within its own property. This then makes the applicant responsible for the the structure's maintenance.

PROJECT PARCEL SITE PORTLAND TAX ASSESSOR'S MAP & LOT NUMBERS	
MAP	LOT
34A	C-2
112	E-12

SITE DEVELOPMENT PLANS
FOR
HANNAFORD BROS. CO.

PORTLAND, MAINE
SHOP 'N SAVE STORE ON
FOREST AVENUE/PREBLE STREET
SITE PLAN REVIEW DRAWINGS



VICINITY MAP
N.T.S.

INDEX

UTILITIES

ELECTRIC:
ATTN: TOM ATWOOD
CENTRAL MAINE POWER COMPANY
PORTLAND, MAINE

SEWER:
ATTN: BRADLEY ROLAND
CITY OF PORTLAND
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

WATER:
ATTN: DAVID COFFIN
PORTLAND WATER DISTRICT

GAS:
ATTN: PERRY ROBICHAUD/BILL HOWARD
NORTHERN UTILITIES

DIG SAFE : 1-800-225-4977

PERMITS

TYPE OF PERMIT	GOVERNING BODY	STATUS
LOCAL		
SITE PLAN APPROVAL	PLANNING AND URBAN DEVELOPMENT CITY OF PORTLAND 389 CONGRESS STREET PORTLAND, MAINE 04101 (207) 874-8300	SKETCH PLAN COMPLETED
BUILDING PERMIT/ CERTIFICATE OF OCCUPANCY	BUILDING PERMITS AND CODES DIVISION CITY OF PORTLAND 389 CONGRESS STREET PORTLAND, MAINE 04101 (207) 874-8300	APPLICATIONS TO BE COMPLETED & SUBMITTED BY GENERAL CONTRACTOR
STATE		
MEDEP SITE LOCATION OF DEVELOPMENT PERMIT AMENDMENT	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION 312 CANCO ROAD PORTLAND, MAINE 04103 (207) 822-6300	CITY OF PORTLAND HAS DELEGATED REVIEW AUTHORITY
TRAFFIC PERMIT	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION 312 CANCO ROAD PORTLAND, MAINE 04103 (207) 822-6300	APPLICATION TO BE SUBMITTED FOR SCOPING MEETING

PREPARED BY:

CIVIL AND TRAFFIC ENGINEERS:
DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121

SURVEYORS:
Titcomb Associates
PORTLAND NORTH BUSINESS PARK
FALMOUTH, MAINE 04105
(207) 797-9199

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

OWNER:
HANNAFORD BROS. CO.

APPLICANT:
HANNAFORD BROS. CO.
P.O. BOX 1000
PORTLAND, MAINE 04104
(207) 883-2911

NO.	DATE	DESCRIPTION
		REVISIONS
2	6/03/99	REVISED PER DRC COMMENTS
1	6/01/99	SUBMITTED TO PORTLAND PLANNING

G:\1827\1827-cov.dwg Thu Jun 03 13:12:39 1999 DB

9a

NOTES

1) Bearings are referenced to magnetic north 1983.

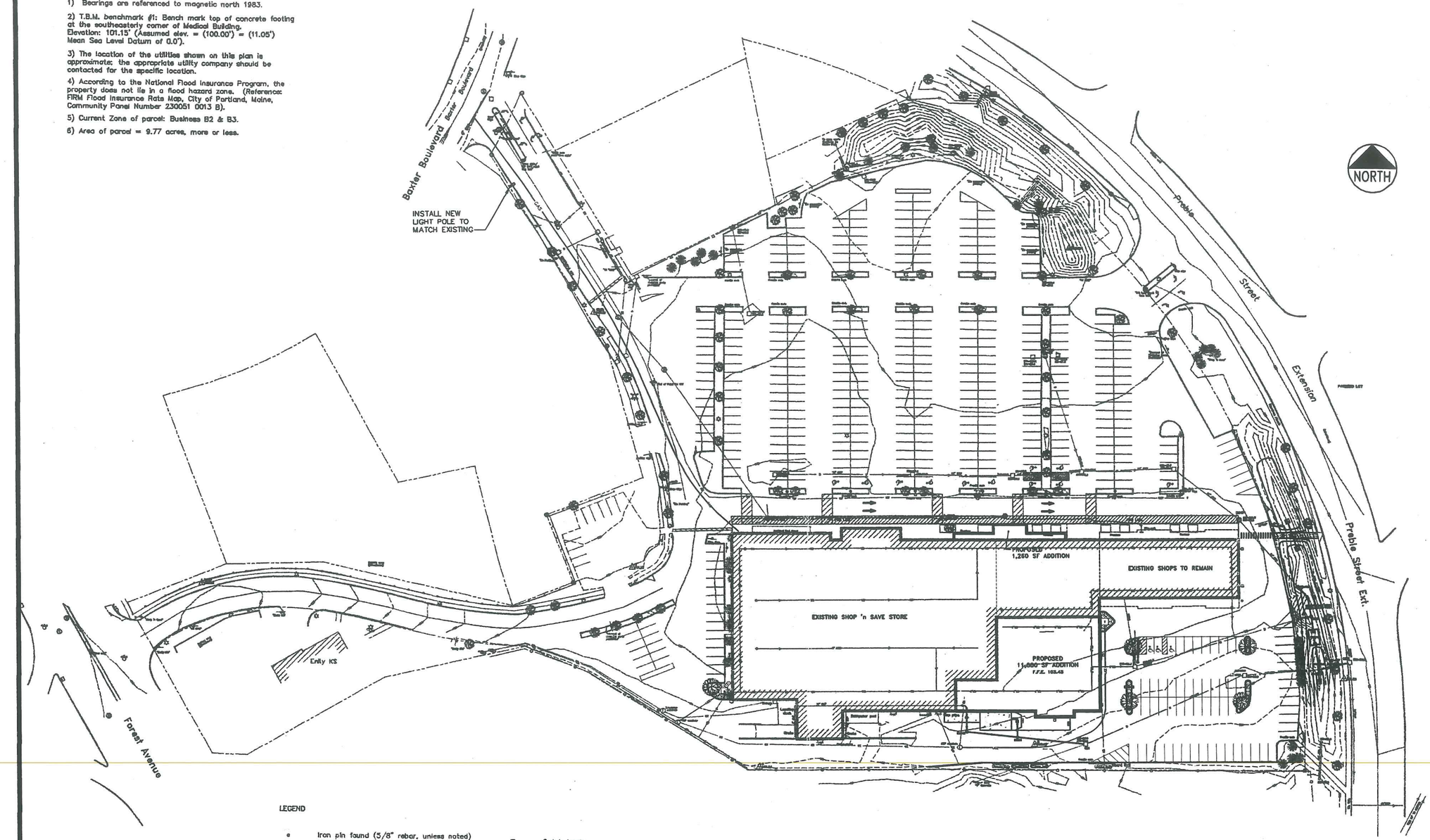
2) T.B.M. benchmark #1: Bench mark top of concrete footing at the southeasterly corner of Medical Building. Elevation: 101.15' (Assumed elev. = (100.00') = (11.05') Mean Sea Level Datum of 0.0').

