

238A.A-1

2005-0225

2006-0178

2006-0131

41 Hutchins Drive

Bld. Addition and Amendment

Cadcam

Eric Cianchette

Woodard + Curran

TENANT'S WORK AND PRE-COMMENCEMENT OCCUPANY:

Tenant shall be entitled to reasonable access of the building addition during construction and prior to commencement of the Lease Term for purpose of making (at Tenant's expense) the tenant improvements in accordance with the plans and specifications which have been approved by Landlord. Tenant agrees that pre commencement occupancy of the premises shall be exclusive and must be coordinated with the landlord and its contractors.

SUBLEASE AND ASSIGNMENT:

The lease may be sub-let or assigned to any sub-tenant the Tenant demonstrates is credit worthy and whose use is in conformance with the then applicable zoning ordinance. The Tenant must send the Landlord written notification of a sub-lease at least 30 days prior to the sub-lease commencement. The sub-lease shall not relieve the Tenant from liability for the underlying lease agreement unless a release of lease obligation is agreed to by the Landlord. Subject to Landlord's approval not to be unreasonably withheld or delayed

LEASE OCCUPANCY DATE:

Upon the Landlord taking title to the property for the existing building. March 1, 2007 or upon substantial completion, for the building addition, *but no earlier than March 1, 07.*

RENT COMMENCEMENT:

Upon the Landlord taking title to the property for the existing building, rent will commence on the existing building, with rent paid in advance on a monthly basis. CAM charges (other than costs of building addition) will be paid within 30 days of Tenant's receipt of billing. Rent for the building addition shall commence upon substantial completion, but no later than April 1, 2007. Substantial completion is the date on which the building is sufficiently complete to allow occupation by the Tenant, *and a certificate of occupancy has been issued by the City of Portland.*

REPAIRS/REPLACEMENTS:

Landlord will repair, maintain and/or replace the roof, structure and mechanical systems. Tenant shall be responsible for paying (as CAM costs) the cost of said repair and/or replacement with the costs to be amortized over the useful life of capital item being repaired /replaced according to GAAP

LEASE EXECUTION:

Landlord shall provide Tenant with a written lease agreement within thirty (30) days of the execution of the contract and lease Term Sheet addendum, including exhibits containing preliminary plans and specifications, construction schedule and cost estimates. Tenant and Landlord shall execute said lease agreement (subject to final plans and specification,) on or prior to December 1, 2005. Landlord and Tenant shall have Sixty (60) days for finished plans and specifications. Said





**From:** Gregory Cass  
**To:** "tierrico@wilbursmith.com"@Portland.gwgwia; Jean Fraser; Jeff Tarling  
**Date:** 3/10/2006 8:22:24 AM  
**Subject:** Re: URGENT need W&C e-mails

The requirement for additional hydrant at this property was a scaling error on my part.  
I apologize

Captain Greg Cass  
Portland Fire Dept.  
Fire Prevention Officer

>>> Jean Fraser 3/9/2006 12:15:48 PM >>>  
Tom, Greg and Jeff,

I urgently need the e-mails that we have discussed...because of the scale of printing involved in preparing attachments, they are being copied for the Board today and I have all the others for this project.

Tom: need comments on Gorrill Palmers assessment of the intersection;

Greg: need an OK that they don't provide a hydrant along the internal access road;

Jeff: the Landscape Plan doesn't address some minor issues I raised such as screening the dumpsters, why a paved area in the circle, need to screen rear of retaining wall guardrails...and I would have thought they could do more planting around the new area of 8 parking spaces to the south...

Many thanks  
Jean

**From:** "Errico, Thomas" <terrigo@wilbursmith.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 3/10/2006 3:45:21 PM  
**Subject:** RE: W& C

Jean--

I just spoke with Tom Gorrill and he will be identifying an improvement plan and will let me know the cost to implement such an improvement on Monday. From that information, I will determine W&C's contribution.

Tom

---

**From:** Jean Fraser [mailto:JF@portlandmaine.gov]  
**Sent:** Fri 3/10/2006 10:24 AM  
**To:** Errico, Thomas  
**Subject:** W& C

Any chance of an e-mail to confirm the situation please?  
thanks  
Jean

N-F

**From:** "Errico, Thomas" <terrico@wilbursmith.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 3/10/2006 3:25:33 PM  
**Subject:** RE: W& C

Jean--

I have reviewed the updated traffic analysis prepared by Gorrill-Palmer Consulting Engineers, Inc. and the results indicate movements at the intersection are projected to operate at unacceptable levels of service. I will be communicating this issue with Gorrill-Palmer and will ask them to identify possible strategies for mitigating the deficiencies. Following identification of the improvement strategy, I will determine a cost sharing contribution that the applicant would be expected to contribute.

Thomas A. Errico, P.E.  
Senior Transportation Engineer

---

From: Jean Fraser [mailto:JF@portlandmaine.gov]  
Sent: Fri 3/10/2006 10:24 AM  
To: Errico, Thomas  
Subject: W& C

Any chance of an e-mail to confirm the situation please?  
thanks  
Jean

IV-G

**From:** Jeff Tarling  
**To:** Jean Fraser  
**Date:** 3/9/2006 4:57:28 PM  
**Subject:** W&C Landscape Plan

Jean -

I have reviewed the landscape plan improvements forwarded by Pat Carroll for the W&C site plan and find them acceptable. One question remaining is whether any landscape treatments can be made to 'green' the small parking lot turning circle. Would it be possible to landscape or use turf-blocks vs hardscape paving? The W&C campus should be functional from a pedestrian and vehicle perspective while retaining or respecting the natural conditions that now exists and surround the site.

Jeff Tarling  
City Arborist

IV-H

**From:** Gregory Cass  
**To:** "terrigo@wilbursmith.com"@Portland.gwgwia; Jean Fraser; Jeff Tarling  
**Date:** 3/10/2006 8:22:24 AM  
**Subject:** Re: URGENT need W&C e-mails

The requirement for additional hydrant at this property was a scaling error on my part.  
I apologize

Captain Greg Cass  
Portland Fire Dept.  
Fire Prevention Officer

>>> Jean Fraser 3/9/2006 12:15:48 PM >>>  
Tom, Greg and Jeff,



March 9, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting 10 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

The information that follows includes updated plans and addresses comments that have arisen from our continued discussion of this project with City staff and with the Maine Department of Environmental Protection (MeDEP). These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The following potential conditions of approval were identified in the Planning Board Report, prepared for the Project in anticipation of its Public Hearing originally scheduled for February 7, 2006. Responses have been organized in order of the potential conditions of approval.

Potential Condition:

*That the applicant receives and submits the required permits from the MDEP prior to the issuance of a building permit.*

Response:

Through discussions with MeDEP, the plan can be approved. An Order of Approval is anticipated within the next few weeks. An email from Marybeth Richardson, Project Manager for MeDEP, stating as such has been attached to this submission.

Potential Condition:

*That the applicant conducts a post-development analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and PM peak hours to ensure safe and reasonable operations will be provided following completion of the project. In the event that modifications are needed to the intersection to achieve safe and reasonable operations, the applicant shall make a proportional financial contribution to the cost of such modifications.*

10  
see Hearing  
Report, Plan  
Archives  
Copies File



Jean Fraser, City of Portland  
March 9, 2006  
Page 2 of 6

Response:

Gorrill-Palmer Consulting Engineers, Inc. has conducted the requested analysis of the intersection of Congress Street and Hutchins Drive. Findings were originally submitted to the City on February 23, 2006. At the request of the City Traffic Engineer, the findings were revised to reflect 96 additional employees rather than the 64 additional employees that Woodard & Curran would be able to employ. The revised findings are attached to this submission and have been forwarded directly to the City's Traffic Review Engineer.

Potential Condition:

*That the applicant shall re-evaluate stormwater treatment factors and submit revised calculations and show all buffers on the site plan with labels indicating the width, slope and percentage of removal efficiency for each buffer shown.*

Response:

Based on conversations with the City's DRC and with the stormwater review engineer for the Maine Department of Environmental Protection (MeDEP), treatment factors have been reassessed for the Filtration Basins. The stormwater quality calculations have been rerun using a TSS removal factor of 90% for the basins. A dry swale has been added off the end of the rear parking lot to treat runoff from the access road and the rear parking lot. Through the Filtration Basins and the dry swale, the Sliding Scale TSS removal standard (45% for this project) can be achieved without the use of buffers. The revised Stormwater Management Plan was submitted to the City and to MeDEP on February 23, 2006.

Potential Condition:

*The applicant shall submit a letter from the Engineering Division of Public works verifying adequate sewer capacity to serve this project.*

Response:

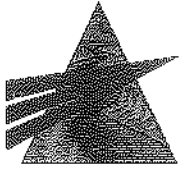
A letter from the City of Portland Public Works Department, dated February 24, 2006, verifying adequate sewer capacity to serve the project, was received and forwarded to Portland Planning in our submission of February 28, 2006.

Potential Condition:

*The applicant shall submit a Snow Removal and Maintenance Plan for the 20 foot wide roadway adjacent to the new building to the satisfaction of the Traffic Engineer and the Development Review Coordinator (Jim Seymour of Sebago Technics). The Plan to show how this access will be maintained and kept free of obstructions to ensure fire access if needed.*

Response:

Snow storage areas have been added to Sheet C201 Proposed Site Plan. The 20 foot driveway width will be maintained; no snow storage is proposed for along the roadside.



Jean Fraser, City of Portland  
March 9, 2006  
Page 3 of 6

Potential Condition:

*The applicant shall present the sidewalk, drainage and sewer easements for final review and approval by Corporation Counsel.*

Response:

Draft language for the drainage easement and for the relocated sewer easement is being prepared for the City's review. We are still awaiting final word on whether the City is interested in the drainage easement associated with the small brook along the eastern edge of the property, or only in the drainage easement associated with the larger brook running through the center of the site.

Through discussions with Norm Twaddel at the Portland Water District (PWD), the sidewalk easement will be presented to the PWD Planning Committee on Monday, March 13<sup>th</sup>, and to the full Board of Directors for vote on Monday, March 27<sup>th</sup>.

Potential Condition:

*That the applicant shall revise the plan to provide a 24 foot wide roadway where the main access to the site meets Hutchins Drive.*

Response:

The width of the driveway entrance at Hutchins Drive has been increased to 24 feet.

Potential Condition:

*The applicant shall provide a fire hydrant on the access road to meet the fire Department requirement of a hydrant every 500 feet.*

Response:

There is an existing hydrant located next to the main entrance to the building. Every face of the building can be reached in less than 500 feet from the hydrant. An additional hydrant is not necessary to meet the 500 foot requirement and is not proposed as part of the project.

Potential Condition:

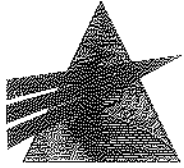
*The applicant shall submit details of the sidewalk extension and sewer diversion, which must be in accordance with the City Standards and directly reviewed and approved by Public Works.*

Response:

A detail showing typical sidewalk construction in accordance with City design standards has been added to Sheet C301.

Rim and invert elevations have been added for the proposed sewer relocation on Sheet C202 Proposed Utility Plan. Due to the small amount of sewer design involved, profiles have not been included. It is our understanding the sewer layout and proposed easement have been reviewed and found acceptable by City of Portland Public Works; we will continue to work with Public Works as we finalize construction documents.





Jean Fraser, City of Portland  
March 9, 2006  
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Potential Condition:

*That the applicant shall address the comments raised by the Development Review Coordinator (Jim Seymour of Sebago Technics) in his memorandum of January 31, 2006 concerning labeling of rim elevations, curbing along the access road, curbing of the satellite parking lot islands, the need for an underdrain for the underground detention/storage and the need for construction elevation benchmarks with the datum specified.*

Response:

Curbing along the access drive has been extended toward the entrance where the road curves and runoff velocities are expected to be higher. No curbing is proposed where the drive takes a straight course, in order to encourage some amount of filtering as runoff passes through the landscaped area. These changes can be seen on Sheet C201 Proposed Site Plan.

Cape Cod curbing has been added to the internal parking lot islands in the north parking lot, as can be seen on Sheet C201 Proposed Site Plan. Through discussions with the Development Review Coordinator, the Cape Cod curb detail has been revised to provide a one foot curb width rather than a two foot width. The revised detail can be seen on Sheet C301 Civil Details 2

Sheet C202 Proposed Utility Plan has been revised to indicate rim elevations for all structures.

A boring in the area of the proposed subsurface detention structure indicated saturated soils at an elevation of approximately 38 feet. The base of the detention structure will be at 40, providing two feet of separation from the water table. Additionally, the subsurface detention structure will be constructed over a geogrid placed directly on existing soils. The primary outlet is located at the base of the structure; therefore no build-up is expected and no underdrain is proposed.

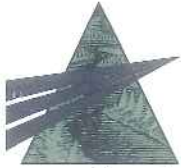
The plans indicate a benchmark in Utility Pole #3.5 between the main entrance to the site and the entrance to the north parking lot. The original survey references the existing site as the vertical datum. We are currently working with Bill Clark to locate a nearby City benchmark to determine the relationship between our vertical datum and the City standard, NVGD 29. Upon completion of the project, as-built drawings for the relocated sewer will be provided to the City based on the City's vertical datum.

Potential Condition:

*The applicant to adhere to the submitted Geotechnical Report during construction and involve a Geotechnical Engineer at regular intervals during the construction of foundations and retaining walls; also to amend the plans to reference the construction measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a professional engineer and reviewed and approved by the code enforcement officer.*

Response:

The Geotechnical Report shall be adhered to in preparing final design of the proposed project. Additionally, a copy of the report will be included in the construction specifications. S.W Cole will be enlisted to review final design documents to ensure the recommendations presented in the Geotechnical Report have been met as applicable. Construction monitoring and testing will be incorporated into the final construction documents.



Jean Fraser, City of Portland

March 9, 2006

Page 5 of 6

Potential Condition:

*The applicant to note that no further impervious surfaces shall be created on this site and that further development should be contained within the existing paved and built areas.*

Response:

This potential condition was discussed when we met with City staff and with MeDEP at the Portland Planning Office on February 14, 2006. Although the site would be left with very little area for future redevelopment, a condition such as this does raise a few concerns. This condition would prevent any redevelopment involving relocation of impervious areas, including creating impervious surfaces outside of natural resource setbacks while revegetating areas within the setbacks. The condition also does not take into account any provision for changes to regulatory requirements, and does not allow for future improvements in stormwater treatment or other resource protection technologies.

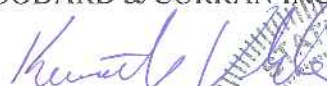
Additionally, we offer the following information relevant to other issues we have discussed:

- Sheet L-1.0 Landscape Plan has been revised to incorporate recent comments from the City Arborist. The updated landscape plan has been sent directly to the City Arborist and has been enclosed within this submission.
- At the request of the Planning Department, we have prepared a Proposed Site Plan with 25-foot and 75-foot setbacks from the wetland and from each brook on the site. These setbacks have been indicated in color to allow the plan to be interpreted more easily. The setbacks are shown on Figure 8.1 Proposed Site Plan With Setbacks Indicated, which has been enclosed with this submission.

Thank you for the assistance you have provided thus far. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,

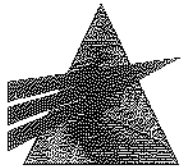
WOODARD & CURRAN INC.

  
Kenneth Volock, P.E.  
Engineer

KRV/  
203834.01



Enclosures: Email from Maine Department of Environmental Protection to Woodard & Curran, dated March 8, 2006  
Letter from Gorrill-Palmer Consulting Engineers, Inc. to Mr. Tom Errico, P.E., dated March 2, 2006  
Drawings, revised March 8, 2006, including:  
C200 Erosion and Sedimentation Control Plan



**WOODARD & CURRAN**  
Engineering · Science · Operations

Jean Fraser, City of Portland  
March 9, 2006  
Page 6 of 6

C201 Proposed Site Plan  
C202 Proposed Utility Plan  
C301 Civil Details – 2  
L-1.0 Landscape Plan  
Figure 8.1 Proposed Site Plan with Setbacks Indicated

## Kenneth Volock

---

**From:** Richardson, Marybeth [Marybeth.Richardson@maine.gov]  
**Sent:** Wednesday, March 08, 2006 10:35 AM  
**To:** Kenneth Volock  
**Cc:** Viola, Ben  
**Subject:** RE: W&C Addition Revised Landscape Plan

Ken:

I have done a cursory review of the CADCAM/Cianchette project as revised and, based on my review and on preliminary comments from Ben Viola, I believe the project can be approved. However, an order for approval will probably not be issued for another week or two. Also, as discussed, we will copy Ben's review comments to Jim Seymour when they are finalized.

Marybeth Richardson  
Division of Land Resource Regulation  
Bureau of Land and Water Quality  
(207) 822-6335  
marybeth.richardson@maine.gov

-----Original Message-----

**From:** Kenneth Volock [mailto:kvolock@woodardcurran.com]  
**Sent:** Tuesday, February 28, 2006 8:51 AM  
**To:** Richardson, Marybeth  
**Subject:** W&C Addition Revised Landscape Plan

Marybeth,

Attached is the revised landscape plan. Please note the addition of clusters of Burkwood Viburnum, Highbush Blueberry, and Red Twig Dogwood at the base of the retaining wall below the access drive.

I intend to submit two hardcopies of the revised Landscape Plan later today, provided the additional plantings as proposed will be acceptable to the Department. Please let me know if you see the need for further revision prior to submittal.

Kenneth Volock  
Woodard & Curran  
800-426-4262



Gorrill-Palmer Consulting Engineers, Inc.

Traffic and Civil Engineering Services

PO Box 1237  
15 Shaker Rd.  
Gray, ME 04039

207-657-6910  
FAX: 207-657-6912  
E-Mail: mailbox@gorrillpalmet.com

March 2, 2006

Mr. Tom Errico, PE  
Wilbur Smith Associates  
59 Middle Street  
Portland, ME 04101-4211



Re: Proposed Expansion of Woodard and Curran  
Updated Analysis

Dear Tom:

Our office is responding to a February 28, 2006 email sent to Woodard and Curran from Jean Frasier with the City of Portland, which stated the following:

*"At present there are 111 employees in your existing complex on the site; there are a further 32 W&C employees now working in the leased premises that were formerly Clark Insurance (not a part of your site). The potential employee level once the new addition is fully occupied is 207 on the site under consideration.*

*So I would suggest that the traffic/junction capacity assessment should be on 207 less 111 (96 employees) as the 32 employees in the other building will still potentially remain there (as the building is already there and will be reoccupied when the W&C folks move out) but employed by another party.*

*So there will be an additional 96 employees on the W&C site and this figure should be used for the assessment.*

*I would be grateful if you could take this up with Gorrill Palmer and clarify whether the figure of 64 is correct or not. Our Traffic Engineer is holding on his review pending confirmation that the figure and the way it was arrived at is correct, given that it appears to underestimate the traffic generation and thus the capacity needed at this junction."*

Based on this information, our office has compiled updated analysis for 96 employees, which would result in 65 and 76 trip ends for the AM and PM peak hours, respectively, an increase of 16 and 14 trip ends over the 49 and 61 trip ends utilized for the previous analysis for the AM and PM peak hours.

### Capacity Analyses

Our office completed analysis for the predevelopment and postdevelopment conditions utilizing the Synchro software package. Based on recent comments from you on another project in Portland, our office is providing you with the HCM-based capacity results from Synchro. The results are summarized in the following table:

















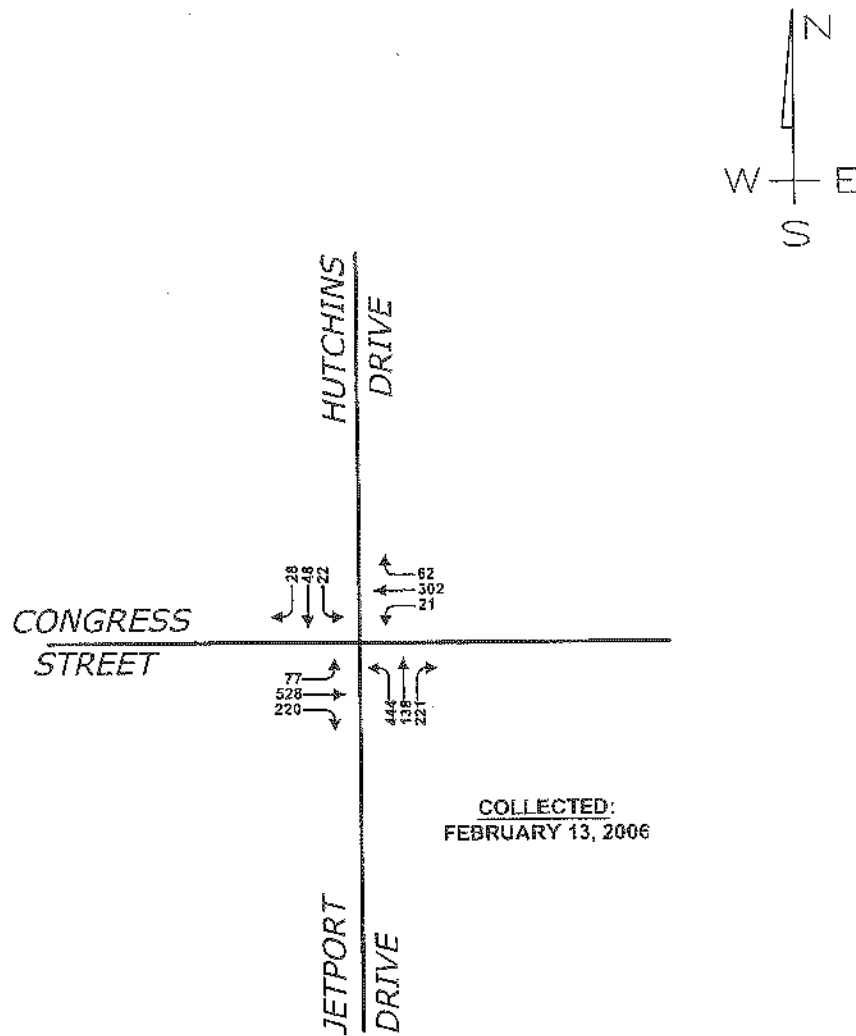




# Raw Volumes - AM Peak Hour

Figure No.

# 1



## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



Gorrill-Palmer Consulting Engineers, Inc.

PO Box 1237  
15 Shaker Road  
Gray, ME 04039

Traffic and Civil Engineering Services

207-657-6916  
Fax: 207-657-6912  
mailto:mail@gorrillpalmer.com  
www.gorrillpalmer.com

Design: PDO

Draft: ZRJ

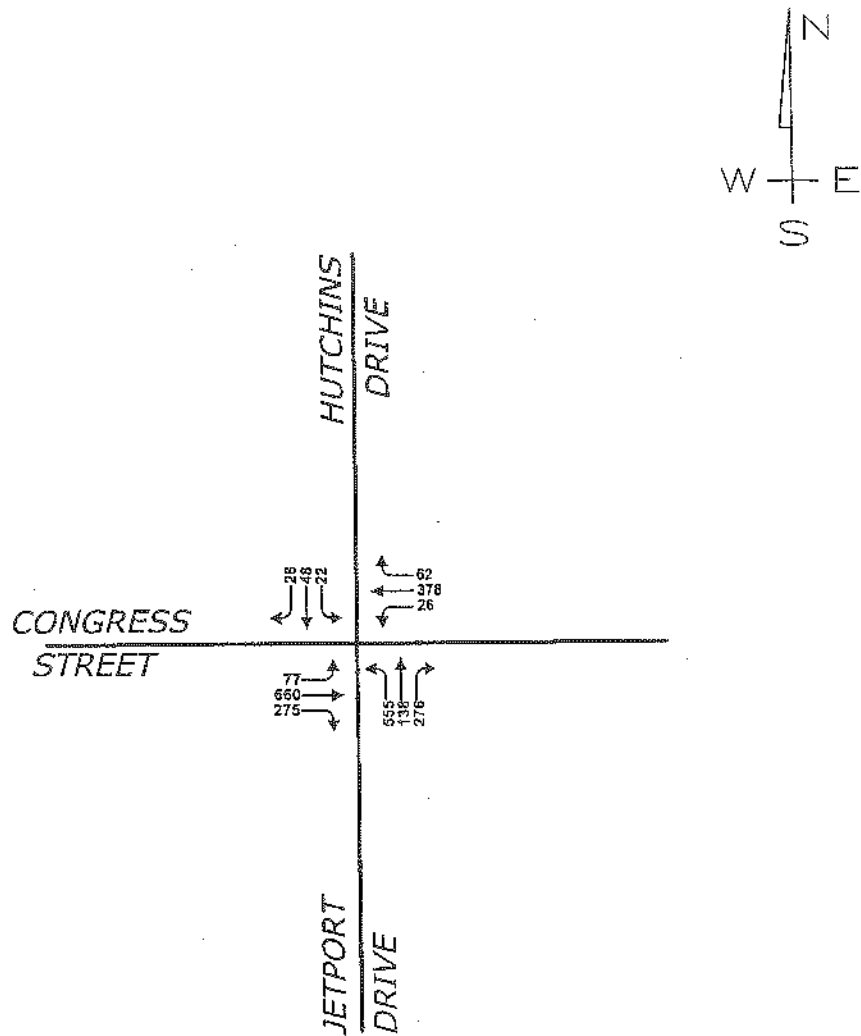
Checked: JJB

Date: MONTH 2006

File Name: 1495-TRAF.dwg

# Seasonally Adjusted Volumes - AM Peak Hour

Figure No. **3**



CONGRESS WEST OF BLUEBERRY  
TYPE I

SEASONAL ADJUSTMENT:  $\frac{1.09}{0.87} = 1.25$

AM PEAK HOUR:  
7:30 - 8:30 AM

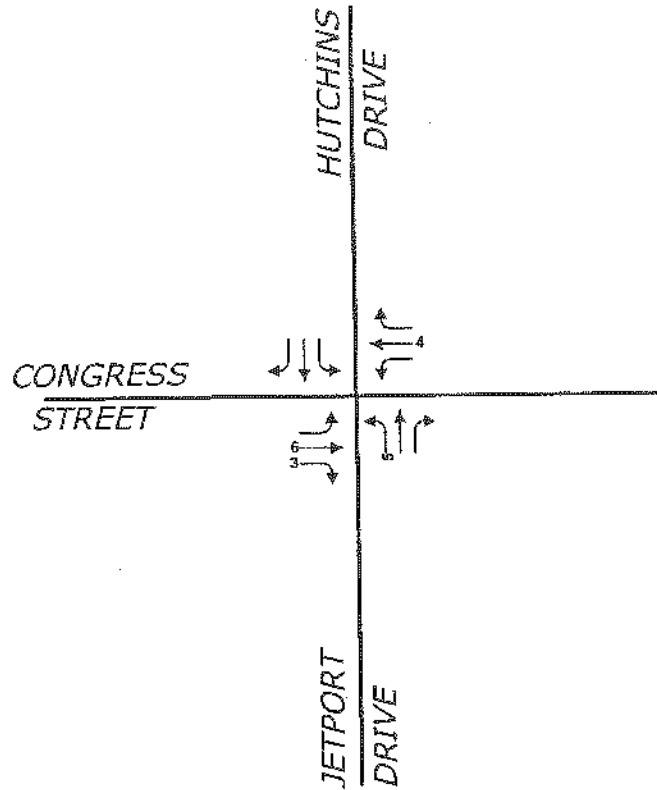
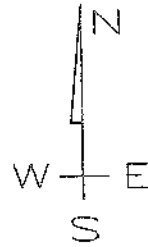
## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
Traffic and Civil Engineering Services  
PO Box 1237  
15 Shaker Road  
Gray, ME 04039  
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Fax: 207-657-6912  
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www.gorrillpalmer.com

Design: PDO  
Draft: ZRJ  
Checked: JJB

Date: MONTH 2006  
File Name: 1495-TRAF.dwg





**OTHER DEVELOPMENT INCLUDES:**  
DUNKIN DONUTS: XX

## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



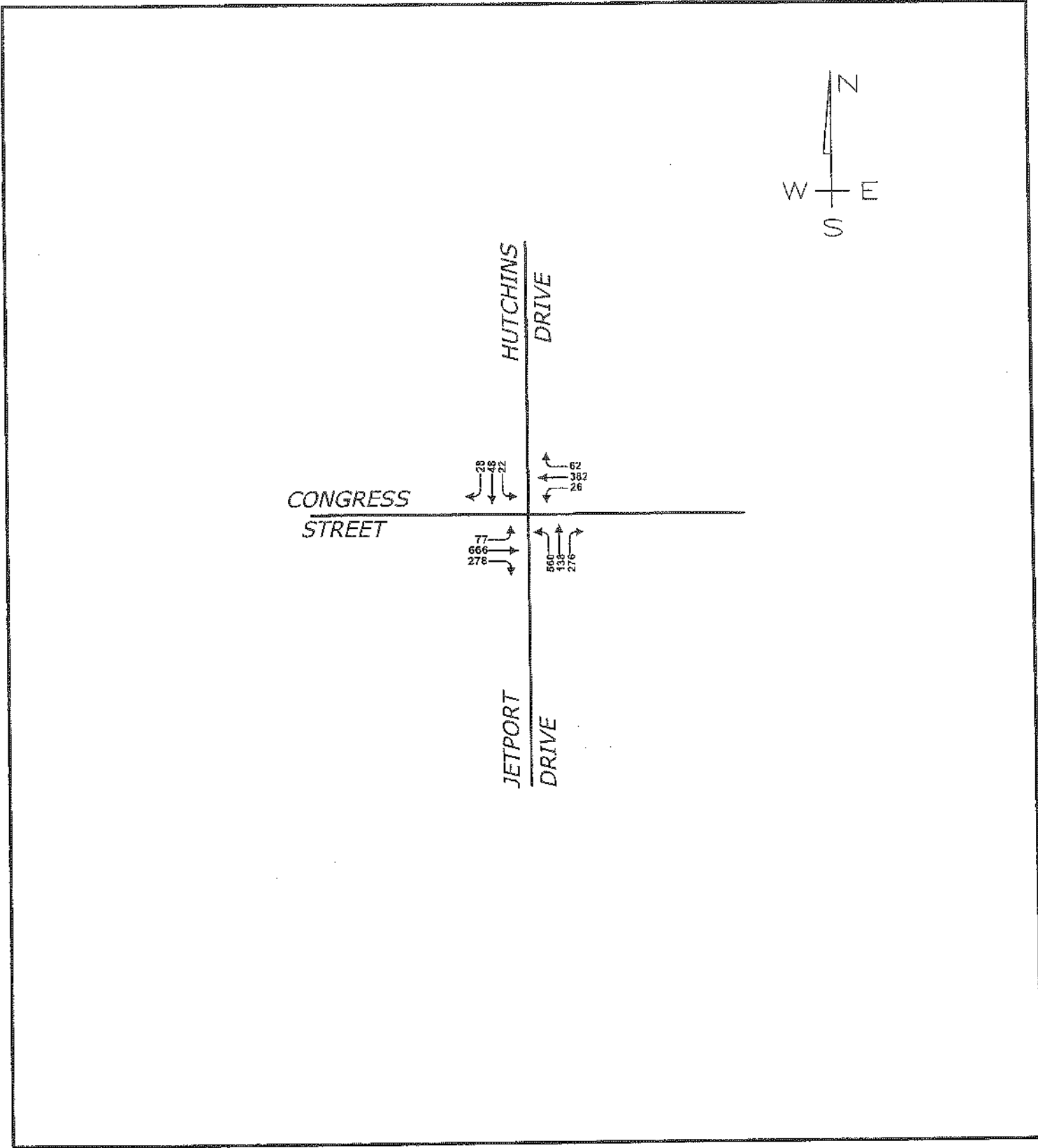
**Gorrill-Palmer Consulting Engineers, Inc.**

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Fax: 207-657-6912  
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Design: PDO  
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Checked: JJB

Date: MONTH 2006  
File Name: 1495-TRAF.dwg



## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



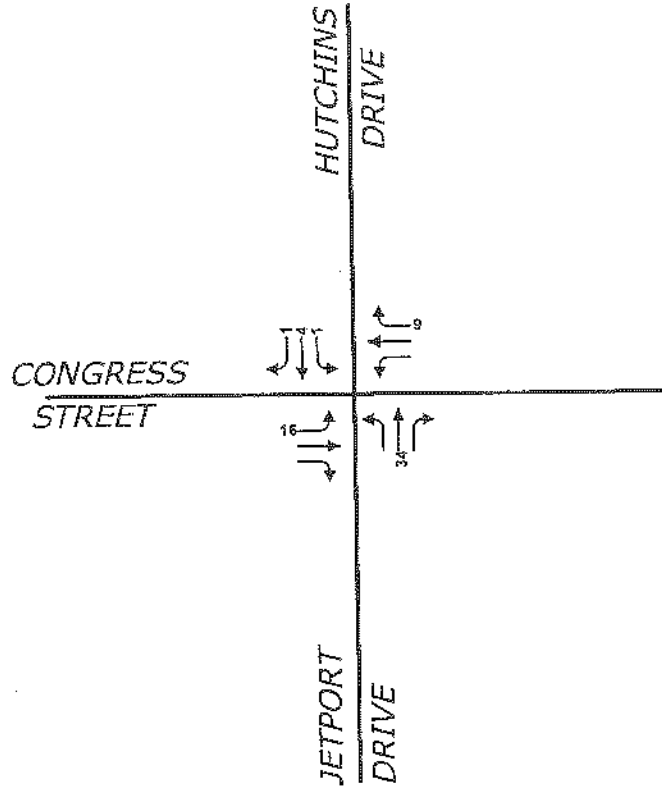
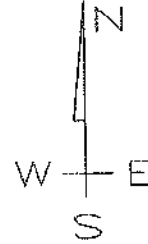
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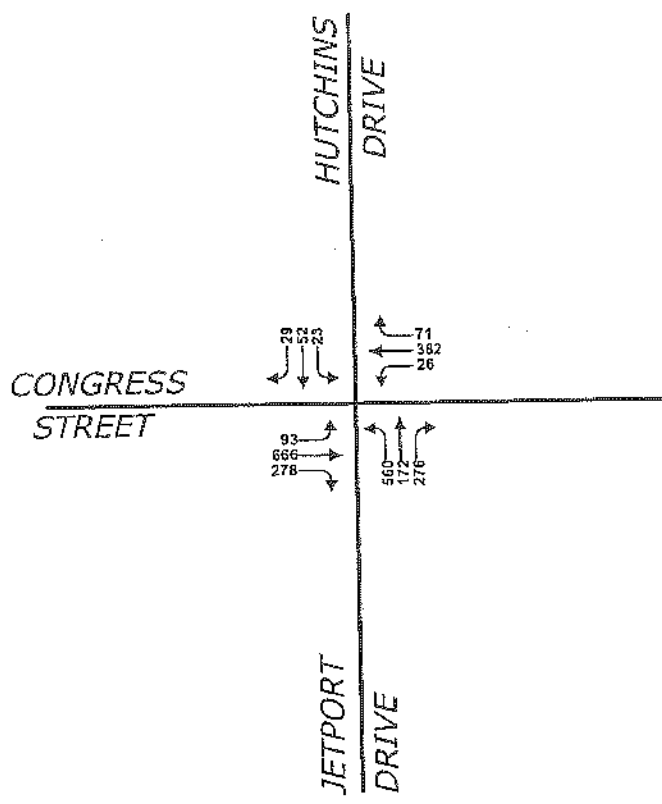
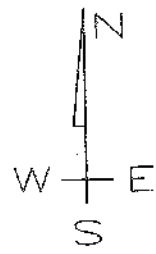
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Draft: ZRJ  
Checked: JJB

Date: MONTH 2006  
File Name: 1495-TRAF.dwg



44	ENTER
5	EXIT
49	TOTAL

## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 PO Box 1237  
 15 Shaker Road  
 Gray, ME 04039

207-657-6910  
 Fax: 207-657-6912  
 mailbox@gorrillpalmer.com  
 www.gorrillpalmer.com

Design: PDO  
 Draft: ZRJ  
 Checked: JJB

Date: MONTH 2006  
 File Name: 1495-TRAF2.dwg

HCM Signalized Intersection Capacity Analysis  
 3: Congress & Hutchins

T:\1495\Synchro\PreAM.sy7  
 3/2/2006

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖			↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.90			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1736	1827	1553	1719	1772		1736	1644			1797	1369
Flt Permitted	0.41	1.00	1.00	0.11	1.00		0.45	1.00			0.74	1.00
Satd. Flow (perm)	750	1827	1553	194	1772		820	1644			1342	1369
Volume (vph)	77	666	278	26	382	62	560	138	276	22	48	28
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	701	293	27	402	65	589	145	291	23	51	29
RTOR Reduction (vph)	0	0	87	0	7	0	0	79	0	0	0	27
Lane Group Flow (vph)	81	701	206	27	460	0	589	357	0	0	74	2
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	18%	18%	18%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	33.3	33.3	57.5	38.7	38.7		35.1	35.1			6.9	6.9
Effective Green, g (s)	33.3	33.3	57.5	38.7	38.7		35.1	35.1			6.9	6.9
Actuated g/C Ratio	0.41	0.41	0.70	0.47	0.47		0.43	0.43			0.08	0.08
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	305	744	1168	118	838		623	705			113	115
v/s Ratio Prot		c0.38	0.05	0.00	c0.26		c0.28	0.22				
v/s Ratio Perm	0.11		0.08	0.10			c0.13				0.06	0.00
v/c Ratio	0.27	0.94	0.18	0.23	0.55		0.95	0.51			0.65	0.02
Uniform Delay, d1	16.1	23.3	4.1	17.5	15.3		20.4	17.0			36.3	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.5	20.1	0.1	1.0	0.7		23.2	0.6			12.8	0.1
Delay (s)	16.6	43.4	4.2	18.5	16.1		43.6	17.6			49.1	34.4
Level of Service	B	D	A	B	B		D	B			D	C
Approach Delay (s)		30.7			16.2			32.5			45.0	
Approach LOS		C			B			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			29.3			HCM Level of Service	C					
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			81.8			Sum of lost time (s)	12.0					
Intersection Capacity Utilization			86.1%			ICU Level of Service	E					
Analysis Period (min)			15									
c Critical Lane Group												

3: Congress & Hutchins

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flt	1.00	1.00	0.85	1.00	0.98		1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1736	1827	1553	1719	1767		1736	1658			1798	1369
Flt Permitted	0.40	1.00	1.00	0.11	1.00		0.45	1.00			0.73	1.00
Satd. Flow (perm)	728	1827	1553	195	1767		820	1658			1327	1369
Volume (vph)	93	666	278	26	382	71	560	172	276	23	52	29
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	701	293	27	402	75	589	181	291	24	55	31
RTOR Reduction (vph)	0	0	87	0	8	0	0	63	0	0	0	28
Lane Group Flow (vph)	98	701	206	27	469	0	589	409	0	0	79	3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	18%	18%	18%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	33.2	33.2	57.5	38.6	38.6		35.3	35.3			7.0	7.0
Effective Green, g (s)	33.2	33.2	57.5	38.6	38.6		35.3	35.3			7.0	7.0
Actuated g/C Ratio	0.41	0.41	0.70	0.47	0.47		0.43	0.43			0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	295	741	1166	118	833		625	715			113	117
v/s Ratio Prot		c0.38	0.05	0.00	c0.27		c0.28	0.25				
v/s Ratio Perm	0.13		0.08	0.10			c0.13				0.06	0.00
v/c Ratio	0.33	0.95	0.18	0.23	0.56		0.94	0.57			0.70	0.02
Uniform Delay, d1	16.7	23.5	4.1	17.7	15.6		20.2	17.6			36.4	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.7	20.8	0.1	1.0	0.9		22.7	1.1			17.2	0.1
Delay (s)	17.4	44.2	4.2	18.7	16.5		43.0	18.7			53.6	34.4
Level of Service	B	D	A	B	B		D	B			D	C
Approach Delay (s)		31.1			16.6			32.2			48.2	
Approach LOS		C			B			C			D	

Intersection Summary

HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 3: Congress & Hutchins

T:\1495\Synchro\PrePM.sy7  
 3/2/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.94			1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00	
Satd. Flow (prot)	1752	1845	1568	1770	1854		1671	1646			2094	1599	
Flt Permitted	0.16	1.00	1.00	0.20	1.00		0.30	1.00			0.85	1.00	
Satd. Flow (perm)	301	1845	1568	372	1854		520	1646			1815	1599	
Volume (vph)	23	385	628	270	765	25	361	37	28	73	127	78	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	25	414	675	290	823	27	388	40	30	78	137	84	
RTOR Reduction (vph)	0	0	164	0	2	0	0	17	0	0	0	64	
Lane Group Flow (vph)	25	414	511	290	848	0	388	53	0	0	215	20	
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	8%	8%	8%	1%	1%	1%	
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm	
Protected Phases		4	5	3	8		5	2			6		
Permitted Phases	4		4	8			2			6		6	
Actuated Green, G (s)	24.5	24.5	41.4	40.5	40.5		34.8	34.8			13.9	13.9	
Effective Green, g (s)	24.5	24.5	41.4	40.5	40.5		34.8	34.8			13.9	13.9	
Actuated g/C Ratio	0.29	0.29	0.50	0.49	0.49		0.42	0.42			0.17	0.17	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	89	543	855	382	901		451	688			303	267	
v/s Ratio Prot		0.22	0.12	0.11	0.46		0.17	0.03					
v/s Ratio Perm	0.08		0.20	0.26			0.18				0.12	0.01	
v/c Ratio	0.28	0.76	0.60	0.76	0.94		0.86	0.08			0.71	0.07	
Uniform Delay, d1	22.6	26.8	15.0	15.8	20.3		19.2	14.6			32.8	29.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2	1.7	6.3	1.1	8.4	17.5		15.3	0.0			7.4	0.1	
Delay (s)	24.4	33.0	16.1	24.2	37.8		34.5	14.6			40.2	29.4	
Level of Service	C	C	B	C	D		C	B			D	C	
Approach Delay (s)		22.6			34.3			31.5			37.2		
Approach LOS		C			C			C			D		
<b>Intersection Summary</b>													
HCM Average Control Delay	29.8		HCM Level of Service					C					
HCM Volume to Capacity ratio	0.89												
Actuated Cycle Length (s)	83.3												
Intersection Capacity Utilization	89.2%		Sum of lost time (s)					8.0					
Analysis Period (min)	15												
c Critical Lane Group													

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗	
Ideal Flow (vphpt)	1900	1900	1900	1900	1900	1800	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Fr <sub>t</sub>	1.00	1.00	0.85	1.00	0.99		1.00	0.94			1.00	0.85	
Fl <sub>t</sub> Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00	
Satd. Flow (prot)	1752	1845	1568	1770	1853		1671	1654			2094	1599	
Fl <sub>t</sub> Permitted	0.16	1.00	1.00	0.20	1.00		0.22	1.00			0.85	1.00	
Satd. Flow (perm)	294	1845	1568	364	1853		391	1654			1808	1599	
Volume (vph)	25	385	628	270	765	29	361	42	28	90	156	97	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	27	414	675	290	823	31	388	45	30	97	168	104	
RTOR Reduction (vph)	0	0	142	0	2	0	0	17	0	0	0	63	
Lane Group Flow (vph)	27	414	533	290	852	0	388	58	0	0	265	41	
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	8%	8%	8%	1%	1%	1%	
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm	
Protected Phases		4	5	3	8		5	2			6		
Permitted Phases	4		4	8			2			6		6	
Actuated Green, G <sub>i</sub> (s)	25.1	25.1	42.3	41.3	41.3		36.6	36.6			15.4	15.4	
Effective Green, g (s)	25.1	25.1	42.3	41.3	41.3		36.6	36.6			15.4	15.4	
Actuated g/C Ratio	0.29	0.29	0.49	0.48	0.48		0.43	0.43			0.18	0.18	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	86	539	845	375	891		423	705			324	287	
v/s Ratio Prot		0.22	0.13	0.11	0.46		0.18	0.03					
v/s Ratio Perm	0.09		0.21	0.26			0.21				0.15	0.03	
v/c Ratio	0.31	0.77	0.63	0.77	0.96		0.92	0.08			0.82	0.14	
Uniform Delay, d <sub>1</sub>	23.7	27.7	16.1	16.6	21.4		19.8	14.7			33.9	29.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d <sub>2</sub>	2.1	6.5	1.5	9.6	20.2		24.4	0.1			14.7	0.2	
Delay (s)	25.8	34.2	17.6	26.1	41.6		44.2	14.7			48.6	29.9	
Level of Service	C	C	B	C	D		D	B			D	C	
Approach Delay (s)		24.0			37.7			39.4			43.4		
Approach LOS		C			D			D			D		
<b>Intersection Summary</b>													
HCM Average Control Delay			33.7			HCM Level of Service							C
HCM Volume to Capacity ratio			0.92										
Actuated Cycle Length (s)			85.9			Sum of lost time (s)							8.0
Intersection Capacity Utilization			91.9%			ICU Level of Service							F
Analysis Period (min)			15										
c Critical Lane Group													



*file*

05P225

**TO:** Jean Fraser – Planner  
**FROM:** Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.  
**RE:** Major Site Plan Review: 41 Hutchins Drive, Woodard & Curran Expansion  
**DATE:** March 8, 2006

---

Sebago Technics has reviewed the revised submittal of the Major Site Plan application and supporting documentation with latest revision dates of February 23 and 28th, 2006 for the proposed expansion of their current office complex located at 41 Hutchins Drive in the City of Portland. This development is on a lot, which was part of the Stroudwater Estates Subdivision, which obtained approval of a Maine DEP Site Location of Development permit in the 1980's. Since this site has not reached a threshold of 3 acres impervious it has not triggered a separate requirement for a Site Location permit based on current DEP standards. However, the applicant has been directed by staff, and the DEP to address stormwater permits and provisions necessary to meet the approval orders previously in effect, and meet compliance of the Chapter 500 Stormwater Law (1997 and 2005 version or combination of). We respectfully offer the following comments in outline format:

1. Stormwater Management

Review of the stormwater management plan and subsequent runoff quantity and quality calculations were in a state of flux with the recent transition of the new Chapter 500: Stormwater Management Law and given the City was relieved of its delegated review authority, both the MeDEP and the City of Portland were not clear on the review level required for this site (quantity vs. quality). Since the last submission to the Board the DEP has coordinated treatment measures following new Stormwater BMP's and feel the if the DEP standards have been met that they are equal or exceed City standards for runoff quality treatment. The use of dry-swales and filtration basins for runoff treatment is actually what we initially recommended and is in accordance with DEP requirements. Therefore we find the project design is in conformance for both stormwater quantity and quality control as supported by the stormwater narrative and calculations dated 2/22/06

41 Hutchins Drive-  
Woodard and Curran Expansion

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March 8, 2006

All other previous requests for information have been adequately addressed regarding details and revisions pertaining to stormwater collection or treatment.

2. Road Access/Circulation

- A. Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.
- B. The access lanes per driveway standards are required to be 24 feet for two-way access. The applicant has requested a waiver of the standard because of the limitations of the wetlands, which traverse the site. The claim is that any further extension of the fill for the road widening will create difficulties in permitting and unnecessary impacts to the wetlands. The proposed road is 20 feet wide with guardrails on the wetland side and a 5-foot grass esplanade against the building.

This property is unique in that the development and the wetland restraint is a direct result of the actions taken by the developer/applicant. The building size, configuration, parking layout, and expansion planning was determined by the applicant. Property lines and existing buildings are not the restriction, but a natural resource is. The width of 20 feet is marginal, and it is clear 24 feet width is desirable.

Our feeling is that both the City and applicant, to accomplish and improvement for safety and vehicular passage must have in place specific maintenance plans for winter conditions and snow removal. The applicant has compiled areas as designated on the plan that adequately address concerns of storage. Given the applicants constraints with wetland/stream buffers and permitting, and shown winter maintenance can be done without safety being compromised we agree to the 24 foot aisle width waiver request to allow the width down to 20 feet for the access road.

3. Utilities

- A. Letters to serve and available capacities have been submitted showing that adequate service exists for the development.
- B. There is a 12 inch steel culvert shown outleting into the stream from the Water District easement. It appears that this is a blow-off from their main. We recommend that an easement around this drainage pipe such that either the City or Water District has rights to maintain on private property be completed prior to issuance of occupancy

4. Grading & Erosion Controls

41 Hutchins Drive-  
Woodard and Curran Expansion

-3-

March 8, 2006

The applicant has added notes addressing mud tracking, pavement cleaning, dust control, and or street sweeping during construction, and has addressed adequate basin protection during construction. Our only comment is that if construction occurs during winter periods then The Development Review coordinator may require silt sacs if conditions of hay bale barrier failure occurs.

5. General

- A. The project has an attached Geotechnical report, which shall be adhered to during construction. The plans shall add a note referencing the construction measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a profession engineer, and reviewed and approved by the code enforcement officer. It also may be beneficial to require weekly reports from a geotechnical engineer or geologist summarizing findings and construction monitoring during excavation and preparation of the retaining walls and building foundations. The applicant has agreed in a response to these recommendations but has not placed such notes on the site plan. Final wording and conditions may be left with the Board, to where they are appropriate.
- B. The applicant has filed a Maine Construction General Permit for this project. This must be obtained prior to the start of construction. Additionally the applicant has been working with Public Works to assure plans and datum is in accordance with City datum for sewer project work. Please contact Bill Clark at Public Works to confirm Survey information requirements.

Overall, the project has addressed most of the permitting challenges regarding stream, wetland protection and stormwater requirements. We have only minor recommendations for monitoring, tying down an easement to the water district for a blow-off valve discharge pipe, and compliance with City standards during construction. If the board determines that the items left can be agreed to, and will be completed by the applicant, we will support approval for the project with/or without conditions.

Please contact our office if you have any questions.

JRS/jrs

**From:** "Kenneth Volock" <kvolock@woodardcurran.com>  
**To:** <JF@portlandmaine.gov>  
**Date:** 3/8/2006 3:49:02 PM  
**Subject:** FW: W&C Addition Revised Landscape Plan

Jean,

I am forwarding this email from Marybeth Richardson at MeDEP stating her belief that the project can be approved. A hardcopy of this email will be forwarded to your office.

Kenny

-----Original Message-----

**From:** Richardson, Marybeth [mailto:Marybeth.Richardson@maine.gov]  
**Sent:** Wednesday, March 08, 2006 10:35 AM  
**To:** Kenneth Volock  
**Cc:** Viola, Ben  
**Subject:** RE: W&C Addition Revised Landscape Plan

Ken:

I have done a cursory review of the CADCAM/Cianchette project as revised and, based on my review and on preliminary comments from Ben Viola, I believe the project can be approved. However, an order for approval will probably not be issued for another week or two. Also, as discussed, we will copy Ben's review comments to Jim Seymour when they are finalized.

Marybeth Richardson  
Division of Land Resource Regulation  
Bureau of Land and Water Quality  
(207) 822-6335  
marybeth.richardson@maine.gov

-----Original Message-----

**From:** Kenneth Volock [mailto:kvolock@woodardcurran.com]  
**Sent:** Tuesday, February 28, 2006 8:51 AM  
**To:** Richardson, Marybeth  
**Subject:** W&C Addition Revised Landscape Plan

Marybeth,

Attached is the revised landscape plan. Please note the addition of clusters of Burkwood Viburnum, Highbush Blueberry, and Red Twig Dogwood at the base of the retaining wall below the access drive.

I intend to submit two hardcopies of the revised Landscape Plan later today, provided the additional plantings as proposed will be acceptable to the Department. Please let me know if you see the need for further revision

prior to submittal.

Kenneth Volock  
Woodard & Curran  
800-426-4262



41 Hutchins Drive, Portland, ME 04102  
(207) 774-2112 • 1-800-426-4262  
Fax: (207) 774-6635

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, New York, and Florida  
Operational offices throughout the U.S.

### FAX TRANSMITTAL SHEET

To: JEAN FRASER

Fax #: 756-8258

PORTLAND PLANNING

Sender: BEN VOLOCK

Date: MARCH 8, 2006

No. of pages (including cover sheet) 2

Hard copy to follow in mail: Yes  No

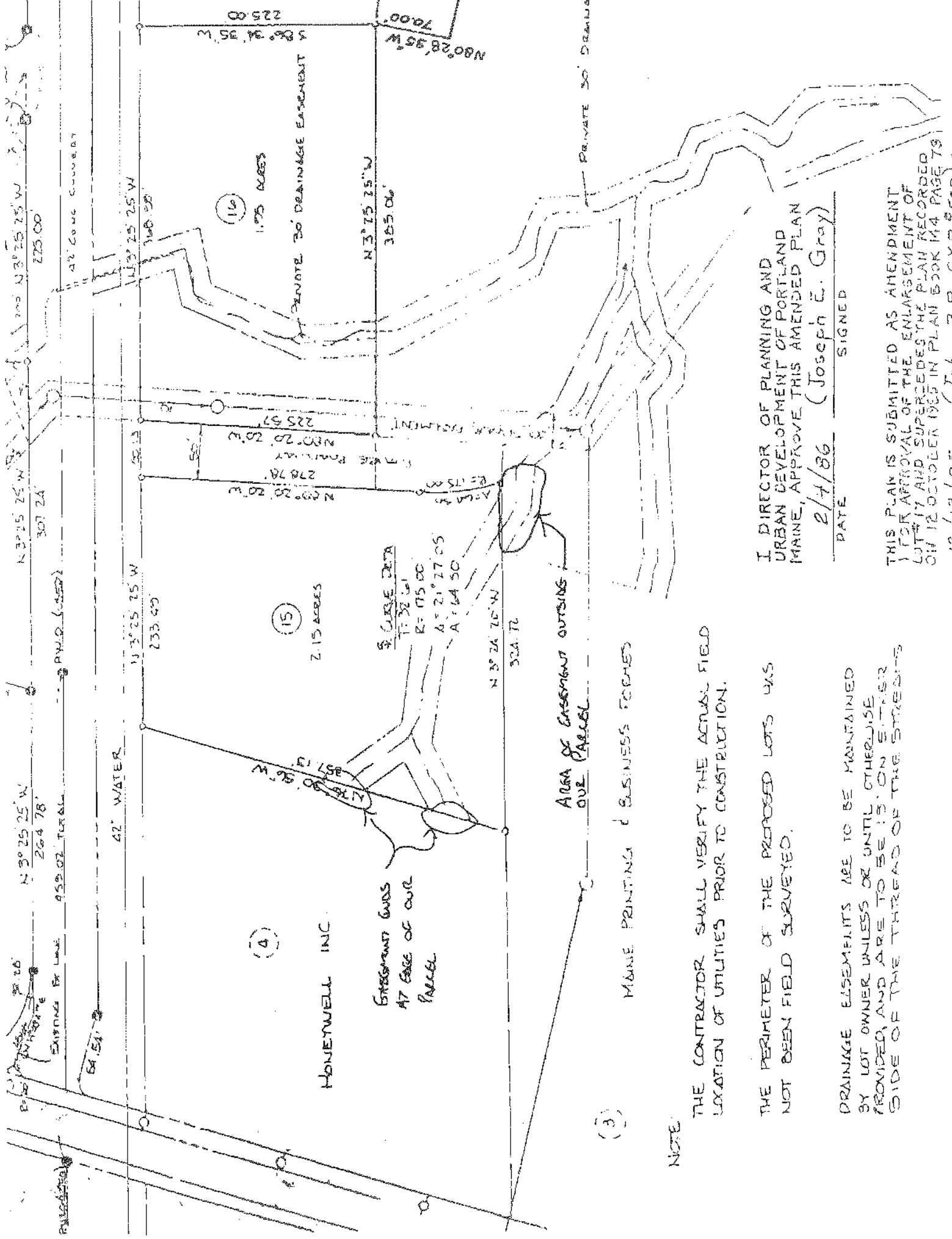
Project #: 203834.01 / 1.1

### Comments

JEAN,

I AM SENDING A PORTION OF THE ORIGINAL PLAN FOR  
SPROUDWATER ESTATES PHASE II. IT APPEARS THE DRAINAGE  
EASEMENTS ENDS AT OUR PROPERTY LINE FOR THE SMALL BROOK  
AT THE REAR OF OUR PROPERTY. LET ME KNOW IF YOU  
NEEDS ANYTHING ELSE IN DISCUSSING DRAINAGE EASEMENTS  
WITH ERIC LABBLE.

JEAN Y



I, DIRECTOR OF PLANNING AND  
 URBAN DEVELOPMENT OF PORTLAND  
 MAINE, APPROVE THIS AMENDED PLAN

DATE: 2/4/86 (Joseph E. Gray)  
 SIGNED: \_\_\_\_\_

THIS PLAN IS SUBMITTED AS AMENDMENT  
 1) FOR APPROVAL OF THE ENLARGEMENT OF  
 LOT #17 AND SUPERSEDES THE PLAN RECORDED  
 ON 12 OCTOBER 1985 IN PLAN BOOK M4 PAGE 79  
 12/13/85 (John P. R. Cyr #508)

NOTE:  
 THE CONTRACTOR SHALL VERIFY THE ACTUAL FIELD  
 LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.  
 THE PERIMETER OF THE PROPOSED LOTS HAS  
 NOT BEEN FIELD SURVEYED.  
 DRAINAGE EASEMENTS ARE TO BE MAINTAINED  
 BY LOT OWNER UNLESS OR UNTIL OTHERWISE  
 PROVIDED, AND ARE TO BE 15' ON EITHER  
 SIDE OF THE THREAD OF THE STREETS

(3) MAINE PRINTING & BUSINESS FORMS

ENCASEMENT GUIDES  
 AT EDGE OF OUR  
 PARCEL

AREA OF ENCASEMENT OUTSIDE  
 OUR PARCEL

(4) HONEYWELL INC.

(15) 2.15 ACRES

(16) 1.75 ACRES

**From:** Jean Fraser  
**To:** "jseymour@sebagotechnics.com"@Portland.gwgwia  
**Date:** 3/8/2006 3:24:21 PM  
**Subject:** Woodard & Curran

Jim,

I am finalizing the report for the Hearing on March 14th and wonder where you have got to on the final review of this project.

Could you call Ben Viola of MDEP direct if you haven't heard from them as we need to have it clear re the issues highlighted in the previous report.

Ken Volock told me he has revised the plans to show curbing around the islands in the parking lot.

Thanks  
Jean



From: Alex Jaegerman  
To: Jean Fraser; Sarah Hopkins  
Date: 3/7/2006 6:52:40 PM  
Subject: Re: W&C Condition

Sounds OK to me. Run by Penny. might want to delete the words "the applicant shall ensure that..."

>>> Jean Fraser 03/07/2006 5:27:53 PM >>>

You will recall that the original (in table Hearing Report) suggested a condition (xii) effectively limiting future development.

After discussion with Barry Sheff and Mark Malone we undertook to redraft it- but want it to remain. The redrafted condition will be included in another Hearing Report that I am writing this week for PB 3.14.

I have made an attempt- below (pasted in from Word Doc in 'O' drive):

The wording in the previous (table) report, which Barry S and others objected to, was:

xii. The applicant to note that no further impervious surfaces shall be created on this site and that further development should be contained within the existing paved and built areas.

We undertook to try and say this more artfully...

So this is my best effort- please help...

New draft wording :

xii. That in view of the sensitive nature of this site and its proximity of the proposals to wetland areas, the applicant shall ensure that any further expansion of office/parking ~~uses~~ shall be contained within the existing built or impervious surface areas.

Any comments please

Thanks  
Jean

CC: Penny Littell

*building footprint*  
*any*  
*or development*  
*or commercial space*  
*Jean: This is my suggestion*

That in view of the sensitive nature of this site and its proximity to wetland areas, as a condition of this approval there shall be no further expansion or development of parking areas or commercial space outside of the existing building footprint or impervious surface areas approved herein

Approved by: Sarah Hopkins 4:18 PM 3/8/06

**From:** Eric Labelle  
**To:** Jean Fraser  
**Date:** 3/6/2006 11:01:49 AM  
**Subject:** Re: W & C

Here is my responses Jean. I've also added a comment #5.  
Eric

>>> Jean Fraser 3/6/2006 9:45:37 AM >>>  
Eric,

This is going to a Hearing on March 14 and so i am trying to tie up loose ends.

1. You asked for a drainage easement over the unnamed brook that runs across the site from Hutchins towards Stroudwater... and that is being arranged (or will be a condition).

However, in our discussions with MDEP it came to light (not sure if it was on the original plans) that there was also a drainage easement over a smaller water channel to the east of the existing complex (around the back of the buildings and the proposed parking behind the new building).

Alex wants me to bring this other channel to the attention of Board members and a plan showing setbacks will be included in the packet.

**Does the city also want a drainage easement over that one as well???**

***If the other drainage way also drains flows from the City street, it would be prudent to acquire an easement.***

2. Also, they have shown bituminous curb along the internal road access that we are giving a waiver on (so it can be 20 feet wide). Given the narrowness, should we require granite curbing for the section between the wetlands and the new building?

***Since this drive will remain private, the curb materials used should be left to the discretion of the developers.***

3. If you are sending an e-mail re this, could you please confirm that you support the waiver for the road width being 20 feet- you said you weren't alarmed by it in 1.6.06 e-mail.

***I support the drive entering the parking lot be 20 feet. This assumes no parking along the drive.***

4. Could you also please confirm when the request for a public easement was sent to the Portland Water District.

***The application has been signed by the Director and has been sent to the PWD for consideration.***

5. ***Does the City object to other uses within the sewer easement such as a water main?***

***No, so long as the water main remains a minimum of 10 from the sewer main.***

Many thanks  
Jean

CC: "jseymour@sebagotechnics.com"@Portland.gwgwia

**From:** Jean Fraser  
**To:** kvolock@woodardcurran.com  
**Date:** 3/6/2006 9:30:12 AM  
**Subject:** W&C loose ends

Ken,

I think there are a few loose ends- some can be dealt with before I have to write the report and a couple need a telephone conversation:

1. Dumpsters (one behind building addition and one in front of south building) both need to be well screened (fence and landscaping)- see the Technical Standards as supported by Ordinance 14-526 para (25). This could be shown on the Landscape Plan as this is being revised in any case.
2. The rear view of the retaining walls is not very attractive (galvanized posts) and the one for the satellite parking is quite visible- can anything be done about that?
3. Why are there pavers in that central round circle in the front? Why add to perception of paved area?
4. If you are getting a waiver on the internal road access to go down to 20 feet, there may be an argument for that to be curbed with a more robust material ie granite.
5. We may need revised lighting photometrics for the revised parking- especially to the south as you are introducing the spaces. You mention a relocated light...

Jean

**From:** Jean Fraser  
**To:** Labelle, Eric  
**Date:** 3/6/2006 9:45:37 AM  
**Subject:** W & C

Eric,

This is going to a Hearing on March 14 and so i am trying to tie up loose ends.

1. You asked for a drainage easement over the unnamed brook that runs across the site from Hutchins towards Stroudwater... and that is being arranged (or will be a condition).

However, in our discussions with MDEP it came to light (not sure if it was on the original plans) that there was also a drainage easement over a smaller water channel to the east of the existing complex (around the back of the buildings and the proposed parking behind the new building).

Alex wants me to bring this other channel to the attention of Board members and a plan showing setbacks will be included in the packet.

**Does the city also want a drainage easement over that one as well???**

2. Also, they have shown bituminous curb along the internal road access that we are giving a waiver on (so it can be 20 feet wide). Given the narrowness, should we require granite curbing for the section between the wetlands and the new building?

3. If you are sending an e-mail re this, could you please confirm that you support the waiver for the road width being 20 feet- you said you weren't alarmed by it in 1.6.06 e-mail.

4. Could you also please confirm when the request for a public easement was sent to the Portland Water District.

Many thanks  
Jean

**CC:** "jseymour@sebagotechnics.com"@Portland.gwgwia

**From:** Marge Schmuckal  
**To:** Jean Fraser  
**Date:** 3/3/2006 2:21:58 PM  
**Subject:** Site plan for Cad-Cam Associates

Jean,

This e-mail is to respond to the question of the apparent lack of street frontage for the Woodard & Curran, Inc. property. First of all, I am not sure there is a non conformity or a lack of street frontage. The strip of land in question is actually owned by the City of Portland. The strip of land contains a 42" water main. I am not sure why the water main is not within the street but instead in this abutting strip of land. Because it is owned by the City of Portland, it can be argued that that strip of land is an extension of the street. Although I was not involved in zoning at the time this property was originally developed, it is my guess that this was the interpretation of the situation at that time.

However, if this lot does not have street frontage, then the lot was allowed to be developed and is now considered to be legally nonconforming. The nonconformity section of the ordinance (14-382) states that you may not increase any legal nonconformity. The allowance to further develop the CadCam Associates property does not increase the legal nonconformity. It is therefore not a zoning violation.

I hope this helps you.

Marge Schmuckal  
Zoning Administrator



# PORTLAND MAINE

Planning Division  
Jean Fraser, Planner

3-1-06

Greg

Both Ken Volock and I have  
tried to reach you re your formal  
condition on this scheme requiring  
a hydrant on the internal access  
road (alongside the new building)

Its going to Hearing March 14<sup>th</sup> and  
this urgently needs to be resolved.

Could you please contact me so  
let me know what your final view  
will be and how this can be  
documented for the Board.

Many thanks

Jean



From: Jean Fraser  
To: Volock, Kenneth  
Date: 3/1/2006 12:53:33 PM  
Subject: Re: Stormwater Addendum

Discussion w/  
Ken V 1:30 3-1-06

Ken,

Jim and I have the hard copies of this addendum, as do other Staff (Eric Labelle, Jeff Taring and Tom Errico) so that a complete set of plans is in the relevant hands (except Fire- see below).

A few points came up at the meeting today: (Jim Seymour was there)

1. Curbs around the islands are requested to protect planting- could have curbs with holes to allow filtration or cape cod curbs- just something to stop the soil/mulch etc from draining away.  
*KV: thought Jim OK if ck; JF confirmed issue also re trees*
2. We need to know whether the Portland Water District have approved our request for an easement- as we are doing this on your behalf it would be helpful if you could check on this as we understand the trustees have met recently  
*KV didn't think met yet - mtg in Mar - will ck; when EL send?*
3. We would like to include in the packet a plan like you showed us with colored lines showing the setbacks from the brooks and the wetlands. Alex has specifically asked that this plan show BOTH brooks with the relevant setbacks and wetlands for both. Could we have 11X17s of this when you send in the other 11X17s  
*KV - OK; also will show what area CP removed*
4. We feel the landscape plan is minimal, particularly for such a large site and where you are unable to plant in the PWD easement area. Jeff Taring has provided comments which include some additional trees but also suggests that the size of many of the others can be reduced. I will fax you with a hand marked plan and hand-revised Plant Schedule (normally would be a letter but we need to save time) that you can forward to Pat Carroll.  
*KV that P had discussed JT; JF said JT hadn't approved + had comments but not many.*
5. Jim will be reviewing the proposals this week; however, Marybeth Richardson intends to forward Ben Violas comments to Jim and the timing will be tight as Ben is out of the office this week.
6. Greg Cass of the Fire Dept was not at this mornings meeting so I still await clarification regarding the hydrant.
7. Tom Errico and I await the clarification re Tom Gorrills work on the junction issue.  
*KV asked \* see below.*
8. I have not yet done a final review of the submissions of Feb 23 and 28 so there could be a few more small points that we need to discuss- but I think all the key points are being dealt with.

Call me if any concerns.

Jean

\* KV asked if non-occup. of 2nd floor (eg fewer employees) would be helpful fact for Board. JF heard Board last night clearly indicate that prefer not to have to police occupation of bldgs in future to see if bigger pkg / traffic gen issue. JF also added that in seeking max dev (rather than 2 stories) they need to address issues for max. occupation.

>>> "Kenneth Volock" <kvolock@woodardcurran.com> 2/28/2006 5:01:56 PM >>>

Based on the meeting Barry and I had with Marybeth Richardson and Ben Viola at MeDEP, I have prepared an addendum to the stormwater management section dealing with the maintenance of the vegetated swale that was added and the subsurface detention structure. I have also added inspections forms for each stormwater treatment or conveyance measure.

- action
- ① E-mail Eric re PWD applic + other drainage easement
  - ② Fax re landscaping
  - ③ e-mail to Jim re curbing



I will send hard copies along with an updated Landscape Plan and the evidence of capacity letter from the City of Portland. I have copied Jim Seymour on this email.

Kenny  
Kenneth Volock  
Woodard & Curran  
800-426-4262

Dev Rev 3.1.06.

going to March 14<sup>th</sup> Hearing

W + C

showing both brooks

Alex still wants last cond

Tom E to ck re other cond.

- sig exp. of office/  
pkg use shall  
be contained  
w/in ex  
bt or impet  
surfaces

ck re PWD easement approved -

Jim Seymour - put holes.

Jeff wants curbs

City of Portland  
Department of Planning and Development  
Planning Division  
389 Congress Street, 4<sup>th</sup> Floor  
Portland ME 04101  
(207)874-8721 or (207)874-8719  
Fax: (207)756-8258



FAX

To: Ken Volock

Company: Woodard + Curran

Fax #: 207 774 6635

Date: March 1, 2006

From: Jean Fraser

You should receive 4 page(s) including this cover sheet.

Comments:

Ken- as discussed re additional planning  
and revised calipers/heights recommended  
by Jeff Tashing.

Could you e-mail me to say you  
got these OK.

*JF*

MODE = MEMORY TRANSMISSION

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-CITY OF PORTLAND -

-----PLANNING DEPT. ----- 2077568258-----

City of Portland  
Department of Planning and Development  
Planning Division  
389 Congress Street, 4<sup>th</sup> Floor  
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FAX

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You should receive 4 page(s) including this cover sheet.

Comments:

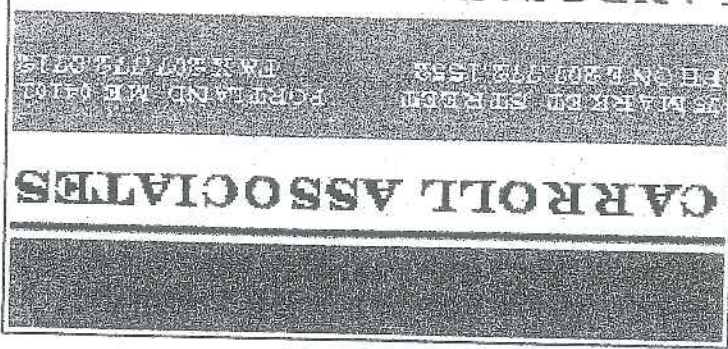
Ken- as discussed re additional planning  
and revised culpers/heights recommended  
by Jeff Tashing.

Could you e-mail me to say you  
got those OK.

*Jean*



①  
 City Arborist  
 suggested  
 revisions  
 3.1.06



# PLANT SCHEDULE

QUANTITY	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES					
6	AC	ABIES CONCOLOR	CONCOLOR FIR	7-8'	B4B
12	AR	ACER RUBRUM	RED MAPLE	<del>3'</del> 2.5"	B4B
10	AS	ACER SACCHARUM	SUGAR MAPLE	<del>3'</del> 2.5"	B4B
7	FA	FRAXINUS A. 'SUMMIT'	SUMMIT ASH	<del>3'</del> 2.5"	B4B
4	MS	MALUS 'SNOWDRIFT'	SNOWDRIFT CRABAPPLE	2"	B4B
4	QP	QUERCUS PALUSTRIS	FIN OAK	<del>3'</del> 2.5"	B4B
10	PGI	PICEA GLAUCA	NATIVE/WHITE COLORADO GREEN SPRUCE	<del>3'</del> 4-5'	#3 CONT
7	PN	PINUS NIGRA	AUSTRIAN PINE	7-8'	B4B
4	FNI	PINUS NIGRA	AUSTRIAN PINE	2.5-3'	#3 CONT
20	PSI	PINUS STROBUS	WHITE PINE	10 @ 3-4', 10 @ 6' → 2.5'	#3 CONT
→ add 3 rows of trees as per *					
SHRUBS/ GROUNDCOVERS					
12	CS	CORNUS SERICEA 'BAILEY'	RED TWIG DOGWOOD	#3	CONT
160	LJ	LONICERA JAPONICA	HALLS HONEYSUCKLE	#2	CONT
9	VB	VIBURNUM BURKWOODII	BURKWOOD VIBURNUM	#5	CONT
10	VC	VACCINIUM CORYMBOSUM 'JERSEY'	HIGHBUSH BLUEBERRY	#2	CONT

SEED MIX TO BE ROADSIDE MATRIX UPLAND SEED MIX BY NEW ENGLAND WETLANDS, INC OR APPROVED EQ.  
 APPLY AT 1#/1000 SF (43#/AC) TO ALL SLOPES

These are  
 on north  
 side of saddle  
 parking lot.

change to  
 Native Spruce  
 white spruce

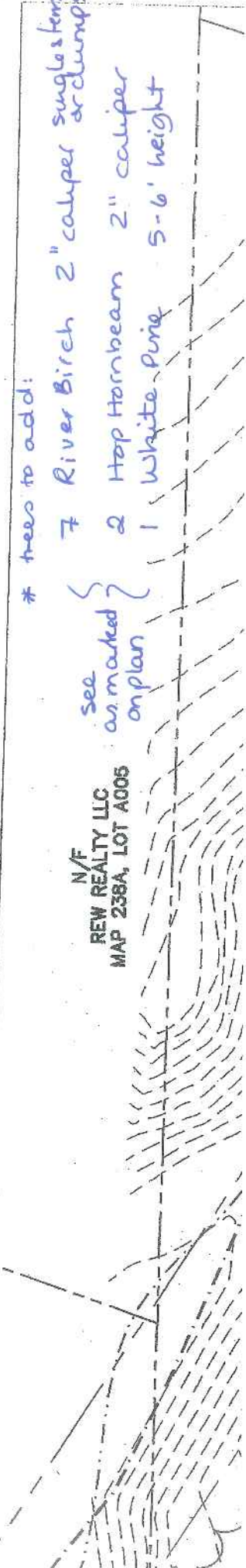
spaced  
 2

\* trees to add:

- 7 River Birch 2" caliper single stems
- 2 Hop Hornbeam 2" caliper
- 1 White Pine 5-6' height

see  
 as marked  
 on plan

N/F  
 REW REALTY LLC  
 MAP 238A, LOT A005



Page 2 of  
Left Turning  
maneuvers  
3-1-06

WOODARD & CURRAN  
NORTH WING

EXIST VEG TO  
REMAIN (TYP)

D ROADSIDE  
AND SEED MIX  
PES (TYP)

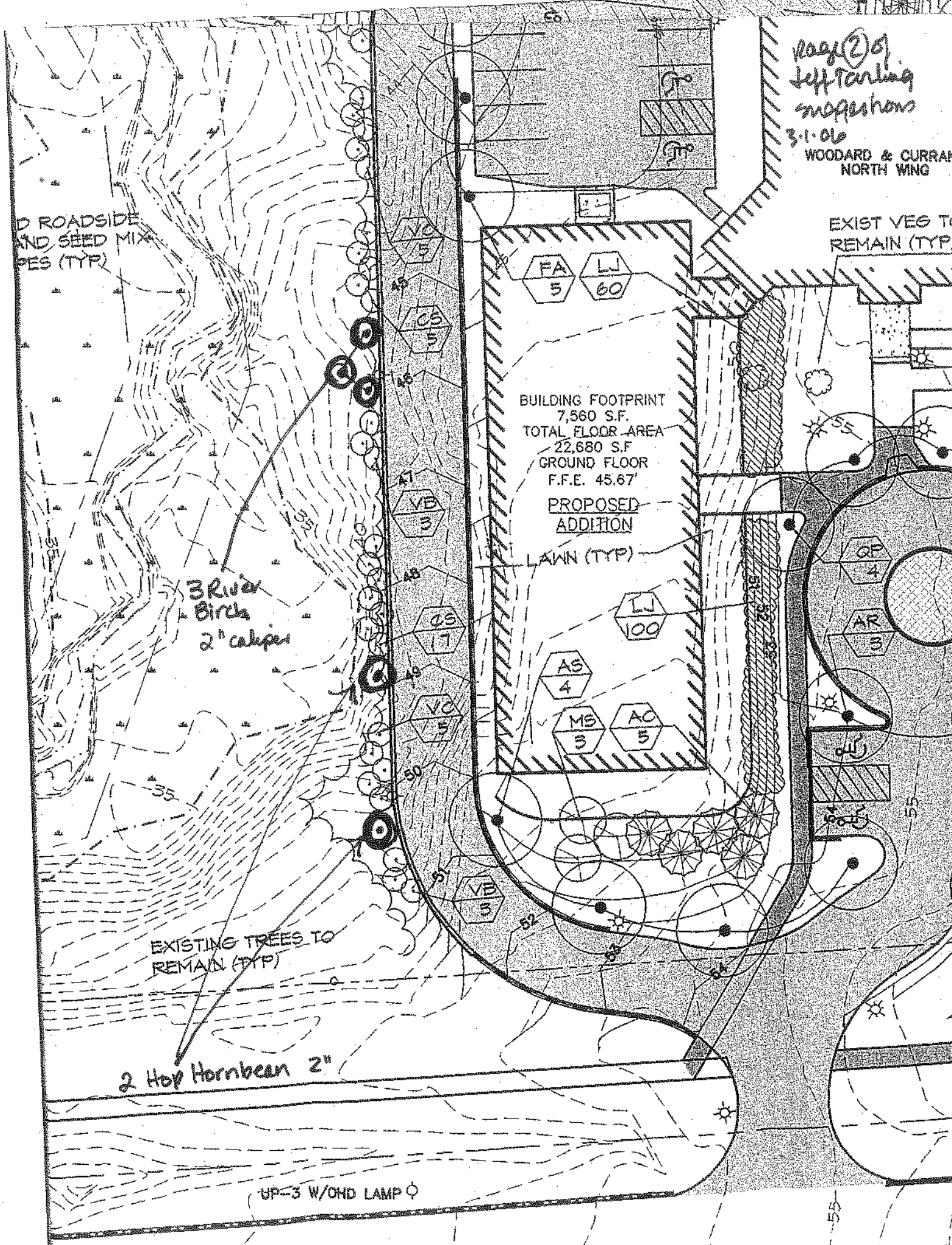
BUILDING FOOTPRINT  
7,560 S.F.  
TOTAL FLOOR AREA  
22,680 S.F.  
GROUND FLOOR  
F.F.E. 45.67'  
PROPOSED  
ADDITION  
LAWN (TYP)

3 River  
Birch  
2" caliper

EXISTING TREES TO  
REMAIN (TYP)

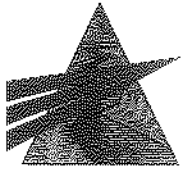
2 Hop Hornbeam 2"

UP-3 W/OHD LAMP









February 28, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CAD/CAM Associates and Peggy and Eric Cianchette, we are submitting 10 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The information that follows includes an updated plan and addresses comments that have arisen from our continued discussion of this project with City staff and with the Maine Department of Environmental Protection (MeDEP). Items included within this submission have been organized by section to which they are relevant.

#### **Section 1 – Development Description**

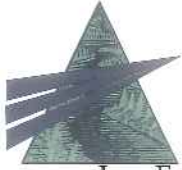
- The landscape plan has been revised based on discussions with the MeDEP and to incorporate recent changes to site layout. Three sugar maples have been added around the entrance to the south lot to aid in buffering 8 relocated parking spaces as well as the existing lot. Shrubs have been added at the base of the retaining wall below the access drive. These shrubs consist of Burkwood Viburnum, Highbush Blueberry and Red Twig Dogwood, which all have the ability to survive in upland and wetland environments.

An updated copy of Sheet I-1.0 Landscape Plan has been attached to this submission.

#### **Section 5 – Off-Site Facilities**

- A copy of a letter from Frank Brancely, with the Portland Public Works Department, has been attached. The letter confirms that the sewer has adequate capacity to transport wastewater generated by the site.





Jean Fraser, City of Portland  
February 28, 2006  
Page 2

**Section 6 – Stormwater Management**

- Based on feedback from Marybeth Richardson and Ben Viola at McDEP, we have prepared an addendum to the stormwater management section dealing with the inspection and maintenance of the subsurface detention structure and the vegetated swale that was added to convey runoff from the access drive to the dry swale at the northeasterly corner of the proposed rear parking lot. The addendum has been attached to this submission.
- Inspection forms for the stormwater treatment or conveyance measures to be located on the proposed site have been included with this submission.

Thank you for the assistance you have provided thus far. We look forward to continuing our work with your office and the Planning Board on this project. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock, P.E.  
Engineer



KRV/djt  
203834.01

- Enclosures:
- Sheet L-1.0 Landscape Plan, as revised February 27, 2006
  - Letter confirming adequate wastewater capacity for the project from Frank Brancely to Woodard & Curran, dated February 24, 2006
  - Addendum to Section 6 Stormwater Management, dated February 28, 2006
  - Stormwater Inspection and Maintenance Forms



# PORTLAND MAINE

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Public Works Department  
Michael J. Bobinsky, Director

24 February 2006

IV-B-a

Mr. Kenneth Volluck, P. E.,  
Woodard & Curran,  
41 Hutchins Drive,  
Portland, Maine 04102

**RE: The City's Capacity to Handle Wastewater Flows, from a 22,680 S. F. Office Building Addition to Woodard & Curran Engineering, at 41 Hutchins Drive, Portland, Maine.**

Dear Mr. Volluck:

The existing ten-inch diameter sanitary sewer pipe, crossing through the Woodard & Curran property has **adequate capacity to transport**, while The Portland Water District sewage treatment facilities, located off Marginal Way, have **adequate capacity to treat** the anticipated increased wastewater flows of **1,701 GPD**, from your proposed development.

**Anticipated Wastewater Flows from the Proposed Office Expansion Project:**

*A Proposed 22,680 S.F. Office Building:*

Assume Five Employees/1,000 S. F. Office Space=5 x 22.68 = 113.4 Employees.

Assume 15 GPD/Employee=113.4x15=1,701 GPD

**Total Proposed Increase in Wastewater Flows for this Project =1,701 GPD**

The City combined sewer overflow (C.S.O.) abatement consent agreement (with the U.S.E.P.A., and with the Maine D.E.P.) requires C.S.O. abatement, as well as storm water mitigation, in order to offset any increase in sanitary flows, from all projects.

If The City can be of further assistance, please call 874-8832.

Sincerely,  
**CITY OF PORTLAND**

*Frank Brancely*  
Frank J Brancely, B.A., M.A.  
Senior Engineering Technician

FJB

CC: Alexander Q. Jaegerman, Director, Planning Division, Department of Planning, and Urban Development, City of Portland  
Jean Fraser, Planner, Department of Planning, and Urban Development, City of Portland  
Eric Labelle, P.E., City Engineer, City of Portland  
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland  
Stephen K. Harris, Assistant Engineer, City of Portland  
Desk file



---

**ADDENDUM NO. 1 TO:****6. STORMWATER MANAGEMENT**

The following information should be added to Section 6 Stormwater Management, as submitted to the City of Portland and to the Maine Department of Environmental Protection, on February 23, 2006.

**6.4 MAINTENANCE OF STORMWATER SYSTEMS**

The following maintenance procedures will be followed for vegetated swales and the subsurface detention structure:

**6.4.4 Vegetated Swales**

Vegetated swales will be inspected semi-annually in spring and fall. Additionally, vegetated swales will be inspected following major storms. These inspections will ensure that there is no erosion in the swale and that sediment does not build up.

Each vegetated swale will be mowed to a minimum mow height of six inches. Cut vegetation will be removed to prevent the decaying material from adding pollutants to stormwater runoff. Sediment will be removed annually. Any eroding areas will be repaired immediately. Whenever sediment removal or repairs due to erosion are required, the Facilities Manager would likely hire a local contractor to perform this work.

**6.4.5 Subsurface Detention Structure**

The subsurface detention structure will be inspected semi-annually, in spring and fall, and following major storms through the maintenance port. These inspections will ensure that runoff does not become trapped in the structure and sediment does not build up.

Should runoff become trapped within the structure, attempts will be made to remove blockage from the outlet by either snaking or high pressure water. If these efforts are unsuccessful, a portion of the structure will need to be excavated to remove the blockage within the structure itself. If sediment builds up in the structure, the sediment will be resuspended using high pressure water through the maintenance port. The Facilities Manager would hire a local contractor to perform this work.

**6.6 ATTACHMENTS**

The following additional attachments have been included with this addendum:

Catch Basin Semi-Annual Visual Monitoring Record

Parking Lot Annual Visual Monitoring Record

Filter Basin Semi-Annual Visual Monitoring Record

Dry Swale Semi-Annual Visual Monitoring Record

Vegetated Swale Semi-Annual Visual Monitoring Record

Subsurface Detention Structure Semi-Annual Visual Monitoring Record

**41 HUTCHINS DRIVE  
CATCH BASIN  
SEMI-ANNUAL VISUAL MONITORING RECORD**

CB#: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Last Date and Approximate rainfall amount: \_\_\_\_\_  
Estimated depth of water in sump \_\_\_\_\_

Characteristics of Catch Basin:

Grate Condition \_\_\_\_\_

Outlet Condition \_\_\_\_\_

Sediment Present \_\_\_\_\_

Floatables or Oil Sheen \_\_\_\_\_

Other Observances \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Observations of surrounding drainage area during visual monitoring: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Signature of person conducting visual monitoring:

\_\_\_\_\_

Name

\_\_\_\_\_

Date

\_\_\_\_\_

Title

**41 HUTCHINS DRIVE  
PARKING LOT  
ANNUAL VISUAL INSPECTION RECORDS**

Parking Lot # \_\_\_\_\_  
Date/Time \_\_\_\_\_  
Weather Conditions \_\_\_\_\_  
Inspector (s) \_\_\_\_\_

1. Problems observed:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Follow-up actions required following inspection:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Name and title of person(s) notified of inspection results:

\_\_\_\_\_  
Name Title date

\_\_\_\_\_  
Name Title date

4. Signature of inspector: \_\_\_\_\_  
Name Title

\_\_\_\_\_  
date

**41 HUTCHINS DRIVE  
FILTER BASIN  
SEMI-ANNUAL VISUAL MONITORING RECORD**

**Basin location:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_

Last Date and Approximate rainfall amount: \_\_\_\_\_  
Estimated depth of Water in basin \_\_\_\_\_

Characteristics of Basin:

Vegetation State \_\_\_\_\_  
Sedimentation Present \_\_\_\_\_  
Embankment Condition \_\_\_\_\_  
Emergency Spillway Condition \_\_\_\_\_  
Outlet Control Structure Condition \_\_\_\_\_  
Floatables or Oil Sheen \_\_\_\_\_  
Other observances \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Observations of basin drainage area during visual monitoring: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature of person conducting visual monitoring:

\_\_\_\_\_  
Name date

\_\_\_\_\_  
Title

**41 HUTCHINS DRIVE  
DRY SWALE  
SEMI-ANNUAL VISUAL MONITORING RECORD**

Swale location: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Last Date and Approximate rainfall amount: \_\_\_\_\_

Estimated depth of Water in swale \_\_\_\_\_

Characteristics of Swale:

Vegetation State \_\_\_\_\_

Sedimentation Present \_\_\_\_\_

Embankment Condition \_\_\_\_\_

Emergency Spillway Condition \_\_\_\_\_

Outlet Control Structure Condition \_\_\_\_\_

Floatables or Oil Sheen \_\_\_\_\_

Other observances \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Observations of swale drainage area during visual monitoring: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature of person conducting visual monitoring:

\_\_\_\_\_

\_\_\_\_\_ date

\_\_\_\_\_

Title

**41 HUTCHINS DRIVE  
VEGETATED SWALE  
SEMI-ANNUAL VISUAL INSPECTION/MAINTENANCE RECORDS**

Nearest Unit # \_\_\_\_\_

Date/Time \_\_\_\_\_

Maintenance Person(s) \_\_\_\_\_

1. Type of maintenance required and summary of maintenance activity performed:

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2. Follow-up actions required as result of maintenance:

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3. Name and title of person(s) notified of maintenance activity results:

_____	_____	_____
Name	Title	Date

_____	_____	_____
Name	Title	Date

4. Signature of maintenance person: \_\_\_\_\_

Name

Title

\_\_\_\_\_

Date



**41 HUTCHINS DRIVE  
SUBSURFACE DETENTION STRUCTURE  
SEMI-ANNUAL VISUAL MONITORING RECORD**

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Last Date and Approximate rainfall amount: \_\_\_\_\_  
Estimated depth of Water in structure (if any) \_\_\_\_\_

Characteristics of Structure:

Sedimentation Present \_\_\_\_\_  
Outlet Pipe Condition \_\_\_\_\_  
Emergency Outlet Pipe Condition \_\_\_\_\_  
Floatables or Oil Sheen \_\_\_\_\_  
Other observances \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Observations of structure drainage area during visual monitoring: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Follow-up actions required as result of observations:  
\_\_\_\_\_  
\_\_\_\_\_

Signature of person conducting visual monitoring:

\_\_\_\_\_  
Name

\_\_\_\_\_  
date

\_\_\_\_\_  
Title

Attachment 1.V - C

**From:** Eric Labelle  
**To:** Jean Fraser  
**Date:** 3/6/2006 11:01:49 AM  
**Subject:** Re: W & C

Here is my responses Jean. I've also added a comment #5.  
Eric

>>> Jean Fraser 3/6/2006 9:45:37 AM >>>  
Eric,

This is going to a Hearing on March 14 and so i am trying to tie up loose ends.

1. You asked for a drainage easement over the unnamed brook that runs across the site from Hutchins towards Stroudwater... and that is being arranged (or will be a condition).

However, in our discussions with MDEP it came to light (not sure if it was on the original plans) that there was also a drainage easement over a smaller water channel to the east of the existing complex (around the back of the buildings and the proposed parking behind the new building).

Alex wants me to bring this other channel to the attention of Board members and a plan showing setbacks will be included in the packet.

**Does the city also want a drainage easement over that one as well???**

***if the other drainage way also drains flows from the City street, it would be prudent to acquire an easement.***

2. Also, they have shown bituminous curb along the internal road access that we are giving a waiver on (so it can be 20 feet wide). Given the narrowness, should we require granite curbing for the section between the wetlands and the new building?

***Since this drive will remain private, the curb materials used should be left to the discretion of the developers.***

3. If you are sending an e-mail re this, could you please confirm that you support the waiver for the road width being 20 feet- you said you weren't alarmed by it in 1.6.06 e-mail.

***I support the drive entering the parking lot be 20 feet. This assumes no parking along the drive.***

4. Could you also please confirm when the request for a public easement was sent to the Portland Water District.

***The application has been signed by the Director and has been sent to the PWD for consideration.***

***5. Does the City object to other uses within the sewer easement such as a water main?***

***No, so long as the water main remains a minimum of 10 from the sewer main.***

Many thanks  
Jean



05P225

**TO:** Jean Fraser – Planner  
**FROM:** Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.  
**RE:** Major Site Plan Review: 41 Hutchins Drive, Woodard & Curran  
Expansion  
**DATE:** March 8, 2006

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Sebago Technics has reviewed the revised submittal of the Major Site Plan application and supporting documentation with latest revision dates of February 23 and 28th, 2006 for the proposed expansion of their current office complex located at 41 Hutchins Drive in the City of Portland. This development is on a lot, which was part of the Stroudwater Estates Subdivision, which obtained approval of a Maine DEP Site Location of Development permit in the 1980's. Since this site has not reached a threshold of 3 acres impervious it has not triggered a separate requirement for a Site Location permit based on current DEP standards. However, the applicant has been directed by staff, and the DEP to address stormwater permits and provisions necessary to meet the approval orders previously in effect, and meet compliance of the Chapter 500 Stormwater Law (1997 and 2005 version or combination of). We respectfully offer the following comments in outline format:

1. **Stormwater Management**

Review of the stormwater management plan and subsequent runoff quantity and quality calculations were in a state of flux with the recent transition of the new Chapter 500: Stormwater Management Law and given the City was relieved of its delegated review authority, both the MeDEP and the City of Portland were not clear on the review level required for this site (quantity vs. quality). Since the last submission to the Board the DEP has coordinated treatment measures following new Stormwater BMP's and feel the if the DEP standards have been met that they are equal or exceed City standards for runoff quality treatment. The use of dry-swales and filtration basins for runoff treatment is actually what we initially recommended and is in accordance with DEP requirements. Therefore we find the project design is in conformance for both stormwater quantity and quality control as supported by the stormwater narrative and calculations dated 2/22/06

All other previous requests for information have been adequately addressed regarding details and revisions pertaining to stormwater collection or treatment.

2. Road Access/Circulation

- A. Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.
- B. The access lanes per driveway standards are required to be 24 feet for two-way access. The applicant has requested a waiver of the standard because of the limitations of the wetlands, which traverse the site. The claim is that any further extension of the fill for the road widening will create difficulties in permitting and unnecessary impacts to the wetlands. The proposed road is 20 feet wide with guardrails on the wetland side and a 5-foot grass esplanade against the building.

This property is unique in that the development and the wetland restraint is a direct result of the actions taken by the developer/applicant. The building size, configuration, parking layout, and expansion planning was determined by the applicant. Property lines and existing buildings are not the restriction, but a natural resource is. The width of 20 feet is marginal, and it is clear 24 feet width is desirable.

Our feeling is that both the City and applicant, to accomplish and improvement for safety and vehicular passage must have in place specific maintenance plans for winter conditions and snow removal. The applicant has compiled areas as designated on the plan that adequately address concerns of storage. Given the applicants constraints with wetland/stream buffers and permitting, and shown winter maintenance can be done without safety being compromised we agree to the 24 foot aisle width waiver request to allow the width down to 20 feet for the access road.

3. Utilities

- A. Letters to serve and available capacities have been submitted showing that adequate service exists for the development.
- B. There is a 12 inch steel culvert shown outleting into the stream from the Water District easement. It appears that this is a blow-off from their main. We recommend that an easement around this drainage pipe such that either the City or Water District has rights to maintain on private property be completed prior to issuance of occupancy

4. Grading & Erosion Controls

The applicant has added notes addressing mud tracking, pavement cleaning, dust control, and or street sweeping during construction, and has addressed adequate basin protection during construction. Our only comment is that if construction occurs during winter periods then The Development Review coordinator may require silt sacs if conditions of hay bale barrier failure occurs.

5. General

- A. The project has an attached Geotechnical report, which shall be adhered to during construction. The plans shall add a note referencing the construction measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a profession engineer, and reviewed and approved by the code enforcement officer. It also may be beneficial to require weekly reports from a geotechnical engineer or geologist summarizing findings and construction monitoring during excavation and preparation of the retaining walls and building foundations. The applicant has agreed in a response to these recommendations but has not placed such notes on the site plan. Final wording and conditions may be left with the Board, to where they are appropriate.
- B. The applicant has filed a Maine Construction General Permit for this project. This must be obtained prior to the start of construction. Additionally the applicant has been working with Public Works to assure plans and datum is in accordance with City datum for sewer project work. Please contact Bill Clark at Public Works to confirm Survey information requirements.

Overall, the project has addressed most of the permitting challenges regarding stream, wetland protection and stormwater requirements. We have only minor recommendations for monitoring, tying down an easement to the water district for a blow-off valve discharge pipe, and compliance with City standards during construction. If the board determines that the items left can be agreed to, and will be completed by the applicant, we will support approval for the project with/or without conditions.

Please contact our office if you have any questions.

JRS/jrs



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## 1.5 ATTACHMENTS

Figure 1.1 USGS Topographic map

Figure 1.2 Aerial Photograph

Results of Soil Borings

Boundary Survey

C100	Existing Site Plan
C200	Proposed Site Plan
C300	Civil Details - 1
C301	Civil Details - 2
C302	Civil Details - 3





**NOTE:**

AERIAL PHOTOS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE 800-426-4262

**AERIAL PHOTOGRAPH**

DESIGNED BY: JBC CHECKED BY: BSS  
DRAWN BY: JGC 2035340: -U001.2.dwg

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO. 203534.03  
DATE: SEPTEMBER 2005  
SCALE: 1" = 300'

Figure 1.2

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-1
DATE-TIME START:	FINISH:	SHEET 1 OF 1
ENGINEER: J.M. Moody	WEATHER: Rain, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:

DRILLING METHOD: 4 1/4 hollow stem augers	SAMPLING METHOD: 24 split spoon sampler
---	---

GROUNDWATER LEVEL	DATE-TIME					NOTES TO GWL:
	DAYS-HOURS					
	DEPTH					

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
S-1	Wt. of Hammer		24		0	[Hatched Pattern]	
	3	0-2			1		Brown, medium-stiff, silty clay. Trace fine sand.
	6				2		
S-2	4	5-7	24		5	[Hatched Pattern]	
	3				6		Olive gray, medium stiff, silty clay.
	4				7		
S-3		10-12	24		10	[Hatched Pattern]	
					11		
					12		
					13		End of boring at 5'-7" spoon, 5' augers.



# Field Boring Log (soil)

# WOODARD & CURRAN INC. CONSULTING ENGINEERS

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-2
DATE-TIME START: 6/15/95 10:45	FINISH: 6/15/95 13:45	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: Rain, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:

DRILLING METHOD: 4 1/4 hollow stem augers	SAMPLING METHOD: 24 split spoon sampler
---	---

GROUNDWATER LEVEL	DATE-TIME							NOTES TO GWL:
	DAYS-HOURS							
	DEPTH							

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		Outside Kurt Marston's office 60 feet from building
S-1	12" Wt. of Hammer	0-2	24	11	0		Brown, medium-compact, silty, clay-dessicated, mottled.
	5				1		
	9				2		
					3		
					4		
S-2	3	5-7	24	20	5		Olive gray, medium stiff, silty clay - Entire sample came out of spoon as one piece
	5				6		
	8				7		
					8		
					9		
S-3	1	10-12	24	24	10		Olive gray, soft silty clay.
	2				11		
	3				12		
					13		Softer material below 13 feet.





# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-2
DATE-TIME START: 6/15/95 10:45	FINISH: 6/15/95 13:45	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: Rain, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:

DRILLING METHOD: 4 1/4 hollow stem augers	SAMPLING METHOD: 24 split spoon sampler
---	---

GROUNDWATER LEVEL	DATE-TIME							NOTES TO GWL:
	DAYS-HOURS							
	DEPTH							

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		Outside Kurt Marston's office 60 feet from building
S-1	12" Wt. of Hammer	0-2	24	11	0		Brown, medium-compact, silty, clay-dessicated, mottled.
	5				1		
	9				2		
					3		
					4		
S-2	3	5-7	24	20	5		Olive gray, medium stiff, silty clay - Entire sample came out of spoon as one piece
	5				6		
	8				7		
					8		
					9		
S-3	1	10-12	24	24	10		Olive gray, soft silty clay.
	2				11		
	3				12		
					13		
					13		Softer material below 13 feet.

# Field Boring Log (soil)

**WOODARD & CURRAN INC.  
CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-2

SURFACE ELEVATION:

SHEET 2 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	NOTES:	
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:	
					13			
					14			
					15			
S-4	Wt. of Rods for 24"	15-17	24	24	15			Gray, very soft silty clay.
					16			
					17			
					18			
					19			
S-5	Wt. of Rods for 24"	20-22	24	24	20			Blue-gray, very soft silty clay.
					21			
					22			
					23			
					24			
S-6	Wt. of Rods for 24"	25-27	24	24	25			Blue-gray, very soft silty clay - moist.
					26			
					27			
					28			
					29			
S-7	Wt. of Rods for 18"	30-32	24	24	30			Blue-gray, very soft silty clay - moist.
					31			
					32			
					33			

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-2

SHEET 3 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	SURFACE ELEVATION:		NOTES:
					DEPTH (FT)	SOIL LEGEND	
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					33		
					34		
S-8	4	35-37	24	23	35		Gray, silty, fine to coarse sands.
	1				36		
	1	3			37		End of boring at 35 feet - Sample to 37 feet.
					38		
					39		
					40		
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-2

SURFACE ELEVATION:

SHEET 3 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT)	INCHES SAMPLED	RECOVERY INCHES	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					33		
					34		
S-8	4 1	35-37	24	23	35		
	1	3			36		Gray, silty, fine to coarse sands.
					37		End of boring at 35 feet - Sample to 37 feet.
					38		
					39		
					40		
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		





# Field Boring Log (soil)

# WOODARD & CURRAN INC. CONSULTING ENGINEERS

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-3
DATE-TIME START: 6/15/95 15:00	FINISH: 6/15/95	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: drizzle, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:

DRILLING METHOD: 4" Drive and Wash	SAMPLING METHOD: 24 split spoon sampler 24" Shelby Tubes
------------------------------------	---

GROUNDWATER LEVEL	DATE-TIME					NOTES TO GWL:
	DAYS-HOURS					
	DEPTH					

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							Forested - Far corner of new building from present building.  COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
S-1	1	0-2	24	10	0		Brown, medium-stiff silts and clays. Trace fine sands.
	4				1		
		4	2				
			3				
S-2	2	5-7	24	22	5		Olive-gray, medium-stiff to stiff silty clay. Trace reddish brown fine sands.
	4				6		
		6	7				
			8				
S-3	1	10-12	24	24	10		Olive gray, soft silty clay.
	2				11		
		1	12				
		3			12		Blue-gray, medium-stiff silty clay.
					13		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-3

SURFACE ELEVATION:

SHEET 2 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					13		
					14		
S-4		15-17	24	15	15		
					16		Drive a Shelby Tube (24") injected with water pressure. m/c = 47.0%, qp = 1.0 ksf, LV = 0.48 ksf
					17		
					18		
					19		
S-5	Wt. of Rods	20-22	24	24	20		Blue-gray, soft silty clays.
					21		
					22		
					23		
					24		
S-6		25-27	24	23	25		Shelby Tube - (B-3-5-6).
					26		m/c=40.8%, qp = 1.2 ksf, LV = 1.06 ksf
					27		
S-7	Wt. of Rods	27-29	24		27		Blue-gray soft silty clay - 2 thin (< 1mm) sand lenses.
					28		
					29		
					30		
					31		
					32		
					33		Drillers notice change to coarser-grain material at 33" below ground surface.