3) The location of the utilities shown on this plan is approximate; the appropriate utility company should be contacted for the specific location.

4) According to the National Flood Insurance Program, the property does not lie in a flood hazard zone. (Reference: FIRM Flood Insurance Rate Map, City of Portland, Maine, Community Panel Number 230051 0013 B).

5) Current Zone of parcel: Business B2 & B3.

6) Area of parcel = 9.77 acres, more or less.



LEGEND

- Iron pin found (5/8" rebar, unless noted)
- Monument found (6"x6" granite, with drill hole, unless noted)
- Utility pole
- Edge of pavement
- Curb (bituminous, unless noted)
- Chain link fence (unless noted)
- Wood guard rail
- UE — Underground electric
- OE — Overhead electric
- W — Water line
- D — Storm drain
- G — Gas line
- S — Sewer line
- Existing contour
- Post & rail fence
- Catch basin
- Water valve
- Manhole
- Fire hydrant
- Deciduous tree
- Coniferous tree
- Guy wire
- Bollard
- Lamp or light post
- Sign
- Spot elevation
- Wall-mounted light
- Existing building

PRELIMINARY NOT FOR CONSTRUCTION

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

REV	DATE	REVISIONS	PE / LIC. #
2	6/03/99	REVISED PER DRC COMMENTS	
1	6/01/99	SUBMITTED TO PORTLAND PLANNING	

PROJECT
SHOP 'n SAVE EXPANSION
FOREST AVENUE – PORTLAND, ME

SHEET TITLE
OVERALL SITE PLAN

CLIENT
HANNAFORD BROS. CO.

DeLUCA–HOFFMAN ASSOCIATES, INC.
778 MAIN ST., SUITE 8
SO. PORTLAND, ME 04106
(207) 775–1121

DRAWN:	DB
DESIGNED:	SRB
DATE:	MAY 1999
SCALE:	1"=50'
JOB NO.	1827
SHEET	2

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9b

PRELIMINARY NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
2	6/03/99	REVISED PER DRC COMMENTS
1	6/01/99	SUBMITTED TO PORTLAND PLANNING

REVISIONS

PE

LIC. #

PROJECT
SHOP 'n SAVE EXPANSION
FOREST AVENUE – PORTLAND, ME

SHEET TITLE
EXISTING CONDITIONS PLAN

CLIENT
HANNAFORD BROS. CO.