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-3

SURFACE ELEVATION:

SHEET 2 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	NOTES:	
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:	
					13			
					14			
					15			
S-4		15-17	24	15	16			Drive a Shelby Tube (24") injected with water pressure. m/c = 47.0%, qp = 1.0 ksf, LV = 0.48 ksf
					17			
					18			
					19			
S-5	Wt. of Rods	20-22	24	24	20			Blue-gray, soft silty clays.
					21			
					22			
					23			
					24			
S-6		25-27	24	23	25			Shelby Tube - (B-3-5-6). m/c=40.8%, qp = 1.2 ksf, LV = 1.06 ksf
					26			
S-7	Wt. of Rods	27-29	24		27			Blue-gray soft silty clay - 2 thin (< 1mm) sand lenses.
					28			
					29			
					30			
					31			
					32			
					33			Drillers notice change to coarser-grain material at 33" below ground surface.



# Field Boring Log (soil)

# WOODARD & CURRAN INC. CONSULTING ENGINEERS

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-3

SURFACE ELEVATION:

SHEET 3 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					33		
					34		
S-8	24 14	35-37	24		35		
		16 19			36		Light brown, compact, fine to coarse sands, some fine gravel and silt.
					37		
					38		
					39		
					40		End of boring at 35 feet - Sample to 37 feet.
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-4
DATE-TIME START: 6/16/95 13:00	FINISH: 6/16/95	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: Sunny, 70°s	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob	DATUM:

DRILLING METHOD:	SAMPLING METHOD: Shelby Tubes 24" split spoon
------------------	--

GROUNDWATER LEVEL	DATE-TIME						NOTES TO GWL:
	DAYS-HOURS						
	DEPTH						

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							50 feet from building toward south end of parking lot.
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		
					1		
					2		Gray-brown, mottled silty clay. Trace fine sand. No sample at 5 feet.
					3		
					4		
					5		
					6		
					7		
					8		
					9		
S-1	Wt. of Rods 3	10-12	24	24	10		Olive gray, soft to medium-stiff silty clay- moist.
	2				11		
	1				12		
					13		

# Field Boring Log (soil)

# WOODARD & CURRAN INC. CONSULTING ENGINEERS

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-4
DATE-TIME START: 6/16/95 13:00	FINISH: 6/16/95	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: Sunny, 70°s	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob	DATUM:

DRILLING METHOD:	SAMPLING METHOD: Shelby Tubes 24" split spoon
------------------	--

GROUNDWATER LEVEL	DATE-TIME							NOTES TO GWL:
	DAYS-HOURS							
	DEPTH							

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							50 feet from building toward south end of parking lot.
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		
					1		
					2		Gray-brown, mottled silty clay. Trace fine sand. No sample at 5 feet.
					3		
					4		
					5		
					6		
					7		
					8		
					9		
S-1	Wt. of Rods 3	10-12	24	24	10		Olive gray, soft to medium-stiff silty clay- moist.
	2				11		
	1				12		
					13		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-4

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	SURFACE ELEVATION:		NOTES:
					DEPTH (FT)	SOIL LEGEND	
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
							Sands and fine gravels, some silt - moist.
S-5	10 11	33-35	24	10	33		
	8 8				34		
					35		
					36		
					37		
					38		
					39		End of boring at 33 feet below ground surface. Last sample at 33 feet to 35 feet below ground surface.
					40		
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-4

SURFACE ELEVATION:

SHEET 3 of 3

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					33		Sands and fine gravels, some silt - moist.
S-5	10 11	33-35	24	10	34		
	8 8				35		
					36		
					37		
					38		
					39		End of boring at 33 feet below ground surface. Last sample at 33 feet to 35 feet below ground surface.
					40		
					41		
					42		
					43		
					44		
					45		
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					48		
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					50		
					51		
					52		
					53		

# S.W. COLE

ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS

Six Liberty Drive, Bangor, ME 04401 TEL (207) 848-5714 FAX (207) 848-2403

Gray Plaza, P.O. Box 378, Gray, ME 04039 TEL (207) 657-2866 FAX (207) 657-2840  
161 Water St., P.O. Box 920, Caribou, ME 04736 TEL (207) 496-1511 FAX (207) 496-1501

95-340 M

July 17, 1995

Woodard & Curran, Inc.  
Attn: Mr. Eric Carlson  
41 Hutchins Drive  
Portland, ME 04102

Subject: Laboratory Testing  
Woodard & Curran, Inc. Addition

Dear Eric,

As requested, we have completed standard tube openings on boring samples B-4 and B-3. The results are reported below with the unconfined test results attached. Also please find attached consolidation void - ratio graph for B-4, sample 3.

	Boring/Sample #		
	B-3, S-4	B-3, S-6	S-4, S-3
Section	1/2-3"	1/2-3"	1/2-3"
M/C %	46.4	41.3	47.3
qp, TSF	0.5	0.5	0.5
Torvane, TSF	0.25	0.29	0.25
Section	3-9"	3-9"	3-9"
M/C %	44.9	37.2	45.8
qp, TSF	0.5	0.5	0.5
Torvane, TSF	0.22	0.30	0.17
Section	9-15"	9-15"	9-14"
M/C %	46.8	41.0	50.2
qp, TSF	0.5	0.75	0.50
Torvane, TSF	0.26	0.33	0.20
Section	15-15 1/2"	15-21"	14-17"
M/C %	50	39.9	52.9
qp, TSF	N/A	1.0	N/A
Torvane, TSF	N/A	0.23	N/A
Section	---	21-21 1/4"	---
M/C %	---	44.7	---
qp, TSF	---	0.25	---
Torvane, TSF	---	1.5	---

S. W. COLE ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS  
95-340 M  
July 17, 1995

If you have any questions or if we may be of further assistance, please do not hesitate to call.

Very truly yours,

S.W. COLE ENGINEERING, INC.



Eric J. Gallant, Laboratory Manager

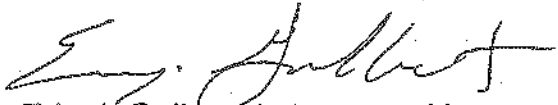
EJG:slh

S. W. COLE ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS  
95-340 M  
July 17, 1995

If you have any questions or if we may be of further assistance, please do not hesitate to call.

Very truly yours,

S.W. COLE ENGINEERING, INC.

  
Eric J. Gallant, Laboratory Manager

EJG:sth



## S.W. COLE ENGINEERING, INC.

## UNCONFINED COMPRESSION TEST

DATE 07-17-1995

JOB NAME	W&C ADDITION	# 17499	PROVING RING
JOB NUMBER	95-340M	U	TUBE
SAMPLE NUMBER	4	0.0278	SQ FT INITIAL AREA
BORING NUMBER	3	0.0299	SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	9	2.8	101.3	0.7
2	14	4.4	156.9	1.1
3	23	7.2	256.7	1.8
4	34	10.7	377.9	2.6
5	52	16.3	575.5	4.0
6	74	33.4	1172.2	8.1
7	94	48.9	1709.6	11.9
8	114	64.7	2250.3	15.6
9	121	70.2	2431.6	16.9
10	123	71.8	2475.5	17.2
11	121	70.2	2410.6	16.7
12	121	70.2	2400.1	16.7
13	118	67.8	2309.1	16.0
14	115	65.5	2218.8	15.4
15	110	61.5	2076.0	14.4
16	108	59.9	2013.9	14.0
17	106	58.4	1952.2	13.6

S.W. COLE ENGINEERING, INC.

UNCONFINED COMPRESSION TEST

DATE 07-17-1995

JOB NAME W&C ADDITION # 17499 PROVING RING  
 JOB NUMBER 95-340M U TUBE  
 SAMPLE NUMBER 6 0.0278 SQ FT INITIAL AREA  
 BORING NUMBER 3 0.0291 SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	4	1.3	45.0	0.3
2	14	4.4	156.9	1.1
3	32	10.0	357.2	2.5
4	72	31.8	1127.3	7.8
5	102	55.2	1946.2	13.5
6	114	64.7	2269.7	15.8
7	113	63.9	2232.4	15.5
8	109	60.7	2113.2	14.7
9	91	46.6	1614.3	11.2
10	91	46.6	1607.3	11.2
11	86	42.7	1467.0	10.2

## S.W. COLE ENGINEERING, INC.

## UNCONFINED COMPRESSION TEST

DATE 07-17-1995

JOB NAME	W&C ADDITION	# 17499	PROVING RING
JOB NUMBER	95-340M	U	TUBE
SAMPLE NUMBER	6	0.0278	SQ FT INITIAL AREA
BORING NUMBER	3	0.0291	SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	4	1.3	45.0	0.3
2	14	4.4	156.9	1.1
3	32	10.0	357.2	2.5
4	72	31.8	1127.3	7.8
5	102	55.2	1946.2	13.5
6	114	64.7	2269.7	15.8
7	113	63.9	2232.4	15.5
8	109	60.7	2113.2	14.7
9	91	46.6	1614.3	11.2
10	91	46.6	1607.3	11.2
11	86	42.7	1467.0	10.2

## S.W. COLE ENGINEERING, INC.

## UNCONFINED COMPRESSION TEST

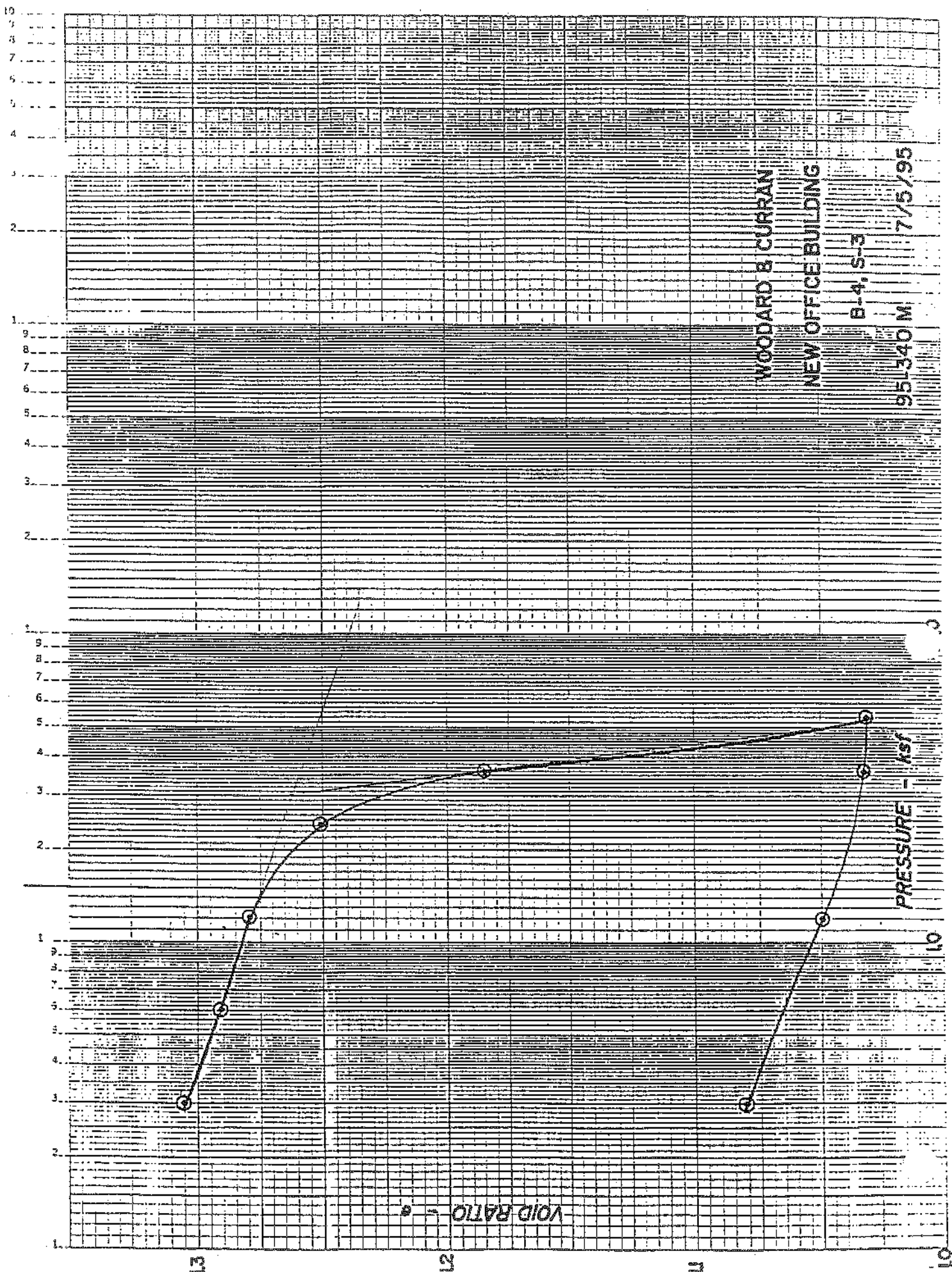
DATE 07-17-1995

JOB NAME	W&C ADDITION	# 17499	PROVING RING
JOB NUMBER	95-340M	U	TUBE
SAMPLE NUMBER	3	0.0278	SQ FT INITIAL AREA
BORING NUMBER	4	0.0307	SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	4	1.3	45.0	0.3
2	12	3.8	134.5	0.9
3	18	5.7	200.9	1.4
4	24	7.5	266.8	1.9
5	32	10.0	354.2	2.5
6	42	13.2	462.9	3.2
7	54	17.9	624.9	4.3
8	74	33.4	1162.2	8.1
9	83	40.4	1399.2	9.7
10	94	48.9	1687.6	11.7
11	96	50.5	1734.1	12.0
12	103	56.0	1915.1	13.3
13	104	56.8	1933.6	13.4
14	104	56.8	1925.0	13.4
15	106	58.4	1969.7	13.7
16	105	57.6	1934.5	13.4
17	104	56.8	1899.5	13.2
18	103	56.0	1864.7	12.9
19	102	55.2	1830.2	12.7
20	102	55.2	1821.9	12.7
21	102	55.2	1813.7	12.6
22	101	54.4	1779.6	12.4
23	99	52.9	1720.2	11.9

46 0012

17-2 SPECIALTYPING CYCLES, 20 11 150000  
RUFFEL & ASSOCIATES, BOSTON, MASS.



WOODARD & CURRAN

NEW OFFICE BUILDING

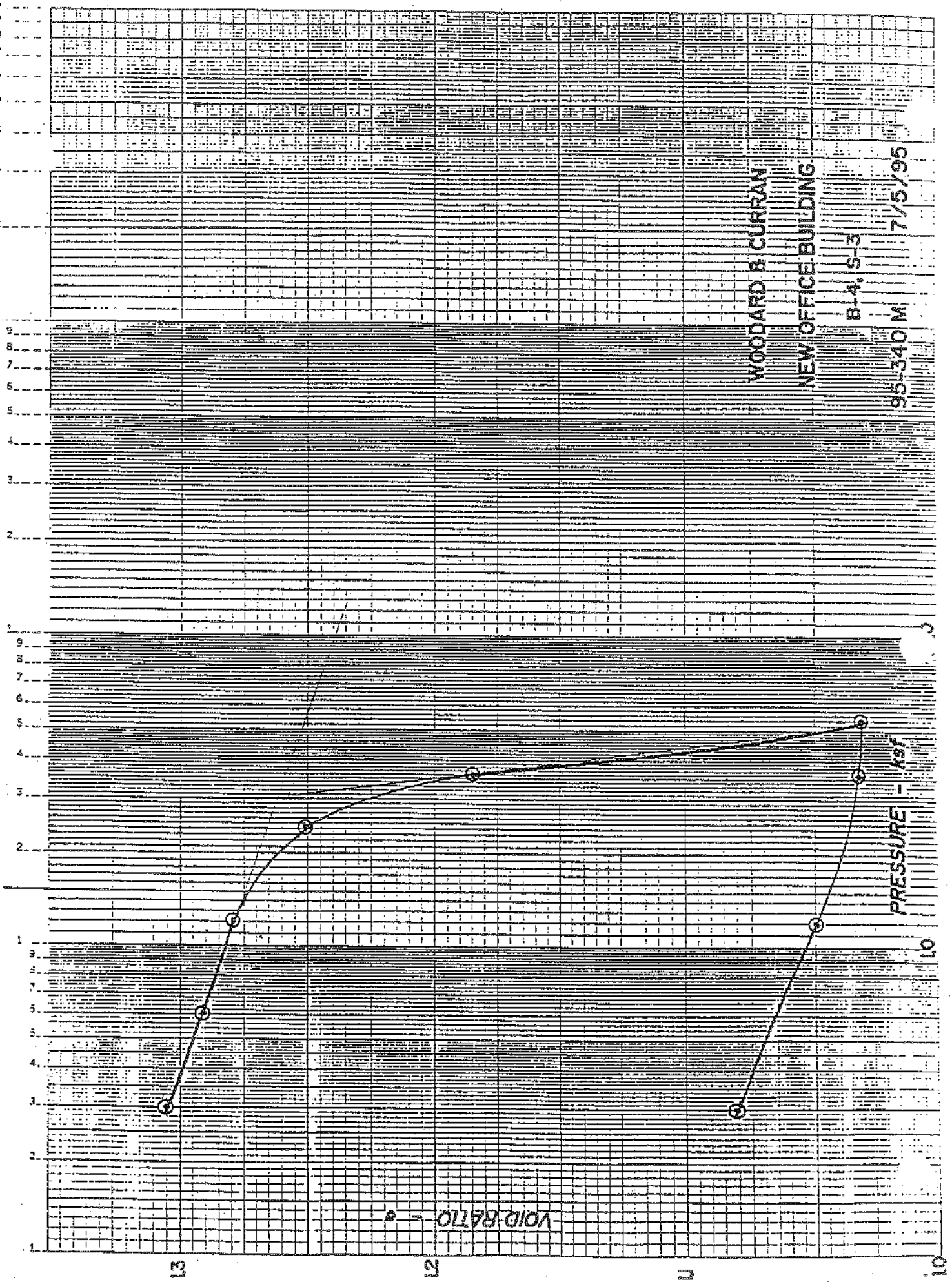
B-4, S-3

951340 M

7/5/95

VOID RATIO - e

PRESSURE - ksf



WOODARD & CURRAN  
NEW OFFICE BUILDING

B-4, S-3  
95-340 M  
7/5/95

VOID RATIO - e

PRESSURE - kgf



## 2. PROJECT AREA

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(2).

As stated previously in Section 1, the site consists of two lots owned by CAD-CAM Associates. These lots occupy a total area of approximately 6.65 acres.

### 2.1 EXISTING CONDITIONS

The existing office building (north and south wings combined) has a footprint of 13,232 square feet (approximately 0.3 acres) and a gross floor area of 33,950 square feet. The South Wing has a building footprint of 5,592 square feet and a two-story gross floor area of 11,184 square feet. The North Wing has a building footprint of 7,640 square feet and a three-story gross floor area of 22,766 square feet.

Other impervious areas on the site include parking lots, paved driveways and walkways which combine to make up 50,170 square feet (approximately 1.15 acres) of paved area. There is a total of 63,402 square feet (approximately 1.45 acres) of impervious surface presently on the site, 21.9% coverage.

### 2.2 PROPOSED DEVELOPMENT *updated by letter dated 11-22-05*

The proposed building addition will have a building footprint of approximately 7,500 square feet. The first floor will be partially enclosed paved parking. The top two floors will be office space with a gross floor area of 15,000 square feet.

Other changes to site imperviousness include the 67 space addition to the parking lot on the northerly portion of the site, accounting for 20,950 square feet; and the reduction of existing parking adjacent to the North Wing by 5,388 square feet. In total, the proposed project will increase site imperviousness by 23,062 square feet (approximately 0.53 acres) to 86,464 square feet (approximately 1.98 acres), 29.8% coverage.



### 3. EASEMENTS AND OTHER BURDENS

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(3).

*§14-525(c)(3) Easements or Burdens:* There are currently several existing easements on the site. All easements have been indicated on the Boundary Survey attached to this application.

A series of interconnected 30-foot wide drainage easements run through the lower wooded areas of the site. These easements will remain and will not be encroached upon.

A 30-foot wide City of Portland sanitary sewer easement also runs through the site. As part of this project, the 10" sewer line and the associated easement will be rerouted. Woodard & Curran contacted Brad Roland at the City of Portland Department of Public Works to discuss the relocation of the sewer. Mr. Roland stated that the City would be willing to work with Woodard & Curran to relocate the sewer and its easement upon formal request. Woodard & Curran will continue to work with the City in the relocation of that utility and forward additional documentation to the City upon receipt.





## 4. SOLID WASTE

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(4).

### 4.1 MUNICIPAL SOLID WASTE

Municipal solid waste is currently collected in an 8 cubic yard dumpster on site (see sheets C100 and C200 which depict its location). This includes all solid waste generated in the existing building as well as that generated by the 32 employees in the adjacent leased office space.

The dumpster is picked up and replaced once per week. In part as a result of Woodard & Curran's internal environmental sustainability initiative (active waste minimization and recycling), the dumpster does not typically fill during a week. Therefore, we anticipate current arrangements for solid waste collection will be sufficient to incorporate the proposed additional space.

### 4.2 CONSTRUCTION/DEMOLITION DEBRIS

The Contractor will be responsible for contracting with a waste management service that will handle the construction waste and debris from the proposed project. We anticipate construction remnants will be placed in 30 cu.-yd. containers, and will be transported and disposed of at a licensed processing or disposal facility in accordance with applicable laws and regulations.

As part of the construction of the buildings, waste and excess materials will be produced as is typical of any construction project. The amount of waste is based on the size of the building to be constructed. We estimate the building volume waste to be:

- Gross Floor Area of Building Addition (two stories) = 15,000 sq. ft.
- Estimated construction waste = 15,000 sq. ft. @ 2.77 lbs./sq.ft. = 41,550 lbs. = **21 tons**

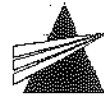
In addition to the construction waste, pavement, storm drain piping and sanitary sewer piping will be demolished during construction. The resulting debris is estimated to be:

- Pavement 70 cu. yd.
- Storm Drains 140 linear ft.
- Sanitary Sewer 300 linear ft.

Contract documents shall be written to reuse and recycle existing pavement to the extent practical. The computations of waste volumes are estimates only. Contractors will measure the actual waste volumes at the time of construction and will not rely on estimates provided in this Section.

### 4.3 SPECIAL OR HAZARDOUS WASTE

No special or hazardous wastes are expected to be generated as a result of the construction.



## 5. OFF-SITE FACILITIES

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(5).

### 5.1 WATER SUPPLY

The Portland Water District (PWD) supplies public water to the City of Portland (City) in the immediate vicinity of the project. The site will be supplied from the PWD's 42-inch water main along Hutchins Drive. The average daily water demand for the building after construction of the addition is expected to be approximately 1,230 gallons per day (GPD).

To estimate the water demand for the project, current water usage rates (meter data from July 2004 to July 2005) were used. Anticipated average daily water demand for the building will be as follows:

**Table 5-1: Average Daily Water Usage**

<b>Current Demand</b>	<b>Number of Employees</b>	<b>Average Daily Water Demand (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	175	1,230
	<b>Anticipated Future Demand</b>	<b>1,230</b>

The PWD has been contacted regarding the projected water usage requirements and a letter confirming the ability to serve the proposed facility has been requested. The PWD has confirmed that there is adequate capacity within the system to serve the additional water demand.

#### 5.1.1 Water Supply Conclusion

There is adequate capacity within the existing municipal water distribution and at the water treatment plant to supply the daily and emergency (fire service) flows that are required by this project.

#### 5.1.2 Water Supply Attachments

Letter from Woodard & Curran to the Portland Water District, dated August 26, 2005.

Letter from the Portland Water District to Woodard & Curran, dated September 7, 2005.

## 5.2 WASTEWATER DISPOSAL

The project site is currently served and will continue to be served by the City of Portland's (City) municipal sewer system. A 10-inch gravity sanitary sewer runs through an easement through the site and



serves the existing building. The flow is collected and ultimately flows to the East End Wastewater Treatment Plant operated by Portland Water District (PWD).

An estimate of the wastewater discharge generated by the proposed project was developed in the same manner as the Average Daily Water Demand above. We anticipate that insignificant quantities of water will be exported from the system (as drinking water, ice) and have assumed a 100% return of the water demand to the sanitary sewer. As such, the Average Daily Wastewater Discharge for the site is expected to be about 1,230 gallons per day (GPD).

In the City of Portland, wastewater is handled by two different entities. The City is responsible for the collectors in sewer collection system, and the Portland Water District (PWD) operates the majority of the interceptors, pump stations, and the wastewater treatment plants.

Both organizations have been contacted to ensure the collection system and the treatment plant each have adequate capacity to handle wastewater discharged from the site. The Portland Water District has confirmed the East End Wastewater Treatment Plant has adequate capacity to treat the additional wastewater. A response from the City with regard to wastewater collection will be forwarded upon receipt.

#### **5.2.1 Wastewater Disposal Conclusion**

The proposed project will discharge sanitary wastewater to the existing municipal sewer system. There is adequate capacity within the collection system and at the wastewater treatment plant to collect and treat the wastewater that will be generated by this project.

#### **5.2.2 Wastewater Disposal Attachments**

Letter from Woodard & Curran to City of Portland, dated August 26, 2005.

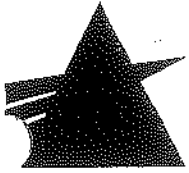
Letter from Woodard & Curran to the Portland Water District, dated August 26, 2005.

Letter from the Portland Water District to Woodard & Curran, dated August 29, 2005.

### **5.3 STREETS AND PARKING**

In the immediate future, the proposed project will not add to the street traffic along Hutchins Drive. The 32 employees located in adjacent leased space will move into the main building, but these employees still travel the same way as they do now. In the long term, the proposed building addition will allow the number of employees to increase from 143 to approximately 175. The increase in the number of employees should not create an additional burden on the streets in this area.

As stated earlier, the project will increase off-street parking from 114 to 177 spaces. City of Portland Code of Ordinances Section 14-332, Paragraph (j), requires office buildings to provide one parking space for every 400 square feet of floor area. Per the Ordinance, the proposed building would require 123 spaces. The proposed 177 spaces will exceed the requirement and provide visitor parking. This proposal supports our historic need to accommodate a ratio greater than that which the City's Ordinance provides for.



August 26, 2005

Jay Hewett, Chief Engineer  
Portland Water District  
225 Douglass Street  
P.O. Box 3553  
Portland, Maine 04104-3553

Re: Woodard & Curran Building Addition – Water Demand

Dear Mr. Hewett:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

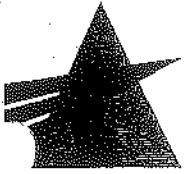
The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

To estimate the water demand for the project, current water usage rates were used. Anticipated average daily water demand for the building will be as follows:

**Table 5-1: Average Daily Water Usage**

<b>Current Demand</b>	<b>Number of Employees</b>	<b>Average Daily Water Demand (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	175	1,230
	<b>Anticipated Future Demand</b>	<b>1,230</b>



**WOODARD & CURRAN**  
Engineering • Science • Operations


Jay Hewett, Portland Water District  
August 26, 2005  
Page 2

The Major Site Plan review process requires the submission of information that demonstrates the proposed development will have sufficient water supply. Our office is requesting an "Ability to Serve" letter from the Portland Water District based on the above mentioned water demand. We anticipate submitting the permit application to the City by the end of August.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

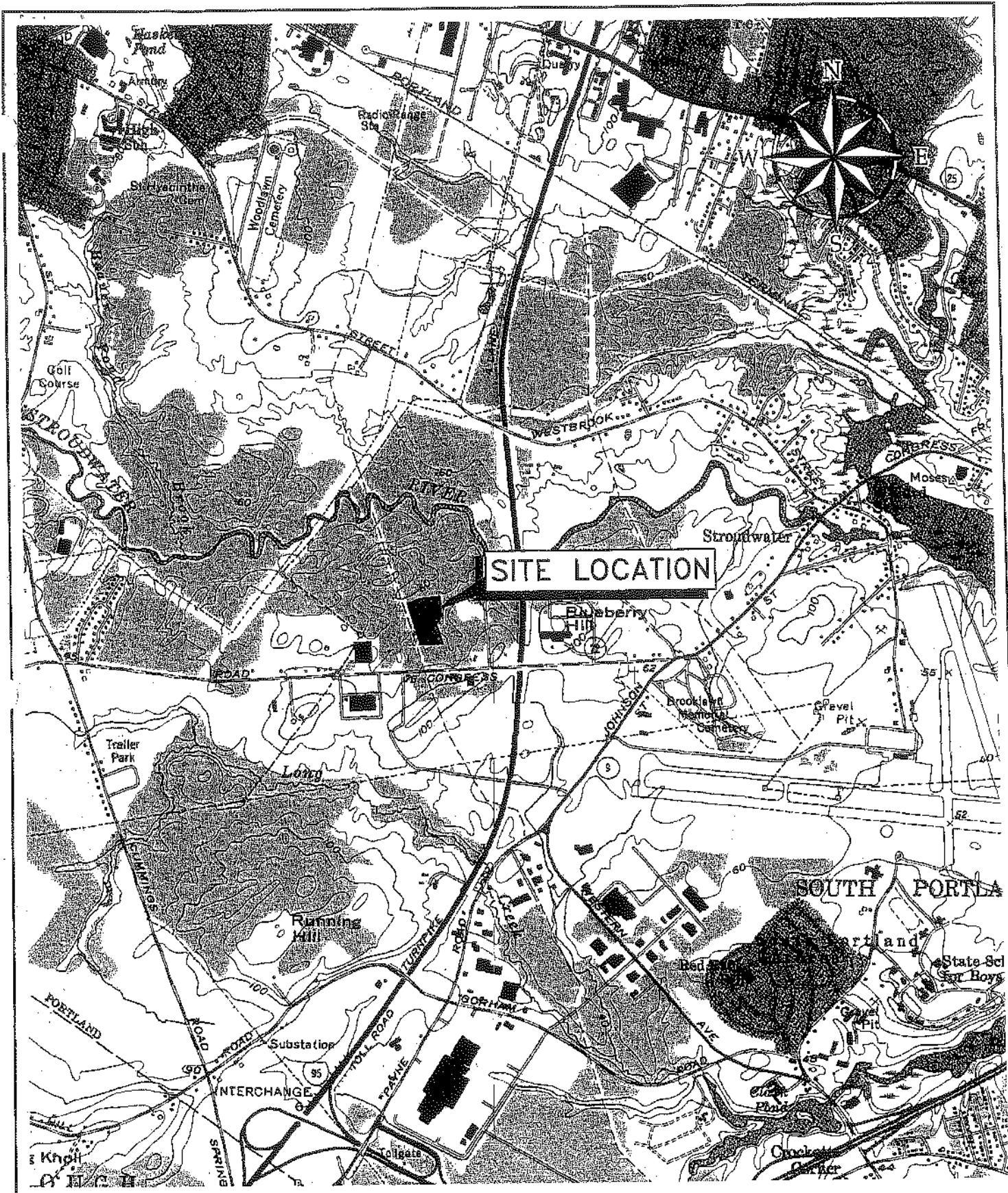
Sincerely,

WOODARD & CURRAN INC.

  
Kenneth Volock  
Engineer

KRV/djt  
203834.01/1.1


Enclosure

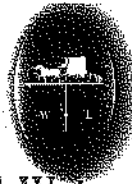


**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



 <b>WOODARD &amp; CURRAN</b> Engineering · Science · Operations PORTLAND, MAINE      800-426-4282	<b>USGS TOPOGRAPHIC MAP</b>		CAD-CAM ASSOCIATES PORTLAND, MAINE	JOB NO: 203834.03 DATE: AUGUST 2025 SCALE: 1" = 2000'
	DESIGNED BY: JBC DRAWN BY: JBC	CHECKED BY: BSS 20383401-U001.1.dwg	WOODARD & CURRAN INC. OFFICE EXPANSION 41 HUTCHINS DRIVE, PORTLAND, ME	Figure 1.1



## Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

9/7/2005

Mr. Kenneth R. Volock, Engineer  
Woodard & Curran  
41 Hutchins Drive  
Portland, ME 04102

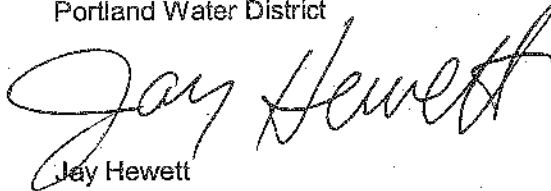
Subject: Woodard & Curran Office Expansion located on/in 41 Hutchins Drive, Portland

Dear Mr. Volock:

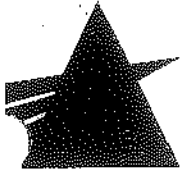
Thank you for your letter of August 26, 2005. Based on the information provided therein I am pleased to indicate that the Portland Water District has the capacity to serve your expanded office facility. The anticipated daily water consumption of 1230 gallons per day is well within the capability of existing water infrastructure serving your site. Further, the District supplies high quality water that meets all applicable federal and state standards.

We look forward to continuing to serve Woodard and Curran, Inc. in your new and expanded facility.

Yours truly,  
Portland Water District

  
Jay Hewett

DocID: 214



August 26, 2005

Mr. Frank Bransley  
City of Portland  
Department of Public Works  
55 Portland Street  
Portland, Maine 04104

Re: Woodard & Curran Building Addition – Sewer Capacity

Dear Mr. Bransley:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

To estimate the wastewater generated by the project, current wastewater collection rates were used. Anticipated average daily wastewater generated by the building will be as follows:

**Table 5-1: Average Daily Wastewater Generation**

	<b>Number of Employees</b>	<b>Average Daily Wastewater Generated (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	175	1,230
	<b>Anticipated Future Rate</b>	<b>1,230</b>





**WOODARD & CURRAN**  
Engineering • Science • Operations

Mr. Frank Bransley, City of Portland  
August 26, 2005  
Page 2

The Major Site Plan review process requires the submission of information that demonstrates there is sufficient collection and treatment capacity to serve the proposed development. Our office would like to request an "Ability to Serve" letter from the City of Portland Public Works Department stating the City's sewer collection system in the vicinity of the project has the capacity to convey the wastewater discharge generated by this development. We anticipate submitting the permit application to the City by the end of August.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

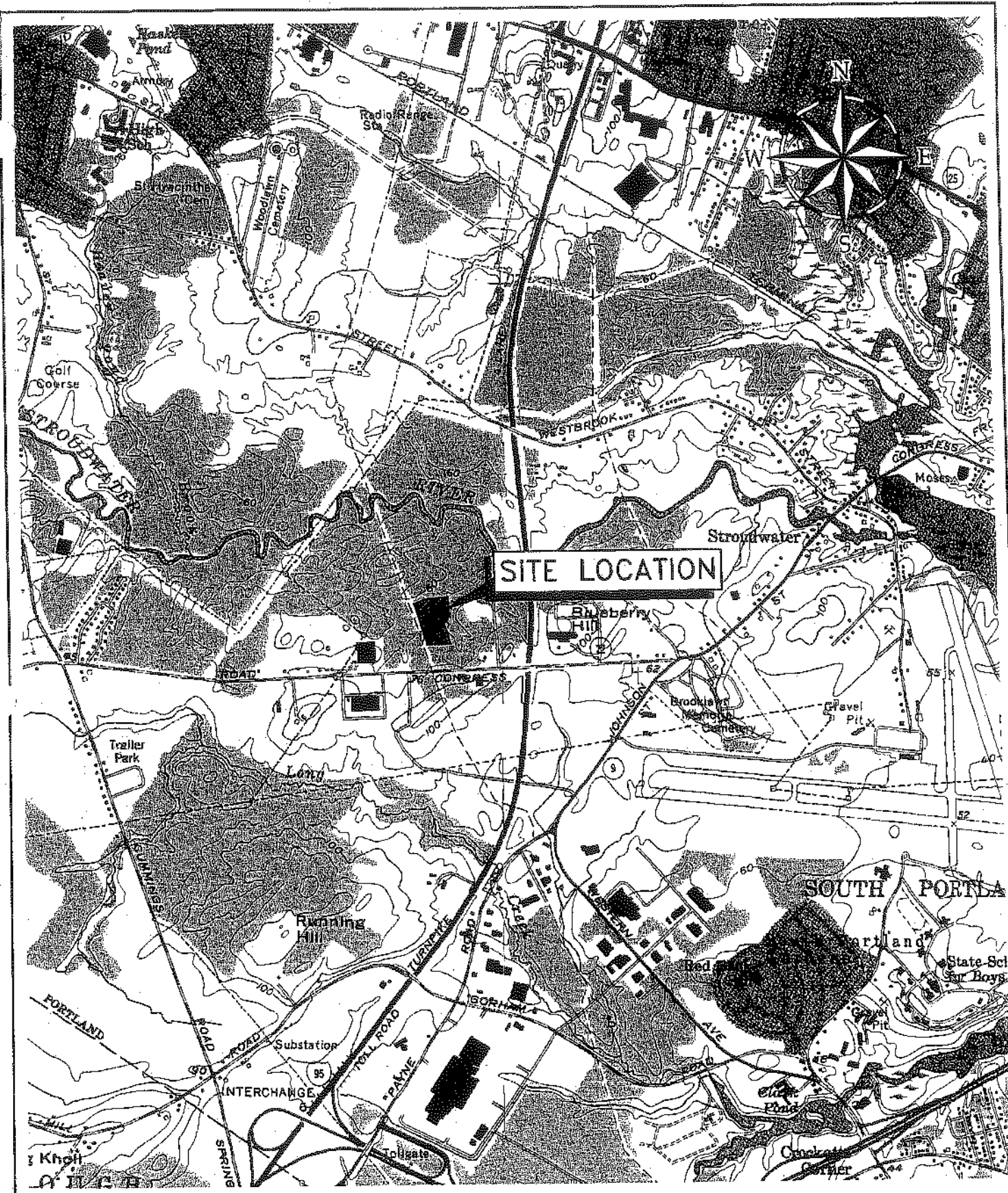
Sincerely,

WOODARD & CURRAN, INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01/1.1

Enclosure



**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
Engineering · Science · Operations

PORTLAND, MAINE

800-426-4262

**USGS TOPOGRAPHIC MAP**

DESIGNED BY: JBC  
DRAWN BY: JBC

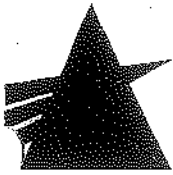
CHECKED BY: BSS  
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CAD-CAM ASSOCIATES  
PORTLAND, MAINE

**WOODARD & CURRAN INC.**  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203B34.03  
DATE: AUGUST 2005  
SCALE: 1" = 2000'

Figure 1.1



August 26, 2005

Mike Greene  
Portland Water District  
225 Douglass Street  
P.O. Box 3553  
Portland, Maine 04104-3553

Re: Woodard & Curran Building Addition -- Wastewater Treatment

Dear Mr. Greene:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

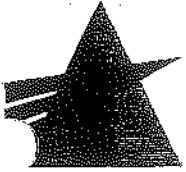
The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

To estimate the wastewater generated by the project, current wastewater collection rates were used. Anticipated average daily wastewater generated by the building will be as follows:

**Table 5-1: Average Daily Wastewater Generation**

	<b>Number of Employees</b>	<b>Average Daily Wastewater Generated (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	175	1,230
	<b>Anticipated Future Rate</b>	<b>1,230</b>



**WOODARD & CURRAN**  
Engineering • Science • Operations

Mike Greene, Portland Water District  
August 26, 2005  
Page 2

The Major Site Plan review process requires the submission of information that demonstrates there is sufficient collection and treatment capacity to serve the proposed development. Our office would like to request an "Ability to Serve" letter from the Portland Water District stating the City Wastewater Treatment Plant has the capacity to treat the wastewater discharge generated by this development. We anticipate submitting the permit application to the City by the end of August.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

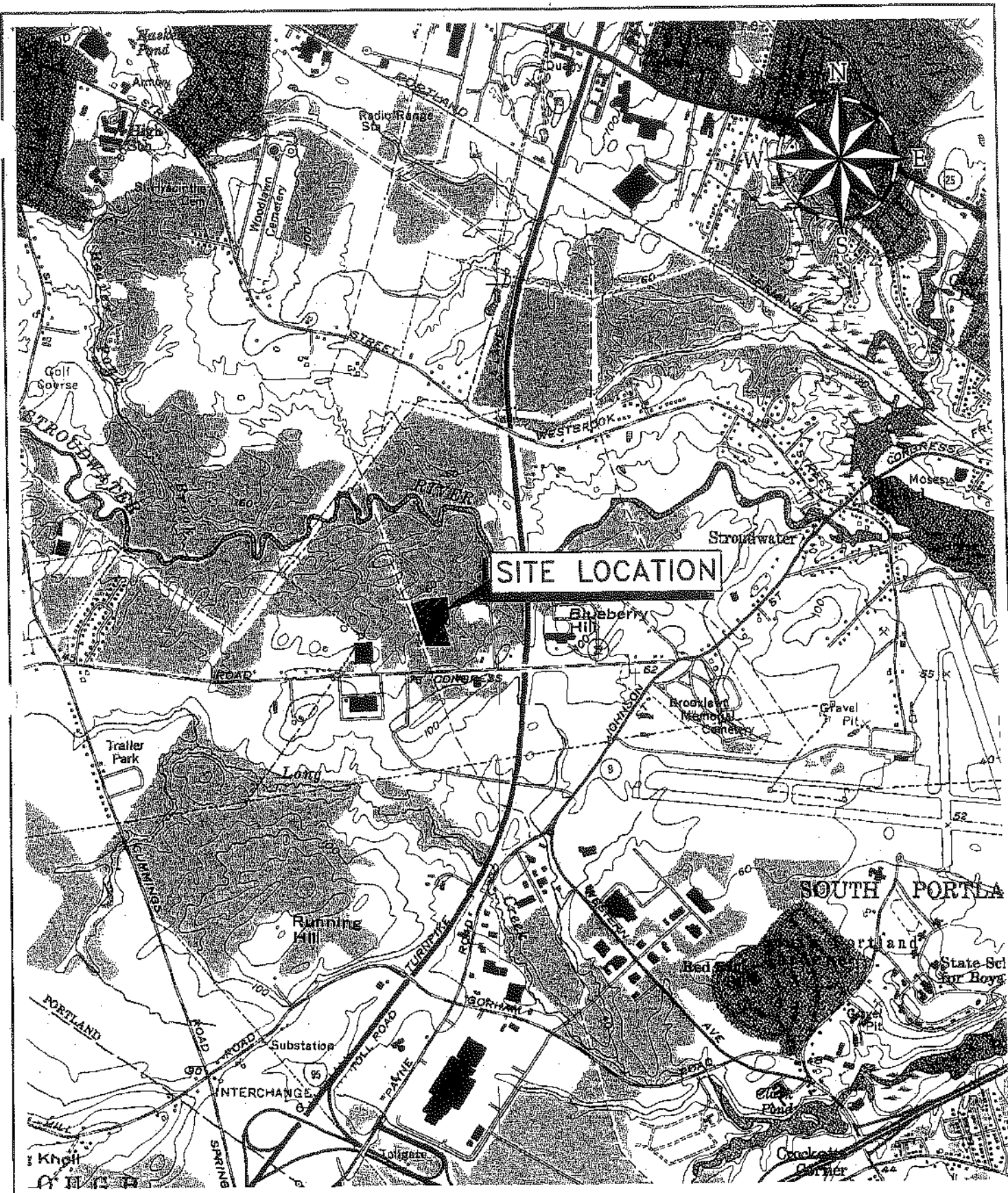
Sincerely,

WOODARD & CURRAN INC

Kenneth Volock  
Engineer

KRV/djs  
203834.01/1.1

Enclosure



**SITE LOCATION**

**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
Engineering · Science · Operations

PORTLAND, MAINE

800-426-4262

**USGS TOPOGRAPHIC MAP**

DESIGNED BY: JBC  
DRAWN BY: JBC

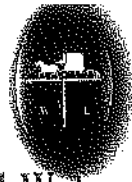
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20083401-U001.1.dwg

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.03  
DATE: AUGUST 2005  
SCALE: 1" = 2000'

Figure 1.1



## Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

August 29, 2005

Ken Volock  
Woodard & Curran  
41 Hutchins Drive  
Portland, Maine 04102

**Re: Woodard & Curran Building Addition**

Dear Mr. Volock,

In response to your letter dated August 26, 2005, this letter confirms that there is adequate capacity at the Portland Water District's East End Wastewater Treatment Facility to accommodate the estimated 1230 GPD of sewage that will be generated as a result of the above referenced project.

Average daily design flow at the facility is 19.8 million gallons per day (mgd). Current average daily flow is 17.59 mgd.

If you have any further questions, please contact me 774-5961 ext. 3075.

Regards,

Portland Water District  
Michael Greene  
Plant/Systems Manager, Wastewater

C: S. Rose, Maine DEP  
Eric Labelle, City of Portland





## 6. STORMWATER MANAGEMENT

*entire section to be revised - see letter 12.2.05*

### 6.1 OVERVIEW

The proposed project consists of the expansion of the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. The project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and the relocation of a City of Portland sewer main and its associated easement.

The site consists of two parcels of land, lots #15 & #16 of the Stroudwater Estate Subdivision, owned by CAD-CAM Associates and located at 41 Hutchins Drive. These lots occupy a total area of approximately 6.65 acres. As stated earlier, the site is occupied by an office building with a footprint of 13,232 square feet (approximately 0.3 acres). Other impervious areas on the site include parking lots, paved driveways and walkways which combine to make up 50,170 square feet (approximately 1.15 acres) of paved area.

### 6.2 SITE CHANGES

The proposed building addition will be a three-story structure with a building footprint of approximately 7,500 square feet. The first floor will be partially enclosed paved parking. The top two floors will be office space. Other changes to the site include an addition to the parking lot on the northerly portion of the site of 20,950 square feet and the reduction of existing parking adjacent to the North Wing by 5,388 square feet. The proposed project will increase site imperviousness by 23,062 square feet (approximately 0.53 acres) to 86,464 square feet (approximately 1.98 acres).

Table 6.1 below indicates the changes in impervious area within the upland portions of the site as a result of the proposed project:

Table 6.1: Site Impervious Area Summary

	Total Site Area (acres)	Impervious Area (acres)	Percent Impervious (%)
Pre-Development	6.65	1.45	21.9
Post-Development	6.65	1.98	29.8
<b>CHANGE</b>	<b>0.00</b>	<b>0.53</b>	<b>7.9</b>

### 6.3 STORMWATER MANAGEMENT DESIGN

Stormwater runoff from the site ultimately flows to an unnamed brook in the 30-foot wide drainage easement running through the middle of the site. The unnamed brook flows through the easement and into the Stroudwater River.

The building roof drains, a portion of the adjacent parking area to the north, and the adjacent open space to the east collect in a small pond designed to reduce peak discharge rates. Runoff is discharged from the





pond through a 6-inch diameter PVC pipe into a wooded area and flows to the brook. The remainder of the adjacent parking area to the north is graded such that stormwater runs off overland into wooded areas and toward the brook. Runoff from the area between the existing building and Hutchins Drive, including the main entrance drive to the building, is collected in a catch basin and piped toward the brook.

The satellite parking lot on the northerly portion of the site drains into another small pond, also designed to reduce peak discharge rates. The pond contains an outlet structure controlling the inlet of a 12-inch corrugated polyethylene culvert. The culvert discharges to a riprap apron and then flows to the brook. The area above the parking lot to the north and west is graded such that runoff is diverted to a ditch along Hutchins Drive and then into the brook through a 48-inch concrete culvert under Hutchins Drive. Runoff from the undeveloped portion of the site, east of the satellite parking lot, flows over land directly to the brook.

Existing stormwater structures and piping will be utilized to the extent possible. Runoff from the adjacent parking area to the north of the building will continue to drain overland into wooded areas and toward the brook. Runoff from the area between the existing building and Hutchins Drive, including the main entrance drive to the building, will continue to be collected in a catch basin and piped toward the brook. The existing portion of the satellite lot and the area above it to the north and west will drain as in the existing condition.

The roof drains from the entire building will be collected and treated (see 6.3.2 Stormwater Quality below) in an underdrained filter basin. The basin will drain either through the underdrain or over a spillway and into the brook. The area behind the building to the east will be diverted to the brook to the east without being collected in the basin.

Alternately, a water reclaim system is being considered for the existing and proposed portions of the building. Runoff from the roof drains would be collected and used for water closets. In this case, the underdrained filter basin for treating the roof drains would be eliminated, and if proposed, we would submit additional information at that time to support that proposal.

On the northerly portion of the site, the proposed addition to the satellite parking lot will be collected and treated in two underdrained filter basins. Each basin will drain either through the underdrain or over a spillway and into the brook. The area above the proposed expansion to the north will be diverted to the brook to the east without being collected in either basin.

### 6.3.1 Stormwater Quantity Calculations

The intent of this section is to address the effects of site runoff from a proposed development project on the local watershed. The stormwater modeling presented herein compares the existing site conditions with the proposed site conditions (existing and proposed).

Stormwater modeling was done using the HydroCAD Stormwater Modeling System by Applied Microcomputer Systems. HydroCAD uses TR20 runoff calculation methodology. The computation sheets resulting from the models are attached at the end of this section.

The runoff curve numbers (RCN) for the subcatchments have been computed using the TR55 methodology. The subcatchments were divided based on land use and acreage measurements were used to compute a weighted (composite) RCN.





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The runoff curve numbers (RCN) for the subcatchments have been computed using the TR55 methodology. The subcatchments were divided based on land use and acreage measurements were used to compute a weighted (composite) RCN.



The time of concentration (Tc) paths for the subcatchments were selected to represent the most hydrologically remote point of the watershed. The Tc paths are shown respectively on the Pre-Development and Post-Development Stormwater Plans. Note that the Tc computations contain time calculations using TR55 sheet flow, shallow concentrated flow equations, and circular channel (pipe).

Soils information used in the computations was obtained from the Soil Survey of Cumberland County, Maine, USDA Soil Conservation Service (SCS Survey). The project site is located in an area of Elmwood and Scantic soils. The Elmwood soils are mapped for the generally higher, drier topography of the site, while the Scantic soils are in the lower, wet regions. An interpretation of the delineation between soils was made using the site's wetland mapping. Selection of the hydrologic soil group for computation of runoff curve numbers assumes that the floodplain wetlands mapped for the project are Scantic soil and the remaining non-floodplain areas are Elmwood soil. The Scantic series soil is Hydrologic Soils Group "D" and the Elmwood series soil is Hydrologic Soils Group "C".

For this project, the 2-, 10-, and 25-year return frequency storms of 24-hour duration were analyzed. A Type III rainfall distribution was applied to these storms. The 2-, 10-, and 25-year 24-hour precipitation measurements (3.0 inch, 4.7 inch, and 5.5 inch, respectively) were taken from Appendix D of the BMPs, rather than the values published in the Portland Technical and Design Standards and Guidelines. Through other work in the City of Portland, we have learned that the values published in the BMPs are preferred.

#### 6.3.1.1 Existing Condition

To model the project, the existing site was separated into multiple drainage area subcatchments. Subcatchments 11X, 12X, 13X, 14X, 21X, 22X and 23X represent the Existing conditions. These subcatchments are depicted in Figure 6.1 attached to this section. Subcatchments 11X through 14X have been numbered generally west to east along the northerly area of the project site, in the vicinity of the satellite parking lot. Subcatchments 21X through 23X depict the southerly area of the project site, in the vicinity of the building.

Reaches 1R, 2R and 3R are located in the middle of the project site and represent the unnamed brook running through the 30-foot wide drainage easement. Reach SP represents the study point in the brook near the eastern edge of the project site for the purpose of quantity modeling.

Ponds P11 and P23 represent existing ponds where runoff is collected from Subcatchments 11X and 23X respectively. Reaches R11, R12, R22 and R23 represent paths by which Subcatchments 11X, 12X, 22X and 23X respectively, are routed through other subcatchments to the unnamed brook.

The Existing Stormwater Plan drawing, attached to this section, depicts the subcatchments, reaches, ponds, and time of concentration paths utilized in the model.

#### 6.3.1.2 Post-Development Condition

The proposed site was separated into multiple drainage area subcatchments. Subcatchments 11S through 16S, and 21S through 24S represent the Proposed conditions. These subcatchments are depicted in Figure 6.2 attached to this section. Subcatchments 11S and 12S are similar to subcatchments 11X and 12X respectively. Subcatchments 13S and 14S represent the areas of subcatchments 13X and 14X that are not routed through quality BMPs in the proposed condition. Subcatchments 15S and 16S represent the expansion of the satellite parking lot.



Subcatchment 21S is similar to subcatchment 21X, with the addition of a portion of 23X. Subcatchment 22S is similar to subcatchment 22X. Subcatchment 23S represents the existing and proposed buildings and the treatment pond where runoff is routed. Subcatchment 24S represents the area behind the buildings, formerly part of 23X, that runs directly into the woods.

Reaches 1R, 2R and 3R are located in the middle of the project site and represent the unnamed brook running through the 30-foot wide drainage easement. Reach SP represents the study point in the brook near the eastern edge of the project site for the purpose of quantity modeling.

Pond P11 is the same as in the Existing condition. Ponds P15, P16 and P23 represent underdrained filter ponds where runoff is collected from Subcatchments 15S, 16S and 23S respectively, and treated. Reaches R11, R12, R15, R16, R22 and R23 represent paths by which Subcatchments 11S, 12S, 15S, 16S, 22S and 23S respectively, are routed through other subcatchments to the unnamed brook. Subcatchment 24S is also routed through Reach R23.

The Proposed Stormwater Plan is attached at the end of this section, depicting the subcatchments, reaches, ponds, and time of concentration paths utilized in the model.

### 6.3.1.3 Summary

Peak runoff values calculated for the Existing and Proposed conditions are listed in Table 6.2 below.

Table 6.2: Runoff Summary

STUDY POINT	PEAK RUNOFF 2 Year (CFS)	PEAK RUNOFF 10 Year (CFS)	PEAK RUNOFF 25 Year (CFS)
Existing Condition	4.82	11.04	14.24
Proposed Condition	4.33	12.22	15.75
CHANGE IN RUNOFF	-0.49	1.18	1.51

As shown in Table 6.2 and the appended calculations, runoff from the site is decreased slightly during the 2-year storm. There is a slight increase in runoff during the 10-year and 25-year storms. These increases represent about an 11% increase in peak runoff rate during each storm event. As is shown in the attached modeling data, the increase in peak depth at the Study Point is only 0.04', or about a half an inch. This increase in depth is well within the capacity of the channel.

Typically, the increase in peak runoff can be mitigated through the use of stormwater detention ponds. The detention pond would have an engineered outlet to restrict flow from exceeding pre-development conditions. As indicated on the Proposed Site Plan (Sheet C200) and the Proposed Stormwater Plan (Figure 6.2), there are three ponds proposed; however, these ponds are meant to act as filtration basins to improve runoff quality (see 6.3.2 Stormwater Quality below) rather than detention ponds. With some modification to the design of the outlets, the proposed ponds could be used to reduce the peak runoff rate for the site, but would lose most of their quality treatment ability. Since the increase in runoff is minimal



Subcatchment 21S is similar to subcatchment 21X, with the addition of a portion of 23X. Subcatchment 22S is similar to subcatchment 22X. Subcatchment 23S represents the existing and proposed buildings and the treatment pond where runoff is routed. Subcatchment 24S represents the area behind the buildings, formerly part of 23X, that runs directly into the woods.

Reaches 1R, 2R and 3R are located in the middle of the project site and represent the unnamed brook running through the 30-foot wide drainage easement. Reach SP represents the study point in the brook near the eastern edge of the project site for the purpose of quantity modeling.

Pond P11 is the same as in the Existing condition. Ponds P15, P16 and P23 represent underdrained filter ponds where runoff is collected from Subcatchments 15S, 16S and 23S respectively, and treated. Reaches R11, R12, R15, R16, R22 and R23 represent paths by which Subcatchments 11S, 12S, 15S, 16S, 22S and 23S respectively, are routed through other subcatchments to the unnamed brook. Subcatchment 24S is also routed through Reach R23.

The Proposed Stormwater Plan is attached at the end of this section, depicting the subcatchments, reaches, ponds, and time of concentration paths utilized in the model.

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and should be easily assimilated by the brook and by the Stroudwater River, we propose to employ the ponds to improve water quality rather than control peak flow, following the lead of the MeDEP.

In light of the increase in peak runoff, we request a waiver from the peak flow standard in Section 5, Paragraph 3B of the City of Portland, Maine Technical and Design Standards and Guidelines. The project area is depicted in Figure 1.1. The drainage pathway can be seen in Figure 6.2. The area of increased runoff is already located within a drainage easement.

The watershed routing diagram and model output from HydroCAD is attached at the end of this section for both the Existing and Proposed conditions.

### 6.3.2 Stormwater Quality

Currently, there are no stormwater quality treatment measures on the site. As a result of the proposed project, runoff from all proposed impervious areas and from the existing building roof drains will be treated in underdrained filter basins prior to discharge to the unnamed brook. The total amount of impervious area that will be treated will be 0.96 acres, or about 48% of the impervious area on the entire site.

#### 6.3.2.1 Applicable Standards

The City of Portland Code of Ordinances was reviewed to determine the applicability of local stormwater quality standards. City Code of Ordinances Section 14-526, Subsection (a), Paragraph 20 states, in part, "Stormwater runoff from paved areas shall be treated to the extent practicable to minimize contaminants." Additionally, the City of Portland Technical and Design Standards and Guidelines, Section V, Subsection 3, Paragraph A states that "[a]ll development proposals shall conform to the standards set forth in Chapter 500 of the Maine Department of Environmental Protection Stormwater Management [...] Rules".

The Maine Department of Environmental Protection (MeDEP) is currently in the process of adopting an updated Chapter 500: Stormwater Management. The updated chapter is set to go into affect October 31<sup>st</sup>. The project has been designed to comply with the soon-to-be adopted rules.

Although the new impervious area equals only 0.53 acres, during the course of the construction of these and other non-impervious areas, it is likely that more than one acre of land will be disturbed. Therefore, in accordance with the new Chapter 500, the site must meet the Basic Stormwater Standards which address erosion and sedimentation control, inspection and maintenance, and housekeeping.

As part of this project, the site will not need to meet the BMP Standards as less than one acre of impervious surface will have been created since the initial acceptance of Chapter 500 in 1997. However, the impervious surface created since 1997 equals 0.92 acres. Slight variations to the site as a result of site plan review may increase the total to above the 1-acre threshold. In light of this potential, the site has been designed to meet the BMP Standards.

In summary, the project is designed to meet the MDEP Basic Standard and BMP Standard, as described in the soon-to-be adopted version of MeDEP's Chapter 500: Stormwater Management. It is our assumption that this will also meet the requirements to treat "to the extent practicable" as described in the City Code of Ordinances.



### 6.3.2.2 BMP Assessment and Selection

In Chapter 500: Stormwater Management, the MeDEP suggests four potential treatment methods to comply with the BMP standards:

- Wetponds with detention above the permanent pool,
- Filtration,
- Infiltration, and
- Buffers.

The area required to construct a wetpond to meet the BMP is too great considering the disturbance of forest and wetlands as well as the changes to site topography that would be required. The varied site topography also prohibits the ability to classify certain areas as buffers. And the soils on the site make infiltration difficult. The type of BMP that seems most feasible for the site is a constructed filtration basin.

Due to the location of each proposed element of the project, and in an effort to minimize site disturbance, three underdrained filtration basins are proposed. Two separate basins will treat runoff from the proposed expansion to the satellite parking lot. A third basin will treat runoff collected from the building roof drains.

Each basin is sized to detain a volume of runoff equal to one inch times the impervious area that drains to it, plus 0.4 inches times the vegetated area that drains to it. The basins are designed so that storage volume will be less than 18 inches deep. The floor of the basin will be constructed with a soil filter layer capable of passing the stored volume within two days. The soil filter layer will be underlain by a well-drained gravel layer with a perforated underdrain.

Each basin will have a spillway constructed to allow flow from larger storms to pass through. Each spillway will be at a height of 18 inches above the basin floor and 18 inches below the top of the basin embankments. The width of each spillway has been design so that the peak height of water in each basin during the 25-year storm will be at least one foot below the top of the embankment.

## 6.4 MAINTENANCE OF STORMWATER SYSTEMS

*updated by letter of 10.26.05*

Upon completion of the project, PKD Management, working with The Galloway Group, will assume responsibility for overseeing the property, including the inspection and maintenance of the site's stormwater drainage system, treatment measures, roadways, parking areas, permanent erosion control measures, and landscaped areas located outside of City right-of-ways. The responsible party will be Paul Dubois, Owner of PKD Management. The Galloway Group can currently be contacted at: 400 Riverside Street Suite A7; Portland, ME 04103; (207) 878-6971 (tel/fax). A memorandum explaining management responsibility, including maintenance, is attached to this application.

### 6.4.1 Catch Basins

Catch basins will be inspected semi-annually in spring and fall. These visual inspections ensure the catch basin grate is free of debris and that sediment in the sump has not accumulated above the pipe inverts. If cleaning is required, PKD Management can contract the services of Catch Basin Cleaners [P.O. Box 1579; Meredith, N.H., 03253; (603) 279-3118] or a similar firm.



### 6.3.2.2 BMP Assessment and Selection

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## 6.4.2 Parking and Paved Areas

Parking and paved areas will be inspected annually each spring. Visual inspections will enable site roads and parking areas to be kept clean and clear through contracting periodic sweeping and winter plowing as required. The inspections will also ensure pavement markings are repainted as needed to maintain property traffic circulation and parking space delineation. Paved areas will be plowed and sanded as often as necessary to maintain public safety.

PKD Management will inspect all parking and paved areas in the project site and will have the pavement swept and cleaned within the project site on an annual, as-needed basis. This work will be contracted with Zebra Striping, Inc. [101 Pleasant Hill Rd.; Scarborough, ME, 04074; (207) 883-7081] or a similar firm.

## 6.4.3 Filter Basins

The underdrained filter basins will be inspected semi-annually in spring and fall. Additionally, each basin will be inspected following major storms. These inspections will ensure that there is no erosion in the basin, the basin remains capable of filtering runoff within two days, and sediment does not build up.

MeDEP recommends mowing filter basins at least twice each year to allow visual inspection and to prevent the growth of woody plants. At the Woodard & Curran site, each basin will be mowed in conjunction with regular mowing, typically on a weekly basis. Sediment will be removed annually. Any eroding areas will be repaired immediately. Should a basin fail to filter the runoff from a storm within two days, the soil filter layer may need to be retiled. PKD Management would likely hire a local contractor to perform this work.

The basins will not be used for snow storage or for any activities that involve heavy foot traffic. Vehicles will not be allowed within the basins.

## 6.5 CONCLUSION

The proposed project was designed to meet the soon-to-be adopted MeDEP Chapter 500: Stormwater Management. As such, the emphasis in dealing with runoff from the site was placed on stormwater quality above peak runoff rate. Even so, the increase in peak runoff from the site is minimal and should be easily assimilated by the unnamed brook running through the site and ultimately by the Stroudwater River.

The proposed project increases impervious area on the site by approximately 0.53 acres. As a result of the project, peak runoff from the site decreases by about 10% during the 2-year storm event and increases by about 11% during the 10-year and 25-year storm events. These increases are not enough to have an adverse effect on any runoff relationship. Additionally, the project will provide stormwater quality treatment for almost half of the site impervious area, where there are no treatment measures currently.

We are requesting a waiver from the peak flow standard with the discharge to the unnamed brook as indicated in Section 6.3.1.3. The increase in peak flow during the 10-year and 25-year storms represents only an 11% increase over existing peak flow rates. The unnamed brook is located within an existing drainage easement and has the capacity to assimilate this flow.





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Upon completion of the project, maintenance responsibility for the site stormwater conveyance and treatment measures will be accepted by The Galloway Group and PKD Management.

## 6.6 ATTACHMENTS

Memorandum from The Galloway Group, dated September 2, 2005, explaining the proposed management responsibility for the site.

Figure 6.1 – Existing Stormwater Management Plan.

Figure 6.2 – Proposed Stormwater Management Plan.

HydroCAD Calculations (Existing).

HydroCAD Calculations (Proposed).



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## 6.6 ATTACHMENTS

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Figure 6.1 – Existing Stormwater Management Plan.

Figure 6.2 – Proposed Stormwater Management Plan.

HydroCAD Calculations (Existing).

HydroCAD Calculations (Proposed).



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## 7. CONSTRUCTION PLAN

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(7).

*§14-525(c)(7) Construction Schedule:* Construction of the project is anticipated to begin in 2006 and be completed by early spring of 2007.



## 8. STATE AND FEDERAL PERMITTING

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(8).

§14-525(c)(8) *State and Federal Permits*: In addition to the City's Major Site Plan Review, the following permits are also required: *updated by letter of 11-22-05*

- NRPA Wetlands Alteration Permit, to be submitted to the MDEP. Woodard & Curran is currently in the process of determining the extent of wetlands permitting that will be required. If the project can be covered by an NRPA Permit-By-Rule, a Notification Form will be submitted to MDEP. If a full Wetlands Alteration Permit is required, an application will be submitted such that acceptance can be granted prior to any construction. In either case, a copy of the appropriate application will be forwarded to the City as an addendum to this application.
- Building Permits from the State Fire Marshall's office and City of Portland. An application will be submitted before construction begins in 2006.

It is anticipated that the following permits will NOT be required:

- Site Location of Development (SLOD) Permit, submitted to the Maine Department of Environmental Protection (MDEP). The site currently falls under a SLOD Permit for the Stroudwater Estates Subdivision. A separate SLOD Permit for the individual site would be required if the proposed project would increase structure area, including both buildings and pavement, to 3 acres or greater. The structure area will be 1.98 acres as a result of the project. Therefore, the project will not require its own SLOD Permit.
- Stormwater Discharge Permit, submitted to the MDEP. A Stormwater Discharge Permit would be required if the impervious area created since 1997 totaled 1 acre or more. As a result of the project, the impervious area created since 1997 will equal 0.92 acres. Although the proposed project will not require a permit, any future project would likely put the site over the 1-acre threshold. Therefore, certain aspects of the project, specifically in the area of stormwater quality, have been designed to meet the Stormwater Management requirements of the MDEP.



## 9. FINANCIAL AND TECHNICAL CAPACITY

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(9).

### 9.1 FINANCIAL CAPACITY

The applicants' financial capacity to complete the project is described in this section of the application.

#### 9.1.1 Project Cost

The anticipated cost of the project is between \$2.3 and \$2.6 million. A breakdown of construction costs follows:

- Building Addition \$2.0-2.3M
- Parking Lot Expansion \$235K
- Sewer Main Relocation \$65K

**TOTAL CONSTRUCTION COST \$2.3M - 2.6M**

#### 9.1.2 Project Financing

*updated by letter of 1.4.06*

Financing for the proposed project will be the responsibility of the parcel owner. As evidenced in the letter from New England Realty Resources, LLC, attached to this section, the Rist-Brunet Family Trust is in the process of obtaining financing for the proposed project.

A second letter, from TD Banknorth, has been included indicating that CADCAM Associates, Inc. has the financial capacity to complete the proposed project, should some condition of the Purchase and Sale Agreement not be satisfied.

### 9.2 TECHNICAL ABILITY

The project team's technical capacity to undertake and complete the project is demonstrated in this section of the application.

#### 9.2.1 Planning, Permitting & Design

The project team consists of the following firms. Résumés for the principal of each firm are provided within this section.

Table 9-1: Project Team

Firm	Contact Information	Project Role
Woodard & Curran	41 Hutchins Drive Portland, Maine 04102 Tel: (207) 774-2112 Fax: (207) 774-6635	Permitting, Civil Engineering



Firm	Contact information	Project Role
Harriman Associates	One Auburn Business Park Auburn, ME 04210 Tel: (207) 784-5100 Fax: (207) 782-3017	Project Architect

In addition to these entities, the work of other consultants performed at the site was used in conceptual designs and environmental baseline work conducted as part of the master planning efforts. No qualification materials are provided for them.

SMRT, Inc.  
Royal River Survey Company

Woodlot Alternatives  
S.W. Cole Engineering, Inc.

### 9.2.2 Attachments

Letter from New England Realty Resources, LLC to Malone Commercial Brokers, dated September 14, 2005.

Letter from TD Banknorth to Woodard & Curran, Inc., dated August 31, 2005.

Résumés



**NEW ENGLAND REALTY  
RESOURCES, LLC**  
A Q10 CAPITAL LLC PARTNER

September 14, 2005

Marie Gresik  
Malone Commercial Brokers  
5 Moulton Street  
Portland, ME 04101

Re: Portland, ME - 41 Hutchinson Street

Dear Marie:

The Borrower/Buyer, Mr. Martin Rist and Ms. Bonnie Brunet of the Rist-Brunet Family Trust, have engaged us to apply for the financing of the acquisition of the above referenced transaction.

Please feel free to call if you have any question.

Sincerely,

Michael Chase  
Vice President  
617-728-9534  
chaseme@q10newenglandrealty.com





**Banknorth**

Maine

One Portland Square  
P.O. Box 9540  
Portland, ME 04112-9540  
T: 207 761-8500  
Toll Free: 800 761-3666

August 31, 2005

Judy Knaub, CFO  
Woodard & Curran, Inc.  
41 Hutchins Drive  
Portland, ME 04102

RE: CADCAM Associates-Proposed building expansion at 41 Hutchins Drive, Portland, Maine

Dear Judy:

As you know, CADCAM Associates has been a customer of the Bank for nearly ten years. The partnership successfully completed an expansion of the existing facility several years ago, on time and on budget. The partners have clearly exhibited the expertise to complete the proposed 15,000 sq. ft. expansion that is before the Portland Planning Board. Given the equity that exists in the real estate today, and supported by the proposed lease to be signed by Woodard & Curran, Inc., CADCAM Associates has both the financial capacity and technical expertise to complete the proposed building expansion.

Please feel free to call me at 761-8619 if you need any additional information.

Sincerely,

Frederick G. Proctor  
Vice President

/fgp





**Barry Sheff, P.E.**  
**Project Manager**

**Professional Profile**

Mr. Sheff is a Project Manager with nine years of experience in municipal design, solid waste, and site development with a background in hazardous waste and surveying. He is responsible for providing design and project management on a wide variety of civil engineering projects including site development/utility infrastructure projects, wastewater projects, planning studies and evaluations, solid waste, stormwater management, erosion control plans, and permitting.

**Education**

**B.S., Civil Engineering, University of Vermont**

**Professional Associations**

**American Society of Civil Engineers**  
**Maine Section, American Society of Civil Engineers**  
**Order of the Engineer**

**Related Experience**

**Site Design/Permitting**

- University of Southern Maine - Community Education Center and Parking Garage Site Design - Portland, Maine. Project Manager/Engineer responsible for managing and completing site and utility design of a 1200-car parking garage, 500-seat lecture hall, and 15,000-square foot office classroom building. Coordinated the site survey; completed preliminary site evaluations; prepared grading and utility plans for surface parking areas, open space, and roadways; developed construction documents; completed stormwater design; coordinated with the City of Portland for roadway realignments and discontinuances; coordinated design plans with the project architect and landscape architect, and prepared technical specifications for construction documents.
- University of Southern Maine - Community Education Center and Parking Garage Site Location of Development and Major Site Plan Applications - Portland, Maine. Project Manager/Engineer responsible for managing and completing state and local permitting of a 1200-car parking garage, 500-seat lecture hall, and 15,000-square foot office classroom building. Coordinated with the regulatory agency; prepared local Demolition Permit applications; prepared Application for Site Location of Development (SLOD) and City's Major Site Plan Applications under tight time frames.
- University of Southern Maine Community - Education Center and Parking Garage Zoning Board of Appeals Applications - Portland, Maine. Project Manager/Engineer responsible for managing, preparing and presenting to the City's Zoning Board of



Appeals an Application for a Practical Difficulty Variance from dimensional requirements for a 1200-car parking garage, 500-seat lecture hall, and 15,000-square foot office classroom building. Upon the architect completion of design development drawings for the project, successfully obtained a variance from local zoning ordinances for setback requirements, percentage of lot coverage, and structure height. The project was able to proceed under its tight schedule with the granting of the variance.

- CAD-CAM Parking Lot, Portland, Maine - Project Engineer responsible for local site plan permitting, site design, and NRPA permitting for a new parking area, driveway, and sidewalk. Included providing all the associated stormwater management controls and preparation of an erosion and sedimentation control plan.
- City of Saco, Maine – Municipal Landfill Reuse Plan Monitoring. To assist the Parks and Recreation Department with the construction of ball fields and a parking lot in a former borrow area, Woodard & Curran oversaw the receipt of fill material for use as subgrade. Performed periodic inspections including visual observations to evaluate the quality of the material and the methods by which the material was being placed. The work included maintaining a photographic log of work progress, collected bulk samples for evaluation of physical properties, and coordinating the geotechnical firm for compaction testing. The oversight enabled the City to ensure that the materials were suitable for their intended use.
- Town of Old Orchard Beach, Maine - Town Engineer/Project Manager for the Town of Old Orchard Beach. Responsible for independent peer reviews, permitting, and design services to support the Town Manager, Planning Department, Department of Public Works, and Wastewater Treatment Facility. Also responsible for coordinating subcontracted consultants for specialized services.
- Town of Old Orchard Beach, Maine - Phase 1 - Dirigo Drive Sanitary Sewer Extension Peer Review. Project manager/engineer responsible for reviewing the sanitary sewer extension associated with the proposed Cider Hill development. The proposed extension called for 1,800 linear feet of 8" diameter gravity sewer on Dirigo Drive connecting to an existing pump station. As part of the review, we looked at the design for compliance with the Town's sewer ordinance and sewer extension design and construction specifications; considered the capacity of the proposed sewer relative to future growth and development in the area (based in part on discussions with the planning department); sewer location, size, and materials (based in part on discussions with the public works department); erosion and sedimentation controls; and constructability.
- Town of Old Orchard Beach, Maine - Phase 2 - Foote Street Motel Development Stormwater Peer Review. Project manager/engineer responsible for reviewing the stormwater management study and site and grading plan associated with a proposed 10-unit motel project, including the HydroCAD model. Considered the potential for off-site downstream flooding as stemming from the development, and erosion and sedimentation controls measures. The project was measured against town standards and Maine stormwater management best management practices requirements to determine if the design drawings met the requirements for storm drainage design.



- Town of Old Orchard Beach, Maine - Phase 3 - School Street Extension As-Built Condition Pond Outlet Peer Review. Project Manager/Engineer responsible for investigating whether a pond outlet control structure was constructed in accordance with approved plans. As a result of the review, inconsistencies were identified between the approved plans and the constructed condition. Worked collaboratively with the public works department to develop appropriate recommendations for repair that would facilitate long-term maintenance needs and meet a reasonable design life for the structure and to evaluate the as-built condition and functionality of a pond outlet control structure. Concurrently, the developer requested release of its performance guarantee and was seeking to petition the town to take over the maintenance of roadways and associated storm drain infrastructure.
- Town of Old Orchard Beach, Maine - Phase 4 - Homewood Boulevard Associates Stormwater Management Study and Roadway Peer Review. In 1963, the Town approved the Homewood Park subdivision. Since that time, the east end of Homewood Boulevard has remained undeveloped and a number of environmental protection statutes have been established. When the planning department received a proposal to develop the roadway and associated stormwater controls, the Town requested Woodard & Curran's assistance in the review. Due to the anticipated size of the project and recognizing that it was within the watershed of a Maine DEP designated coastal wetland most at risk from new development, Woodard & Curran reviewed the proposal for compliance with the State's Stormwater management statute. While recommending that the project be submitted for a MAINE DEP stormwater permit prior to local planning board review, we also provided constructive comments to assist the developer in the permitting process. In addition to the stormwater review, a review of the vertical alignment of the proposed roadway was provided. Specifically, an anticipated design speed and recommended stopping sight distances per the Maine Department of Transportation Highway Design Guide for local roads were recommended. Compared those calculated stopping sight distances to the proposed vertical curves to ensure that adequate distances are available to the driver.
- Town of Old Orchard Beach, Maine - Phase 17 - Project Manager to develop the Town's stormwater management plan in order to comply with the Maine Department of Environmental Protection (DEP) General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer System (MS4). Currently working with the Town to evaluate existing data and programs based on the Environmental Protection Agency's (EPA) six minimum control measures. Program involves illicit discharge detection, pre- and post-construction run-off control, examining the Town's operations and maintenance procedures, and public education and outreach as well as GIS mapping. Responsible for preparing the Notice of Intent (NOI) and assimilating the Town's plan into the state recommended ASSIST software package.
- City of Portland, Maine - Ocean Gateway Master Plan. Project Engineer for master planning of the redevelopment of a 19.5-acre ship repair facility to a marine passenger facility on Portland's waterfront. Responsible for working with a steering committee to develop an inventory of existing site utilities, bathymetry, topography, geotechnical and structural conditions; providing oversight during field investigations; writing the Master Plan document; facilitating the public involvement process; and supporting the pre-permitting efforts. Also assisted in identifying funding opportunities for respective construction phases.



- City of Portland, Maine - Ocean Gateway - Phase 1 Design. Project Engineer responsible for working with a steering committee to develop and refine concepts working within available construction funding constraints and provide for all of the marine elements of the project. Also provided cost estimating to support the concepts and prepared a final report summarizing the process and conclusions. The marine elements included a pier expansion, transfer bridges, bulkhead and seawall repairs, a passenger terminal, and the associated utility and site infrastructure to support the marine operations.
- CAD CAM Parking Lot, Portland, Maine. The proposed parking lot addition was required to ease the parking shortage which has occurred as a result of staff growth and to meet the parking demands of visitors at the current home of the Woodard & Curran office. Permitting and site work were complicated by the existence of an unnamed brook with private drainage easements and City of Portland sewer easements running through the parcel. The brook has floodplain and non-floodplain wetlands associated with it, and the floodplain wetlands have a one hundred (100) foot setback zone, established by the Maine Department of Environmental Protection (ME DEP), Natural Resources Protection Act (NRPA). The setback was reduced to twenty-five (25) feet under conditions in accordance with the NRPA Permit by Rule Standards (Chapter 305). The work consisted of the design and permitting of a bituminous parking area for 32 vehicles, new driveway, bituminous sidewalk between the parking area and existing office building, associated stormwater management controls, design of lighting in the parking area and along the sidewalk, and a retaining wall to accommodate site grading.
- Dunkin' Donuts - Renovation - Brockton, Massachusetts. Project Manager/Project Engineer for site survey, site design, and permitting for the renovation of a Burger King restaurant as a Dunkin' Donuts store in Brockton, Massachusetts. This work included coordination with the traffic engineer, project architect, and landscape architect. Site permitting and design for the project included a stormwater management plan. The plan involved hydrologic flow modeling using Applied Microcomputer Systems' HydroCAD software (based upon Technical Release 55, TR-55). The design of stormwater quality and quantity controls was completed with the assistance Federal Highway Administration hydraulic design software, HY8.
- Dunkin' Donuts - Design and Permitting. Project Manager/Project Engineer for site survey, geotechnical, site and utility design, and permitting for a new Dunkin' Donuts store in Brockton, Massachusetts. This work also included coordination with the traffic engineer, project architect and landscape architect. Site permitting and design for the project included stormwater management, and erosion and sedimentation control plans. These plans involved hydrologic flow modeling using Applied Microcomputer Systems' HydroCAD software (based upon Technical Release 55, TR-55). The design of stormwater quality and quantity controls was completed with the assistance Federal Highway Administration hydraulic design software, HY8.
- Town of Wolfeboro, New Hampshire - Loader Building Addition Project. Project Engineer responsible for the site grading and stormwater design associated with a new 1,200 square foot pre-engineered metal building for housing construction equipment. The project was prepared for Planning Board Submission. Responsible for completing the Stormwater Management Plan in accordance with local Site Plan



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ordinances and New Hampshire Department of Environmental Services Stormwater Management Best Management Practices (BMPs). The Stormwater Management Plan involved hydrologic flow modeling using Applied Microcomputer Systems' HydroCAD software (based upon Technical Release 55, TR-55). The design of stormwater quality and quantity controls was completed with the assistance Federal Highway Administration hydraulic design software, HY8.

- Town of Wolfeboro, New Hampshire - Sludge Composting Facility. Project Engineer responsible for the site grading, stormwater and leachate collection design associated with a 20,000 square foot pre-engineered metal roof structure atop a municipal wastewater sludge composting facility for Planning Board Submission. Responsible for coordinating with the pre-engineered building manufacturer and the process engineer to identify building alternatives. Responsible for completing the Stormwater Management Plan in accordance with local Site Plan ordinances and NH Department of Environmental Services Stormwater Management Best Management Practices (BMPs). The Stormwater Management Plan involved hydrologic flow modeling using Applied Microcomputer Systems' HydroCAD software (based upon Technical Release 55, TR-55). The design of stormwater quality and quantity controls was completed with the assistance of Federal Highway Administration hydraulic design software, HY8 and Soil Conservation Service Hydrology package software.
- Brunswick Naval Air Station - Aircraft Rinse/Deicing Facility - Brunswick, Maine. Staff Engineer responsible for the site grading and utility design, and cost estimates for project site work and underground utilities. Coordinated with the process engineer and airport facilities design engineer to accommodate site-specific grading and other design requirements. The stormwater design involved hydrologic flow modeling using Applied Microcomputer Systems' HydroCAD software (based upon Technical Release 55, TR-55). The design of stormwater quality and quantity controls was completed with the assistance of Federal Highway Administration hydraulic design software, HY8.
- Mobil Oil - Dredging Project - Fore River, South Portland, Maine. Staff Engineer for developing estimated dredge volumes and developed dredged surface site plans.



## **Kenneth Volock Engineer**

### **Professional Profile**

Mr. Volock is an Engineer with six years of civil and environmental engineering experience. Areas of experience include civil/site development, solid waste, water and wastewater projects, water supply and storage projects, and modeling of municipal water distribution systems.

### **Education**

M.S., Environmental Engineering, University of Maine  
B.S., Civil Engineering, Worcester Polytechnic Institute

### **Related Experience**

#### **Civil Engineering / Site Development Projects**

- University of Southern Maine, Portland, Maine – Parking Garage and Continuing Education Center. Permitting and Site Design. Duties included assisting preparation of MDEP Site Location of Development application, stormwater modeling, utility coordination and design, preparation of plans and specifications, and construction administration.
- Town of Old Orchard Beach, Maine – Hemlock Street Construction. Provided construction inspection of Hemlock Street in Old Orchard Beach, Maine. Duties included inspection during paving operations, coordination of acceptance testing and preparation of memorandum report.
- Town of Old Orchard Beach, Maine – Homewood Boulevard. Peer review of proposed roadway for subdivision. Duties included review of stormwater management, utility design, and roadway design.
- Town of Old Orchard Beach, Maine – Powderhorn Campground. Peer review of proposed alteration of existing campground. Duties included review of stormwater management and utility design.
- Gawron Turgeon Architects, Scarborough, Maine – Atlantic Heights Continuing Care Retirement Community. Preparation of permitting documents and application for retirement community proposed by First Atlantic Healthcare. Duties included preparation of applications for MDEP Site Location of Development, Site Plan Review, and Subdivision Review submitted to the City of Saco, Maine.

#### **Water and Wastewater Projects**

- City of Ellsworth, Maine - Water Main Replacement. Designed water main replacement on State Street in Ellsworth, Maine. Duties included site investigation,



layout, design, preparation of specifications and preparation of DEP Permit-by-Rule for Davis Brook crossing.

- Town of Vinalhaven, Maine - Municipal Wastewater Collection and Treatment System. Designed collection system. Duties included site investigation, house-to-house survey to determine existing treatment systems, design of collection system, pump station design, and preparation of plans and specifications.
- Town of Searsport, Maine - Water Main Replacement. Designed water main replacement. Duties included design, layout, preparation of specifications, and construction inspection.
- City of Ellsworth, Maine - Water Main Replacement. Provided field oversight and inspection during construction phase of water main replacement on Main St. in Ellsworth, Maine. Assisted with pay requisition tasks.
- Town of Hermon, Maine - Sewer Extension. Designed and provided construction oversight for Coldbrook Road sewer extension in the Town of Hermon, Maine.
- Town of Brownville, Maine - Water Main System. Designed water main system for Town of Brownville, Maine. Assisted in quantity determination and pay requisition tasks during construction phase.
- Town of Bar Harbor, Maine - Clarifier Construction Inspection. Provided construction inspection for new clarifier at wastewater treatment facility in Bar Harbor, Maine.
- City of Brewer, Maine - Construction Inspection. Provided construction inspection for several upgrades at wastewater treatment facility in Brewer, Maine.
- Town of Milford, Maine - Infiltration/Inflow Study. Performed sanitary sewer manhole inventory and inspection as part of infiltration/inflow study for Town of Milford, Maine.

#### **Water Supply and Storage Projects**

- Bar Harbor Water Company - Construction Oversight - Bar Harbor, Maine. Designed and provided construction oversight for a new 500,000 gallon below grade concrete water storage tank. Duties included design and layout of the tank and inlet and out piping, submittal review, construction inspection, and coordination of pay requisitions.
- Hampden Water District - Rechlorination Facility - Hampden, Maine. Designed rechlorination facility. Duties included design and layout of the building and piping, and design of a new standpipe inlet.
- Town of Eustis, Maine - Water Pump Station. Provided assistance in the design of a new municipal water pump station. Duties included site survey and layout, inventory of existing equipment, and coordination of pay requisitions.
- Town of Brownville, Maine - Water Storage Tank Repair Plan. Developed repair plan for two below grade concrete water storage tanks. Aspects of the plan included installation of membranes and internal coating. Duties included design, layout, preparation of specifications, and construction oversight.



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- City of Ellsworth, Maine - Standpipe Replacement. Provided field oversight and inspection during construction phase of replacement standpipe in Ellsworth, Maine. Assisted with pay requisition tasks.
  - Town of Brownville, Maine - Well Approval. Assisted with various aspects of a final well approval report for new municipal wells in Town of Brownville, Maine.
  - Town of Hermon, Maine - Fieldwork. Performed fieldwork in determining extent of repairs necessary for standpipe in Hermon, Maine. Fieldwork included measurement of water level inside standpipe and visual inspection of ground surrounding standpipe.
  - Town of Hermon, Maine - Well Geology Report Fieldwork. Performed fieldwork for well geology report for potential municipal well site in Town of Hermon, Maine. Fieldwork included assembling a pump system for extracting water from aquifer, monitoring flow during pump test, monitoring groundwater elevation in nearby monitoring wells, and sampling water for analysis.



**Firm Profile**

*Offices:*

*One Auburn Business Park  
Auburn, ME 04210  
207.784.5100 telephone  
207.782.3017 fax*

*66 Pearl Street, Suite 301  
Portland, ME 04101  
207.775.0053 telephone  
207.775.0460 fax*

*1 New Hampshire Avenue  
Suite 125  
Portsmouth, NH 03801  
603.427.5102 telephone  
603.427.5104 fax*

*Established 1870*



For more than a century, Harriman Associates has designed the buildings that represent what is important and special about communities throughout New England. An architecture and engineering firm since our founding in 1870, we work with clients in the education, healthcare, government, corporate, and retail sectors, transforming vision to reality and helping to provide the spaces needed for learning, healing, and working.

Our experience is diverse and comprehensive. Public and private schools. Colleges and universities. Hospitals, ambulatory care centers, and medical research laboratories. Offices, retail stores, and libraries. Recreational centers and performing arts centers. New construction, renovations and additions. And the master plans and feasibility studies that help clients determine the best solutions to meet their needs.

We apply an approach that is based on collaborative teamwork and a commitment to service — an approach verified by the number of repeat clients and an on-time, on-budget track record. Architects and engineers work closely throughout all phases of a project, providing an integrated, multi-disciplinary approach that is not only cost-effective but well suited to creative solutions. Buildings are better designed and better engineered because team members in both disciplines share information continually throughout the process — a special advantage with the sophisticated, high-tech infrastructure needed in buildings today.

Close communications with stakeholders in a project is central to our approach. From start to completion, we emphasize open, two-way communications channels. We listen carefully, to understand client needs, missions, and values. And we work just as diligently to make certain that our clients understand us. Our experience, our expertise, and our approach result in buildings that are both functionally and aesthetically appropriate, often featured in national publications and recognized regionally and nationally for design excellence.

We offer full-service architecture and engineering design services and can work with you from feasibility studies to finished building, transforming your vision to reality.

*Services*

- # Architecture
- # Landscape architecture
- # Interior design
- # Feasibility studies
- # Master planning
- # Site planning
- # Site and campus lighting
- # Campus utilities distribution
- # Cost estimating
- # Life-cycle cost analysis
- # Mechanical engineering
- # Electrical engineering
- # Civil engineering
- # Environmental engineering
- # Technology Planning
- # Structural engineering
- # Energy analysis
- # Commissioning
- # Construction administration
- # Air / water testing and balancing

# HARRIMAN ASSOCIATES

## Firm Profile

<i>Principals</i>	Edward A. Cormier, P.E., President Erik D. W. Greven, P.E., Principal Daniel W. Cecil, AIA, Principal
<i>Partners</i>	Patrick S. Costin, AIA, LEED AP, Principal Clifton Greim, P.E., Principal Robert C. Klinedinst, Jr., AIA, Principal Philip R. Morrissette, P.E., Principal
<i>Associates</i>	B. Keith Brenner, P.E., Associate Frank L. Crabtree, P.E., LEED AP, Associate Darryl L. Johnson, Associate Judy L. Johnson, AIA, Associate Jeffrey P. Larimer, AIA, Associate Jeffrey B. Luy, AIA, LEED AP, Associate Daniel E. Robbins, Associate Lisa A. Stevens, CPSM, Associate John W. Tarr, P.E., Associate
<i>Staff total</i>	80 -- Our staff includes professionals who are specialists in most of the disciplines needed for even the largest project.

### **Architecture**

Architects, architectural designers, and architectural staff of 32 includes CADD technicians.

### **Engineering**

Our engineering staff of 34 includes civil, structural, electrical, and mechanical engineers and designers as well as technology planners and plumbing and fire-protection system designers.

### **Administrative**

Our administrative staff of 14 includes administrative assistants and personnel in human resources, marketing, accounting, printing, and building maintenance.



## 10. TITLE, RIGHT, INTEREST

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(10).

*updated by letters of 11.22.05 + 1.4.06*

CADCAM Associates is currently in the process of transferring title, right, and interest to all the property proposed for inclusion in the project to the Rist-Brunet Family Trust via a Purchase and Sale Agreement, entered into on September 8, 2005

Title to Lot 15 was secured by CADCAM Associates on September 28, 1984, and Title to Lot 16 was secured on January 28, 1988. The lots are represented on City of Portland Tax Maps as Map 238A, Lot A001, and Map 239, Lot A004.

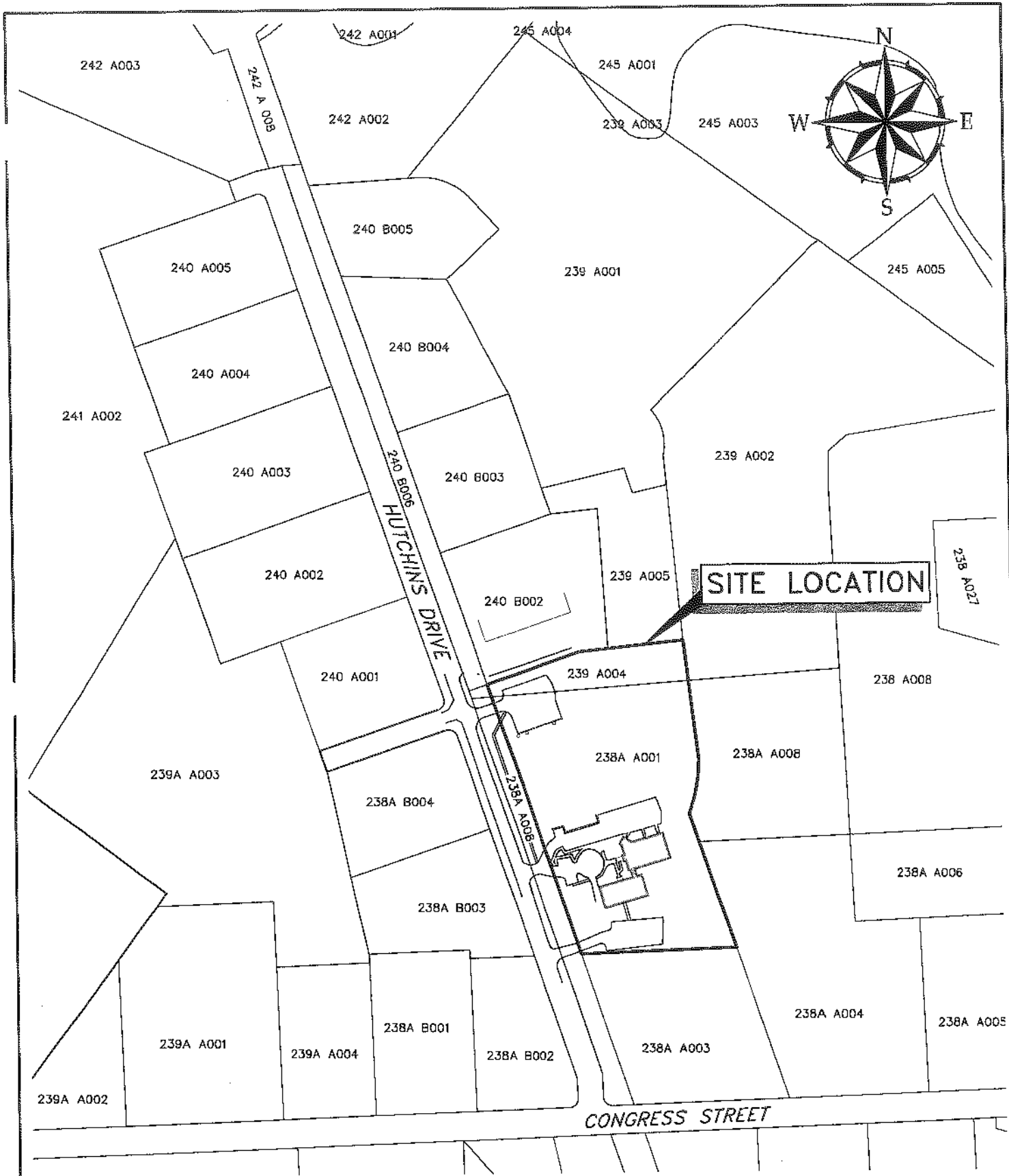
Copies of the Purchase and Sale Agreement, as well as the deeds for the property, are attached within this section. The City's property tax map lot delineations are shown in Figure 10.1.

### 10.1 ATTACHMENTS

Figure 10.1 Property Tax Map

Copy of Purchase and Sale Agreement


Copy of Deeds



**NOTE:**

SOURCE: CITY OF PORTLAND - DEPARTMENT OF PUBLIC WORKS - 2003 PARCEL INFORMATION



 <b>WOODARD &amp; CURRAN</b> Engineering · Science · Operations PORTLAND, MAINE 800-426-4262	<b>PROPERTY TAX MAP</b>		CAD-CAM ASSOCIATES PORTLAND, MAINE	JOB NO: 203834.03 DATE: AUGUST 2006 SCALE: AS NOTED
	DESIGNED BY: DRAWN BY:	CHECKED BY: 20383401-U0101.dwg	<b>WOODARD &amp; CURRAN INC.</b> OFFICE EXPANSION 41 HUTCHINS DRIVE, PORTLAND, ME	

# CONTRACT FOR THE SALE OF COMMERCIAL REAL ESTATE

RECEIVED from Rist-Brunet Family Trust, whose mailing address is 343 Soquel Ave, PMB 216, Santa Cruz, CA 95062 (hereinafter called "Purchaser"), this \_\_\_\_\_ day of September, 2005, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_) as earnest money deposit toward purchase of real estate located at 41 Hutchins Drive in the city/town of Portland, County of Cumberland State of Maine, described as follows Map/Lot 238A-A1 and 239-A-4 and being more \_\_\_\_\_ described at said County's Registry of Deeds in Book \_\_\_\_\_, Page \_\_\_\_\_, upon the terms and conditions indicated below.

1. **PERSONAL PROPERTY:** The following items of personal property are included in this sale (if applicable) n/a
2. **PURCHASE PRICE:** The total Purchase Price is \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), with payment to be made as follows:  
  
Earnest money deposit received on this date: \_\_\_\_\_ \$ \_\_\_\_\_  
Other: Additional Deposit upon Purchaser satisfying paragraph # 10 and paragraph # 12 of the Contract \_\_\_\_\_  
  
Other: \_\_\_\_\_  
  
Balance due at closing, in cash or certified funds: \_\_\_\_\_ \$ \_\_\_\_\_
3. **EARNEST MONEY/ACCEPTANCE:** Malone Commercial Brokers, Inc. ("Escrow Agent") shall hold the earnest money in a non-interest bearing account and act as escrow agent until closing; this offer shall be valid until September 9, 2005 at 5:00 ( AM  PM). In the event of Seller's non-acceptance of this offer, the earnest money shall be returned promptly to Purchaser.
4. **TITLE:** That a deed, conveying the premises in fee simple with good and marketable title in accordance with Standards of Title adopted by the Maine Bar Association shall be delivered to Purchaser and this transaction shall be closed and Purchaser shall pay the Purchase Price as provided herein and execute all necessary papers for the completion of the purchase on or before December 30, 2005. If Seller is unable to convey title to the premises in accordance with the provisions of this paragraph, then Seller shall have a reasonable time period, not to exceed 30 days from the time Seller receives written notice of the defect, unless otherwise agreed to by both parties, to remedy the title, after which time, if such defect is not corrected so that there is marketable title, Purchaser may within 30 days thereafter, at Purchaser's option, withdraw said earnest money and neither party shall have any further obligation hereunder. Seller hereby agrees to make a good-faith effort to cure any title defect during such period.  
  
DEED: That the property shall be conveyed by a quit claim with covenant deed, and shall be free and clear of all encumbrances except covenants, conditions, easements and restrictions of record and usual public utilities servicing the premises and shall be subject to applicable land use and building laws and regulations.
6. **LEASES/TENANT SECURITY DEPOSITS:** Seller agrees at closing to transfer to Purchaser, by proper assignment thereof, all Seller's rights under the current leases to the property and any and all security deposits held by Seller pursuant to said leases.
7. **POSSESSION/OCCUPANCY:** Possession/occupancy of premises shall be given to Purchaser immediately at closing unless otherwise agreed by both parties in writing.
8. **RISK OF LOSS:** Until transfer of title, the risk of loss or damage to said premises by fire or otherwise is assumed by Seller unless otherwise agreed in writing. Said premises shall at closing be in substantially the same condition as at present, excepting reasonable use and wear.
9. **PRORATIONS:** The following items shall be prorated as of the date of closing:
  - a. Real Estate Taxes based on the municipality's tax year. Seller is responsible for any unpaid taxes for prior years.
  - b. Fuel
  - c. Metered utilities, such as water and sewer, shall be paid by the Seller through the date of closing.
  - d. Purchaser and Seller shall each pay one-half of the transfer tax as required by the laws of the State of Maine.
  - e. Rents, estimated monthly common area maintenance charges, estimated monthly property tax payments, and all other additional rents received by Seller pursuant to leases of the property.
  - f. \_\_\_\_\_
10. **INSPECTIONS:** Purchaser is advised to seek information from professionals regarding any specific issue of concern. Purchaser acknowledges receipt of disclosure form attached hereto. The Selling Agent and Listing Agent make no warranties regarding the condition, permitted use or value of Seller's real or personal property. This Contract is subject to the following inspections, with the results being satisfactory to Purchaser:

<u>TYPE OF INSPECTION</u>	<u>YES</u>	<u>NO</u>	<u>RESULTS REPORTED</u>	<u>TYPE OF INSPECTION</u>	<u>YES</u>	<u>NO</u>	<u>RESULTS REPORTED</u>
a. General Building	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Within <u>60</u> days	g. Lead Paint	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days
b. Sewage Disposal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Within <u>60</u> days	h. Pests	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days
c. Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days	i. ADA	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days
d. Radon Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days	j. Wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Within <u>60</u> days
e. Radon Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days	k. Environmental Scan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Within <u>60</u> days
f. Asbestos Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	Within <u>0</u> days	l. Other <u>Zoning</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Within <u>60</u> days

The use of days is intended to mean from the Effective Date of the Contract. All inspections will be done by inspectors chosen and paid for by Purchaser. If the result of any inspection or other condition specified herein is unsatisfactory to Purchaser, Purchaser may declare the Contract null and void by notifying Seller in writing within the specified number of days set forth above, and said earnest money shall be returned to Purchaser. If Purchaser does not notify Seller that an inspection is unsatisfactory within the time period set forth above, this contingency is waived by Purchaser. In the absence of inspection(s) mentioned above, Purchaser is relying completely upon Purchaser's own opinion as to the condition of the premises.