DeLUCA–HOFFMAN
ASSOCIATES, INC.
778 MAIN ST., SUITE 8
SO. PORTLAND, ME 04106
(207) 775–1121

DRAWN: DB
DESIGNED: SRB
DATE: MAY 1999
SCALE: 1"=20'
JOB NO. 1827
SHEET 3

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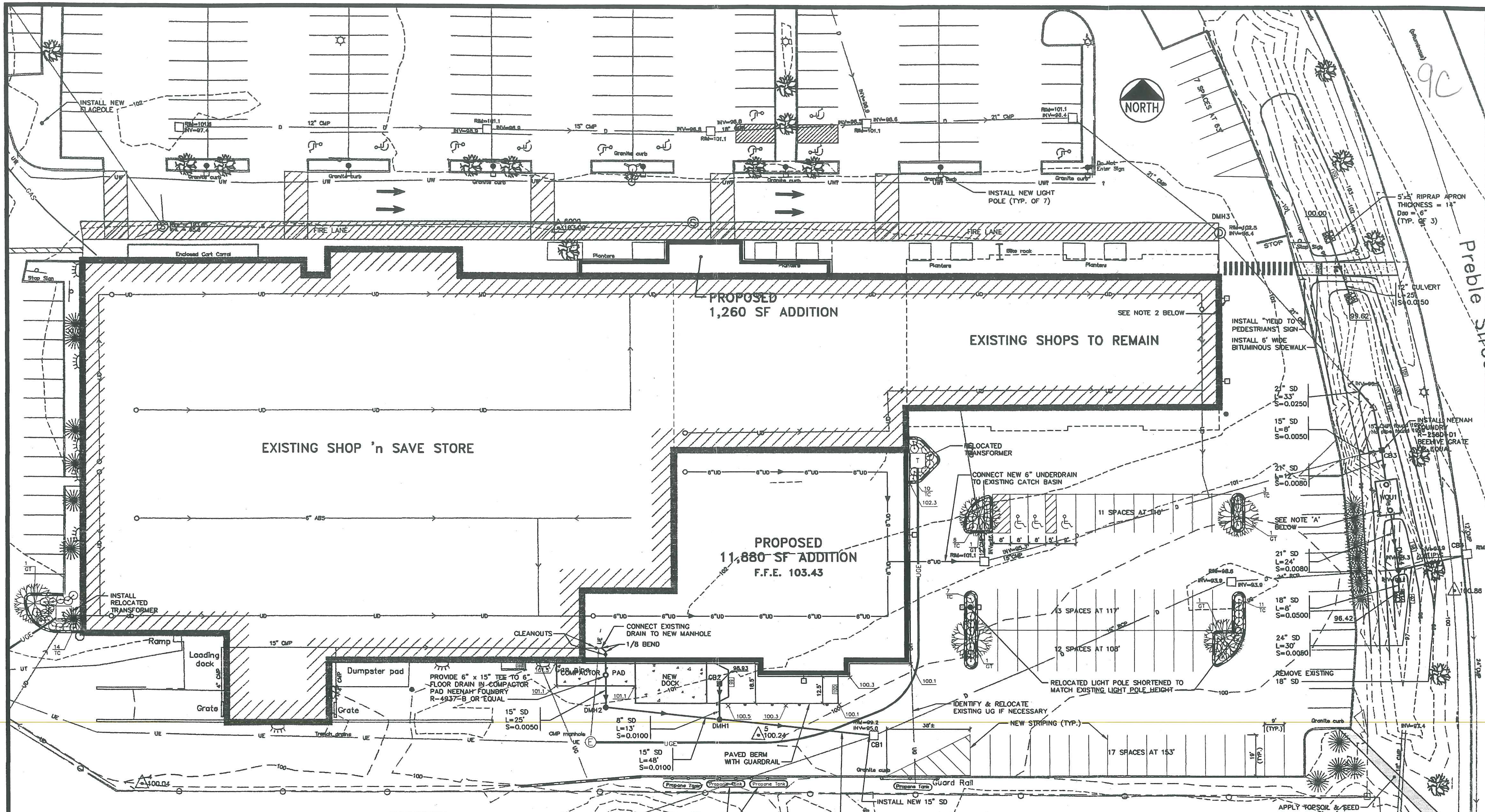

STORM DRAIN APPURTENANCE SCHEDULE

STRUCTURE	SIZE	RIM	INV IN/SIZE(FROM)	INV OUT/SIZE(TO)
CB1(EXIST)	4'ø	99.2	95.08/15"(DMH1)	95.0/15"(EXIST SD)
CB2	4'ø	98.93	–	95.97/8"(DMH1)
CB3	4'ø	98.60	95.48/21"(EXIST 21"CMP) 94.50/15"(EXIST SD)	94.30/21"(WQU1)
CB4(EXIST)	4'ø	100.2	93.50/18"(DMH4) EXISTING	EXISTING
DMH1	4'ø	EXIST. GRADE	95.84/15"(DMH1) 95.84/8"(CB2)	95.74/15"(CB1)
DMH2	4'ø	EXIST. GRADE	96.42/15"(BLDG)	96.32/15"(DMH1)
DMH3(EXIST)	4'ø	102.5	EXISTING	96.4/21"(WQU1)
DMH4	4'ø	97.40	94.01/21"(WQU1) 94.50/18"(INLET) 93.90/24"(EXIST RCP)	93.50/24"(CB4)
WQU1	8'ø	EXIST. GRADE	94.20/21"(CB3)	94.20/21"(DMH4)

NOTE: ACTUAL DESIGN INVERTS FOR WATER QUALITY UNIT TO BE VERIFIED PRIOR TO CONSTRUCTION.

NOTE 'A'

INSTALL NEW WATER QUALITY TREATMENT UNIT. THE CONTRACTOR SHALL PROVIDE MODEL & SIZING CRITERIA TO THE OWNER AND THE CITY FOR APPROVAL PRIOR TO CONSTRUCTION. ACCEPTABLE MANUFACTURER'S INCLUDE VORTECHNICS, H.I.L. TECHNOLOGY & STORMCEPTOR.

EXISTING SHOP 'N SAVE:	48,190 SF
PROPOSED EXPANSION (existing building):	9,070 SF
PROPOSED EXPANSION (proposed building):	13,140 SF
RETAIL SHOPS TO REMAIN:	8,680 SF
SECOND FLOOR OFFICE TO REMAIN:	9,690 SF
TOTAL BUILDING AREA	88,770 SF

RETAIL: 79,080 SF X 1SPACE/200 SF =	395 SPACES
OFFICE: 9,690 X 1SPACE/400 SF =	25 SPACES
TOTAL PARKING REQUIRED:	420 SPACES REQUIRED

500 EXISTING SPACES – 38 SPACES = 462 SPACES PROPOSED

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

KEY	BOTANICAL NAME	COMMON NAME	QTY.	MINIMUM SIZE	ADDITIONAL REQUIREMENTS
GT	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	HONEYLOCUST	5	2-1/2 CAL.	HIGH BRANCHING
TC	TAXUS CUSPIDATA 'LOW SPREADING'	LOW SPREADING YEW	51	24-30" SPD.	