11. REVIEW OF LEASES AND INCOME AND EXPENSE INFORMATION. Purchaser shall have 30 days from the effective date of the Contract to review leases of the property and income and expense information as well as confidential financial information regarding the Seller Business and the property, said leases and financial information Seller shall provided to Purchaser at a convenient time and location. If the result of the review is unsatisfactory to Purchaser, Purchaser may declare the Contract null and void by notifying the Seller in writing within the specified number of days set forth herein, and the earnest money shall be returned to Purchaser. If Purchaser does not notify Seller that the review is unsatisfactory within the time period set forth herein, this contingency is waived by Purchaser.

12. FINANCING: Purchaser's obligation to close hereunder is contingent that within 7 days from the effective date of this contract a written letter that shows evidence of financial application to lender for a mortgage loan. Purchaser's obligation to close hereunder is also contingent to obtaining within 21 days from the effective date of this contract a written pre-commitment letter from a lender for a mortgage loan. Purchaser shall obtain within 60 days from the effective date of this contract a written commitment (the "Commitment") from a lender for a mortgage loan of not less than 80% of the purchase price at an initial interest rate not to exceed 6.75% per annum and amortized over a period of not less than 20 years. Purchaser acknowledges that a breach of this good faith obligation to seek and accept financing on the above-described terms shall be a breach of this Contract.

In the event that Purchaser is unable to obtain the Commitment and Purchaser notifies Seller within 60 days from the effective date of this contract, then Seller shall return the earnest money to Purchaser and this Contract shall terminate and neither party shall be under any further obligation hereunder. If Purchaser does not notify Seller that he has failed to obtain the Commitment within the time limit set forth above, then Purchaser shall be in default of this Agreement.

13. AGENCY DISCLOSURE: Purchaser/Seller acknowledge they have been informed by Malone Commercial Brokers, Inc. (Broker) that it is acting in the capacity of a Disclosed Dual Agent for this transaction. This practice is authorized under Maine State law and is regulated by the Maine Real Estate Commission. Dual Agency is required in this transaction whereas the Broker has a Purchaser Client who desires to purchase a Seller Client's listing.

As Disclosed Dual Agent, the Broker is representing both clients, the Purchaser and the Seller, whose interests are adverse. As such the Broker may disclose to Purchaser any information provided by Seller and may disclose to Seller any information provided by Purchaser except: A) The willingness or ability of Seller to accept less than the asking price; B) The willingness or ability of Purchaser to pay more than has been offered; C) Confidential negotiating strategy not disclosed in the sales offer as terms of the sale; and D) The motivation of Seller for selling and the motivation of Purchaser for buying. Purchaser/Seller understand that they may choose to consent or not consent to Broker serving as a Disclosed Dual Agent.

~~AGENCY DISCLOSURE: Purchaser and Seller acknowledge that they have been informed that \_\_\_\_\_ ("Selling Agent") is acting as a Purchaser's agent in this transaction and is representing the Purchaser and that \_\_\_\_\_ ("Listing Agent") is acting as a Seller's agent in this transaction and is representing the Seller (both Selling Agent and Listing Agent are hereinafter called "Brokers")~~

14. DEFAULT: If Purchaser fails to perform any of the terms of this Contract, Seller shall have the option of either retaining the earnest money as full and complete liquidated damages or employing all available legal and equitable remedies. Should Seller elect to retain the earnest money, this Contract shall terminate and neither party shall be under any further obligation hereunder. In the event of default by either party, the Escrow Agent shall not return the earnest money to Purchaser or Seller without written releases from both parties. If a dispute arises between Purchaser and Seller as to the existence of a default hereunder and said dispute is not resolved by the parties within thirty (30) days, Escrow Agent shall file an action in interpleader and deposit the earnest money in the court to resolve said dispute. Purchaser and Seller, jointly and severally, shall indemnify Escrow Agent for all costs, losses, expenses, and damages, including reasonable attorneys' fees, incurred by Escrow Agent in connection with said dispute.

15. ARBITRATION: Any dispute or claim arising out of or relating to this Contract or the premises addressed in this Contract shall be submitted to binding arbitration in accordance with the Maine Residential Real Estate Arbitration Rules of the American Arbitration Association. This clause shall survive the closing of this transaction.

16. PRIOR STATEMENTS: This Contract sets forth the entire agreement between the parties, and there are no other representations, agreements or understandings with respect to the subject matter of this Contract. This Contract shall be construed according to the laws of the State of Maine.

- 17. **REVISIONS:** This Contract shall extend to and be obligatory upon heirs, personal representatives, successors, and assigns of the respective parties.
- 18. **COUNTERPARTS:** This Contract may be signed in any number of identical counterparts, including telexed copies, with the same binding effect as if all of the signatures were on one instrument.
- 19. **EFFECTIVE DATE:** This Contract is a binding contract when signed by both Seller and Purchaser and when that fact has been communicated to all parties or to their agents. Time is of the essence of this Contract.
- 20. Seller and Purchaser acknowledge receipt of the Maine Real Estate Commission Disclosure of Agency Relationships Form (Form 3).
- 21. **ADDENDA:** This contract has addenda containing additional terms and conditions: Yes  No 
  - o See Addendum for additional terms and conditions (paragraphs 14-28)
  - o See Exhibit A Lease Term Sheet
- 22. **EXTENSION:** Seller and Purchaser agree to extend the following date(s) set forth in this Contract to the new date shown:
 

Date for _____	changed from _____	To _____ 20__
Date for _____	changed from _____	To _____ 20__
Date for _____	changed from _____	To _____ 20__
- 23. The parties agree that none of the above are collateral agreements. It is the intent of the parties that except as expressly set forth in this Contract, all covenants, representations, warranties and obligations of both parties herein shall not survive closing.

**A COPY OF THIS CONTRACT IS TO BE RECEIVED BY ALL PARTIES AND, BY SIGNATURE, RECEIPT OF A COPY IS HEREBY ACKNOWLEDGED. IF NOT FULLY UNDERSTOOD, CONSULT AN ATTORNEY.**

Seller acknowledges that the laws of the State of Maine provide that every buyer of real property located in Maine must withhold a withholding tax equal to 2.15% of the consideration unless Seller furnishes to Purchaser a certificate by the Seller stating, under penalty of perjury, that Seller is a resident of Maine or the transfer is otherwise exempt from withholding.

554-76-0484  
Social Security # or Tax I.D. #

Name/Title, then into duly authorized

\_\_\_\_\_  
Name/Title, then into duly authorized

\_\_\_\_\_  
Name/Title, then into duly authorized

Seller accepts Purchaser's offer and agrees to effect the purchase at the price and upon the terms and conditions set forth above and agrees to pay the Broker's fee commission for services according to the terms of the listing agreement or if there is no listing agreement, the sum of \_\_\_\_\_ in the event the contract proceeds is fulfilled by Purchaser, it shall be evenly distributed between (1) Broker and (2) Seller; provided, however, that the Broker's portion shall not exceed the full amount of the commission specified.

Signed this 8 day of September, 2005:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

01-0401085  
Social Security # or Tax I.D. #  
\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

The Listing Agent is Mark Matlock of Maine Commercial Brokers (Agency)

The Selling Agent is Mark Matlock of Maine Commercial Brokers (Agency)

EFFECTIVE DATE OF CONTRACT: 9-08-05, 2005

Page 3 of 3 Buyer's Initials \_\_\_\_\_ Seller's Initials RC

**Addendum To  
Contract For Sale Of Real Estate**

This addendum is made an integral part to the Contract For Sale Of Real Estate for property located at 41 Hutchins Drive, Portland, Maine between CADCAM Associates (Known as Seller) and , Rist-Brunet Family Trust (known as Purchaser), for the contract dated September \_\_\_\_, 2005.

The following terms and conditions are noted:

- 24) **Woodard & Curran Lease:** The purchase of this property is subject to Purchaser entering a satisfactory 11+ year lease from the current tenant, Woodard & Curran, Inc., under the general terms and conditions outlined in Exhibit "A," attached hereto. Purchaser shall prepare and present its proposed lease agreement to the Seller and Woodard & Curran within 30 days from the effective date of this agreement. The Purchaser and Woodard & Curran shall have 60 days from the effective date to enter into a mutually satisfactory lease agreement. The lease agreement will be subject to final building plans, as outlined in paragraph #27 below. If Purchaser and Woodard and Curran fail to enter a mutually satisfactory lease within 60 days, this contract shall terminate with neither party having any further obligation to the other and the Purchaser Shall receive an immediate refund of its deposit.
- 25) **Permits and Approvals:** The Seller shall be responsible for obtaining site plan approvals from the City of Portland as well as any necessary State and/or Federal permits for the construction of the proposed building addition. The Seller shall have 90 days from the effective date of this contract to obtain all necessary approvals, except for building permits (which shall be the Seller's responsibility, as outlined in paragraph #27 below).
- 26) **Program Requirements:** The Seller agrees to supply the Purchaser with Woodard & Curran's program requirements for the 15,000 SF addition within 30 days form the effective date of the contract. The program requirements shall include detailed specifications on the office floor plan and layout, telecommunications, electrical and mechanical requirements.
- 27) **Building Permits/Engineering:** The Purchaser shall be responsible for developing detailed architectural plans and specifications along with engineering plans for the building addition, parking lot, landscaping and footbridge. Said plans and specifications, along with the cost to execute the proposed plans, must be acceptable to both the Purchaser and Woodard & Curran and shall be incorporated into the Lease Agreement, contemplated in paragraph #24. The Purchaser shall have 105 days from the effective date of this contract to satisfy this contingency and to present the Seller with written evidence it has reached



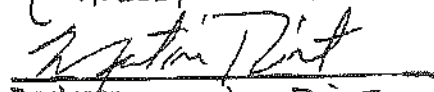
mutual agreement with Woodard & Curran with regards to this contingency. Failure to satisfy this condition within the 105 day time frame shall cause this contract to terminate and become null and void with neither party having any further obligation to the other. Upon such termination the Seller agrees to immediately refund the Purchaser's earnest money deposit. Should the Contract be terminated within 90 days of the effective date of the Purchase and Sale Agreement, under terms and conditions contemplated in this contract, the Seller agrees to refund the Purchaser all, Seller approved, Architectural and Engineering costs associated with the design and engineering of the building addition. Only Architectural and Engineering cost which have been pre-approved, in writing, by the Seller shall be eligible for reimbursement. The Seller agrees not to unreasonably withhold or delay its approval of said costs.

28) 1031 Tax Deferred Exchanges: Seller hereby acknowledges that it is the intent of the Purchaser to complete a tax deferred exchange under IRC Section 1031 which will not delay the close of the purchase transaction or cause additional expense to the Seller. The Purchaser's rights under the purchase and sale agreement may be assigned to a Qualified Intermediary of the Purchaser's choice for the purpose of completing such an exchange. Seller agrees to cooperate with the Purchaser and the Qualified Intermediary in a manner necessary to complete the exchange.

Seen and Agreed to by:

  
 Seller: ALBERT CURRAN

9-8-05  
 Date

  
 Purchaser: MARTIN RIST

9-8-05  
 Date

3004

SHORT FORM QUITCLAIM DEED WITH COVENANT

GRANTOR

GEORGE M. HUTCHINS, of Windham, Maine, FOR CONSIDERATION PAID, grants to CADCAM ASSOCIATES, a Maine General Partnership with a place of business in Gorham, Maine, with QUITCLAIM COVENANT the real property described in Exhibit A attached hereto and made a part hereof.

RUTH E. HUTCHINS, spouse of the Grantor, releases all rights in the premises being conveyed.

WITNESS our hands and seals this 28<sup>th</sup> day of September, 1984.

WITNESS:

James H. Young      George M. Hutchins  
George M. Hutchins

Stephen G. Hutchins      Ruth E. Hutchins  
Ruth E. Hutchins

State of Maine  
Cumberland, ss.

September 28, 1984

PERSONALLY APPEARED the above-named George M. Hutchins and acknowledged the foregoing instrument to be his free act and deed.

Before me,

James H. Young  
James H. Young  
(Printed Signature)  
~~Notary Public~~ /Attorney at Law

A certain lot or parcel of land situated in the City of Portland, County of Cumberland and State of Maine, and being designated as Lot 15 on the Plan of Stroudwater Estates by H.I. & E.C. Jordan dated July 27, 1884 and recorded in the Cumberland County Registry of Deeds in Plan Book 144, Page 73.

Also conveying the right in common with others to use the roadway shown as Hutchins Drive on said Plan, and the right to use, maintain, repair and replace the utilities located under, or over such road, or under or over the Portland Water District strip located immediately easterly of said road, including the right of access to the Portland Water District pipeline located under the said Portland Water District strip, and the right to install, maintain, repair and replace a pipeline from the said Portland Water District pipeline to the premises above described; and also conveying an easement across the area shown as "Future Roadway" northerly of said Lot 15, and across Lot 16, to the existing sewer line which crosses the southerly side of Lot 16, to use, repair, maintain and replace such existing sewer line and to construct, use, repair, maintain and replace a sewer line from the premises to such existing sewer line; provided, however, that if the Grantee herein, its successors or assigns, in the exercise of its rights hereunder, disturbs or excavates portions of said Hutchins Drive, the "Future Roadway", Lot 16, or the Portland Water District strip, the Grantee, its heirs, successors or assigns shall restore any such area to its condition prior to such exercise of the Grantee's rights. Further, the Grantee herein for itself, its heirs, successors and assigns, accepts the premises and rights herein conveyed subject to the provisions of a certain Agreement between George M. Hutchins and Harry A. Harmon and the Portland Water District dated

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October 30, 1979 and recorded in said Registry in Book 4521, Page 85, and agrees to comply with the provisions thereof.

The premises are conveyed subject to a drainage easement across the easterly portion of Lot 15, as shown on said Plan, and with the benefit of other drainage easements shown on said Plan.

This conveyance is made upon the following conditions, restrictions and limitations which shall run with the land for the benefit of the Grantor and the Grantee, their successors and assigns, and shall bind the land hereby conveyed and the land retained by the Grantor within Phase 2 of Stroudwater Estates, meaning lots numbered 9 through 20 inclusive as shown on the said Plan of Stroudwater Estates, (hereinafter referred to as "Phase II") dated July 27, 1984 and recorded in said Registry of Deeds in Plan Book 144, Page 73. A grantee of any of the lots in Phase II of Stroudwater Estates, by accepting the deed to the lot, agrees to be bound for himself, his heirs, successors and assigns, to each of the conditions, restrictions and limitations herein.

Each of the conditions, restrictions and limitations hereinafter set forth shall be binding upon the Grantor, the Grantee, their successors and assigns in perpetuity; provided, however, that after twenty-five (25) years from the date hereof any one or all of them may be waived, abandoned, terminated, modified, altered or changed upon the written agreement of the owners of not less than seventy-five (75) per cent of the area of the lots covered thereby; and further provided that any or all of said conditions, restrictions and limitations may be waived, abandoned, terminated, modified, altered or changed at any time by the consent of the owners of all restricted property; and such waiver, abandonment, termination, modification, alteration or change shall become effective when

a copy thereof has been duly filed in the Cumberland County Registry of Deeds. Each of the conditions, restrictions and limitations contained herein shall be an independent covenant and in the event any one or more of such conditions, restrictions and limitations shall for any reason be held to be invalid or unenforceable, all remaining conditions, restrictions and limitations shall nevertheless remain in full force.

SPECIFIC RESTRICTIONS, CONDITIONS AND LIMITATIONS

1. The following types of industry or business shall be prohibited in the area covered: namely, tanneries, glue factories, fertilizer plants, cement plants, asphalt processing plants, oil refineries, soap or fat rendering plants, fish processing plants, stockyards, artificial gas manufacturing plants and rubber manufacturing plants, nor shall the property be used as a place for storage of scrap metal or other used materials commonly classified as junk. All manufacturing and processing conducted by any owner or lessee shall be conducted entirely within the enclosed area of the buildings.

2. Before commencing construction, all owners or lessees shall submit to the Grantor for approval a preliminary plan showing the location of the building on the lot, building design, and landscaping. All billboards, flashing or moving signs are prohibited and no free-standing sign shall be installed having an area greater than thirty (30) square feet. No building shall be located closer than twenty-five (25) feet to any dedicated or accepted street or road, nor closer than twenty-five (25) feet to any side or rear property line. No building or complex of buildings shall be erected on the premises which in total will cover an area of more than fifty (50%) per cent of said premises.

3. The owners or lessees shall provide off-street automobile parking facilities. All such areas shall be paved. Any finished or semi-finished products, raw materials, inventory or equipment stored on the property outside of the buildings shall be confined to the rear of said buildings and shall in no instance be placed on the side of any building paralleling an existing or proposed street or road; except that finished goods offered for sale at the premises may be displayed between the building and the lot line nearest the street. Subject to the provisions of said Portland Water District Agreement and such approval as may be required by the said Portland Water District, sample models of such goods offered for sale at the premises may be displayed on said Water District strip. Fuel oil storage tanks as a part of the heating equipment of any establishment shall be permitted only if located underground or within the building. No waste material or refuse shall be dumped upon or permitted to remain upon any part of any property outside of the building constructed thereon.

4. In the event that contiguous lots are under common ownership, such lots shall be treated as a single lot for the purpose of these restrictive covenants.

5. The purchasers of Lots 9 through 20, inclusive, shall not make any use of the Portland Water District strip inconsistent with these restrictions.

6. During a period of two (2) years after date of conveyance before a building has been constructed the Grantee shall not sell the premises without first offering the premises to the Grantor, who shall have sixty (60) days in which to accept. If at the end of two (2) years the Grantee has not commenced construction of a building, then the Grantor may for a

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period of sixty (60) days demand in writing a reconveyance to the Grantor of the premises. The price to be paid in either case shall be the purchase price of the premises paid at the time of this conveyance.

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RECEIVED

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RECORDED ..... LE .....  
COUNTY

*James J. Walsh*

005589

SHORT FORM QUITCLAIM DEED WITH COVENANT

GEORGE M. HUTCHINS, of Portland, Maine, FOR CONSIDERATION PAID, grants to CADCAM ASSOCIATES, a Maine General partnership with a place of business in Portland, Maine, and a mailing address of 41 Hutchins Drive, Portland, Maine 04102 with QUITCLAIM COVENANTS, certain real property, together with any improvements thereon, located on the easterly side of Hutchins Drive, Portland, Cumberland County, Maine, more particularly described in Exhibit A attached hereto and incorporated herein.

WITNESS my hand and seal this 28<sup>th</sup> of January, 1988.

WITNESS:

Stephan J. Hutchins

George M. Hutchins  
George M. Hutchins

STATE OF MAINE  
COUNTY OF CUMBERLAND, ss.

January 28, 1988

PERSONALLY APPEARED the above-named George M. Hutchins and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Marcia H. Leclair  
Notary Public/  
Attorney at Law

711.215  
04596061.001

SEAL

MARCIA H. LECLAIR  
NOTARY PUBLIC, MAINE  
MY COMMISSION EXPIRES NOVEMBER 8, 1994



## EXHIBIT A

Grantor: George M. Hutchins

Grantee: CADCAM Associates

*January 28*, 1988PARCEL 1

A certain lot or parcel of land situated in the City of Portland, County of Cumberland and State of Maine, and being designated as Lot 16 on the Plan of Stroudwater Estates by H.I. & E.C. Jordan dated July 27, 1984 and recorded in the Cumberland County Registry of Deeds in Plan Book 144, Page 73, as amended by Plan recorded in said Registry in Plan Book 153, Page 112.

Also conveying the right in common with others to use the roadway shown as Hutchins Drive on said Plan, and the right to use, maintain, repair and replace the utilities located, under, or over such road, or under or over the Portland Water District strip located immediately easterly of said road, including the right of access to the Portland Water District pipeline located under the said Portland Water District strip, and the right to install, maintain, repair and replace a pipeline from the said Portland Water District pipeline to the premises above described; provided, however, that if the Grantee herein, its successors or assigns, in the exercise of its rights hereunder, disturbs or excavates portions of Hutchins Drive, or the Portland Water District strip, the Grantee, its heirs, successors or assigns shall restore any such area to its condition prior to such exercise of the Grantee's rights. Further, the Grantee herein for itself, its heirs, successors and assigns, accepts the premises and rights herein conveyed subject to the provisions of a certain Agreement between George M. Hutchins and Harry A. Harmon and the Portland Water District dated October 30, 1979 and recorded in said Registry in Book 4521, Page 85, and agrees to comply with the provisions thereof.

The Grantee, by acceptance of this instrument, agrees for itself, its heirs, successors and assigns, to comply with the requirements of the orders of the Maine Department of Environmental Protection recorded in said Registry in Book 6499, Page 194; Book 6610, Page 319; and Book 7050, Page 252; and Order No. L-010223-39-F-M, dated March 19, 1986, to be recorded, to the extent such orders are applicable for the premises hereby conveyed.

This conveyance is made upon the following conditions, restrictions and limitations which shall run with the land for the benefit of the Grantor and the Grantee, their successors and assigns, and shall bind the land hereby conveyed

and the land retained by the Grantor within Phase II of Stroudwater Estates, meaning lots numbered 9 through 20 inclusive as shown on the said Plan of Stroudwater Estates, (hereinafter referred to as "Phase II") dated July 27, 1984 and recorded in said Registry of Deeds in Plan Book 144, Page 73, as amended by Plan recorded in said Registry in Plan Book 153, Page 12. A grantee of any of the lots in Phase II of Stroudwater Estates, by accepting the deed to the lot, agrees to be bound for himself, his heirs, successors and assigns, to each of the conditions, restrictions and limitations herein.

Each of the conditions, restrictions and limitations hereinafter set forth shall be binding upon the Grantor, the Grantee, their heirs, successors and assigns in perpetuity; provided, however, that after twenty-five (25) years from the date hereof any one or all of them may be waived, abandoned, terminated, modified, altered or changed upon the written agreement of the owners of not less than seventy-five (75) per cent of the area of the lots covered thereby; and further provided that any or all of said conditions, restrictions and limitations may be waived, abandoned, terminated, modified, altered or changed at any time by the consent of the owners of all restricted property; and such waiver, abandonment, termination, modification, alteration or change shall become effective when a copy thereof has been duly filed in the Cumberland County Registry of Deeds. Each of the conditions, restrictions and limitations contained herein shall be an independent covenant and in the event any one or more of such conditions, restrictions and limitations shall for any reason be held to be invalid or unenforceable, all remaining conditions, restrictions and limitations shall nevertheless remain in full force.

SPECIFIC RESTRICTIONS, CONDITIONS  
AND LIMITATIONS

1. The following types of industry or business shall be prohibited in the area covered: namely, tanneries, glue factories, fertilizer plants, cement plants, asphalt processing plants, oil refineries, soap or fat rendering plants, fish processing plants, stockyards, artificial gas manufacturing plants and rubber manufacturing plants, nor shall the property be used as a place for storage of scrap metal or other used materials commonly classified as junk. All manufacturing and processing conducted by any owner or lessee shall be conducted entirely within the enclosed area of the buildings.

2. Before commencing construction, all owners or lessees shall submit to the Grantor for approval a preliminary

plan showing the location of the building on the lot, building design, and landscaping. All billboards, flashing or moving signs are prohibited and no free-standing sign shall be installed having an area greater than thirty (30) square feet. No building shall be located closer than twenty-five (25) feet to any dedicated or accepted street or road, nor closer than twenty-five (25) feet to any side or rear property line. No building or complex of buildings shall be erected on the premises which in total will cover an area of more than fifty (50%) per cent of said premises.

3. The owners or lessees shall provide off-street automobile parking facilities. All such areas shall be paved. Any finished or semi-finished products, raw materials, inventory or equipment stored on the property outside of the buildings shall be confined to the rear of said buildings and shall in no instance be placed on the side of any building paralleling an existing or proposed street or road; except that finished goods offered for sale at the premises may be displayed between the building and the lot line nearest the street. Subject to the provisions of said Portland Water District Agreement and such approval as may be required by the said Portland Water District, sample models of such goods offered for sale at the premises may be displayed on said Water District strip. Fuel oil storage tanks as a part of the heating equipment of any establishment shall be permitted only if located underground or within the building. No waste material or refuse shall be dumped upon or permitted to remain upon any part of any property outside of the building constructed thereon.

4. In the event that contiguous lots are under common ownership, such lots shall be treated as a single lot for the purpose of these restrictive covenants.

5. The purchasers of Lots 9 through 20, inclusive, shall not make any use of the Portland Water District strip inconsistent with these restrictions.

6. During a period of two (2) years after date of conveyance before a building has been constructed the Grantee shall not sell the premises without first offering the premises to the Grantor, who shall have sixty (60) days in which to accept. If at the end of two (2) years the Grantee has not commenced construction of a building, then the Grantor may for a period of sixty (60) days demand in writing a reconveyance to the Grantor of the premises. The price to be paid in either case shall be the purchase price of the premises paid at the time of this conveyance.

PARCEL 2

Also conveying to the Grantee herein, its heirs, successors and assigns, a certain lot or parcel of land situated easterly of said Hutchins Drive and abutting Lot 16 hereinabove described, such premises being more particularly bounded and described as follows: Beginning at a point on the Northeasterly corner of said Lot 16 as above-described; thence South  $80^{\circ} 28' 35''$  East along land conveyed by George M. Hutchins to Robert C. Elder dated February 11, 1986 and recorded in said Registry in Book 7116, Page 275; and continuing on the same course for a distance of two hundred forty-three and three tenths (243.3) feet to an iron at the Westerly sideline of the premises conveyed by George M. Hutchins to Regional Waste Systems, Inc. by deed dated April 2, 1986 and recorded in said Registry in Book 7121, Page 127; thence South  $13^{\circ} 04' 58''$  west along said land conveyed to Regional Waste Systems, Inc. a distance of two hundred fifty-four and one tenth (254.1) feet to a point; and continuing along said Regional Waste Systems land along a curve to the right in a Southerly and Southwesterly fashion, said curve having a radius of 175 feet for a distance of 172.41 feet along said land of Regional Waste Systems, Inc. to land conveyed by George M. Hutchins to CADCAM Associates being Lot 15 in Phase II of Stroudwater Estates as shown on said plan; thence continuing along said Lot 15 to land of the Portland Water District described in a deed recorded in said Registry in Book 2441, Page 133; thence North  $3^{\circ} 25' 26''$  West a distance of 50.15 feet along said land of the Portland Water District to a point on the Southwesterly corner of said Lot 16 in Phase II of Stroudwater Estates as shown on said Plan; thence South  $89^{\circ} 20' 20''$  East along the Southerly sideline of said Lot 16 a distance of 225.57 feet to a point on the Southeasterly corner of said Lot 16; thence North  $3^{\circ} 25' 25''$  West along the Easterly sideline of said Lot 16 a distance of 385.06 feet to the point of beginning.

The foregoing premises includes an area 50 feet in width shown as a "Future Roadway" on the said Plan of Phase II of Stroudwater Estates, and also shown on a certain drawing by E. C. Jordan & Co. entitled "Stroudwater Estates Sub-division Plan Phase II," Rev. E, DWG NO. C-100 dated May 7, 1984. The Grantor herein conveys the area shown as "Future Roadway" subject to such rights in other purchasers of lots in Phase II in Stroudwater Estates, and others, as may have been created by such recorded plans and by prior conveyances, and further subject to any and all obligations the grantor may have, if any, pursuant to such prior conveyances and recorded plans to construct said roadway. The Grantee herein, by acceptance of this deed, for itself, its heirs, successors and assigns, releases the Grantor herein from any and all such obligations.

BK8170760144

The foregoing premises are conveyed subject to an easement granted to the City of Portland by deed recorded in said Registry in Book 3004, Page 504, and to drainage easements reflected on said Plan of Phase II of Stroudwater Estates recorded in said Registry in Plan Book 153, Page 12.

711.215  
04596061.001

RECORDED  
1988 FEB -5 PM 3:05

CUMBERLAND COUNTY

*James J. Walsh*

AGREEMENT

This Agreement made this 30<sup>th</sup> day of *October*, 1979, by and between the Portland Water District (the District), a quasi-municipal corporation organized and existing under the laws of the State of Maine and located in Portland in the County of Cumberland, State of Maine, and George M. Hutchins and Harry A. Harmon (Hutchins and Harmon) owners and developers of acreage called Stroudwater Estates located in the City of Portland off Congress Street adjacent to the Portland/ Westbrook city boundary in the County of Cumberland, State of Maine.

WITNESSETH:

WHEREAS, the parties to this Agreement entered into a previous agreement dated December 6, 1977, which Agreement was recorded in the Cumberland County Registry of Deeds in Book 4148, Page 98; and

WHEREAS, the said prior Agreement refers to a Plan prepared by Philip Snow Associates entitled "Plan of Stroudwater Estates", Sheet No. 2, Job No. 1556, dated July 6, 1977; and

WHEREAS, the said Plan by Philip Snow Associates was not recorded and has been superseded by a Plan prepared by Land Use Consultants, Inc. entitled "Stroudwater Estates, Final Plan - Phase I", dated September 10, 1979, and recorded in said Registry in Plan Book 124, Page 80; and

WHEREAS, the District acquired a seventy-five (75) foot wide strip of real estate located near Congress Street, Portland from the Estate of Leon F. Cummings and Frank P. Cummings by deeds dated May 8, 1958 and recorded in Cumberland County Registry of Deeds in Book 2411, Page 133 and Book 2411, Page 136; and

WHEREAS, Hutchins and Harmon acquired real estate adjoining the District's real estate from Robert D. Schwarz et al by deed dated October 29, 1965 and recorded in said Registry in Book 2931, Page 239; and

WHEREAS, the parties now wish to terminate and replace the said Agreement dated December 6, 1977; and

WHEREAS, the District desires to preserve the present grade within its real estate so as to avoid the relocation of its pipeline either vertically or horizontally; and

WHEREAS, Hutchins and Harmon desire to obtain certain rights over a portion of the District's said real estate; and

WHEREAS, it is in the interests of the parties hereto to correct and modify the said prior Agreement,

NOW, THEREFORE, in consideration of the mutual promises hereinafter set forth, the parties hereto agree as follows:

1. The parties hereby consent to the termination as of the date hereof of the said Agreement dated December 6, 1977:
2. The District hereby grants to Hutchins and Harmon, their heirs and assigns, the perpetual right to construct, maintain and use a roadway over and within the westerly thirty feet (30') of the District's seventy-five foot (75') strip between Congress Street and the Stroudwater River as set forth above.
3. The District hereby grants to Hutchins and Harmon, their heirs and assigns, the perpetual right to use the said 30' wide roadway and the remaining forty-five (45') feet of the said seventy-five foot strip for the following purposes:
  - (a) the construction, maintenance and use of drive-ways across the said forty-five (45') strip for ingress to and egress from the adjoining land; and
  - (b) the installation, maintenance and use of utilities on, over or through such seventy-five foot strip.
4. The District will have the full use of its seventy-five foot (75') strip for the purpose of laying, repairing, or maintaining water or sewer pipes which are presently or may be hereafter located within said strip.
5. The District may make future service or other main connections from the existing water main within the seventy-five foot (75') strip including such portions as may be used for road purposes.
6. Hutchins and Harmon, their heirs and assigns, agree that prior to the construction of any roadway, crossing, or utility installation on, over or through any portion of said seventy-five foot (75') strip, the person proposing such construction shall provide to the District proposed plans showing such roadway, crossing, or utility installation and including any fill or excavation in connection therewith, and secure the written approval of such plans from the District. Approval of such plans shall not be unreasonably withheld by the District.
7. Any person, whether Hutchins and Harmon or an heir or assign of Hutchins and Harmon, proposing to construct any roadway, crossing, or utility installation as aforesaid, shall be responsible for all legal costs of the District arising out of and in the course of proceedings relating to the approval or denial of such proposal by the District.
8. Any person exercising any rights hereunder shall indemnify and hold the District harmless from and against any claim, loss, damage or expense arising out of the exercise of the rights herein granted by the District.
9. In the event pavement is constructed on said seventy-five foot (75') strip and it becomes necessary for the District to enter on said strip for any purpose, the District shall be under no obligation to Hutchins and Harmon, their heirs and assigns to repave or reconstruct any portion of said strip.

IN WITNESS WHEREOF, the said Joseph B. Taylor, General Manager of the Portland Water District; Harry A. Harmon and Dorothy F. Harmon, wife of the said Harry A. Harmon; and George M. Hutchins and Ruth E. Hutchins, wife of the said George M. Hutchins, have hereunto set their hands and seals this 30<sup>th</sup> day of October, in the year of our Lord one thousand nine hundred and seventy-nine.

WITNESS:

James W. West  
James A. Harmon  
Dorothy F. Harmon  
George M. Hutchins  
Ruth E. Hutchins

PORTLAND WATER DISTRICT

By: Joseph B. Taylor  
*Its General Manager*  
Harry A. Harmon  
Dorothy F. Harmon  
George M. Hutchins  
Ruth E. Hutchins



STATE OF MAINE  
CUMBERLAND, SS.

OCTOBER 31, 1979

Then personally appeared the above-named Joseph B. Taylor, General Manager of said Portland Water District, in his said capacity, and acknowledged the above instrument to be his free act and deed in his said capacity, and the free act and deed of said Portland Water District.

Before me,

James W. West  
Notary Public  
MY COMMISSION EXPIRES  
OCTOBER 15, 1982

STATE OF MAINE  
CUMBERLAND, SS.

October 30, 1979

Then personally appeared the above-named George M. Hutchins and acknowledged the above instrument to be his free act and deed.

Before me,

James H. Young  
Notary Public

4521-85





## 11. ENVIRONMENTAL AND HISTORICAL CONSIDERATIONS

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(11).

### 11.1 UNUSUAL NATURAL AREAS

The Maine Natural Areas Program was contacted and informed of the proposed project. Woodard & Curran, Inc. sought to obtain information on locations of rare, endangered or registered critical areas that the project may impact. A response for the Maine Natural Areas Program confirmed that there are no rare botanical features within the project area. The proposed project will not adversely affect an unusual natural area.

### 11.2 WILDLIFE AND FISHERIES

During the permitting process for the existing development on the site, it has been determined that there are deer wintering areas, under the jurisdiction of the Maine Department of Inland Fisheries and Wildlife (IFW), adjacent to the project site. Woodard & Curran has asked Woodlot Alternatives, Inc., to investigate the site and determine the extent to which the proposed project may impact these areas.

Once the level of potential impact, if any, has been determined, Woodard & Curran will begin negotiation with the IFW to determine the appropriate course of action to mitigate any potential impacts. The results of the negotiations will be forwarded to the City in the form of an addendum to this application upon completion.

The United States Fish and Wildlife Service (USFWS) and the IFW were each contacted and informed of the proposed project to obtain information on potential impacts to other wildlife and fisheries habitat. A response for the USFWS confirmed that there are no federally-listed species within the project area. A response from the IFW will be forwarded to the City upon receipt. It is anticipated that the proposed project will not adversely affect any wildlife or fisheries habitat beyond the potential impacts to deer wintering areas.

### 11.3 HISTORIC SITES

The Maine Historic Preservation Commission (MHPC) was contacted to determine if any properties of historic, architectural or archaeological significance, as defined by the Natural Historic Preservation Act of 1966, are located on the proposed project site. A response will be forwarded to the City upon receipt. It is anticipated that the proposed project will not adversely affect any areas of historic, architectural or archaeological significance.

### 11.4 ATTACHMENTS

Letter from Woodard & Curran, Inc., to Maine Natural Areas Program, dated August 26, 2005, requesting their assistance in identifying rare and unusual areas.

Letter from the Maine Natural Areas Program to Woodard & Curran, Inc., dated September 9, 2005.



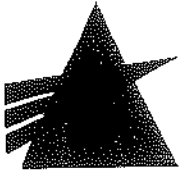
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Letter from Woodard & Curran, Inc., to Maine Department of Inland Fisheries and Wildlife, dated August 26, 2005, requesting their assistance in identifying significant wildlife and fisheries habitat.

Letter from Woodard & Curran, Inc. to US Fish and Wildlife Service, dated August 26, 2005, requesting their assistance in identifying significant wildlife and fisheries habitat.

Letter from the US Fish and Wildlife Service to Woodard & Curran, Inc., dated September 6, 2005.

Letter from Woodard & Curran, Inc. to Maine Historic Preservation Commission, dated September 2, 2005, requesting their assistance in identifying areas of historic, architectural or archaeological significance.



August 26, 2005

Toni Bingel Pied, GIS Technician/Assistant Ecologist  
Maine Natural Areas Program  
157 Hospital Street  
State House Station #93  
Augusta, Maine 04333

Re: Woodard & Curran Building Addition – Natural Areas

Dear Ms. Bingel Pied:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map. Please review this project site to verify that no rare botanical features will be affected by the proposed improvements. A project summary follows.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

We understand the Maine Natural Areas Program requires payment in order to recoup the cost of processing our request. Please send an invoice to my attention following your review. We anticipate submitting the permit application to the City by the end of August.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

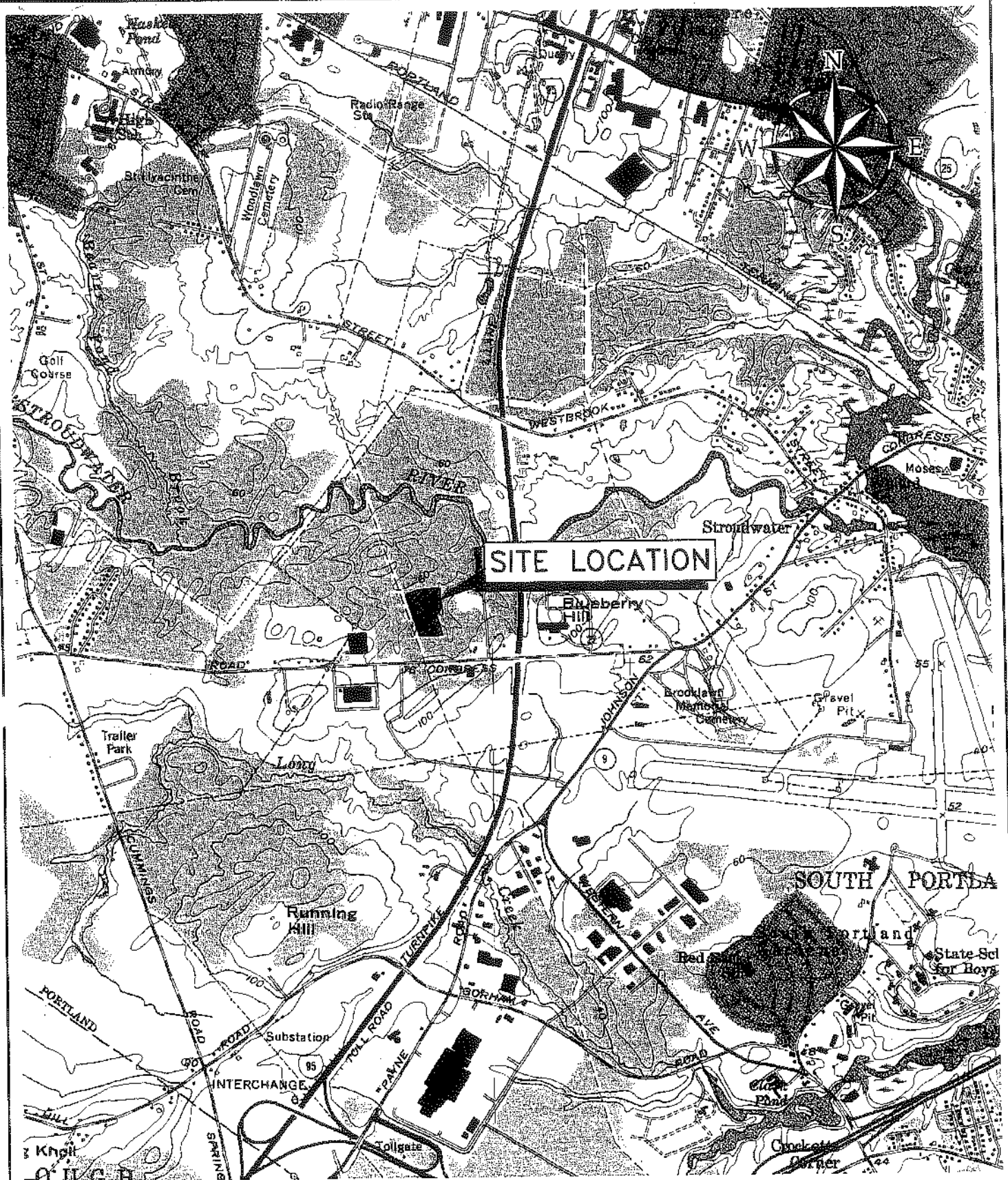
Sincerely,

WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djs  
203834.01/1.1

Enclosure



**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
Engineering · Science · Operations

PORTLAND, MAINE

800-426-4262

**USGS TOPOGRAPHIC MAP**

DESIGNED BY: JBC  
DRAWN BY: JBC

CHECKED BY: RSS  
2038.3401-UC01.1.dwg

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.03  
DATE: AUGUST 2005  
SCALE: 1" = 2000'

Figure 1.1



STATE OF MAINE  
DEPARTMENT OF CONSERVATION  
157 HOSPITAL STREET  
93 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0093

JHN ELIAS BALDACCI  
GOVERNOR

PATRICK K. MCGOWAN  
COMMISSIONER

September 9, 2005

Kenneth Volock  
Engineer  
Woodard & Curran Inc.  
41 Hutchins Drive  
Portland, ME 04102

Re: Rare and exemplary botanical features, Hutchins Drive, Portland.

Dear Mr. Volock:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of August 26, 2005 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in the City of Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been



documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

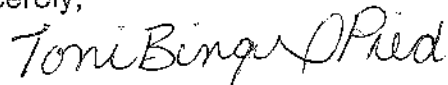
This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$75.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Toni Bingel Pied  
GIS Specialist/Assistant Ecologist  
93 State House Station  
Augusta, ME 04333-0093  
207-287-8044  
toni.pied@maine.gov

Enclosures

# Rare Exemplary Botanical Features in the Project Vicinity

Documented within a four mile radius of the proposed Woodward & Curran Building Addition, Portland.

Scientific Name Common Name	Last Seen	State Rarity	Global Rarity	State Legal Status	Federal Legal Status	Habitat Description
<i>Adlumia fungosa</i> Allegheny Vine	S1	G4	T			Wet or recently burned woods, rocky wooded slopes
<i>Allium tricoccum</i> Wild Leek	S3	G5	SC			Rich hardwood forests, usually alluvial
<i>Arabis missouriensis</i> Missouri Rockcress	S1	G4G5Q	T			Circumneutral bluffs, ledges or rocky woods
<i>Asplenium platyneuron</i> Ebony Spicewort	S2	G5	SC			Rich partly forested slopes, rocky ledges, and dry, circumneutral outcrops.
<i>Carex polymorpha</i> Variable Sedge	S1	G3	E			In Maine, habitat is between downslope seeps (with horsetails and wetland sedges) and upslope mixed oak/huckleberry forest. Preferred soil type is Deerfield Loamy Sand. All Maine occurrences are from coastal towns where climate is moderated by the ocean.
<i>Carex sterilis</i> Dioecious Sedge	S2	G4	T			Wet calcareous soils.
<i>Eriocaulon parkeri</i> Parker's Pipewort	S3	G3	SC			Fresh to brackish tidal mud and estuaries.
<i>Phegopteris hexagonoptera</i> Broad Beech Fern	S2	G5	SC			Rich, often rocky, hardwood forests.

# Rare Exemplary Botanical Features in the Project Vicinity

Documented within a four mile radius of the proposed Woodward & Curran Building Addition, Portland.

Scientific Name	Common Name	Last Seen	State Rarity	Global Rarity	State Legal Status	Federal Legal Status	Habitat Description
<i>Potamogeton vaseyi</i> Vasey's Pondweed		S2	G4	T			Quiet muddy or calcareous waters
<i>Prunus maritima</i> Beach Plum		S1	G4	E			Sandy soil along or near the coast
<i>Ranunculus ambigens</i> Water-plantain Spearwort		SH	G4	PE			Sloughs, ditches, and muddy swamps
<i>Selaginella apoda</i> Creeping Spike-moss		S1	G5	E			Meadows, lawns, and streambanks
<i>Suaeda calceoliformis</i> American Sea-blite		S1	G5	T			Rocky or gravelly saltmarshes and sea-strands.
<i>Zannichellia palustris</i> Horned Pondweed		S2	G5	SC			Fresh, brackish or alkaline waters, and stream edges



## STATE RARITY RANKS

- S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3 Rare in Maine (on the order of 20-100 occurrences).
- S4 Apparently secure in Maine.
- S5 Demonstrably secure in Maine.
- SH Occurred historically in Maine, and could be rediscovered; not known to have been extirpated.
- SU Possibly in peril in Maine, but status uncertain; need more information.
- SX Apparently extirpated in Maine (historically occurring species for which habitat no longer exists in Maine).

Note: State Ranks determined by the Maine Natural Areas Program.

## GLOBAL RARITY RANKS

- G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3 Globally rare (on the order of 20-100 occurrences).
- G4 Apparently secure globally.
- G5 Demonstrably secure globally.

Note: Global Ranks are determined by NatureServe.

T indicates subspecies rank, Q indicates questionable rank, HYB indicates hybrid species.

## STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's endangered and threatened plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future, or federally listed as Endangered.
- T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.
- SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE POSSIBLY EXTIRPATED; Not known to currently exist in Maine; not field-verified (or documented) in Maine over the past 20 years.

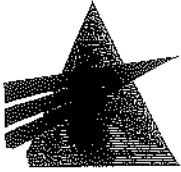
## FEDERAL STATUS

- LE Listed as Endangered at the national level.
- LT Listed as Threatened at the national level.

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Please note that species names follow Flora of Maine: A Manual for Identification of Native and Naturalized Vascular Plants of Maine, Arthur Haines and Thomas F. Vining, 1998, V.F. Thomas Co., 219 Dead River Road, Bowdoin, ME 04287.

Where entries appear as binomials, all representatives (subspecies and varieties) of the species are rare in Maine; where names appear as trinomials, only that particular variety or subspecies is rare in Maine, not the species as a whole.



August 26, 2005

Warren Eldridge, Regional Biologist  
Department of Inland Fisheries and Wildlife  
Regional Headquarters  
RR1 358 Shaker Road  
Gray, Maine 04039

Re: Woodard & Curran Building Addition – Wildlife Habitat

Dear Mr. Eldridge:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map. Please review this project site to verify that no significant wildlife and fisheries habitat will be affected by the proposed improvements. A project summary follows.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

We are aware of deer wintering area, under jurisdiction of the Department of Inland Fisheries and Wildlife, adjacent to the parcel. We are in the process of determining whether the project as designed will have any affect on the area. We will remain in contact until this issue is resolved.

We would also appreciate it if you would forward this request to others at the Department that can assist with this project. We anticipate submitting the permit application to the City by the end of August.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

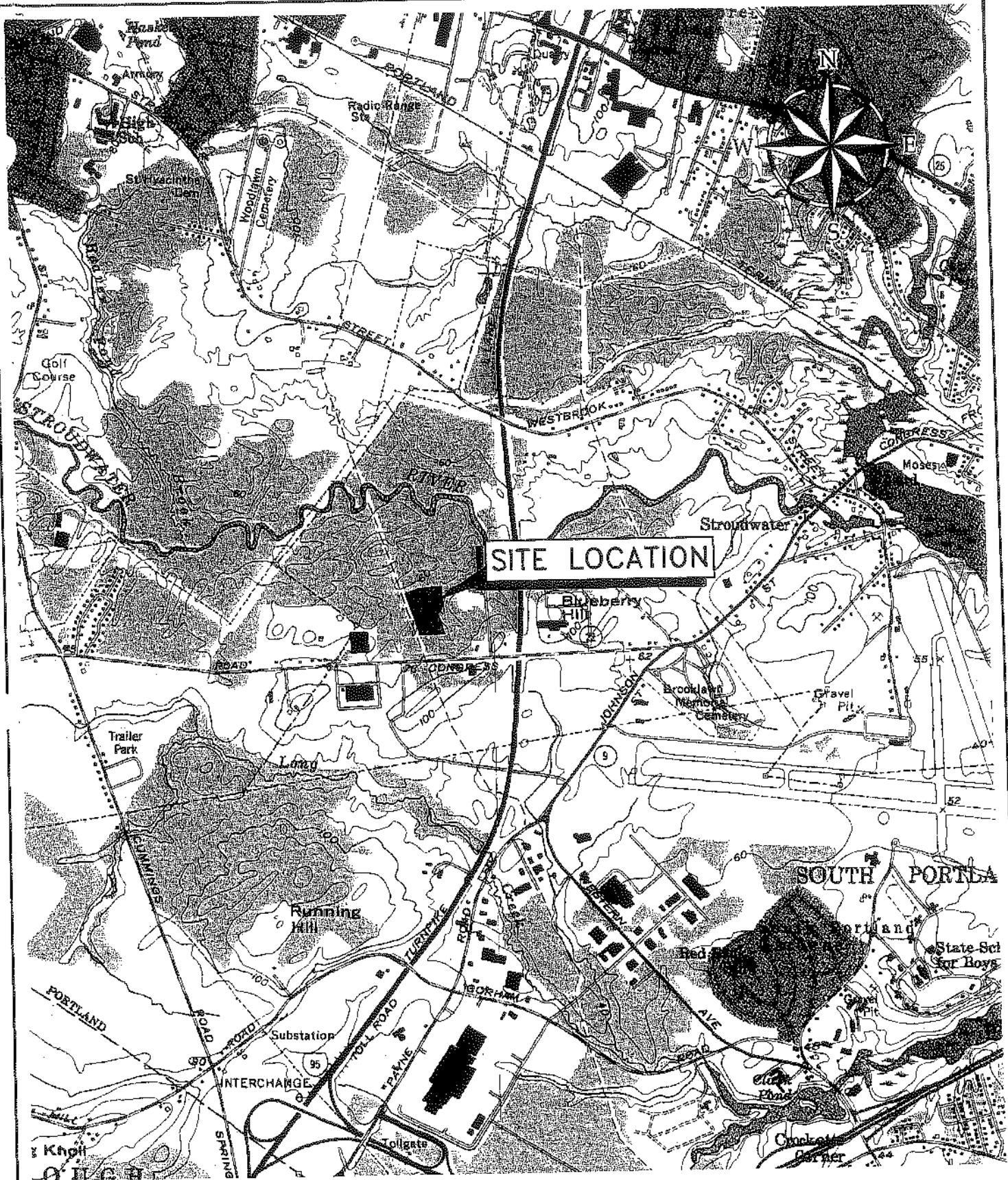
Sincerely,

WOODARD & CURRAN INC

Kenneth Volock  
Engineer

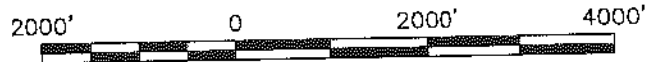
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203834.01/1.1

Enclosure



**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
Engineering · Science · Operations

PORTLAND, MAINE

800-426-4262

**USGS TOPOGRAPHIC MAP**

DESIGNED BY: JBC  
DRAWN BY: JBC

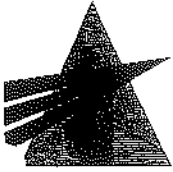
CHECKED BY: BSS  
2038340'-U301.1.dwg

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.03  
DATE: AUGUST 2005  
SCALE: 1" = 2000'

Figure 1.1



**WOODARD & CURRAN**  
Engineering • Science • Operations

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
*Operational offices throughout the U.S*

August 26, 2005

Gordon Russell  
United States Fish & Wildlife Service  
Maine Field Office  
1168 Main Street  
Old Town, Maine 04468

Re: Woodard & Curran Building Addition – Wildlife Habitat

Dear Mr. Russell:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map. Please review this project site to verify that no significant wildlife and fisheries habitat will be affected by the proposed improvements. A project summary follows.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

We would also appreciate it if you would forward this request to others at the U.S. Fish & Wildlife Service that can assist with this project. We anticipate submitting the permit application to the City by the end of August.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

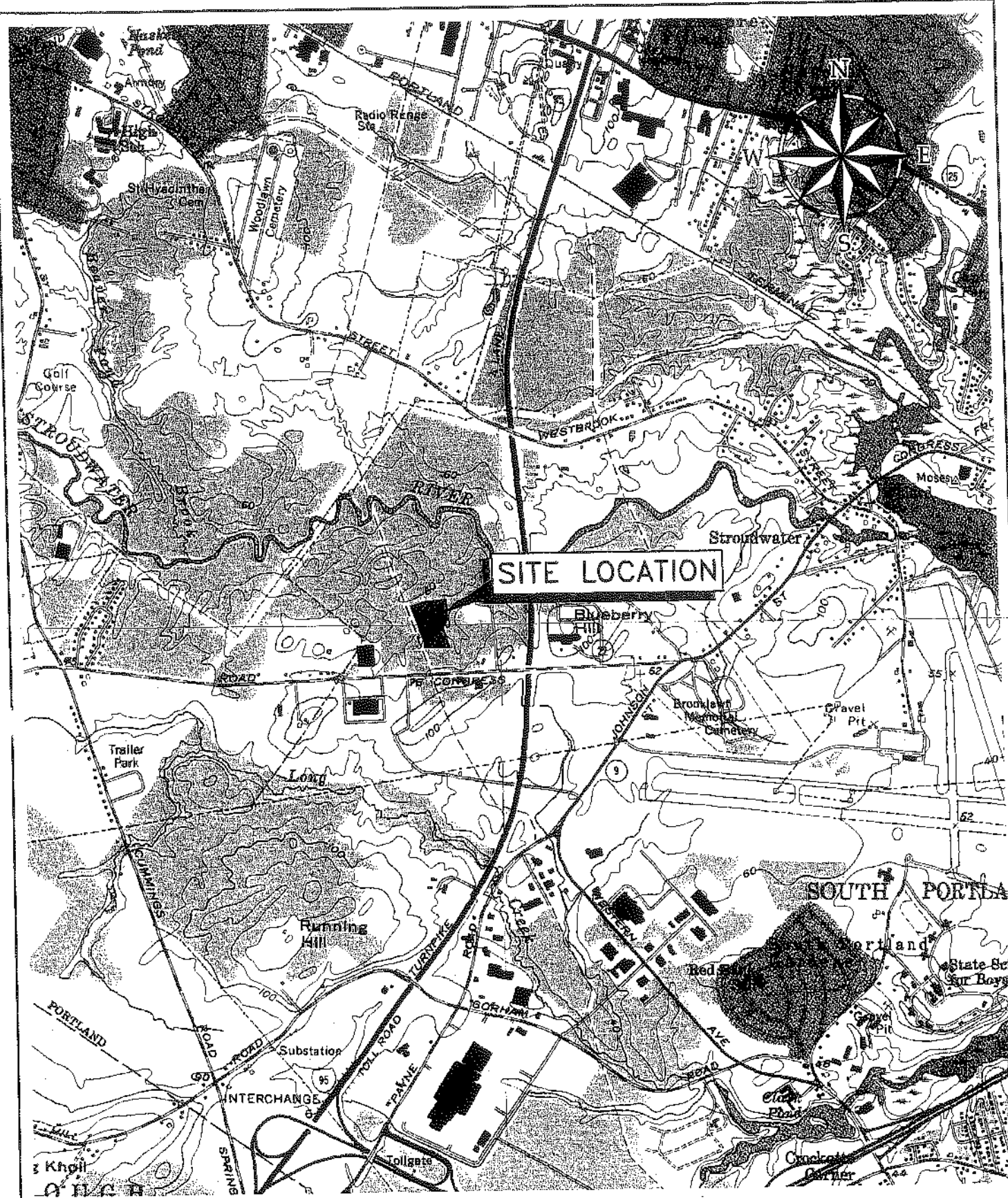
Sincerely,

WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djs  
203834.01/1.1

Enclosure



**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
 Engineering • Science • Operations  
 PORTLAND, MAINE 800-426-4262

**USGS TOPOGRAPHIC MAP**

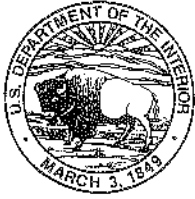
DESIGNED BY: JBC	CHECKED BY: BSS
DRAWN BY: JBC	2938340-U80;1.dwg

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.03  
 DATE: AUG/ST 2005  
 SCALE: 1" = 2000'

Figure 1.1



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Maine Field Office  
1168 Main Street  
Old Town, ME 04468-2023  
(207) 827-5938

September 6, 2005

Kenneth Volock  
Woodard and Curran  
41 Hutchins Drive  
Portland, ME 04102

Dear Mr. Volock:

Thank you for your letter requesting information or recommendations from the U.S. Fish and Wildlife Service. This form provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

**Project Name/Location/County:** Woodard and Curran Building Addition

**Date of Receipt of Incoming Letter:** August 26, 2005      **Log Number:** 05-398

Based on the information currently available to us, no federally-listed species under the jurisdiction of the Service are known to occur in the project area, with the exception of occasional, transient bald eagles (*Haliaeetus leucocephalus*). Accordingly, no further action is required under Section 7 of the ESA, unless: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The New England cottontail rabbit (*Sylvilagus transitionalis*), a Federal species of concern (which was formerly designated as a candidate for federal listing), has been observed about ½ mile east of your project location. This species was recently petitioned for federal listing. In our 90-day finding, the Service made an initial determination that this species warrants future listing. Thus, the New England cottontail may be federally listed in the near future. At this time, the New England cottontail is afforded no protection under the Federal ESA. However, we strongly encourage you to consider this species in your project planning. This species uses old field and scrub shrub habitats. We encourage you to conduct surveys to determine the presence of this species or its habitat on your property. The New England cottontail is listed as a species of special concern by Maine Inland Fisheries and Wildlife. We encourage you to contact MDIFW's Region A office; Scott Lindsay, MDIFW, RR 1 358 Shaker Rd., Gray, ME 04039 Phone: 207 657-2345) for more information.

A list of federally-listed species in Maine is enclosed for your information. Please contact the Maine Department of Inland Fisheries and Wildlife and Maine Natural Areas Program for an up to date account of state-listed species in the project area.

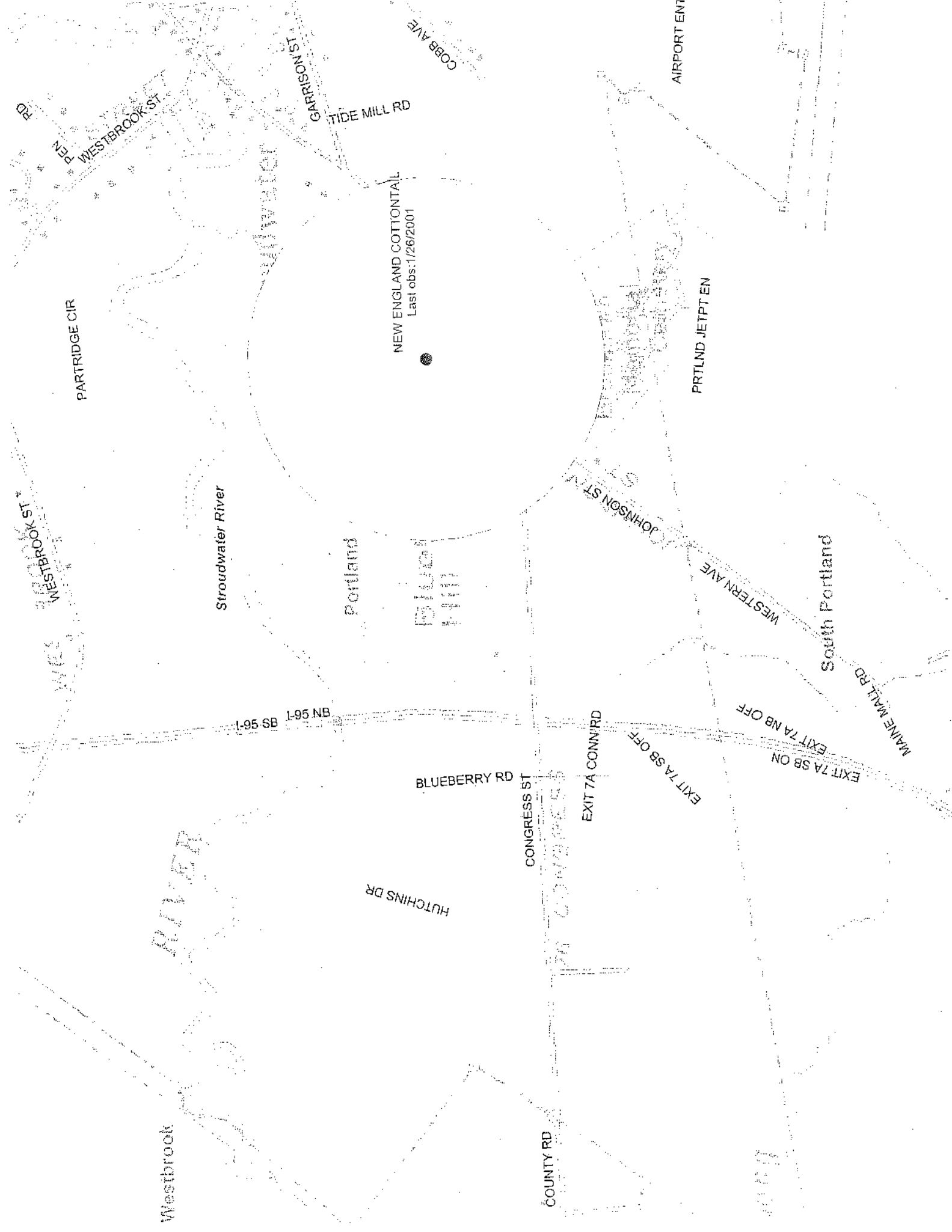
If you have any questions, please call me at (207) 827-5938.

Sincerely,

A handwritten signature in black ink that reads "Mark A. McCollough". The signature is written in a cursive style with a large, looping "M" and "C".

Mark A. McCollough,  
Endangered Species Biologist

Enclosure



NEW ENGLAND COTTONTAIL  
Last obs: 1/26/2001

Stroudwater River

Portland

Blueberry Rd

South Portland

PARTRIDGE CIR  
WESTBROOK ST  
WESTBROOK ST  
WESTBROOK ST

GARRISON ST  
TIDE MILL RD  
COBB AVE

AIRPORT ENT

PRTLND JETPT EN

JOHNSON ST  
WESTERN AVE  
MAINE MALL RD

I-95 SB  
I-95 NB

BLUEBERRY RD

CONGRESS ST

EXIT 7A CONN RD

EXIT 7A SB OFF

EXIT 7A NB OFF

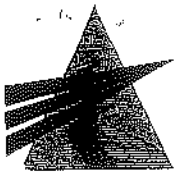
EXIT 7A SB ON

Westbrook River

Westbrook

COUNTY RD





September 2, 2005

Earle G. Shettleworth, Jr., Director  
Maine Historic Preservation Commission  
State House Station 65  
Augusta, Maine 04333

Re: Woodard & Curran Building Addition – Historic

Dear Mr. Shettleworth:

We are preparing Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents are being prepared for submittal to the City of Portland Planning Department.

The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map. Please review the proposed project site to determine if any historic sites exist on the property. We anticipate submitting the permit application to the City in the next few weeks. A project summary follows.

The proposed building addition will be a three-story structure. The first or ground floor will be partially enclosed and provides at-grade paved parking spaces. The upper two floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

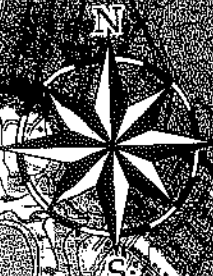
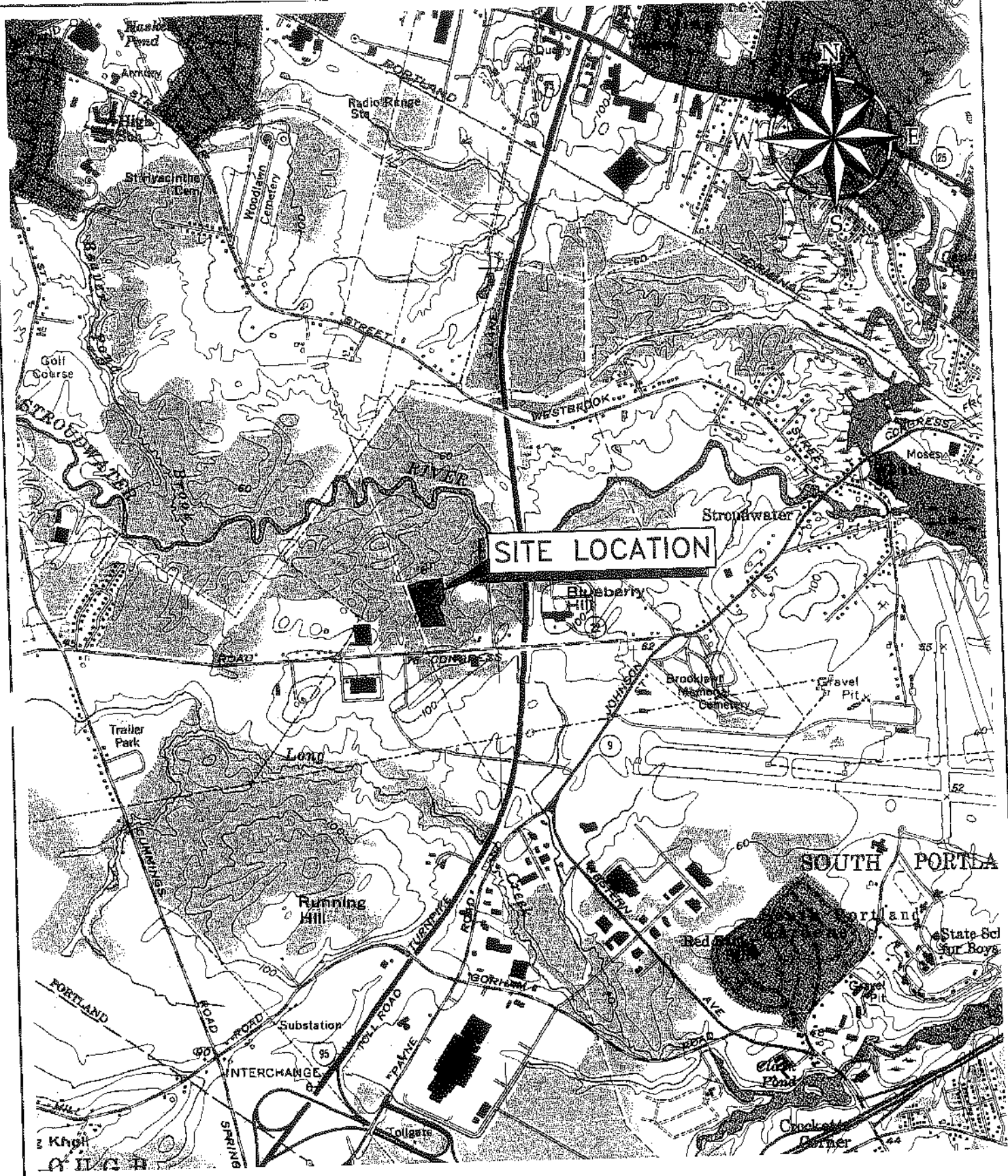
Sincerely,

WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/  
203834.01/1.1

Enclosure



**SITE LOCATION**

**NOTE:**  
 TOPO QUADS OBTAINED FROM MAINE OFFICE  
 OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE 800-426-4262

**USGS TOPOGRAPHIC MAP**

DESIGNED BY: JBC	CHECKED BY: BSS
DRAWN BY: JBC	20383401-U001.1.dwg

**CAD-CAM ASSOCIATES**  
 PORTLAND, MAINE

**WOODARD & CURRAN INC.**  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.03  
 DATE: AUGUST 2005  
 SCALE: 1" = 2000'

**Figure 1.1**

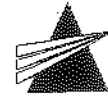


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## 12. ELECTRONIC SUBMISSION

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(12).

Electronic drawings in AutoCAD format have not been included at this time. The Applicants request permission to provide electronic drawing files from bid documents once they become available to ensure that the City obtains the most current and up-to-date drawings for its records.



### 13. RECYCLABLE MATERIAL

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(13).

Through our environmental sustainability initiative, the Woodard & Curran Portland office generates and recycles the following materials:

- White office paper;
- Mixed paper, including paperboard;
- Corrugated cardboard;
- #1, #2, #5, and #7 plastics;
- Brown and clear glass;
- All redeemable cans and bottles;
- Aluminum;
- Loose steel;
- Batteries;
- Data storage CDs and diskettes; and
- Office supplies (donated for re-use).

In 2004, we collected and recycled the following amounts of recyclable materials:

- White office paper: 13 tons
- Corrugated cardboard: 10.4 tons
- Mixed paper: 4528 lbs
- Paperboard: 391 lbs
- Plastics: 252 lbs

It is anticipated that similar amounts of these materials will be recycled in 2005 and future years, as the total number of employees in the Portland office will not change drastically with the new addition to the building.

In 2005, #5 and #7 plastics, brown and clear glass, aluminum, and loose steel were added to the office recycling program. The amount of those materials to be recycled is unknown, but will most likely not be a large amount.

The white office paper, mixed paper, and corrugated cardboard are transported off-site by our waste hauler, Waste Management. Office paper and mixed paper are removed on a weekly basis. Woodard & Curran personnel transport plastics, glass, aluminum, and steel to the nearby RWS collection facility on a weekly (plastics) or less frequent, as needed basis. Alkaline batteries are taken by Woodard & Curran personnel to the Yarmouth Recycling Center on a weekly basis. CDs and diskettes are recycled through a facility in Massachusetts, and office supplies which are no longer usable are donated to a local teacher's organization for re-use.

Waste Management provides Woodard & Curran with an estimate at the end of the year for the amounts of materials they removed from the office. Woodard & Curran recycling volunteers weigh the other materials.



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The only outside storage of recyclable material at the Portland office is the corrugated cardboard dumpster located in the lower parking lot (refer to sheets C100 and C200 for the dumpster location). The dumpster is four cubic yards and is emptied twice per week on Tuesday and Friday.

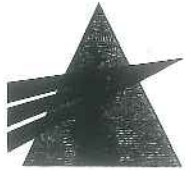


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The only outside storage of recyclable material at the Portland office is the corrugated cardboard dumpster located in the lower parking lot (refer to sheets C100 and C200 for the dumpster location). The dumpster is four cubic yards and is emptied twice per week on Tuesday and Friday.

Application ID Number:	2005-0225	Delete Review	Save	C			
Department:	Fire	Status:	Approved with Conditions	Reviewer:	Cptn Greg Cass		
Comments:	<input type="checkbox"/>	Approval Date:	09/28/2005	Expiration Date:	09/28/2006	Extension Date:	
<input type="checkbox"/> OK to Issue Permit		Name:		Date:		Date 2:	
<b>Conditions Section:</b>		Add New Condition From Default List	Add New Condition	Delete Condition			
Building construction to comply with NFPA 101.							
Building plans to include a life safety plan.							
Fire Dept. Access to be 20 feet, maintained, and unobstructed.							
Create Date:	09/28/2005	By:	cassg	Update Date:	09/28/2005	By:	cassg





October 26, 2005

Sarah Hopkins  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Sarah:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting 15 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000. The additional information that follows has been organized by section within the Application.

As you are aware, the Application was originally submitted with CADCAM Associates and Rist-Brunet Family Trust as joint applicants. Rist-Brunet has since removed themselves from the original Purchase and Sale Agreement for the parcel. A new agreement has been reached with Peggy and Eric Cianchette, owners of several properties in the Portland area.

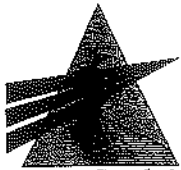
#### **Section 1 – Development Description**

As stated above, Peggy and Eric Cianchette are now joint applicants for the proposed project. They can be reached c/o ELC, Inc., 42 Market Street, Portland, Maine 04101.

↙ updated by letter of 1.4.06  
§14-525(b)(2)(j) *Lighting*: The site lighting for the satellite parking lot expansion portion of the project is shown on the enclosed Photometric Plan. The site lighting design was completed by BH Milliken Inc. Lighting catalog cuts have been enclosed for your convenience.

The plan depicts illumination at grade in units of foot-candles in a standard grid pattern. Each fixture shall be a high pressure sodium architectural area light with a 150W lamp, equal to the attached cut sheet, mounted on a 15-foot high pole with 0.5 foot pedestal. Fixtures shall be installed with cutoffs to eliminate back lighting. Maximum illumination at the nearest northerly property line shall not exceed 0.1 foot candles.





Sarah Hopkins, City of Portland  
October 26, 2005  
Page 2

The maximum, minimum, and average values calculated include the area intended for lighting while areas “off-pavement” were not included in the calculations. Values for comparison with the City Technical and Design Standards and Guidelines are as follows:

Maximum Illumination	4.7 foot-candles
Minimum Illumination	0.6 foot-candles
Average Illumination	1.9 foot-candles
Maximum to Minimum Illumination Ratio	7.8:1
Average to Minimum Illumination	3.1:1

### **Section 6 – Stormwater Management**

*Section 6.4 – Maintenance of Stormwater Systems:* Since Rist-Brunet Family Trust is no longer a joint applicant, the references to PKD Management and The Galloway Group are no longer applicable. All inspection and maintenance procedures described in section 6.4 are still valid, but the responsible party has not been identified at this time. If the responsibility for inspection and maintenance of the site lies with the tenant, Woodard & Curran, the responsible party will be Brent Powers, who can be reached at 41 Hutchins Drive, Portland, Maine 04102; (207) 774-2112. If responsibility lies with the property owner, information on the responsible party will be forwarded upon receipt.

### **Section 9 – Financial and Technical Capacity**

*Section 9.1 – Financial Capacity:* Updated evidence of financial capacity for the new joint applicants, Eric and Peggy Cianchette, will be forwarded upon receipt.

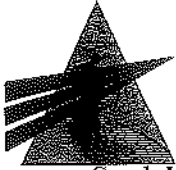
### **Section 10 – Title, Right, Interest**

Evidence of Title, Right and Interest in the property for the new joint applicants, Eric and Peggy Cianchette, will be forwarded upon receipt.

### **Section 11 – Environmental and Historical Considerations**

*Section 11.2 – Wildlife and Fisheries:* A response from the Maine Department of Inland Fisheries and Wildlife indicated that the proposed project will not infringe upon the deer wintering areas near the site. Further the response confirmed that the proposed project will not affect the habitat of any rare threatened or endangered species. The response, dated September 19, 2005, has been attached to this submission.

*Section 11.3 – Historic Sites:* A response from the Maine Historic Preservation Commission indicated that the proposed project will not adversely affect any areas of historic, architectural or archaeological significance. The response, dated September 22, 2005, has been attached to this submission.



**WOODARD & CURRAN**  
Engineering • Science • Operations

Sarah Hopkins, City of Portland  
October 26, 2005  
Page 3

We look forward to continuing our work with your office and the Planning Board on this project. Please do not hesitate to contact Woodard & Curran if you have any questions or comments.

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

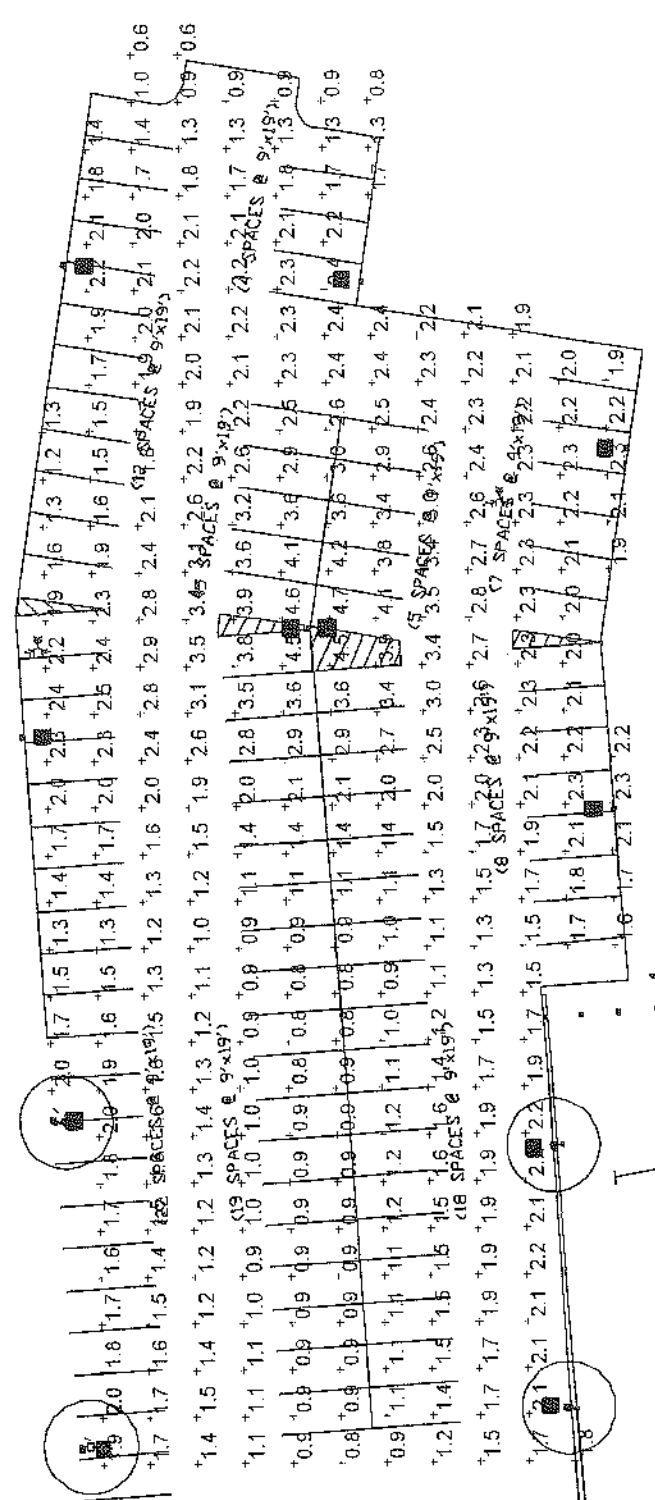
- Enclosures:
- Photometric Plan, dated October 13, 2005, prepared by B.H. Milliken.
  - Lighting Cut Sheets
  - Letter from the Maine Department of Inland Fisheries and Wildlife to Woodard & Curran, Inc., dated September 19, 2005.
  - Letter from the Maine Historic Preservation Commission to Woodard & Curran, Inc., dated September 22, 2005.

# STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #3	+	1.9 fc	4.7 fc	0.6 fc	7.8:1	3.1:1

# LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
■	A	9	GSS-XX-150-HPS-XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE-ROUND DISTRIBUTION	150W HPS CLED-17	GSS15HARS.ies	16000	0.86	150
■	B	1	GSS-XX-150-HPS-XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE-ROUND DISTRIBUTION	150W HPS CLED-17	GSS15HARS.ies	16000	1.00	300



WOODARD CURRAN

Designer  
B.H. MILLIKEN  
Date  
Oct 13 2005  
Scale  
AS SHOWN  
Drawing No.  
1  
1 of 1

TYPE:

CATALOG #:

**McGRAW-EDISON®**

**DESCRIPTION**

McGraw-Edison's Galleria combines beauty and versatility to make it an excellent choice for architects, specifiers and contractors in today's energy- and design-conscious environment. An aesthetic reveal in the formed aluminum housing gives the Galleria a distinctive look while a variety of mounting options and lamp wattages provide maximum flexibility.

**APPLICATION**

The Galleria achieves superior light distribution by utilizing a seamless reflector system, making it the optimum choice for almost any small or medium area lighting application.

**SPECIFICATION FEATURES**

**A - Housing**

Formed aluminum housing with stamped reveal has interior-welded seams for structural integrity and is finished in polyester powder coat. U.L. listed for wet locations. CSA approved.

**B - Ballast Tray**

Ballast tray is hard-mounted to housing interior for stability and cooler operation.

**C - Ballast**

Long-life core and coil ballast.

**D - Reflector**

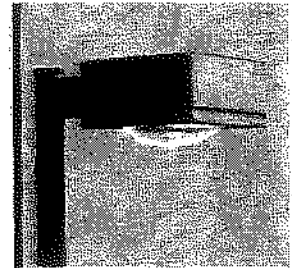
Spun and stamped aluminum reflector in vertical lamp units, or hydroformed anodized aluminum reflector in horizontal lamp units.

**E - Door**

Formed aluminum door has heavy-duty hinges, captive retaining screws and is finished in polyester powder coat.

**F - Lens**

Convex tempered glass lens.

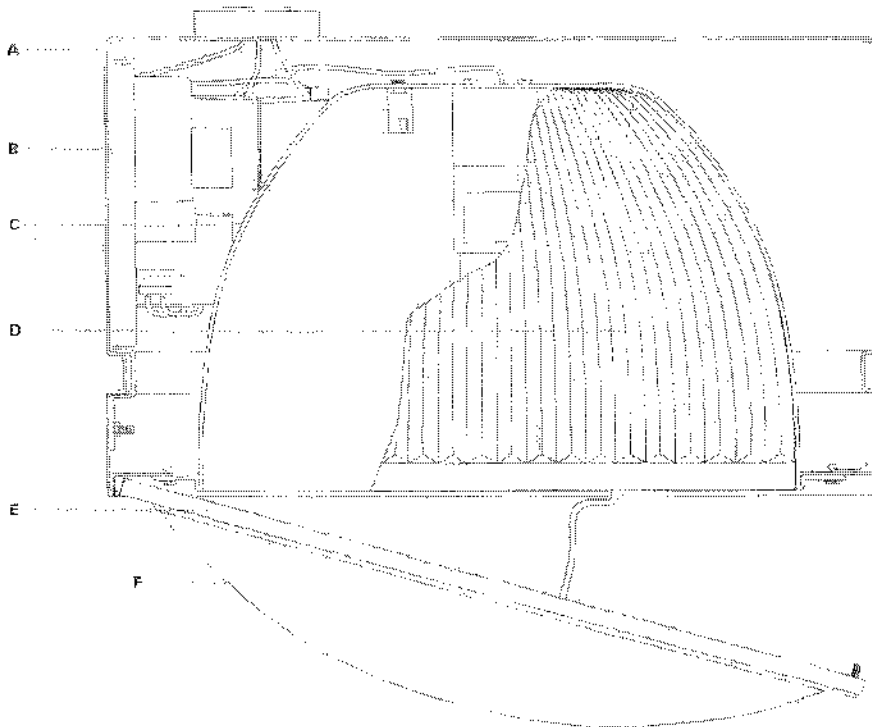


**GSGALLERIA**

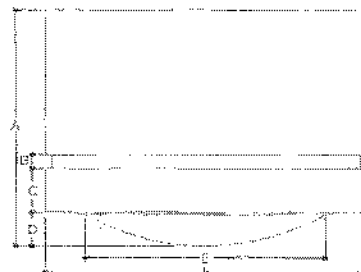
100 - 175 W

High Pressure Sodium  
Metal Halide

ARCHITECTURAL  
AREA LIGHT

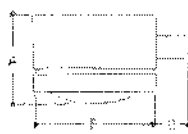


**DIMENSIONS**

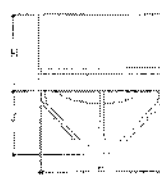


Fixture	A	B	C	D	E	F	G	H	J
Small Size	21 1/4	3/4	2 1/2	2	12 2/5	18 5/8	6 1/4	8 5/4	13 1/4
Large	28 1/2	1 1/4	3 1/4	3 1/2	15 1/2	22 1/2	7 1/4	11 1/4	17 1/4

**Arm Mount**



**Spider Mount**

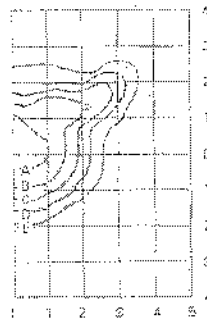
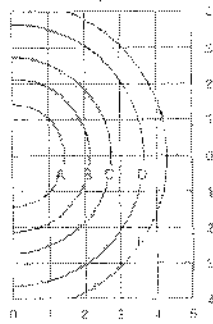
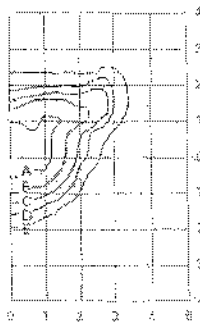
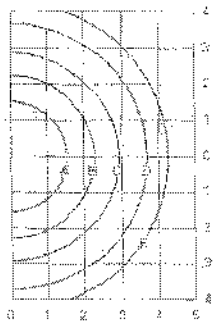


**ENERGY DATA**

Hi-Reactance Ballast Input Watts  
 100W HPS NPF/HPF (116 Watts)  
 100W MH HPF (129 Watts)  
 100W HPS HPP (193 Watts)

CSA Ballast Input Watts  
 175W MH HPP (210 Watts)

PHOTOMETRICS



**GS-1**  
**GSA15219AR**  
 150-Watt HPS Area Round  
 18,000-Lumen Clear Lamp

**GS-2**  
**GSA15219AD**  
 150-Watt HPS Type III  
 16,000-Lumen Clear Lamp

**GS-3**  
**GSA17129AR**  
 175-Watt MH Area Round  
 14,000-Lumen Clear Lamp

**GS-4**  
**GSA17129AD**  
 175-Watt MH Type III  
 14,000-Lumen Clear Lamp

**Footcandle Table**

Select mounting height and read across for footcandle values of each isocandela line.

**Mounting**

Height	Footcandle Values for Isocandela Lines				
	A	B	C	D	E
10'	4.50	2.25	1.16	0.41	0.23
15'	2.00	1.00	0.50	0.25	0.19
20'	1.12	0.56	0.28	0.19	0.26

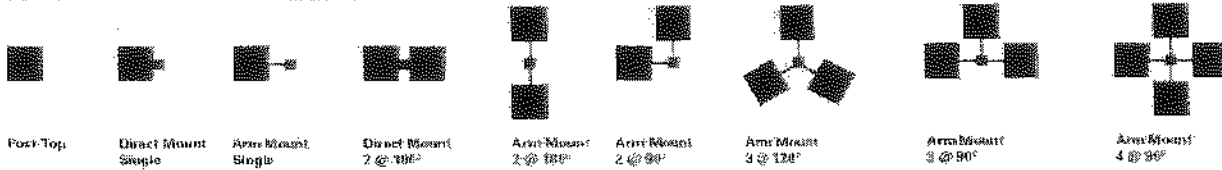
**Footcandle Table**

Select mounting height and read across for footcandle values of each isocandela line.

**Mounting**

Height	Footcandle Values for Isocandela Lines				
	A	B	C	D	E
10'	11.25	5.60	2.75	1.10	0.45
15'	5.00	2.50	1.00	0.50	0.25
20'	2.60	1.30	0.50	0.25	0.19

MOUNTING VARIATIONS



ORDERING INFORMATION

SAMPLE NUMBER: GSA252X82D

<b>G</b>	<b>S</b>								
<b>Product Family</b> G= Galleria	<b>Mounting Method</b> R= Recess W= Surface for 2" recess	<b>Lamp Wattage</b> 150-100 150-150 175-175	<b>Ballast Type</b> 1= MH-X 2= CWA 3= CWA	<b>Voltage</b> 1= 120V 2= 208V 3= 240V 4= 277V 5= 480V 9= Multi-Tap with 277V 6= Triple Tap wired 347V	<b>Distribution</b> 1D= Type I 2= Type II 3D= Type III 8= 800	<b>Options</b> (add as suffix) F= Single Fuse FI= Double Fuses R= Photocell control photocell G= Quartz Reflector Q= Flat Glass NS= House Sign Shields (All distribution only) VS= Vandal Shield	<b>Accessories</b> (add as suffix) MA1000= Direct mount kit for square pole MA1005= Direct mount kit for round pole MA1021= 8" arm for square pole, 0.7 EPA MA1022= 8" arm for round pole, 0.7 EPA MA1023= 9" arm for square pole, 0.7 EPA MA1024= 9" arm for round pole, 0.7 EPA CA1016= Photocell-Multi-Tap CA1027= Photocell-480V		
<b>Mounting Size</b> S= Small		<b>Lamp Type</b> 1= MH 2= HPS					<b>Colors</b> (add as suffix) AP= Gray BR= Bronze (standard) BG= Bronze BL= Black BL= Blue GR= Green RD= Red SV= Silver WH= White YL= Yellow		

Catalog Number*	Lamp Wattage	Lamp Type <sup>2</sup>	Ballast Type/ Power Factor <sup>3</sup>	Voltage <sup>4</sup>	Size	EPA	Net Wt. (Lbs.)	Shipping Volume (Cu. Ft.)
GSA10219XX	150	HPS	Hi-React. HPF MT	120V	Small	2	28	2.6
GSA15219XX	150	HPS	Hi-React. HPF MT	208V	Small	1.7	26	2.5
GSA10119XX	140	MH	Hi-React. HPF MT	120V	Small	1.3	20	2.9
GSA17129XX	175	MH	CWA-HPF MT	277V	Small	1.2	30	3.0
<b>Spider Mount (For 2" recess)</b>								
GSB10216XX	150	HPS	Hi-React. HPF M1	120V	Small	1.3	35	5.5
GSB15210XX	150	HPS	Hi-React. HPF MT	208V	Small	1.3	33	5.5
GSB10119XX	140	MH	Hi-React. HPF MT	120V	Small	1.0	35	5.5
GSB17129XX	175	MH	CWA-HPF M7	277V	Small	1.3	39	5.6

RIGHTS: \* Arm and rounded. See accessories.  
<sup>1</sup> Designates distribution by diameter (18" and 16 1/2" dia).  
<sup>2</sup> All lamps are medium base. Lamps are not included.  
<sup>3</sup> Hi-React. or ballast available in 150W only.  
<sup>4</sup> Multi-Tap ballast is 150/208/240/277V. Triple-Tap ballast is 120/277/347V.



OS GALLERIA specifications and dimensions subject to change without notice.



John E. Baldacci  
Governor

Roland D. Martin  
Commissioner

DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

Wildlife Division – Region A  
358 Shaker Rd.  
Gray, ME 04039  
Phone: (207) – 657-2345 x 109  
Fax: (207) – 657-2980  
[Scott.Lindsay@maine.gov](mailto:Scott.Lindsay@maine.gov)

September 19, 2005

Kenneth Volock  
Woodard & Curran, Inc.  
41 Hutchins Drive  
Portland, ME 04102

Dear Mr. Volock,

You contacted this office requesting information on any known wildlife habitats occurring at the site of the proposed addition to the Woodard & Curran, Inc. offices in Portland.

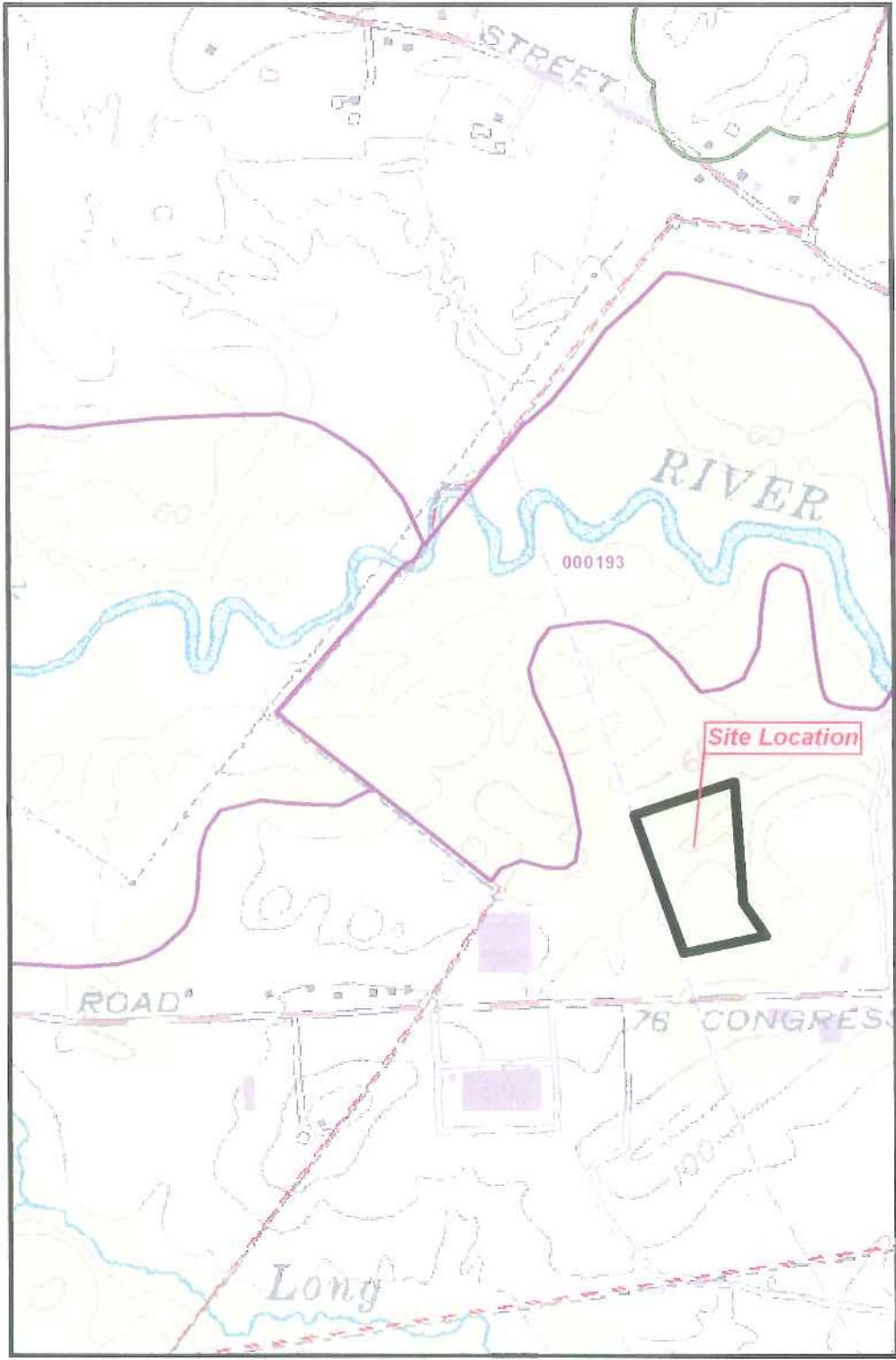
Based upon a review of the most current data available, there are no known essential or significant wildlife habitats, nor any documented occurrences of rare, threatened or endangered species within this property. This property is adjacent, but does not appear to fall within the boundaries of Deer Wintering Area 000193, which occupies about 120 along the Stroudwater River. I am not aware of any significant vernal pools on site, though no formal surveys have been conducted by MDIFW at this location. Though most development does reduce the quantity and quality of wildlife habitat for a variety of species, I believe development at this site would have minimal impact on regional wildlife resources and management goals.

Sincerely

A handwritten signature in cursive script that reads "Scott Lindsay".

Scott Lindsay  
Asst. Regional Wildlife Biologist

# Search for Wildlife Observations & Habitat



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding, & Brood-rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Coastal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Biological Conservation Database Rare Species or Habitat Observation
- Rare Plant
- Rare / Exemplary Natural Community
- Township Boundary
- County

*Site of Woodard & Curran Office. Appears to be outside of area delineated at Deer Wintering Area*

0 0.09 0.18 0.27 0.36 Miles

1:10,921

UTM Projection, Zone 19N, NAD83



RR1, 358 Shaker Road  
 Gray, ME 04039  
 Voice: (207) 657-2345  
 Fax: (207) 657-2980  
 September 19, 2005





MAINE HISTORIC PRESERVATION COMMISSION  
55 CAPITOL STREET  
65 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333

JOHN ELIAS BALDACCI  
GOVERNOR

EARLE G. SHETTLEWORTH, JR.  
DIRECTOR

September 22, 2005

Kenneth Volock, Engineer  
Woodard & Curran  
41 Hutchins Drive  
Portland, ME 04102

Project: MHPC #2488-05 - proposed building addition; 41 Hutchins Drive  
Town: Portland, ME


Dear Mr. Volock:

In response to your recent request, I have reviewed the information received September 7, 2005 to initiate consultation on the above referenced project pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended.

Based on the location and scope of work, I have concluded that there will be no historic properties [architectural or archaeological] affected by the proposed undertaking.

Please contact Mike Johnson of this office if we can be of further assistance in this matter.

Sincerely,



Earle G. Shettleworth, Jr.  
State Historic Preservation Officer

EGS/mj





# PORTLAND MAINE

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

**Planning and Development Department**  
Lee D. Urban, Director

November 14<sup>th</sup> 2005

**Planning Division**  
Alexander Jaegerman, Director

Kenneth Volock, Engineer  
Woodard & Curran Inc.  
41 Hutchins Drive  
Portland, ME 04102

Dear Mr. Volock,

**Re: Major Site Plan Review: Woodard & Curran Building Addition**  
**Our Ref: 2005-0225; Your Ref: 20384.01**

I refer to your letters of September 21, 2005 and October 26, 2005. We have reviewed the proposals and submitted information and have the following comments:

1. There are still a number of checklist items that need to be submitted, including an updated survey drawing, landscaping details, capacity letter from Portland Sewer Division, illumination data for the north boundary to be shown on the Photometric Plan, and clarification regarding the Wetlands Alteration Permit.
2. The proposed layout, with the addition on the north side of existing buildings, results in a number of significant impacts eg the need for a new sewer alignment, disturbance to drainage patterns and wetland areas, and long walking distances between parking and the buildings. Please provide information as to why the addition has not been sited on the higher and dryer part of the site to the south of the existing buildings.
3. The excessive scale of parking exacerbates these adverse impacts. Would it be possible to rationalize existing parking (make better used of paved areas) and reduce the total parking spaces to help minimize these impacts?
4. The Review Engineers have concerns regarding the filtration pond and the new sewer alignment and I will forward their comments when received.

*Re: Major Site Plan Review: Woodard & Curran Building Addition -Nov. 14, 2005*

5. A thirty foot private drainage easement is shown along the unnamed brook to the north of the existing buildings. This easement would need to be transferred to the City.
6. The 365 foot long paved sidewalk between the overflow parking lot and the main access is acceptable to be located on private land, but the City would need to have an easement over it.
7. In addition, I would advise you that Ordinance 25 (Public Works) requires the installation of a sidewalk and granite curbs along the whole of the site frontage to Hutchins Drive. Therefore the proposed sidewalk referred to in para 6 needs to be extended to the site boundaries where they meet Hutchins Drive. I attach the relevant provisions of the Ordinance. A waiver to this requirement may be requested by the applicant, but must be based on the sidewalk and granite curb waiver requirements which are also attached.

This application is currently scheduled for a Planning Board Workshop on November 22, 2005, but given the reservations outlined above it may be desirable to reconsider the timing of the Workshop.

I suggest we meet in the next few days, with the City Engineer and Review Engineer, to discuss the points in this letter and the timetable- I can be contacted on (207) 874-8728 or by e-mail at [jf@portlandmaine.gov](mailto:jf@portlandmaine.gov).

Sincerely,



Jean Fraser  
Planner, City of Portland

Cc : City Engineer  
Review Engineer  
Sarah Hopkins

*Re: Major Site Plan Review: Woodard & Curran Building Addition -Nov. 14, 2005*

5. A thirty foot private drainage easement is shown along the unnamed brook to the north of the existing buildings. This easement would need to be transferred to the City.
6. The 365 foot long paved sidewalk between the overflow parking lot and the main access is acceptable to be located on private land, but the City would need to have an easement over it.
7. In addition, I would advise you that Ordinance 25 (Public Works) requires the installation of a sidewalk and granite curbs along the whole of the site frontage to Hutchins Drive. Therefore the proposed sidewalk referred to in para 6 needs to be extended to the site boundaries where they meet Hutchins Drive. I attach the relevant provisions of the Ordinance. A waiver to this requirement may be requested by the applicant, but must be based on the sidewalk and granite curb waiver requirements which are also attached.

This application is currently scheduled for a Planning Board Workshop on November 22, 2005, but given the reservations outlined above it may be desirable to reconsider the timing of the Workshop.

I suggest we meet in the next few days, with the City Engineer and Review Engineer, to discuss the points in this letter and the timetable- I can be contacted on (207) 874-8728 or by e-mail at [jf@portlandmaine.gov](mailto:jf@portlandmaine.gov).