1. OWNER OF PROPERTY IS HANNAFORD BROS. CO., P.O. BOX 1000, PORTLAND, MAINE 04104.
2. EXISTING BUILDING MOUNTED LIGHT FIXTURES TO BE REPLACED WITH MCPHILBEN 140 LINE SUPER SCONCE, WITH 250 WATT HPS LAMPS

PRELIMINARY NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
2	6/03/99	REVISED PER DRC COMMENTS
1	6/01/99	SUBMITTED TO PORTLAND PLANNING

REVISIONS

PE

LIC. #

PROJECT
SHOP 'n SAVE EXPANSION
FOREST AVENUE – PORTLAND, ME

SHEET TITLE
SITE PLAN

CLIENT
HANNAFORD BROS. CO.

DeLUCA–HOFFMAN ASSOCIATES, INC.
778 MAIN ST., SUITE 8
SO. PORTLAND, ME 04106
(207) 775-1121

DRAWN:	DB
DESIGNED:	SRB
DATE:	MAY 1999
SCALE:	1"=20'
JOB NO.	1827
SHEET	4

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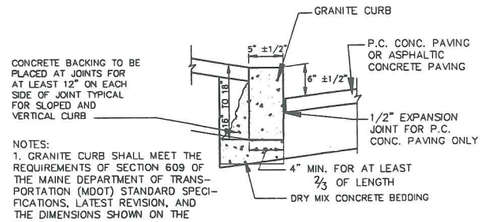
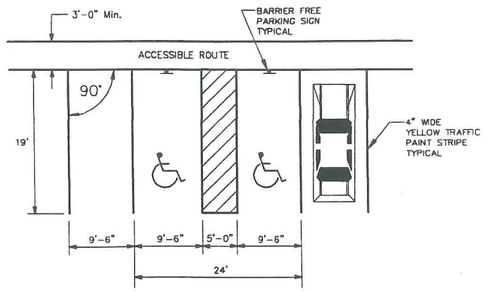


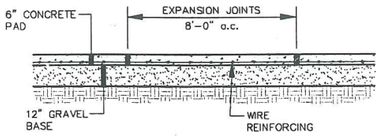
NOTES:
1. GRANITE CURB SHALL MEET THE REQUIREMENTS OF SECTION 609 OF THE MAINE DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS, LATEST REVISION, AND THE DIMENSIONS SHOWN ON THE DRAWINGS.

GRANITE CURB DETAIL
N.T.S.

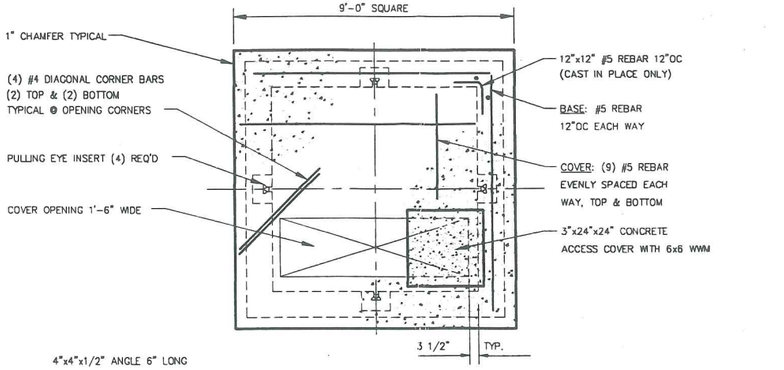


NOTE:
ONE IN EIGHT BARRIER FREE SPACES MUST BE AT LEAST 17'-0" WIDE (VAN ACCESSIBLE). THIS HAS BEEN PROVIDED FOR ON THE SITE LAYOUT PLAN.

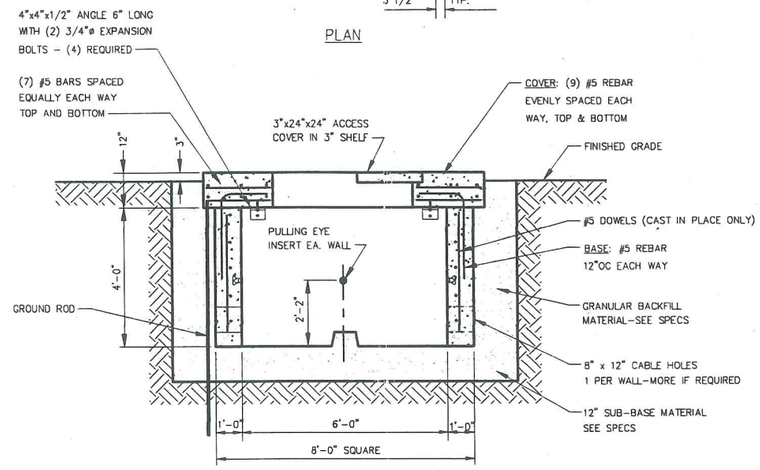
TYPICAL PARKING SPACE DIMENSIONS
N.T.S.



CONCRETE PAD – LOADING DOCK
N.T.S.