Sincerely,



Jean Fraser  
Planner, City of Portland

Cc  City Engineer  
 Review Engineer  
 Sarah Hopkins

**Sec. 25-96. Required for nonresidential, two-family or multi-family development; exceptions.**

Where a nonresidential, or a two-family or multi-family development requiring site plan approval abuts any accepted street and a sidewalk with granite curbing satisfactory to the public works authority has not already been provided, a sidewalk constructed of bituminous concrete, portland cement concrete, brick or other paving material and granite curbing shall be provided along the entire street frontage of the lot. If either a sidewalk or curbing, but not both, shall exist at such location which is satisfactory to the public works authority, only a sidewalk or curbing, as the case may be, shall be provided. In either case, such sidewalk and curbing shall be constructed in accordance with the specifications and to the satisfaction of the public works authority at no cost to the city. In conjunction with major site plan review, the planning board, or with minor site plan review, the planning authority, may waive or modify the requirements contained herein upon a like finding and on the same terms and conditions as set forth in section 14-506(b) of this Code.

**Sec.14 -506 (b) Modifications.**

(b) Where the planning board or planning authority finds that, for each of the requirements listed below, two or more of the conditions exist with respect to compliance with the requirements set forth in sections 14-498 and 14-499 pertaining to the provision and construction of curbs and/or sidewalks, it may vary the regulations so that substantial justice may be done and the public interest secured:

**Sidewalks-**

1. There is no reasonable expectation for pedestrian usage coming from, going to and traversing the site.
2. There is no sidewalk in existence or expected within 1000 feet and the construction of sidewalks does not contribute to the development of a pedestrian oriented infrastructure.
3. A safe alternative-walking route is reasonably available, for example, by way of a sidewalk on the other side of the street.
4. The street is scheduled for major reconstruction as a component of the Capital Improvement Program.
5. The street has been constructed or reconstructed without sidewalks within the last 24 months.
6. Strict adherence to the curb and sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value.

**Curbing-**

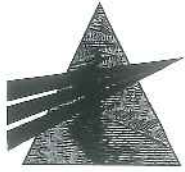
1. The cost to construct the curbing, including any applicable street opening fees, is in excess of 5% of the overall project cost

2. The street is scheduled for major reconstruction as a component of the Capital Improvement Program.
3. The street has been rehabilitated without curbing in the last 60 months.
4. Strict adherence to the curb and sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value.

In no event shall the variation have the effect of creating potentially hazardous vehicle and pedestrian conflict or nullifying the intent and purpose and policies of the land development plan relating to transportation and pedestrian infrastructure and the regulations of this article. At its discretion, the planning authority may refer any petition for a variance from the curb and sidewalk requirement to the planning board for decision.

2. The street is scheduled for major reconstruction as a component of the Capital Improvement Program.
3. The street has been rehabilitated without curbing in the last 60 months.
4. Strict adherence to the curb and sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value.

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**WOODARD & CURRAN**  
Engineering · Science · Operations

2005-0225 revised dwgs  
cnc 11-23-05

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
Operational offices throughout the U.S

Attachment IF

November 22, 2005

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting 15 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000. The additional information that follows has been organized by section within the Application.

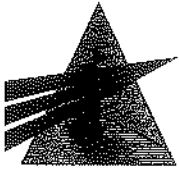
### **Section 1 – Development Description**

As we have discussed, the proposed site plan for the project has changed such that the building addition will be located closer to Hutchins Drive. The building addition will be a three-story structure with a building footprint of approximately 7,560 square feet. The interior of the addition will have a gross floor area of approximately 22,680 square feet of office space, with a direct link to the North Wing. Parking will now be located to the rear of the proposed building with an access drive to the north side of the addition. C200 Proposed Site Plan, depicting important site elements, has been attached to this submission.

Upon completion, the building addition will have a similar look and feel to that of the existing North Wing, to which it will be adjacent. Floor elevations will be coordinated to match the existing buildings, allowing free-flow of office personnel. A20.1 Building Elevations, depicting the building addition as seen from the West (Hutchins Drive) and the South (central plaza), has been attached to this submission.

*§14-525(b)(2)(h) Landscaping:* At this point, the site landscaping has not been designed for the project. A Landscaping Plan will be submitted to your office once it has been developed.

*§14-525(b)(2)(j) Lighting:* The revisions to the site layout require some modifications to the site lighting. Specifically, exterior lighting may need to be relocated in the central plaza area and additional lighting will be required in the rear parking lot. A modified Lighting Plan will be submitted upon completion.



Jean Fraser, City of Portland  
November 22, 2005  
Page 2

## **Section 2 – Project Area**

The proposed building addition will have a building footprint of approximately 7,560 square feet. The three-story structure will be office space with a gross floor area of 22,680 square feet. Other changes to site imperviousness include the 67 space addition to the parking lot on the northerly portion of the site; the increase in parking at the rear of the building; the new access drive to rear parking areas; and the redesigned plaza and walkway in the center of the campus. The total increase in paved area is 24,881 square feet. In total, the proposed project will increase site imperviousness by 32,441 square feet (approximately 0.74 acres) to 95,843 square feet (approximately 2.2 acres), 33.1% coverage.

During the generation of construction documents, Woodard & Curran intends to investigate the use of pervious pavements or other pavement alternatives to off-set the increase in impervious surface for the site.

## **Section 5 – Off-Site Facilities**

We are still awaiting a response from Frank Branceley, City of Portland Department of Public Works, regarding the City sewer collection system capacity in the area. The response will be forwarded to your office upon receipt.

## **Section 6 – Stormwater Management**

The revisions to the site layout require some modifications to the Stormwater Management Plan. A modified Plan will be submitted upon completion.

## **Section 8 – State and Federal Permitting**

Through discussions with the Maine Department of Environmental Protection (MeDEP), it appears that the project will be covered by an NRPA Permit-By-Rule. A Notification Form will be submitted to the MeDEP at least two weeks prior to construction and a copy will be forwarded to your office.

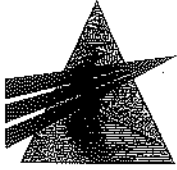
## **Section 9 – Financial and Technical Capacity**

*Section 9.1 – Financial Capacity:* Updated evidence of financial capacity for the new joint applicants, Eric and Peggy Cianchette, will be forwarded upon receipt.

## **Section 10 – Title, Right, Interest**

A letter to Sarah Hopkins, City of Portland from Judy Knaub, Chief Financial Officer, indicating the execution of a Purchase and Sale Contract with Eric and Peggy Cianchette for the property at 41 Hutchins Drive, has been attached to this submission





**WOODARD & CURRAN**  
Engineering • Science • Operations

Jean Fraser, City of Portland

November 22, 2005

Page 3

Thank you for the assistance you have provided thus far. We look forward to continuing our work with your office and the Planning Board on this project. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,

WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: C200 Proposed Site Plan, prepared by Woodard & Curran, Inc.  
A20.1 Building Elevations, prepared by Harriman Associates  
Letter from Judy Knaub, Woodard & Curran Chief Financial Officer, to Sarah Hopkins,  
City of Portland, indicating execution of Purchase and Sale Contract.



**WOODARD & CURRAN**  
Engineering • Science • Operations

Sarah Hopkins  
City of Portland  
389 Congress St.  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review – Additional Information

Dear Sarah:

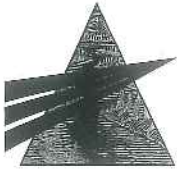
We have an executed purchase and sale contract for the property located at 41 Hutchins Drive, Portland, Maine with Eric and Peggy Cianchette . If you have any questions please don't hesitate to contact me.

Sincerely,  
WOODARD & CURRAN INC.

Judy Knaub  
Chief Financial Officer

cc: Malone Commercial Brokers, Inc.

rec'd  
11-22-05



Attachment II G

December 2, 2005

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CAD/CAM Associates and Peggy and Eric Cianchette, we are submitting 15 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000. The additional information that follows includes an updated Stormwater Management Plan and addressed comments provided in your letter to our office dated November 14, 2005. Our responses have been organized in order of the comments you provided.

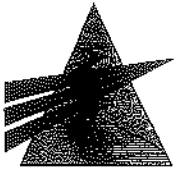
Comment:

1. *There are still a number of checklist items that need to be submitted, including an updated survey drawing, landscaping details, capacity letter from Portland Sewer Division, illumination data for the north boundary to be shown on the Photometric Plan, and clarification regarding the Wetlands Alteration Permit.*

Response:

In an email that you sent to me on November 30, 2005, you stated that the problem with the survey drawing was not the date performed, but that it was lacking in some required information. I have reviewed the excerpt from Sec 14-525(b) that you provided and compared it to the Boundary Survey submitted with our initial application. The only information not included on the Boundary Survey is the topographic information; however, this information has been provided on Sheet C100 Existing Site Plan.

I have recently been in contact with Frank Brancely and expect a sewer capacity letter from him shortly. I have also had recent contact with Doug Burdick at the Maine Department of Environmental Protection (MeDEP). Mr. Burdick believed that the project, as most recently proposed, would qualify for an NRPA Permit by Rule with respect to wetlands permitting. Both the sewer letter and official determination from the MeDEP regarding wetlands permitting will be forwarded upon receipt.



Jean Fraser, City of Portland  
December 2, 2005  
Page 2

Both the Lighting Plan and Landscaping Plan are currently under development. Each will be forwarded upon completion.

Comment:

- 2. The proposed layout, with the addition on the north side of existing buildings, results in a number of significant impacts eg the need for a new sewer alignment, disturbance to drainage patterns and wetland areas, and long walking distances between parking and the buildings. Please provide information as to why the addition has not been sited on the higher and dryer part of the site to the south of the existing buildings.*

Response:

It is our understanding based on subsequent phone conversations and emails, that the latest proposed layout (as submitted to your office on November 22, 2005) is much more acceptable to the reviewers. In particular, the latest layout features: a much more subtle sewer realignment; proposed piped outfalls located in close proximity to existing outfall locations; only about 50 square feet of wetland fill, located over 100 feet away from the unnamed brook on the north side; and no wetland fill on the south side of the wetland. Walking distances for most employees would actually be longer if the proposed addition were located on the south side of the existing building.

Several factors were considered when locating the proposed addition. With the latest layout, CAD/CAM will be creating a campus-type setting for the three wings of the building, each accessible by a common central plaza. Upon completion, the building addition will have a similar look and feel to that of the existing North Wing, to which it will be adjacent. Floor elevations have been coordinated to match the adjacent buildings, allowing free-flow of office personnel.

Siting the building on the south side of the existing building would create two subterranean levels, or a wing that is one or even two stories higher than the rest of the building. Such a building would be out of character with the campus feel and may also present setback problems.

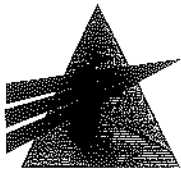
Comment:

- 3. The excessive scale of parking exacerbates these adverse impacts. Would it be possible to rationalize existing parking (make better use of paved areas) and reduce the total parking spaces to help minimize these impacts?*

Response:

On any typical work day, all parking adjacent to the buildings is full with several cars parked along the side of driveways. Further, approximately 40 to 45 Woodard & Curran employees typically park in the parking lot of the adjacent property to the south, where Woodard & Curran leases space. Therefore, upon completion of the building addition and termination of the current lease, Woodard & Curran will see an immediate need for approximately 45-50 parking spaces. The building addition will provide the ability to add another 30-35 employees.

The proposed expansion of the satellite lot will increase the number of parking spaces from 32 to 99. Since the number of parking spaces adjacent to the buildings is equal in the existing and proposed



Jean Fraser, City of Portland  
December 2, 2005  
Page 3

conditions, the satellite parking will be required to provide parking for approximately 85 employees. Further, as the company grows, it is reasonable to assume more visitor parking will be required. In light of future growth, 99 spaces in the satellite lot is a reasonable number.

Comment:

- 4. The Review Engineers have concerns regarding the filtration pond and the new sewer alignment and I will forward their comments when received.*

Response:

Comments from the Review Engineer were not received, but it is our understanding that the elimination of the filtration pond (treating runoff from the roof drains) and the new, more subtle sewer realignment has alleviated these concerns.

Comment:

- 5. A thirty foot private drainage easement is shown along the unnamed brook to the north of the existing buildings. This easement would need to be transferred to the City.*

Response:

At this point, it is unclear whether the drainage easements can be transferred and remain in compliance with the Stroudwater Estates Phase II Site Location of Development permit. We are investigating the right and interest aspect and will provide further information when available.

Comment:

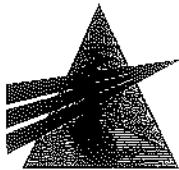
- 6. The 365 foot long paved sidewalk between the overflow parking lot and the main access is acceptable to be located on private land, but the City would need to have an easement over it.*

Response:

The 365 foot long paved sidewalk between the satellite parking lot and the main entrance is located on Portland Water District (PWD) owned land adjacent to Hutchins Drive. At the time that the satellite parking was brought before the Planning Board in 1999, Woodard & Curran requested and received permission from the PWD to construct the sidewalk. As the land that the sidewalk sits on is not part of the property, it is not within our power to grant an easement to the City. Woodard & Curran would be willing to facilitate discussions between the City and the PWD, should the City wish to pursue the easement further.

Comment:

- 7. In addition, I would advise you that Ordinance 25 (Public Works) requires the installation of a sidewalk and granite curbs along the whole of the site frontage to Hutchins Drive. Therefore the proposed sidewalk referred to in para 6 needs to be extended to the site boundaries where they meet Hutchins Drive. I attach the relevant provisions of the Ordinance. A waiver to this requirement may be requested by the applicant, but must be based on the sidewalk and granite curb waiver requirements which are also attached.*



# WOODARD & CURRAN

Engineering · Science · Operations

Jean Fraser, City of Portland

December 2, 2005

Page 4

Response:

Upon reviewing the excerpt from the Ordinance and waiver requirements, we request a waiver from the sidewalk requirement set forth in Sec 25-96. The existing sidewalk is intended for use by those employees parking in the satellite lot. Other employees are currently afforded access to the building without having to walk on or toward Hutchins Drive; therefore, in accordance with criteria 1 in Sec 14-506 (6), "there is no reasonable expectation for pedestrian usage coming from, going to and traversing the site." Additionally, the existing sidewalk is the only sidewalk presently constructed on Hutchins Drive; therefore, in accordance with criteria 2 in Sec 14-506 (6), "there is no sidewalk in existence or expected within 1000 feet and the construction of sidewalks does not contribute to the development of a pedestrian oriented infrastructure."

Hutchins Drive is constructed without catch basins or a piped drainage system. Instead, drainage is provided through ditching on either side of the road. If curbing were to be installed along the property's road frontage, there would be significant negative impacts to drainage along this portion of Hutchins Drive.

As stated earlier, this submission also includes an updated Stormwater Management Plan, reflecting recent changes to the proposed site layout. Based on our recent discussions, it seems appropriate to schedule a meeting with Jim Seymour to discuss the Plan as well as other aspects of our submission. Please let me know when you have had a chance to contact him and schedule a meeting.

Thank you for the assistance you have provided thus far. We look forward to continuing our work with your office and the Planning Board on this project. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: Section 6: Stormwater Management, prepared by Woodard & Curran, Inc.



## 6. STORMWATER MANAGEMENT



### 6.1 OVERVIEW

The proposed project consists of the expansion of the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. The project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and the relocation of a City of Portland sewer main and its associated easement.

The site consists of two parcels of land, lots #15 & #16 of the Stroudwater Estate Subdivision, owned by CAD-CAM Associates and located at 41 Hutchins Drive. These lots occupy a total area of approximately 6.65 acres. As stated earlier, the site is occupied by an office building with a footprint of 13,232 square feet (approximately 0.3 acres). Other impervious areas on the site include parking lots, paved driveways and walkways which combine to make up 50,170 square feet (approximately 1.15 acres) of paved area.

### 6.2 SITE CHANGES

The proposed building addition will be a three-story structure with a building footprint of approximately 7,560 square feet, with a direct link to the existing North Wing. Other changes to the site include: an addition to the parking lot on the northerly portion of the site; an increase in parking at the rear of the building; the new access drive to rear parking areas; and the redesigned plaza and walkway in the center of the campus. The total increase in paved area is 24,881 square feet. In total, the proposed project will increase site imperviousness by 32,441 square feet (approximately 0.74 acres) to 95,843 square feet (approximately 2.2 acres).

Table 6.1 below indicates the changes in impervious area within the upland portions of the site as a result of the proposed project:

Table 6.1: Site Impervious Area Summary

	Total Site Area (acres)	Impervious Area (acres)	Percent Impervious (%)
Pre-Development	6.65	1.46	21.9
Post-Development	6.65	2.20	33.1
<b>CHANGE</b>	<b>0.00</b>	<b>0.74</b>	<b>11.2</b>

### 6.3 STORMWATER MANAGEMENT DESIGN

Stormwater runoff from the site ultimately flows to an unnamed brook in the 30-foot wide drainage easement running through the middle of the site. The unnamed brook flows through the easement and makes its way to the Stroudwater River, a little more than a quarter of a mile away.

The Woodard & Curran site falls under the existing Site Location of Development permit for Stroudwater Estates Phase II, L-010223-99-A-A. As a condition of that permit, peak discharge from the site must be controlled. Therefore, the project has been designed to prevent an increase in peak runoff from the site.

### **6.3.1 Existing Stormwater Management**

The existing building roof drains, a portion of the adjacent parking area to the north, and the adjacent open space to the east collect in a small pond designed to reduce peak discharge rates. Runoff is discharged from the pond through a 6-inch diameter PVC pipe into a wooded area and flows to the brook. The remainder of the adjacent parking area to the north is graded such that stormwater runs off overland into wooded areas and toward the brook. Runoff from the area between the existing building and Hutchins Drive, including the main entrance drive to the building, is collected in a catch basin and piped toward the brook.

The satellite parking lot on the northerly portion of the site drains into another small pond, also designed to reduce peak discharge rates. The pond contains an outlet structure controlling the inlet of a 12-inch corrugated polyethylene culvert. The culvert discharges to a riprap apron and then flows to the brook. The area above the parking lot to the north and west is graded such that runoff is diverted to a ditch along Hutchins Drive and then into the brook through a 48-inch concrete culvert under Hutchins Drive. Runoff from the undeveloped portion of the site, east of the satellite parking lot, flows over land directly to the brook.

### **6.3.2 Proposed Stormwater Management**

Runoff from the area between the building and Hutchins Drive, including the main entrance drive to the building, will continue to be collected in a catch basin and piped toward the brook. The existing portion of the satellite parking lot and the area above it to the north and west will drain as in the existing condition. Runoff from a portion of the access lane and the existing parking area adjacent to the North Wing will be collected in a catch basin and piped toward the brook. The proposed expansion to parking at the rear of the buildings will not be collected, but rather drain overland into existing wooded buffers and toward the brook.

The roof drains from the entire building will be collected and piped to a subsurface detention structure, similar to the Rainstore product by Invisible Structures, Inc. The detention structure will be located under the parking lot adjacent to the existing North Wing, and will be approximately 60'x50' in area and 2 feet deep. Product cut sheets for the Rainstore product have been included in this section.

According to Invisible Structures product literature, the Rainstore product has 94% void space, providing 2,820 square feet of effective area in the subsurface detention structure; however, in modeling the structure, a conservative area of 2,600 square feet was used. The primary discharge is through a 4-inch culvert at the bottom of the structure (invert elevation 40.0'), detaining flow during the larger storms. A secondary discharge is provided in the form of a 12-inch culvert set one foot above the base of the structure (invert elevation 41.0'). The structure is modeled as Pond 23 in the Post-Development Stormwater Model (see section 6.3.3.2 and the attached HydroCad data). The detention structure will discharge to the proposed catch basin drain between the parking lot and the access lane.

Alternately, a water reclaim system is being considered for the existing and proposed portions of the building. Runoff from the roof drains would be collected and used for water closets. In this case, the subsurface detention structure would be replaced with a collection tank, and if proposed, we would submit additional information at that time to support that proposal.

On the northerly portion of the site, the proposed addition to the satellite parking lot will be collected and treated in two underdrained filter basins. Each basin will drain either through the underdrain or over a spillway and into the brook. The area above the proposed expansion to the north will be diverted to the brook to the east without being collected in either basin.



### 6.3.3 Stormwater Quantity Calculations

The intent of this section is to address the effects of site runoff from a proposed development project on the local watershed. The stormwater modeling presented herein compares the existing site conditions with the proposed site conditions (existing and proposed).

Stormwater modeling was done using the HydroCAD Stormwater Modeling System by Applied Microcomputer Systems. HydroCAD uses TR20 runoff calculation methodology. The computation sheets resulting from the models are attached at the end of this section.

The runoff curve numbers (RCN) for the subcatchments have been computed using the TR55 methodology. The subcatchments were divided based on land use and acreage measurements were used to compute a weighted (composite) RCN.

The time of concentration ( $T_c$ ) paths for the subcatchments were selected to represent the most hydrologically remote point of the watershed. The  $T_c$  paths are shown respectively on the Pre-Development and Post-Development Stormwater Plans. Note that the  $T_c$  computations contain time calculations using TR55 sheet flow, shallow concentrated flow equations, and circular channel (pipe).

Soils information used in the computations was obtained from the Soil Survey of Cumberland County, Maine, USDA Soil Conservation Service (SCS Survey). The project site is located in an area of Elmwood and Scantic soils. The Elmwood soils are mapped for the generally higher, drier topography of the site, while the Scantic soils are in the lower, wet regions. An interpretation of the delineation between soils was made using the site's wetland mapping. Selection of the hydrologic soil group for computation of runoff curve numbers assumes that the floodplain wetlands mapped for the project are Scantic soil and the remaining non-floodplain areas are Elmwood soil. The Scantic series soil is Hydrologic Soils Group "D" and the Elmwood series soil is Hydrologic Soils Group "C".

For this project, the 2-, 10-, and 25-year return frequency storms of 24-hour duration were analyzed. A Type III rainfall distribution was applied to these storms. The 2-, 10-, and 25-year 24-hour precipitation measurements (3.0 inch, 4.7 inch, and 5.5 inch, respectively) were taken from Appendix D of the BMPs, rather than the values published in the Portland Technical and Design Standards and Guidelines. Through other work in the City of Portland, we have learned that the values published in the BMPs are preferred.

#### 6.3.3.1 Existing Condition

To model the project, the existing site was separated into multiple drainage area subcatchments. Subcatchments 11X, 12X, 13X, 14X, 21X, 22X, 23X and 24X represent the Existing conditions. These subcatchments are depicted in Figure 6.1 attached to this section. Subcatchments 11X through 14X have been numbered generally west to east along the northerly area of the project site, in the vicinity of the satellite parking lot. Subcatchments 21X through 24X depict the southerly area of the project site, in the vicinity of the building.

Reaches 1R, 2R and 3R are located in the middle of the project site and represent the unnamed brook running through the 30-foot wide drainage easement. Reach SP represents the study point in the brook near the eastern edge of the project site for the purpose of quantity modeling.

Ponds P11 and P23 represent existing ponds where runoff is collected from Subcatchments 11X and 23X respectively. Reaches R11, R12, R22 and R23 represent paths by which Subcatchments 11X, 12X, 22X and 23X respectively, are routed through other subcatchments to the unnamed brook.

is greater than the decreases for the 10- and 25-year storms since a significant portion of the runoff from the satellite parking expansion is detained in the filtration basin.

The watershed routing diagram and model output from HydroCAD is attached at the end of this section for both the Existing and Proposed conditions.

### **6.3.4 Stormwater Quality**

Currently, there are no stormwater quality treatment measures on the site. As a result of the proposed project, runoff from the proposed expansion to the satellite parking lot will be treated in underdrained filter basins prior to discharge to the unnamed brook. The total amount of impervious area that will be treated through measurable BMPs will be 0.48 acres, or about 22% of the impervious area on the entire site.

#### **6.3.4.1 Applicable Standards**

The City of Portland Code of Ordinances was reviewed to determine the applicability of local stormwater quality standards. City Code of Ordinances Section 14-526, Subsection (a), Paragraph 20 states, in part, "Stormwater runoff from paved areas shall be treated to the extent practicable to minimize contaminants." Additionally, the City of Portland Technical and Design Standards and Guidelines, Section V, Subsection 3, Paragraph A states that "[a]ll development proposals shall conform to the standards set forth in Chapter 500 of the Maine Department of Environmental Protection Stormwater Management [...] Rules".

The Maine Department of Environmental Protection (MeDEP) has recently adopted an updated Chapter 500: Stormwater Management. The updated chapter went into affect November 16<sup>th</sup>. The project has been designed to comply with the new rules.

Although the new impervious area equals only 0.75 acres, during the course of the construction of these and other non-impervious areas, more than one acre of land will be disturbed. Therefore, in accordance with the new Chapter 500, the site must meet the Basic Stormwater Standards which address erosion and sedimentation control, inspection and maintenance, and housekeeping.

As part of this project, less than one acre of impervious surface will be created, therefore the site need not meet the BMP Standards. However, the expansion to the satellite parking lot has been designed to meet the BMP Standards in an attempt to create a lower impact design.

In summary, the project is designed to meet the MDEP Basic Standard. The satellite parking expansion is designed to meet the BMP Standard, as described in the recently adopted version of MeDEP's Chapter 500: Stormwater Management. We believe that this meets the requirement to treat "to the extent practicable" as described in the City Code of Ordinances.

#### **6.3.4.2 BMP Assessment and Selection**

In Chapter 500: Stormwater Management, the MeDEP suggests four potential treatment methods to comply with the BMP standards:

- Wetponds with detention above the permanent pool,
- Filtration,
- Infiltration, and
- Buffers.

The area required to construct a wetpond to meet the BMP is too great considering the disturbance of forest and wetlands as well as the changes to site topography that would be required. The varied site topography also prohibits the ability to classify certain areas as buffers.

And the soils on the site make infiltration difficult. The type of BMP that seems most feasible for the site is a constructed filtration basin.

Due to the location of each proposed element of the project, and in an effort to minimize site disturbance, two underdrained filtration basins are proposed to treat runoff from the proposed expansion to the satellite parking lot. Each basin is sized to detain a volume of runoff equal to one inch times the impervious area that drains to it, plus 0.4 inches times the vegetated area that drains to it. The basins are designed so that storage volume will be less than 18 inches deep. The floor of the basin will be constructed with a soil filter layer capable of passing the stored volume within two days. The soil filter layer will be underlain by a well-drained gravel layer with a perforated underdrain. Filter Basin details have been provided on Sheet C301 Civil Details-2, attached to Section 1.

Each basin will have a spillway constructed to allow flow from larger storms to pass through. Each spillway will be at a height of 18 inches above the basin floor and 18 inches below the top of the basin embankments. The width of each spillway has been designed so that the peak height of water in each basin during the 25-year storm will be at least one foot below the top of the embankment.

In accordance with, treatment volumes for each of the Filtration Basins are as follows:

- Basin 1:  $(1" \times 0.11 \text{ acre impervious}) + (0.4" \times 0.06 \text{ acre vegetated}) = 486.42$  cubic feet of storage.
- Basin 2:  $(1" \times 0.37 \text{ acre impervious}) + (0.4" \times 0.07 \text{ acre vegetated}) = 1,444.74$  cubic feet of storage.

The required treatment storage must be at a depth of no more than 18 inches. As shown in the attached HydroCad calculations, Filter Basin #1 (modeled as Pond P16) and Filter Basin #2 (modeled as Pond P15), have cumulative storages, at depths of 18 inches, of 561 cubic feet and 1,615 cubic feet, respectively. Both Basins have been sized to provide sufficient treatment storage to comply with the requirements of the recently adopted Chapter 500 Stormwater rules.

## **6.4 MAINTENANCE OF STORMWATER SYSTEMS**

Upon completion of the project, responsibility for overseeing the property will fall on the Facilities Manager, including the inspection and maintenance of the site's stormwater drainage system, treatment measures, roadways, parking areas, permanent erosion control measures, and landscaped areas located outside of City right-of-ways.

At this point it is undecided whether the Facilities Manager will be an agent of the Owner or the tenant. If the responsibility for inspection and maintenance of the site lies with the property owner, information on the responsible party will be forwarded upon receipt. If the responsibility for inspection and maintenance of the site lies with the tenant, Woodard & Curran, the responsible party will be Brent Powers, who can be reached at 41 Hutchins Drive, Portland, Maine 04102; (207) 774-2112.

### **6.4.1 Catch Basins**

Catch basins will be inspected semi-annually in spring and fall. These visual inspections ensure the catch basin grate is free of debris and that sediment in the sump has not accumulated above the pipe inverts. If cleaning is required, the Facilities Manager can contract the services of Catch Basin Cleaners [P.O. Box 1579; Meredith, N.H., 03253; (603) 279-3118] or a similar firm.

#### **6.4.2 Parking and Paved Areas**

Parking and paved areas will be inspected annually each spring. Visual inspections will enable site roads and parking areas to be kept clean and clear through contracting periodic sweeping and winter plowing as required. The inspections will also ensure pavement markings are repainted as needed to maintain property traffic circulation and parking space delineation. Paved areas will be plowed and sanded as often as necessary to maintain public safety.

The Facilities Manager will inspect all parking and paved areas in the project site and will have the pavement swept and cleaned within the project site on an annual, as-needed basis. This work will be contracted with Zebra Striping, Inc. [101 Pleasant Hill Rd.; Scarborough, ME, 04074; (207) 883-7081] or a similar firm.

#### **6.4.3 Filter Basins**

The underdrained filter basins will be inspected semi-annually in spring and fall. Additionally, each basin will be inspected following major storms. These inspections will ensure that there is no erosion in the basin, the basin remains capable of filtering runoff within two days, and sediment does not build up.

MeDEP recommends mowing filter basins at least twice each year to allow visual inspection and to prevent the growth of woody plants. At the Woodard & Curran site, each basin will be mowed in conjunction with regular mowing, typically on a weekly basis. Sediment will be removed annually. Any eroding areas will be repaired immediately. Should a basin fail to filter the runoff from a storm within two days, the soil filter layer may need to be refilled. The Facilities Manager would likely hire a local contractor to perform this work.

The basins will not be used for snow storage or for any activities that involve heavy foot traffic. Vehicles will not be allowed within the basins.

### **6.5 CONCLUSION**

The proposed project was designed to meet the recently adopted MeDEP Chapter 500: Stormwater Management and also to comply with the existing Site Location permit and City Ordinance. As such, the emphasis in dealing with runoff from the site was placed on both stormwater quality and peak runoff rate. The peak post-development runoff will be slightly reduced as a result of the project.

Upon completion of the project, maintenance responsibility for the site stormwater conveyance and treatment measures will be the responsibility of the Facilities Manager.

### **6.6 ATTACHMENTS**

Rainstore, by Invisible Structures, Inc., Product Detail Sheets

Figure 6.1 – Existing Stormwater Management Plan.

Figure 6.2 – Proposed Stormwater Management Plan.

HydroCAD Calculations (Existing).

HydroCAD Calculations (Proposed).



05P225

**TO:** Jean Fraser – Planner  
**FROM:** Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.  
**RE:** Major Site Plan Review: 41 Hutchins Drive, Woodard & Curran Expansion  
**DATE:** December 22, 2005

---

Sebago Technics has reviewed the revised submittal of the Major Site Plan application and supporting documentation with latest revision dated December 22, 2005 for the proposed expansion of their current office complex located at 41 Hutchins Drive in the City of Portland. It is our understanding that this development is on a lot, which was part of the Stroudwater Estates Subdivision, which obtained approval of a Maine DEP Site Location of Development permit in the 1980's. Since this site has not reached a threshold of 3 acres impervious it has not triggered a separate requirement for a Site Location permit based on current DEP standards. We respectfully offer the following comments in outline format:

1. **Stormwater Management**

Review of the stormwater management plan and subsequent runoff quantity and quality calculations appear to be in a state of flux given the recent transition of the new Chapter 500: Stormwater Management Law and the City relieved of its delegated review authority, both the MeDEP and the City of Portland were not clear on the review level required for this site (quantity vs. quality). We agree with the principle of "beating the peak" and thereby not requiring detention as long as all measures have been exhausted to treat the runoff to remove sediment and other pollutants. Furthermore, with documentation of non-jurisdiction by DEP, of current standards for stormwater permits, we then feel that the City can review the site.

We have recommended a strategy to address concerns of treatment vs. detention for dealing with stormwater management plan with which staff and the Planning Board could support for approval.

- A. The project will require evidence that they meet the stormwater quality standard as required by the City's stormwater standard for required treatment when

parking areas exceed 25 spaces. A narrative and calculation discussing and showing proof that the standard has been met must be submitted for the entire site. Recent meetings disclosed that the previous DEP order required quantity control. Given the City had authority with DEP with the standards before November 2005, we feel that if the site controls the 2 yr storm and treats that volume for the feasible majority of the site proposed for expansion and redevelopment that the larger rain events can be released to the adjacent stream without detaining.

- B. The following are bullet items to address concerns of concentrated flows, erosion, and to redirect flows to preferred treatment areas:

**Satellite Parking lot drainage issues:**

- Cape cod curb north side of satellite parking lot and build shallow shelf at slope bottom against curb back.
- Place basin at corners of north side of satellite lot to direct to drainage/treatment basins
- Underdrain the north side of parking lot
- Guardrail is needed on east side of satellite lot where slopes lead to basins/ponds.
- Consider revising the existing pond to provide infiltration treatment for the current satellite parking area.
- Berm landscape Hutchins Street frontage as allowed (outside PWD land or with permission) with berms and tree vegetation.

**Comments on Building parking lot**

- Revise parking layout at the east end. Consider semi circle layout for easier access and turnaround movement and dumpster location.
- Regrade east side parking to sheet flow stay on a northeast course and install sediment basin at the end of the parking lot, to then collect sediment and us buffers to further treat runoff.
- Curb both sides of lower access road to east parking lot from the entrance at Hutchins Dr. to throat of parking lot. The inside edge should begin at sidewalk ramp/crossing.
- Drainage collection is needed for drop-off circle/sheet flow is too indirect and long. Icing and erosion on the driveway edge will occur.
- All piped outlets shall be protected with stone riprap plunge pools and aprons. Inlets shall be riprap-lined aprons appropriately sized.
- Locations of underground storage for detention must be outside of any City sewer easements.
- The access drive is shown at 20 feet the city standard requires 24 feet for two-way traffic. There appears room next the building for an additional 4 feet given the driveway will be curbed.

- The sliver of land between the immediate parking lot just behind the addition and the access driveway should be paved and separated by wood guardrail if the remaining land is less than 2 feet wide.
- The four space parking area on the south side of the building front, should consider underdrain along the edge to alleviate runoff and groundwater in the cut area.

2. **Road Access/Circulation**

- A. Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.
- B. The access lanes shall be 24 feet for two-way access.
- C. The sewer location shall be in the center of the driveway.

3. **Utilities**

- A. Letters to serve and available capacities have been requested showing that adequate service exists for the development.
- B. The City wastewater division and City Engineer shall assist review of the construction details and location of the re-located interceptor sewer.

4. **Grading & Erosion Controls**

- A. The applicant should consider mulch berms along with sedimentation fence for an erosion barrier given the close proximity to a stream.
- B. Winter erosion control notes will be needed along with formal plans reflecting erosion control notes/measures needed on the site during construction.

5. **Water Quality Treatment**

- A. Per the City of Portland Technical and Design Standards and Guidelines, the applicant is required to treat stormwater runoff from parking facilities with 25 cars or more. As previously mentioned the site does not appear to need to conform to the state's Stormwater Law Chapter 500, for water quality. We will refer to treatment measures from the DEP's BMP manual as proof that the entire site conforms to a water quality standard to the maximum extent as feasible.
- B. The sizing and detailed specifications with clear relativity to the water quality units/measures shown on the plan shall be attached for review along with a site specific maintenance plan and draft contract for cleaning services.

6. **General**

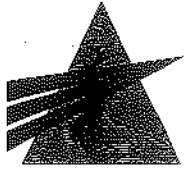
- A. The plans shall reflect the actual amount of wetlands or protected land that will require filling disturbance, and require permitting from the DEP.
- B. The applicant is likely required to file a revised Maine Construction General Permit for this project. This must be obtained prior to the start of construction.
- C. The applicant has appears to have available space for development, but given resource protection limits, treatment measures requiring avoidance of snow storage, and given the extent of parking, snow removal is of some concern. Please provide on a plan to address snow storage locations on site.

Overall, the project has been well planned out. However, the applicant should make the necessary revisions, as noted in the above comments to conform to City stormwater treatment issues for water quality, and some minor grading and parking layout/aisle concerns. Seeing how this is a workshop item and will be coming back for additional review we will review details at a later time. Several details for construction will be required but we expect that these can be handled between workshop and Public Hearing meetings.

Please contact our office if you have any questions.

JRS/jrs





**WOODARD & CURRAN**  
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CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
Operational offices throughout the U.S

January 4, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows includes lighting and landscaping plans, evidence of financial capacity for the co-applicants Peggy and Eric Cianchette, and clarification on Title Right and Interest per our phone conversation today. The information has been organized according to applicable section within the application.

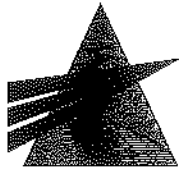
#### **Section 1 – Development Description**

*§14-525(b)(2)(h) Landscaping:* Landscaping for the proposed development is shown on the attached Landscape Plan, Sheet L-1.0. Per our phone conversations today, we have included 5 copies of this submittal. The landscaping design was completed by Carroll Associates.

*§14-525(b)(2)(j) Lighting:* The site lighting has been revised for the satellite parking lot expansion portion of the project and has been updated to include the revised building layout and parking. As such, we have included 5 copies of the updated Photometric Plans, Sheets 1 of 2 and 2 of 2, attached to this submission. The site lighting design was completed by BH Milliken Inc.

#### **Section 9 – Financial and Technical Capacity**

As evidence of the financial capacity of the co-applicants, Peggy and Eric Cianchette, to undertake the proposed project, we offer the attached letter from Bangor Savings Bank to Sarah Hopkins, City of Portland, dated January 3, 2006. This letter supersedes the letter from New England Realty Resources, LLC that was included with the initial application. The letter is a faxed copy, so a copy of the original will be forwarded upon receipt. We have included 10 copies of this submission.



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*Operational offices throughout the U.S.*

March 9, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting 10 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

The information that follows includes updated plans and addresses comments that have arisen from our continued discussion of this project with City staff and with the Maine Department of Environmental Protection (MeDEP). These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The following potential conditions of approval were identified in the Planning Board Report, prepared for the Project in anticipation of its Public Hearing originally scheduled for February 7, 2006. Responses have been organized in order of the potential conditions of approval.

Potential Condition:

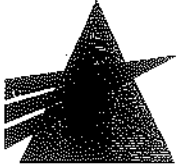
*That the applicant receives and submits the required permits from the MDEP prior to the issuance of a building permit.*

Response:

Through discussions with MeDEP, the plan can be approved. An Order of Approval is anticipated within the next few weeks. An email from Marybeth Richardson, Project Manager for MeDEP, stating as such has been attached to this submission.

Potential Condition:

*That the applicant conducts a post-development analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and PM peak hours to ensure safe and reasonable operations will be provided following completion of the project. In the event that modifications are needed to the intersection to achieve safe and reasonable operations, the applicant shall make a proportional financial contribution to the cost of such modifications.*



Jean Fraser, City of Portland  
March 9, 2006  
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Response:

Gorrill-Palmer Consulting Engineers, Inc. has conducted the requested analysis of the intersection of Congress Street and Hutchins Drive. Findings were originally submitted to the City on February 23, 2006. At the request of the City Traffic Engineer, the findings were revised to reflect 96 additional employees rather than the 64 additional employees that Woodard & Curran would be able to employ. The revised findings are attached to this submission and have been forwarded directly to the City's Traffic Review Engineer.

Potential Condition:

*That the applicant shall re-evaluate stormwater treatment factors and submit revised calculations and show all buffers on the site plan with labels indicating the width, slope and percentage of removal efficiency for each buffer shown.*

Response:

Based on conversations with the City's DRC and with the stormwater review engineer for the Maine Department of Environmental Protection (MeDEP), treatment factors have been reassessed for the Filtration Basins. The stormwater quality calculations have been rerun using a TSS removal factor of 90% for the basins. A dry swale has been added off the end of the rear parking lot to treat runoff from the access road and the rear parking lot. Through the Filtration Basins and the dry swale, the Sliding Scale TSS removal standard (45% for this project) can be achieved without the use of buffers. The revised Stormwater Management Plan was submitted to the City and to MeDEP on February 23, 2006.

Potential Condition:

*The applicant shall submit a letter from the Engineering Division of Public works verifying adequate sewer capacity to serve this project.*

Response:

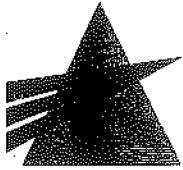
A letter from the City of Portland Public Works Department, dated February 24, 2006, verifying adequate sewer capacity to serve the project, was received and forwarded to Portland Planning in our submission of February 28, 2006.

Potential Condition:

*The applicant shall submit a Snow Removal and Maintenance Plan for the 20 foot wide roadway adjacent to the new building to the satisfaction of the Traffic Engineer and the Development Review Coordinator (Jim Seymour of Sebago Technics). The Plan to show how this access will be maintained and kept free of obstructions to ensure fire access if needed.*

Response:

Snow storage areas have been added to Sheet C201 Proposed Site Plan. The 20 foot driveway width will be maintained; no snow storage is proposed for along the roadside.



Jean Fraser, City of Portland  
March 9, 2006  
Page 3 of 6

Potential Condition:

*The applicant shall present the sidewalk, drainage and sewer easements for final review and approval by Corporation Counsel.*

Response:

Draft language for the drainage easement and for the relocated sewer easement is being prepared for the City's review. We are still awaiting final word on whether the City is interested in the drainage easement associated with the small brook along the eastern edge of the property, or only in the drainage easement associated with the larger brook running through the center of the site.

Through discussions with Norm Twaddel at the Portland Water District (PWD), the sidewalk easement will be presented to the PWD Planning Committee on Monday, March 13<sup>th</sup>, and to the full Board of Directors for vote on Monday, March 27<sup>th</sup>.

Potential Condition:

*That the applicant shall revise the plan to provide a 24 foot wide roadway where the main access to the site meets Hutchins Drive.*

Response:

The width of the driveway entrance at Hutchins Drive has been increased to 24 feet.

Potential Condition:

*The applicant shall provide a fire hydrant on the access road to meet the fire Department requirement of a hydrant every 500 feet.*

Response:

There is an existing hydrant located next to the main entrance to the building. Every face of the building can be reached in less than 500 feet from the hydrant. An additional hydrant is not necessary to meet the 500 foot requirement and is not proposed as part of the project.

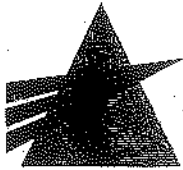
Potential Condition:

*The applicant shall submit details of the sidewalk extension and sewer diversion, which must be in accordance with the City Standards and directly reviewed and approved by Public Works.*

Response:

A detail showing typical sidewalk construction in accordance with City design standards has been added to Sheet C301.

Rim and invert elevations have been added for the proposed sewer relocation on Sheet C202 Proposed Utility Plan. Due to the small amount of sewer design involved, profiles have not been included. It is our understanding the sewer layout and proposed easement have been reviewed and found acceptable by City of Portland Public Works; we will continue to work with Public Works as we finalize construction documents.



Jean Fraser, City of Portland  
March 9, 2006  
Page 4 of 6

Potential Condition:

*That the applicant shall address the comments raised by the Development Review Coordinator (Jim Seymour of Sebago Technics) in his memorandum of January 31, 2006 concerning labeling of rim elevations, curbing along the access road, curbing of the satellite parking lot islands, the need for an underdrain for the underground detention/storage and the need for construction elevation benchmarks with the datum specified.*

Response:

Curbing along the access drive has been extended toward the entrance where the road curves and runoff velocities are expected to be higher. No curbing is proposed where the drive takes a straight course, in order to encourage some amount of filtering as runoff passes through the landscaped area. These changes can be seen on Sheet C201 Proposed Site Plan.

Cape Cod curbing has been added to the internal parking lot islands in the north parking lot, as can be seen on Sheet C201 Proposed Site Plan. Through discussions with the Development Review Coordinator, the Cape Cod curb detail has been revised to provide a one foot curb width rather than a two foot width. The revised detail can be seen on Sheet C301 Civil Details 2

Sheet C202 Proposed Utility Plan has been revised to indicate rim elevations for all structures.

A boring in the area of the proposed subsurface detention structure indicated saturated soils at an elevation of approximately 38 feet. The base of the detention structure will be at 40, providing two feet of separation from the water table. Additionally, the subsurface detention structure will be constructed over a geogrid placed directly on existing soils. The primary outlet is located at the base of the structure; therefore no build-up is expected and no underdrain is proposed.

The plans indicate a benchmark in Utility Pole #3.5 between the main entrance to the site and the entrance to the north parking lot. The original survey references the existing site as the vertical datum. We are currently working with Bill Clark to locate a nearby City benchmark to determine the relationship between our vertical datum and the City standard, NVGD 29. Upon completion of the project, as-built drawings for the relocated sewer will be provided to the City based on the City's vertical datum.

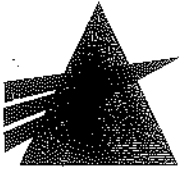
Potential Condition:

*The applicant to adhere to the submitted Geotechnical Report during construction and involve a Geotechnical Engineer at regular intervals during the construction of foundations and retaining walls; also to amend the plans to reference the construction measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a professional engineer and reviewed and approved by the code enforcement officer.*

Response:

The Geotechnical Report shall be adhered to in preparing final design of the proposed project. Additionally, a copy of the report will be included in the construction specifications. S.W Cole will be enlisted to review final design documents to ensure the recommendations presented in the Geotechnical Report have been met as applicable. Construction monitoring and testing will be incorporated into the final construction documents.

---



Jean Fraser, City of Portland

March 9, 2006

Page 5 of 6

Potential Condition:

*The applicant to note that no further impervious surfaces shall be created on this site and that further development should be contained within the existing paved and built areas.*

Response:

This potential condition was discussed when we met with City staff and with MeDEP at the Portland Planning Office on February 14, 2006. Although the site would be left with very little area for future redevelopment, a condition such as this does raise a few concerns. This condition would prevent any redevelopment involving relocation of impervious areas, including creating impervious surfaces outside of natural resource setbacks while revegetating areas within the setbacks. The condition also does not take into account any provision for changes to regulatory requirements, and does not allow for future improvements in stormwater treatment or other resource protection technologies.

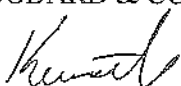
Additionally, we offer the following information relevant to other issues we have discussed:

- Sheet L-1.0 Landscape Plan has been revised to incorporate recent comments from the City Arborist. The updated landscape plan has been sent directly to the City Arborist and has been enclosed within this submission.
- At the request of the Planning Department, we have prepared a Proposed Site Plan with 25-foot and 75-foot setbacks from the wetland and from each brook on the site. These setbacks have been indicated in color to allow the plan to be interpreted more easily. The setbacks are shown on Figure 8.1 Proposed Site Plan With Setbacks Indicated, which has been enclosed with this submission.

Thank you for the assistance you have provided thus far. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,

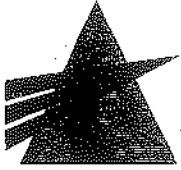
WOODARD & CURRAN INC.

  
Kenneth Volock, P.E.  
Engineer



KRV/  
203834.01

Enclosures: Email from Maine Department of Environmental Protection to Woodard & Curran, dated March 8, 2006  
Letter from Gorrill-Palmer Consulting Engineers, Inc. to Mr. Tom Errico, P.E., dated March 2, 2006  
Drawings, revised March 8, 2006, including:  
C200 Erosion and Sedimentation Control Plan



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Jean Fraser, City of Portland  
March 9, 2006  
Page 6 of 6

C201 Proposed Site Plan  
C202 Proposed Utility Plan  
C301 Civil Details – 2  
L-1.0 Landscape Plan  
Figure 8.1 Proposed Site Plan with Setbacks Indicated

**Kenneth Volock**

---

**From:** Richardson, Marybeth [Marybeth.Richardson@maine.gov]  
**Sent:** Wednesday, March 08, 2006 10:35 AM  
**To:** Kenneth Volock  
**Cc:** Viola, Ben  
**Subject:** RE: W&C Addition Revised Landscape Plan

Ken:

I have done a cursory review of the CADCAM/Cianchette project as revised and, based on my review and on preliminary comments from Ben Viola, I believe the project can be approved. However, an order for approval will probably not be issued for another week or two. Also, as discussed, we will copy Ben's review comments to Jim Seymour when they are finalized.

Marybeth Richardson  
Division of Land Resource Regulation  
Bureau of Land and Water Quality  
(207) 822-6335  
marybeth.richardson@maine.gov

-----Original Message-----

**From:** Kenneth Volock [mailto:kvolock@woodardcurran.com]  
**Sent:** Tuesday, February 28, 2006 8:51 AM  
**To:** Richardson, Marybeth  
**Subject:** W&C Addition Revised Landscape Plan

Marybeth,

Attached is the revised landscape plan. Please note the addition of clusters of Burkwood Viburnum, Highbush Blueberry, and Red Twig Dogwood at the base of the retaining wall below the access drive.

I intend to submit two hardcopies of the revised Landscape Plan later today, provided the additional plantings as proposed will be acceptable to the Department. Please let me know if you see the need for further revision prior to submittal.

Kenneth Volock  
Woodard & Curran  
800-426-4262





Gorrill-Palmer Consulting Engineers, Inc.

Traffic and Civil Engineering Services

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PO Box 1237  
15 Shaker Rd.  
Gray, ME 04039

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FAX: 207-657-6912  
E-Mail: mailbox@gorrillpalmer.com

March 2, 2006

Mr. Tom Errico, PE  
Wilbur Smith Associates  
59 Middle Street  
Portland, ME 04101-4211

 COPY

Re: Proposed Expansion of Woodard and Curran  
Updated Analysis

Dear Tom:

Our office is responding to a February 28, 2006 email sent to Woodard and Curran from Jean Frasier with the City of Portland, which stated the following:

*"At present there are 111 employees in your existing complex on the site; there are a further 32 W&C employees now working in the leased premises that were formerly Clark Insurance (not a part of your site). The potential employee level once the new addition is fully occupied is 207 on the site under consideration.*

*So I would suggest that the traffic/junction capacity assessment should be on 207 less 111 (96 employees) as the 32 employees in the other building will still potentially remain there (as the building is already there and will be reoccupied when the W&C folks move out) but employed by another party.*

*So there will be an additional 96 employees on the W&C site and this figure should be used for the assessment.*

*I would be grateful if you could take this up with Gorrill Palmer and clarify whether the figure of 64 is correct or not. Our Traffic Engineer is holding on his review pending confirmation that the figure and the way it was arrived at is correct, given that it appears to underestimate the traffic generation and thus the capacity needed at this junction."*

Based on this information, our office has compiled updated analysis for 96 employees, which would result in 65 and 76 trip ends for the AM and PM peak hours, respectively, an increase of 16 and 14 trip ends over the 49 and 61 trip ends utilized for the previous analysis for the AM and PM peak hours.