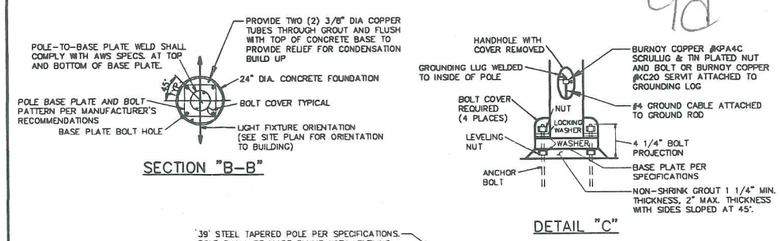


PLAN



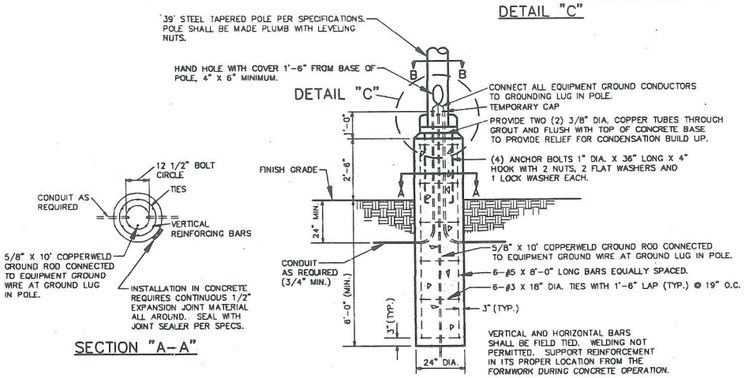
ELEVATION

TRANSFORMER PAD DETAIL
N.T.S.



SECTION "B–B"

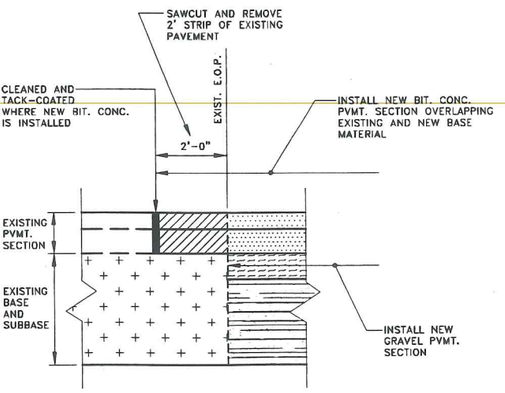
DETAIL "C"



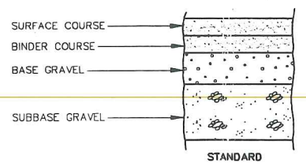
SECTION "A–A"

NOTES:
1. 3500 P.S.I. MIN. 28 DAY COMPRESSIVE STRENGTH CONC. WITH GRADE 60 REINF. STEEL.
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 24" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVE VALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF, UTILIZING AASHTO FIGURE 1.8.2C(4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
7. EXPOSED CONCRETE AND GROUT SHALL BE PAINTED TRAFFIC YELLOW.
8. DETAIL FOR 39' POLE WITH MAX. FIXTURE EPA 4.6 S.F.

TYPICAL PARKING LOT LIGHTING POLE FOUNDATION
N.T.S.



TYPICAL PAVEMENT SECTION – NEW PVMT. ADJACENT TO EXISTING PVMT.
N.T.S.



STANDARD

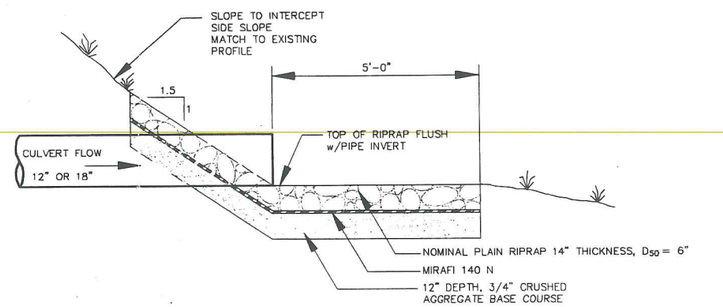
NOTE: COMPACT SUBGRADE TO 92% MAXIMUM DENSITY. REFER TO TYPICAL SECTIONS (DRAWING 26A AND 26B) FOR SPECIAL SUBGRADE REQUIREMENTS.

THICKNESS OF LAYERS		
STANDARD	LAYERS	HEAVY DUTY
1.5"	SURFACE COURSE MeDOT 703.09 TYPE "C"	1.5"
1.5"	BINDER COURSE MeDOT 703.09 TYPE "B"	2.5"
4"	BASE GRAVEL MeDOT 703.06 TYPE "A" (2" MAX.)	4"
18"	SUBBASE GRAVEL MeDOT 703.06 TYPE "D" (4" MAX.)	18"

REFER TO SITE LAYOUT DRAWINGS FOR DELINEATION OF HEAVY DUTY AND STANDARD DUTY PAVEMENT.

TYPICAL PAVEMENT SECTION
N.T.S.

GRAPHIC SCALE
0 0 0 0 0
(IN FEET)
1 inch = 0 ft.



CULVERT INLET & OUTLET APRONS
NTS

PRELIMINARY NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	PE
2	6/03/99	REVISED PER DRC COMMENTS	
1	6/01/99	SUBMITTED TO PORTLAND PLANNING	
		REVISIONS	LIC. #

PROJECT: SHOP 'n SAVE EXPANSION
FOREST AVENUE – PORTLAND, ME

SHEET TITLE: SITE DETAILS

CLIENT: HANNAFORD BROS. CO.

DeLUCA–HOFFMAN ASSOCIATES, INC.
778 MAIN ST, SUITE 8
SO. PORTLAND, ME 04106
(207) 775–1121
dha@maine.rr.com

DRAWN:	DB
DESIGNED:	SRB
DATE:	MAY 1999
SCALE:	NONE
JOB NO.	1827
SHEET	5

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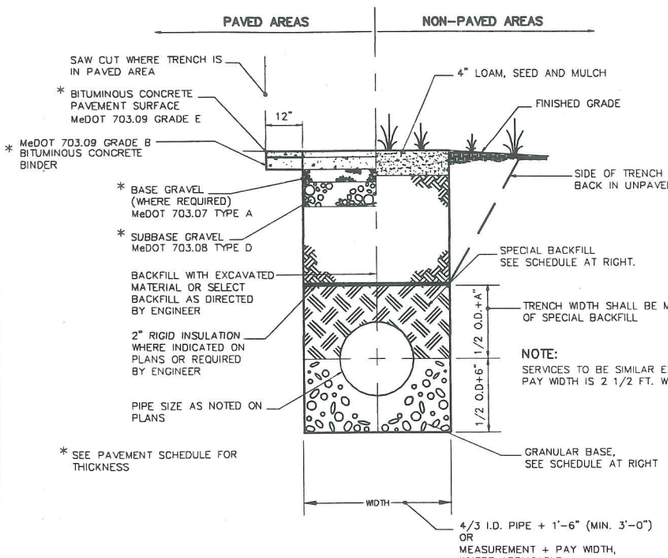


TYPICAL SEWER AND STORM DRAIN TRENCH SECTION

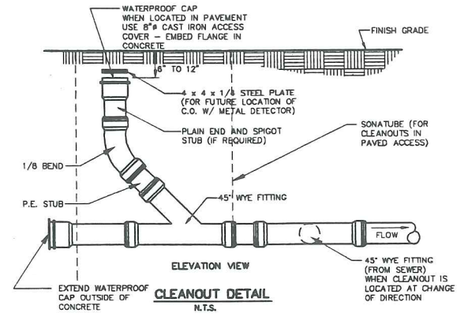
N.T.S.

NOTE:
BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

NOTE:
SERVICES TO BE SIMILAR EXCEPT MINIMUM PAY WIDTH IS 2 1/2 FT. WHERE APPLICABLE

SCHEDULE OF BASE BACKFILL

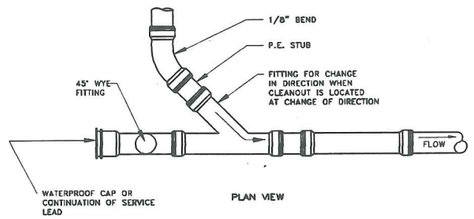
TYPE OF PIPE	BEDDING MATERIAL	SPECIAL BACKFILL	SPECIAL BACKFILL COVER "A" (IN)	SELECT BACKFILL
CONCRETE	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145-49 A-3 OR BETTER	12	GRANULAR AASHTO M145-49 A-3 OR BETTER
PVC OR ADS	3/4" CRUSHED STONE	GRANULAR AASHTO M145-49 A-3 OR BETTER	6	GRANULAR AASHTO M145-49 A-3 OR BETTER
CMP	3/4" CRUSHED STONE	GRANULAR AASHTO M145-49 A-3 OR BETTER	6	GRANULAR AASHTO M145-49 A-3 OR BETTER
D.I.	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145-49 A-3 OR BETTER	6	GRANULAR AASHTO M145-49 A-3 OR BETTER



CLEANOUT DETAIL

N.T.S.

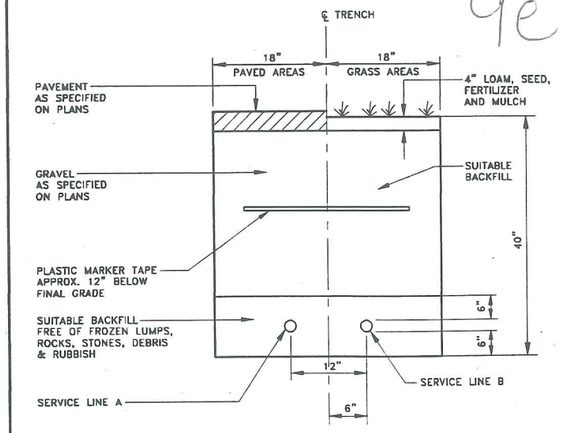
NOTE: CLEANOUTS TO BE USED WHEN
A) CHANGE OF DIRECTION IS 45° AND OVER
B) EVERY 100' ON STRAIGHT SERVICE RUNS.
WHEN THE CLEANOUT IS LOCATED IN AN AREA WHICH IS CURRENTLY PAVED OR PLANNED TO BE PAVED, THE CLEANOUT SHALL BE ENCASED IN CONCRETE. THE CONCRETE SHALL BE FORMED USING A 30" SONATUBE. A 6x6/10x10 WELDED WIRE MESH SHALL BE USED FOR CONCRETE REINFORCEMENT.



PLAN VIEW

CLEANOUT DETAIL BELOW WYE FITTING OF CLEANOUT

N.T.S.

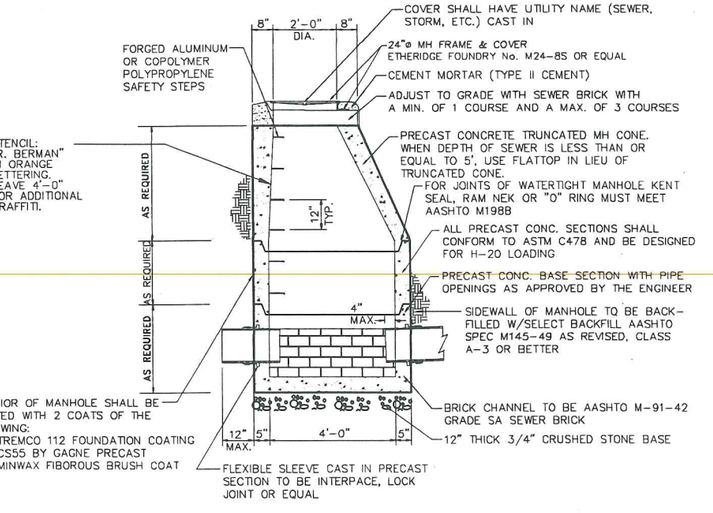


CONDUIT TYPE

SERVICE	CONDUIT SIZE	GRASS AREAS	PAVED AREAS	UTILITY
A	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	RIGID GALVANIZED STEEL, ASTM A120	POWER
B	4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120	TELEPHONE

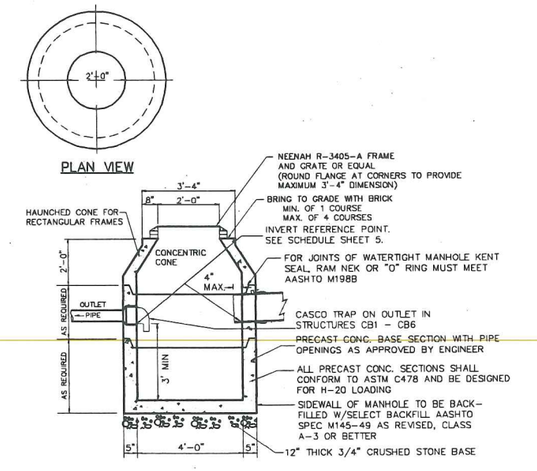
UTILITY TRENCH - POWER & TELEPHONE

N.T.S.



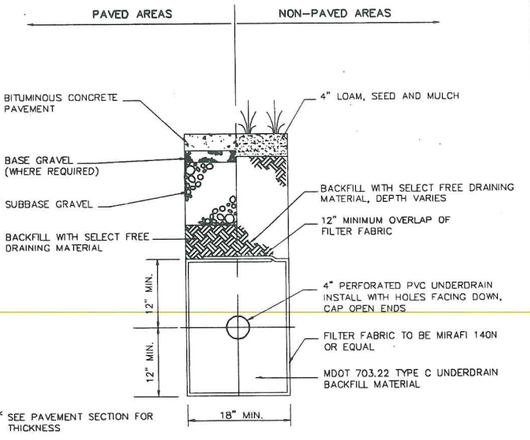
4'-0" PRECAST STORM DRAIN MANHOLE

N.T.S.



4'-0" PRECAST CATCH BASIN

N.T.S.



TYPICAL UNDERDRAIN TRENCH SECTION

N.T.S.

PRELIMINARY NOT FOR CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
1 inch = 0 ft.

REV	DATE	DESCRIPTION
2	6/03/99	REVISED PER DRC COMMENTS
1	6/01/99	SUBMITTED TO PORTLAND PLANNING

REVISIONS

PE
LIC. #

PROJECT
SHOP 'n SAVE EXPANSION
FOREST AVENUE - PORTLAND, ME

SHEET TITLE
UTILITY DETAILS

CLIENT
HANNAFORD BROS. CO.

DeLUCA-HOFFMAN ASSOCIATES, INC.
778 MAIN ST., SUITE 8
SO. PORTLAND, ME 04106
(207) 775-1121
dha@maine.rr.com

DRAWN: DB
DESIGNED: SRB
DATE: MAY 1999
SCALE: NONE
JOB NO. 1827
SHEET 6

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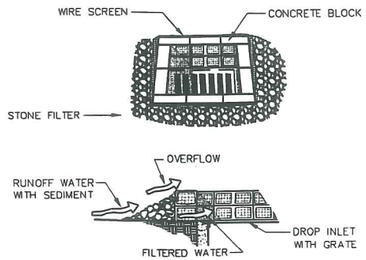
9e



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

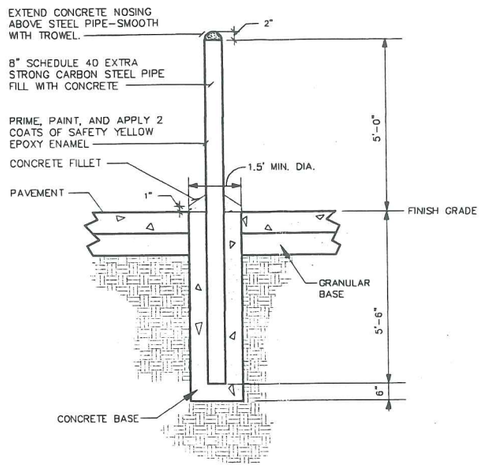
NOTES:

1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4", 8" AND 12" WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH, AND NO GREATER THAN 24" HIGH.
2. WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2" OPENINGS SHALL BE USED.
3. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN IN DETAIL. THE STONE FILTER SHALL BE 3/4" CRUSHED STONE.
4. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT, SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED.

STONE SEDIMENT BARRIER

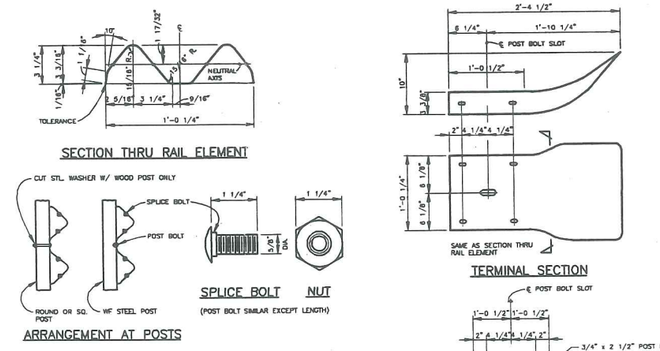
N.T.S.

NOTE: SILT SACK™ MAY BE USED IN LIEU OF STONE SEDIMENT BARRIER



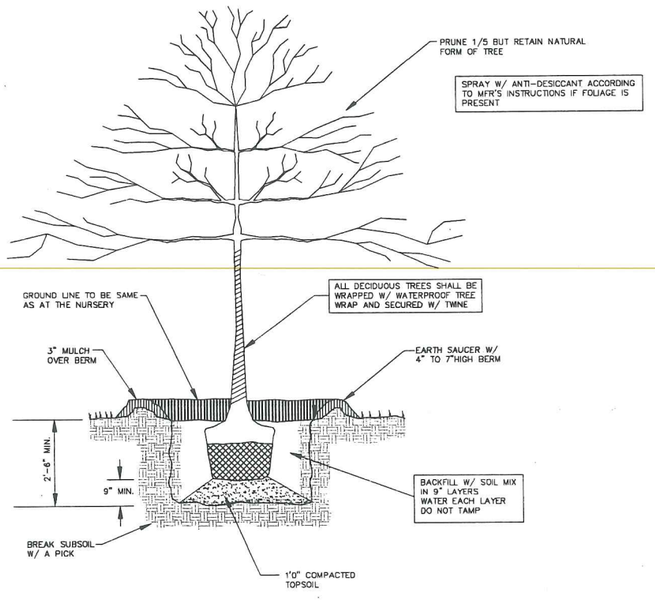
BOLLARD DETAIL

N.T.S.



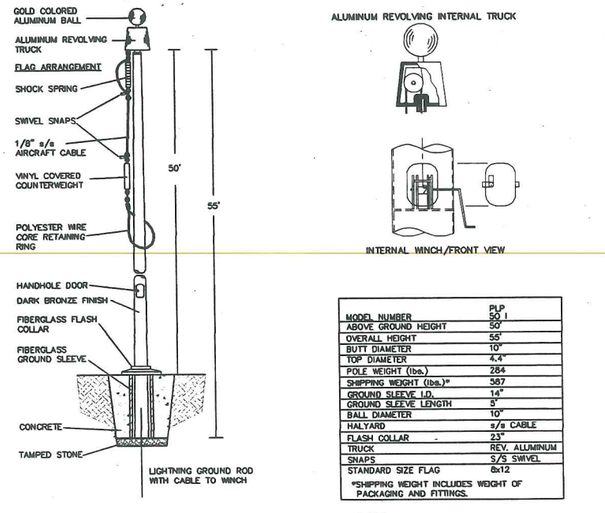
STANDARD GUARDRAIL DETAIL

N.T.S.



TYP. TREE PLANTING

N.T.S.



	PLP
MODEL NUMBER	50 I
ABOVE GROUND HEIGHT	50'
OVERALL HEIGHT	55'
BUTT DIAMETER	10"
TOP DIAMETER	4.4"
POLE WEIGHT (lbs.)	284
SHIPPING WEIGHT (lbs.)*	587
GROUND SLEEVE I.D.	14"
GROUND SLEEVE LENGTH	5'
BALL DIAMETER	10"
HALYARD	s/s CABLE
FLASH COLLAR	23"
TRUCK	REV. ALUMINUM
SNAPS	S/S SWIVEL
STANDARD SIZE FLAG	8x12

*SHIPPING WEIGHT INCLUDES WEIGHT OF PACKAGING AND FITTINGS.

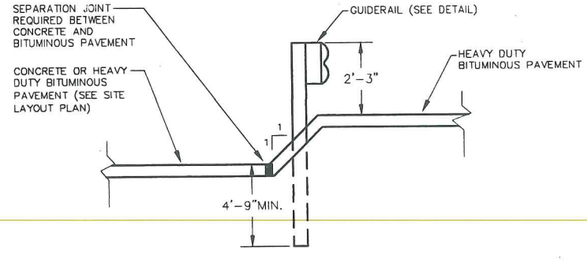
TYPICAL FLAGPOLE DETAIL

N.T.S.

NOTE:
THE GROUND MOUNTED FLAGPOLE SHALL BE MANUFACTURED BY EMC, A DIVISION OF EDER MANUFACTURING CORP. MODEL AGS-50-IH OR APPROVED EQUAL.

GRAPHIC SCALE

(IN FEET)
1 inch = 0 ft.



PAVED BERM WITH GUIDERAIL DETAIL

N.T.S.

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REVISIONS — PE — LIC. #

PROJECT
SHOP 'n SAVE EXPANSION
FOREST AVENUE – PORTLAND, ME

SHEET TITLE
MISC. DETAILS

CLIENT
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DeLUCA-HOFFMAN ASSOCIATES, INC.
778 MAIN ST., SUITE 8
SO. PORTLAND, ME 04106
(207) 775-1121
dhai@maine.rr.com

DRAWN:	DB
DESIGNED:	SRB
DATE:	MAY 1999
SCALE:	NONE
JOB NO.	1827
SHEET	7

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