#### Capacity Analyses

Our office completed analysis for the predevelopment and postdevelopment conditions utilizing the Synchro software package. Based on recent comments from you on another project in Portland, our office is providing you with the HCM-based capacity results from Synchro. The results are summarized in the following table:

Mr. Thomas Errico, PE  
 February 21, 2006  
 Page 2 of 2

### Level of Service for Congress Street at Hutchins Drive

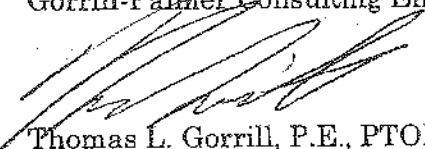
Lane Group	AM Peak Hour				PM Peak Hour			
	Predevelopment		Postdevelopment		Predevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Congress EB LT	17	B	17	C	24	C	26	C
Congress EB TH	43	D	44	D	33	C	34	C
Congress EB RT	4	A	4	A	16	B	18	B
Congress WB LT	19	B	19	B	24	C	26	C
Congress WB TH/RT	16	B	17	B	38	D	42	D
Exit 46 Connector NB LT	44	D	43	D	35	D	44	D
Exit 46 Connector NB TH/RT	18	B	19	B	15	B	15	B
Hutchins SB LT/TH	49	D	54	D	40	D	49	D
Hutchins SB RT	34	C	34	C	29	C	30	C
<b>Overall</b>	<b>29</b>	<b>C</b>	<b>30</b>	<b>C</b>	<b>30</b>	<b>C</b>	<b>34</b>	<b>C</b>

As can be seen from the above table, all lane groups continue to operate at a level of service 'D' or better for all scenarios. A copy of the Synchro/HCM printouts is enclosed with this letter.

Please contact me should you have any further questions regarding this project.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

  
 Thomas L. Gorrill, P.E., PTOE  
 President

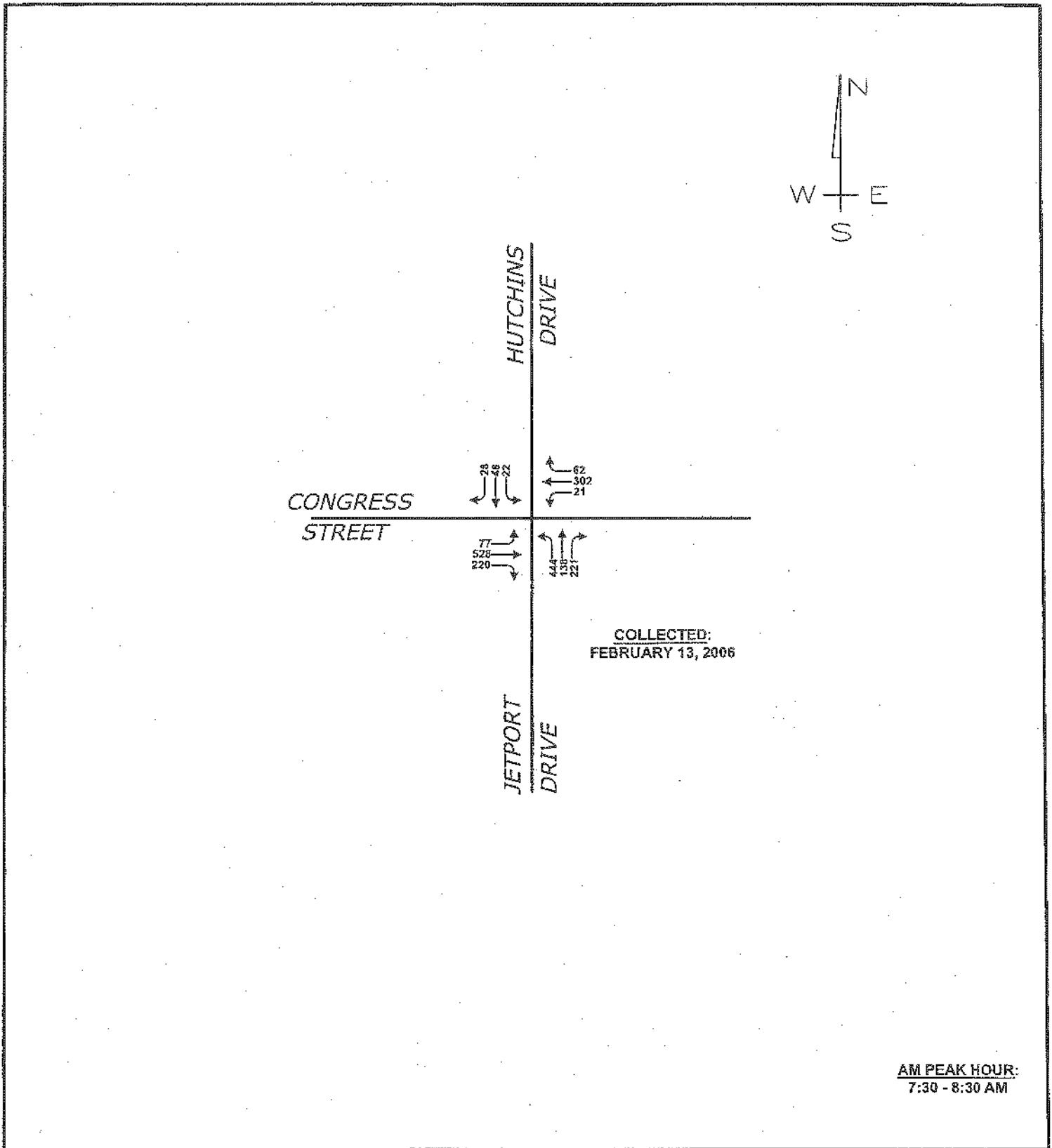
Enclosure

Copy: Barry Sheff, Woodard and Curran

# Raw Volumes - AM Peak Hour

Figure No.

# 1



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www.gorrillpalmer.com

Design: PDO

Draft: ZRJ

Checked: JJB

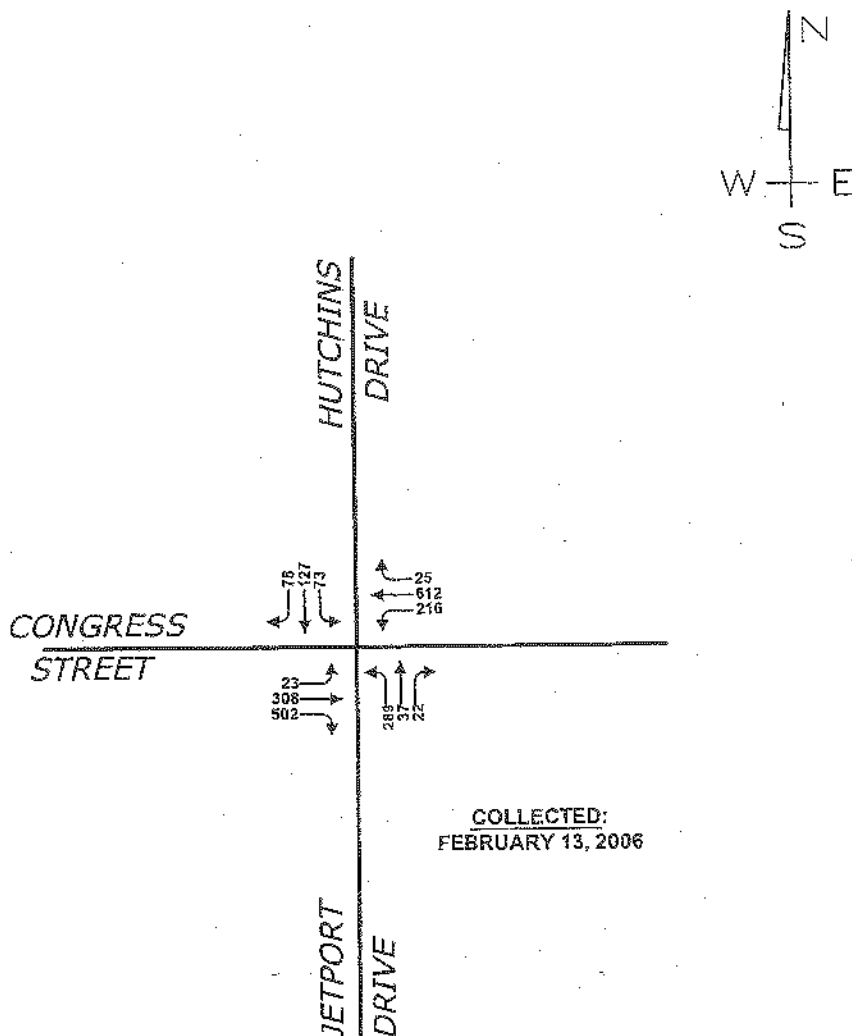
Date: MONTH 2006

File Name: 1495-TRAF.dwg

# Raw Volumes - PM Peak Hour

Figure No.

# 2

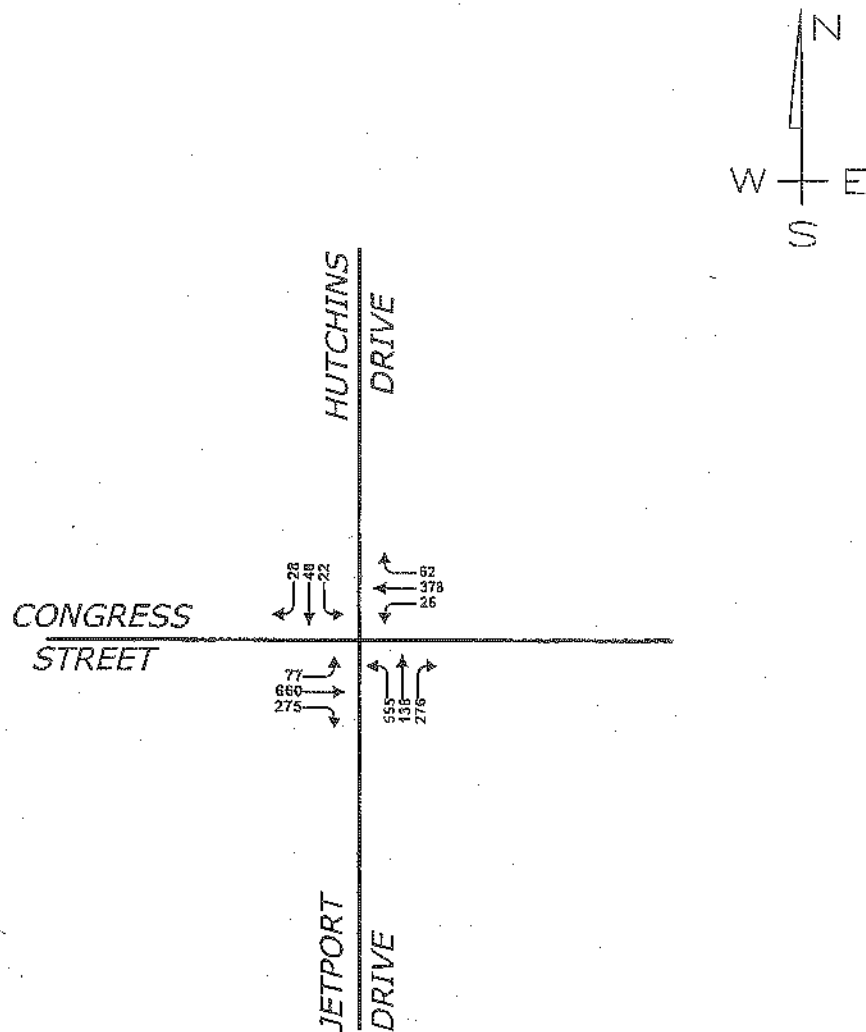


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CONGRESS WEST OF BLUEBERRY  
TYPE I

SEASONAL ADJUSTMENT:  $\frac{1.09}{0.87} = 1.25$

AM PEAK HOUR:  
7:30 - 8:30 AM

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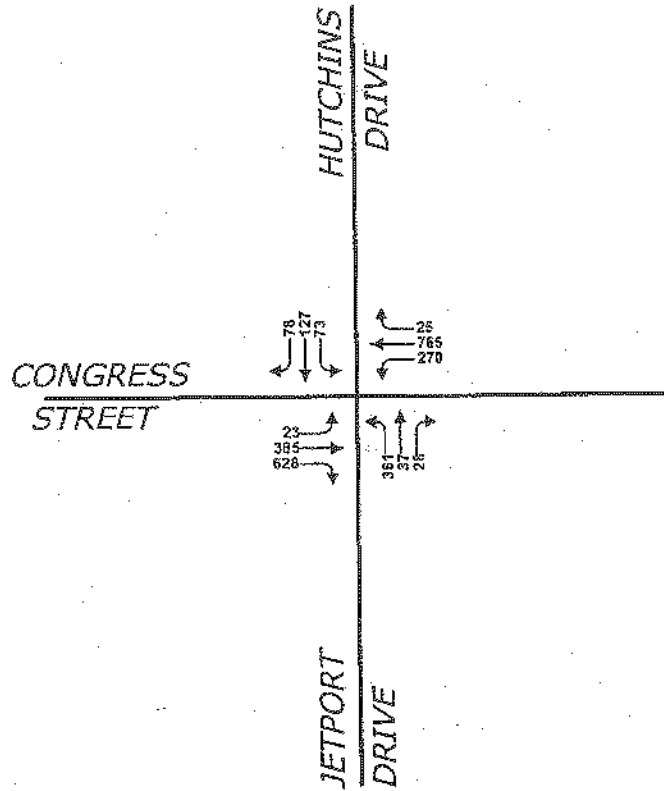
Checked: JJB

Date: MONTH 2006

File Name: 1495-TRAF.dwg

# Seasonally Adjusted Volumes - PM Peak Hour

Figure No. **4**



CONGRESS WEST OF BLUEBERRY  
TYPE I

SEASONAL ADJUSTMENT:  $\frac{1.99}{0.87} = 1.25$

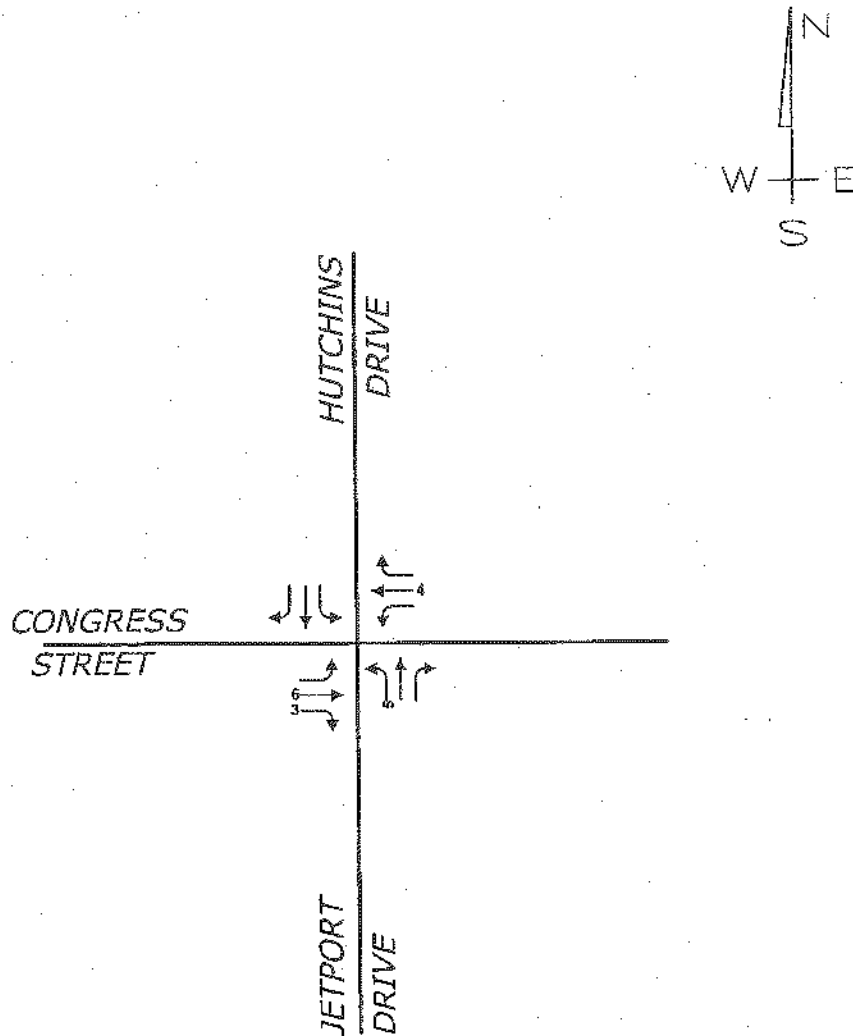
PM PEAK HOUR:  
4:30 - 5:30 PM

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OTHER DEVELOPMENT INCLUDES:  
DUNKIN DONUTS: XX

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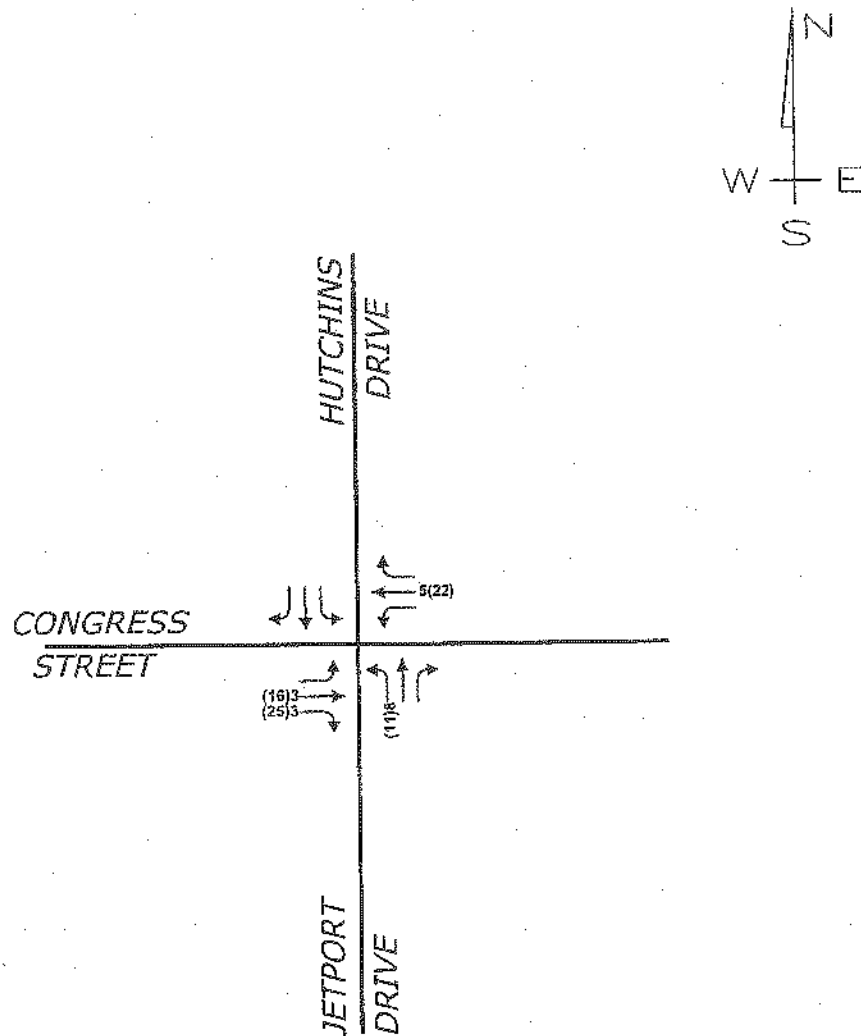
Design: PDO

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File Name: 1495-TRAF.dwg



**OTHER DEVELOPMENT INCLUDES:**  
 DUNKIN DONUTS: XX  
 CINEMAGIC: (XX)

## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



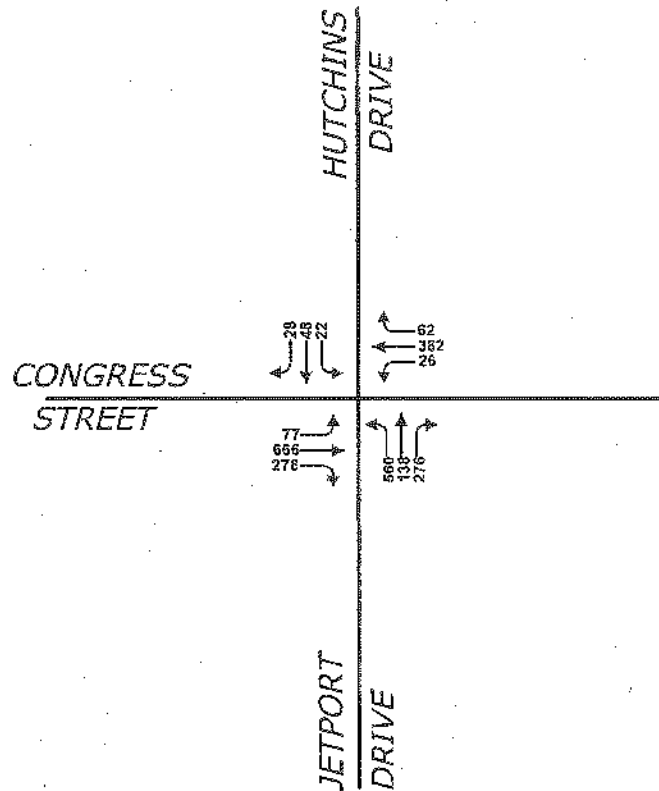
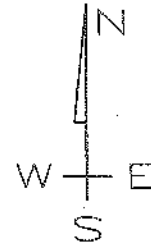
**Gorrill-Palmer Consulting Engineers, Inc.**

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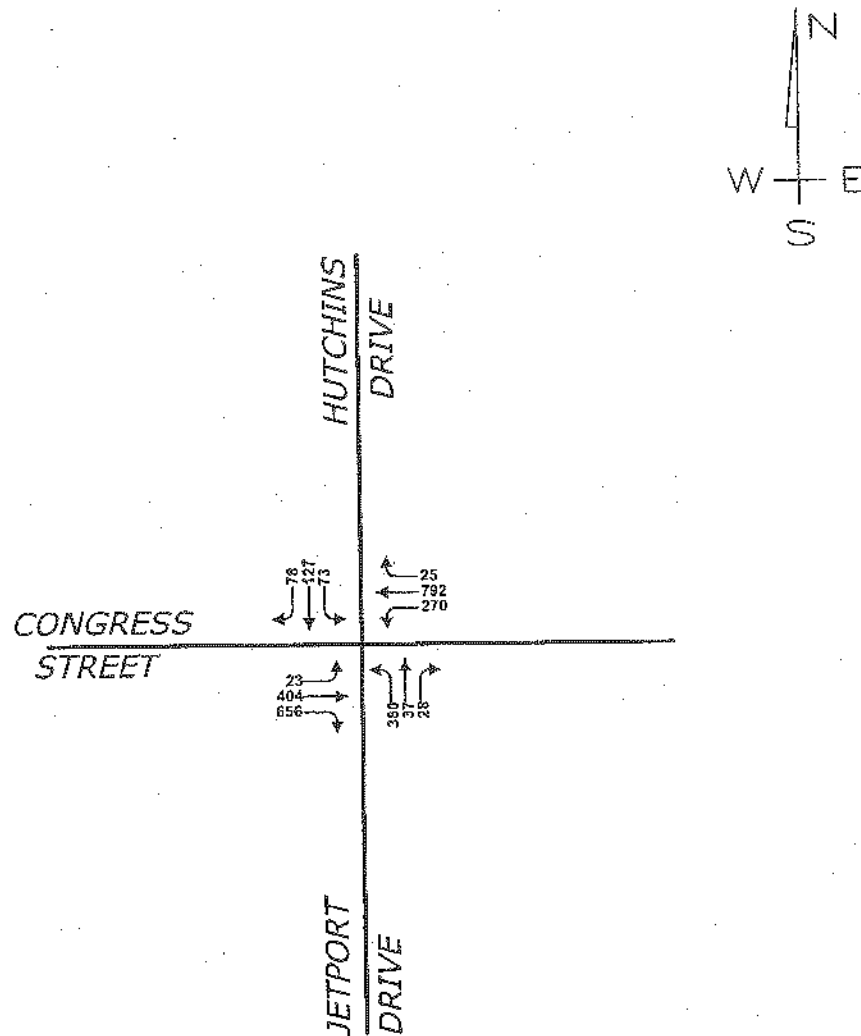
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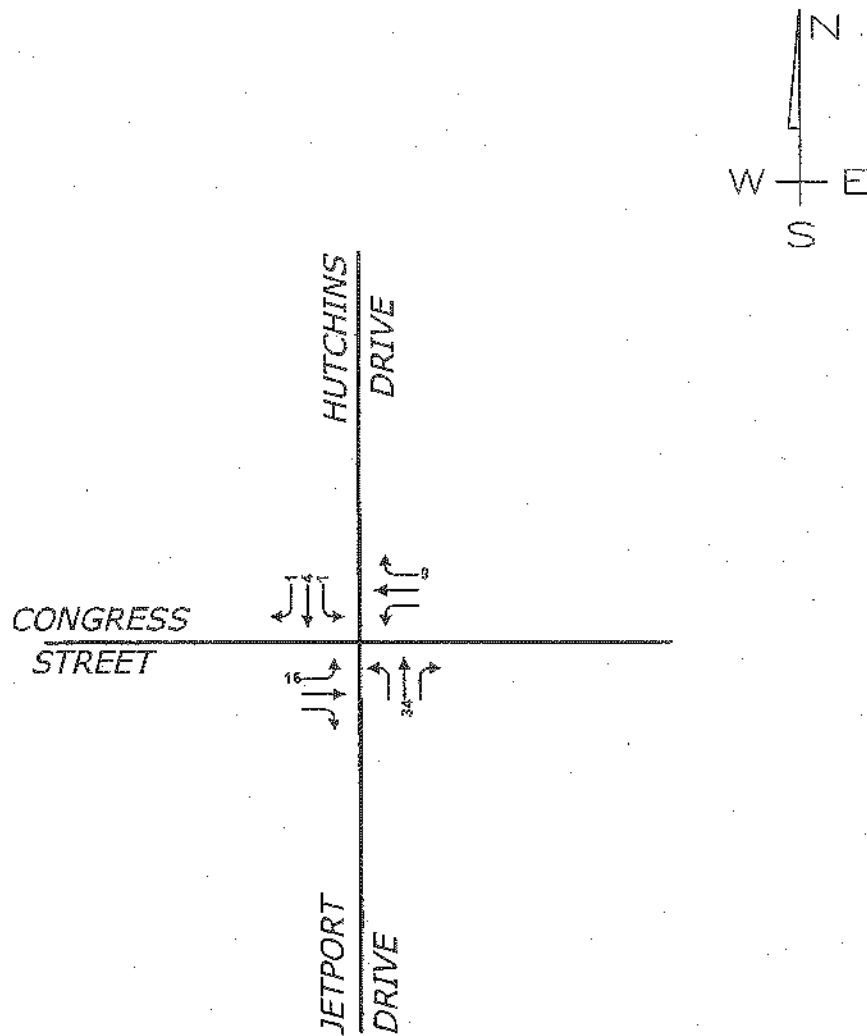
File Name: 1495-TRAF.dwg



## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE

# Trip Assignment - AM Peak Hour

Figure No. 9



44	ENTER
5	EXIT
49	TOTAL

## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



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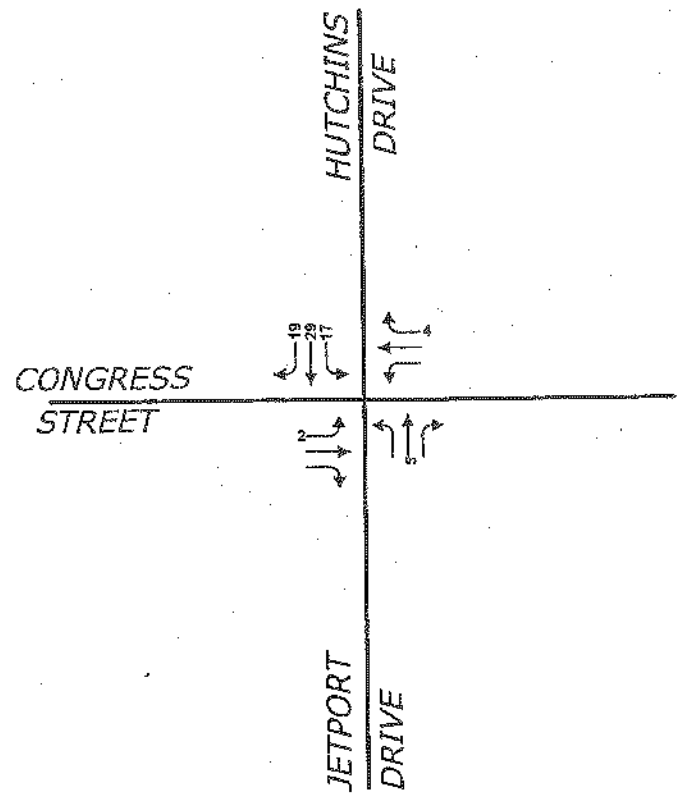
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Draft: ZRJ

Checked: JJB

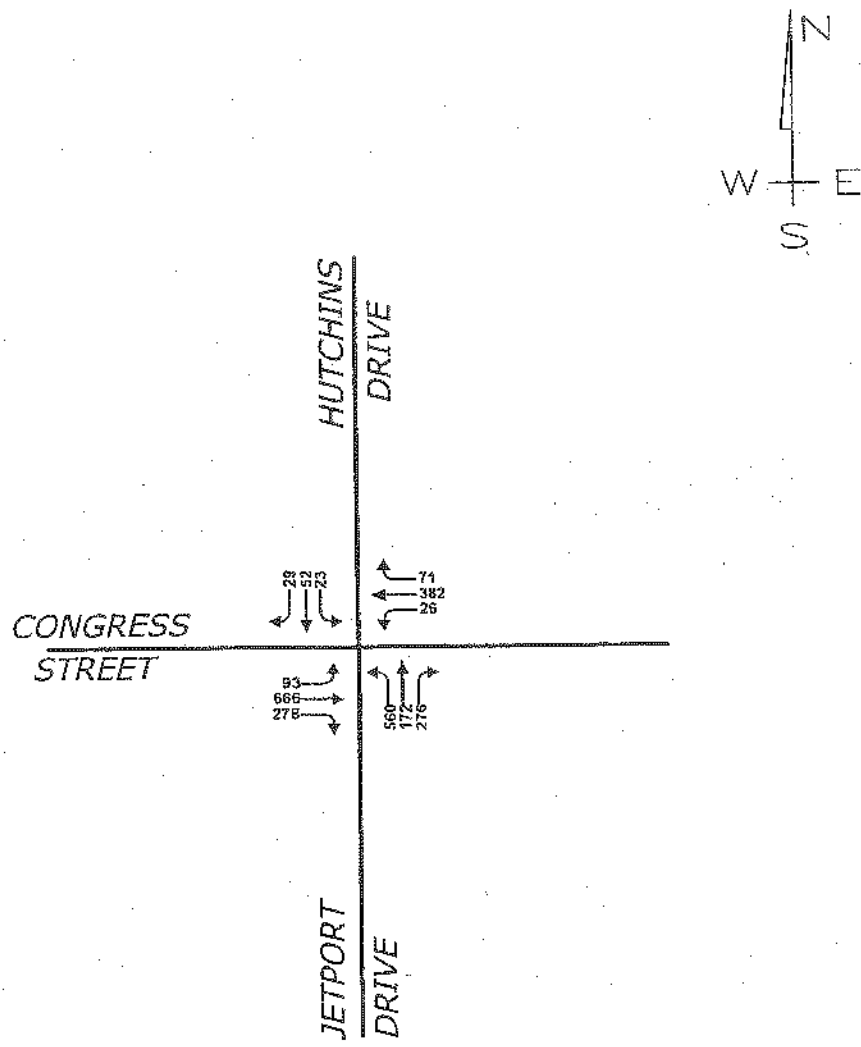
Date: MONTH 2006

File Name: 1495-TRAF2.dwg



9	ENTER
52	EXIT
61	TOTAL

## PROPOSED EXPANSION - WOODARD AND CURRAN, PORTLAND, MAINE



PROPOSED EXPANSION - WOODARD AND CURRAN,  
PORTLAND, MAINE

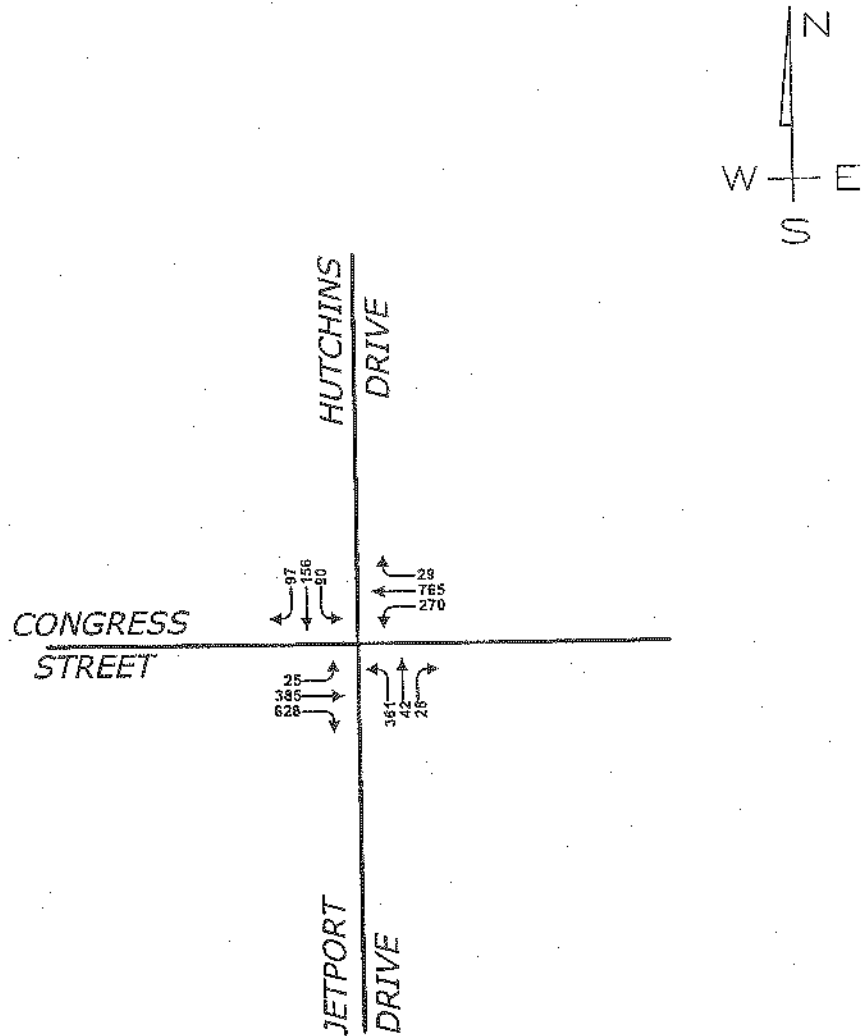
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↘	↙	↑	↘	↙	↑	↘	↙	↑	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flt	1.00	1.00	0.85	1.00	0.98		1.00	0.90			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1736	1827	1553	1719	1772		1736	1644			1797	1369
Flt Permitted	0.41	1.00	1.00	0.11	1.00		0.45	1.00			0.74	1.00
Satd. Flow (perm)	750	1827	1553	194	1772		820	1644			1342	1369
Volume (vph)	77	666	278	26	382	62	560	138	276	22	48	28
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	81	701	293	27	402	65	589	145	291	23	51	29
RTOR Reduction (vph)	0	0	87	0	7	0	0	79	0	0	0	27
Lane Group Flow (vph)	81	701	206	27	460	0	589	357	0	0	74	2
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	18%	18%	18%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	33.3	33.3	57.5	38.7	38.7		35.1	35.1			6.9	6.9
Effective Green, g (s)	33.3	33.3	57.5	38.7	38.7		35.1	35.1			6.9	6.9
Actuated g/C Ratio	0.41	0.41	0.70	0.47	0.47		0.43	0.43			0.08	0.08
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	305	744	1168	118	838		623	705			113	115
v/s Ratio Prot		0.38	0.05	0.00	0.26		0.28	0.22				
v/s Ratio Perm	0.11		0.08	0.10			0.13				0.06	0.00
v/c Ratio	0.27	0.94	0.18	0.23	0.55		0.95	0.51			0.65	0.02
Uniform Delay, d1	16.1	23.3	4.1	17.5	15.3		20.4	17.0			36.3	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.5	20.1	0.1	1.0	0.7		23.2	0.6			12.8	0.1
Delay (s)	16.6	43.4	4.2	18.5	16.1		43.6	17.6			49.1	34.4
Level of Service	B	D	A	B	B		D	B			D	C
Approach Delay (s)		30.7			16.2			32.5			45.0	
Approach LOS		C			B			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			29.3	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			81.8	Sum of lost time (s)		12.0						
Intersection Capacity Utilization			86.1%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
3: Congress & Hutchins

T:\1495\Synchro\PreAM.sy7  
3/2/2006

	↖	→	↘	↙	←	↖	↗	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↗		↖	↗	↖
Volume (vph)	77	666	278	26	382	62	560	138	276	22	48	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	18%	18%	18%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	6
Permitted Phases	4		4	8			2			6		6
Detector Phases	4	4	5	3	8		5	2		6	6	6
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	8.0	20.0		8.0	20.0		10.0	10.0	10.0
Total Split (s)	40.0	40.0	28.0	8.0	48.0	0.0	28.0	42.0	0.0	14.0	14.0	14.0
Total Split (%)	44.4%	44.4%	31.1%	8.9%	53.3%	0.0%	31.1%	46.7%	0.0%	15.6%	15.6%	15.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	Min	Min	Min	None	Min		Min	None		None	None	None

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 78.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Congress & Hutchins

↑ #2	↖ #3	↗ #4
↘ #5	↓ #6	↙ #8

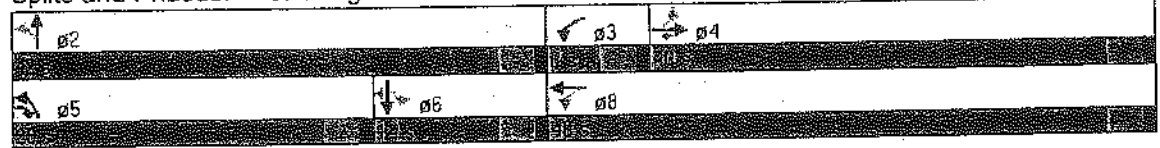


	↖	→	↘	↙	←	↖	↗	↑	↘	↙	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↗			↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1736	1827	1553	1719	1767		1736	1658			1798	1369
Flt Permitted	0.40	1.00	1.00	0.11	1.00		0.45	1.00			0.73	1.00
Satd. Flow (perm)	728	1827	1553	195	1767		820	1658			1327	1369
Volume (vph)	93	666	278	26	382	71	560	172	276	23	52	29
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	701	293	27	402	75	589	181	291	24	55	31
RTOR Reduction (vph)	0	0	87	0	8	0	0	63	0	0	0	28
Lane Group Flow (vph)	98	701	206	27	469	0	589	409	0	0	79	3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	4%	18%	18%
Turn Type	Perm		pm+ov	pm+pt			pm+pt		Perm		Perm	Perm
Protected Phases		4	5	3	8		5	2			6	6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	33.2	33.2	57.5	38.6	38.6		35.3	35.3			7.0	7.0
Effective Green, g (s)	33.2	33.2	57.5	38.6	38.6		35.3	35.3			7.0	7.0
Actuated g/C Ratio	0.41	0.41	0.70	0.47	0.47		0.43	0.43			0.09	0.09
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	295	741	1166	118	833		625	715			113	117
v/s Ratio Prot		c0.38	0.05	0.00	c0.27		c0.28	0.25				
v/s Ratio Perm	0.13		0.08	0.10			c0.13				0.06	0.00
v/c Ratio	0.33	0.95	0.18	0.23	0.56		0.94	0.57			0.70	0.02
Uniform Delay, d1	16.7	23.5	4.1	17.7	15.6		20.2	17.6			36.4	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.7	20.8	0.1	1.0	0.9		22.7	1.1			17.2	0.1
Delay (s)	17.4	44.2	4.2	18.7	16.5		43.0	18.7			53.6	34.4
Level of Service	B	D	A	B	B		D	B			D	C
Approach Delay (s)		31.1			16.6			32.2			48.2	
Approach LOS		C			B			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			29.5			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			81.9			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			86.1%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	93	666	278	26	382	71	560	172	276	23	52	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	18%	18%	18%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phases	4	4	5	3	8		5	2		6	6	6
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	8.0	20.0		8.0	20.0		10.0	10.0	10.0
Total Split (s)	40.0	40.0	28.0	8.0	48.0	0.0	28.0	42.0	0.0	14.0	14.0	14.0
Total Split (%)	44.4%	44.4%	31.1%	8.9%	53.3%	0.0%	31.1%	46.7%	0.0%	15.6%	15.6%	15.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	Min	Min	Min	None	Min		Min	None		None	None	None

Intersection Summary  
 Cycle Length: 90  
 Actuated Cycle Length: 78.6  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Congress & Hutchins



HCM Signalized Intersection Capacity Analysis

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3: Congress & Hutchins

3/2/2006

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↗			↓	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00		1.00	0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1752	1845	1568	1770	1854		1671	1646			2094	1599
Flt Permitted	0.16	1.00	1.00	0.20	1.00		0.30	1.00			0.85	1.00
Satd. Flow (perm)	301	1845	1568	372	1854		520	1646			1815	1599
Volume (vph)	23	385	628	270	765	25	361	37	28	73	127	78
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	25	414	675	290	823	27	388	40	30	78	137	84
RTOR Reduction (vph)	0	0	164	0	2	0	0	17	0	0	0	64
Lane Group Flow (vph)	25	414	511	290	848	0	388	53	0	0	215	20
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	8%	8%	8%	1%	1%	1%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	24.5	24.5	41.4	40.5	40.5		34.8	34.8			13.9	13.9
Effective Green, g (s)	24.5	24.5	41.4	40.5	40.5		34.8	34.8			13.9	13.9
Actuated g/C Ratio	0.29	0.29	0.50	0.49	0.49		0.42	0.42			0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	89	543	855	382	901		451	688			303	267
v/s Ratio Prot		0.22	0.12	0.11	0.46		0.17	0.03				
v/s Ratio Perm	0.08		0.20	0.26			0.18				0.12	0.01
v/c Ratio	0.28	0.76	0.60	0.76	0.94		0.86	0.08			0.71	0.07
Uniform Delay, d1	22.6	26.8	15.0	15.8	20.3		19.2	14.6			32.8	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	1.7	6.3	1.1	8.4	17.5		15.3	0.0			7.4	0.1
Delay (s)	24.4	33.0	16.1	24.2	37.8		34.5	14.6			40.2	29.4
Level of Service	C	C	B	C	D		C	B			D	C
Approach Delay (s)		22.6			34.3			31.5			37.2	
Approach LOS		C			C			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay	29.8			HCM Level of Service				C				
HCM Volume to Capacity ratio	0.89											
Actuated Cycle Length (s)	83.3			Sum of lost time (s)				8.0				
Intersection Capacity Utilization	89.2%			ICU Level of Service				E				
Analysis Period (min)	15											
C Critical Lane Group												

Lanes, Volumes, Timings  
3: Congress & Hutchins

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3/2/2006

	↖	→	↘	↙	←	↖	↘	↑	↖	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑		↖	↑			↓	↗
Volume (vph)	23	385	628	270	765	25	361	37	28	73	127	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	8%	8%	8%	1%	1%	1%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	6
Permitted Phases	4		4	8			2			6		6
Detector Phases	4	4	5	3	8		5	2		6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	8.0	20.0		8.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	31.0	21.0	17.0	48.0	0.0	21.0	42.0	0.0	21.0	21.0	21.0
Total Split (%)	34.4%	34.4%	23.3%	18.9%	53.3%	0.0%	23.3%	46.7%	0.0%	23.3%	23.3%	23.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 83.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Congress & Hutchins

↖ φ2	↖ φ3	↖ φ4
↖ φ5	↖ φ6	↖ φ8

HCM Signalized Intersection Capacity Analysis  
 3: Congress & Hutchins

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 3/2/2006

	↖	→	↘	↙	←	↖	↗	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↘	↙	↖	↗	↖	↗	↖	↘	↙	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1752	1845	1568	1770	1853		1671	1654			2094	1599
Flt Permitted	0.16	1.00	1.00	0.20	1.00		0.22	1.00			0.85	1.00
Satd. Flow (perm)	294	1845	1568	364	1853		391	1654			1808	1599
Volume (vph)	25	385	628	270	765	29	361	42	28	90	156	97
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	414	675	290	823	31	388	45	30	97	168	104
RTOR Reduction (vph)	0	0	142	0	2	0	0	17	0	0	0	63
Lane Group Flow (vph)	27	414	533	290	852	0	388	58	0	0	265	41
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	8%	8%	8%	1%	1%	1%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases			4	5	3	8	5	2			6	6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	25.1	25.1	42.3	41.3	41.3		36.6	36.6			15.4	15.4
Effective Green, g (s)	25.1	25.1	42.3	41.3	41.3		36.6	36.6			15.4	15.4
Actuated g/C Ratio	0.29	0.29	0.49	0.48	0.48		0.43	0.43			0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	86	539	845	375	891		423	705			324	287
v/s Ratio Prot		0.22	0.13	0.11	0.46		0.18	0.03				
v/s Ratio Perm	0.09		0.21	0.26			0.21				0.15	0.03
v/c Ratio	0.31	0.77	0.63	0.77	0.96		0.92	0.08			0.82	0.14
Uniform Delay, d1	23.7	27.7	16.1	16.6	21.4		19.8	14.7			33.9	29.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.1	6.5	1.5	9.6	20.2		24.4	0.1			14.7	0.2
Delay (s)	25.8	34.2	17.6	26.1	41.6		44.2	14.7			48.6	29.9
Level of Service	C	C	B	C	D		D	B			D	C
Approach Delay (s)		24.0			37.7			39.4			43.4	
Approach LOS		C			D			D			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			33.7	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			85.9	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			91.9%	ICU Level of Service				F				
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
3: Congress & Hutchins

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3/2/2006

	↖	→	↘	↙	←	↖	↖	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↖	↙	↖		↖	↖			↖	↖
Volume (vph)	25	385	628	270	765	29	361	42	28	90	156	97
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	8%	8%	8%	1%	1%	1%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		Perm
Protected Phases		4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phases	4	4	5	3	8		5	2		6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	8.0	20.0		8.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	31.0	21.0	17.0	48.0	0.0	21.0	42.0	0.0	21.0	21.0	21.0
Total Split (%)	34.4%	34.4%	23.3%	18.9%	53.3%	0.0%	23.3%	46.7%	0.0%	23.3%	23.3%	23.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lead	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min

Intersection Summary

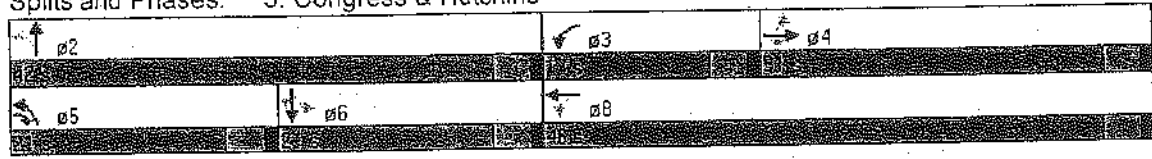
Cycle Length: 90

Actuated Cycle Length: 86

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Congress & Hutchins





# PORTLAND MAINE

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Public Works Department  
Michael J. Bobinsky, Director

24 February 2006

Mr. Kenneth Volluck, P. E.,  
Woodard & Curran,  
41 Hutchins Drive,  
Portland, Maine 04102

**RE: The City's Capacity to Handle Wastewater Flows, from a 22,680 S. F. Office Building Addition to Woodard & Curran Engineering, at 41 Hutchins Drive, Portland, Maine.**

Dear Mr. Volluck:

The existing ten-inch diameter sanitary sewer pipe, crossing through the Woodard & Curran property has **adequate capacity to transport**, while The Portland Water District sewage treatment facilities, located off Marginal Way, have **adequate capacity to treat** the anticipated increased wastewater flows of **1,701 GPD**, from your proposed development.

**Anticipated Wastewater Flows from the Proposed Office Expansion Project:**

*A Proposed 22,680 S.F. Office Building:*

Assume Five Employees/1,000 S. F. Office Space=5 x 22.68 = 113.4 Employees.

Assume 15 GPD/Employee=113.4x15=1,701 GPD

**Total Proposed Increase in Wastewater Flows for this Project**

**=1,701 GPD**

The City combined sewer overflow (C.S.O.) abatement consent agreement (with the U.S.E.P.A., and with the Maine D.E.P.) requires C.S.O. abatement, as well as storm water mitigation, in order to offset any increase in sanitary flows, from all projects.

If The City can be of further assistance, please call 874-8832.

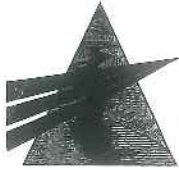
Sincerely,  
**CITY OF PORTLAND**

Frank J Brancely, B.A., M.A.  
Senior Engineering Technician

FJB

cc: Alexander Q. Jaegerman, Director, Planning Division, Department of Planning, and Urban Development, City of Portland  
Jean Fraser, Planner, Department of Planning, and Urban Development, City of Portland  
Eric Labelle, P.E., City Engineer, City of Portland  
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland  
Stephen K. Harris, Assistant Engineer, City of Portland  
Desk file





February 23, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

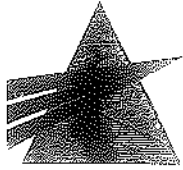
On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting 10 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The information that follows includes updated plans and addresses comments that have arisen from our continued discussion of this project with City staff and with the Maine Department of Environmental Protection (MeDEP), in a memo received from Jim Seymour, Sebago Technics, on January 31, 2006, and comments submitted by the City's Traffic Engineer, Tom Errico, Wilbur Smith Associates, on January 31, 2006. Specific to issues we have discussed:

- We are requesting a waiver from the requirement set forth in Sec 25-96 requiring curbing on Hutchins Drive along the length of our property. Currently, Hutchins Drive is constructed without catch basins or a piped drainage system. Instead, drainage is provided through ditching on either side of the road. If curbing were to be installed along the property's road frontage, there would be significant negative impacts to drainage along this portion of Hutchins Drive; therefore, the project meets City Ordinance of Section 14-506 (b), condition 4 for curbing because "[s]trict adherence to the curb requirement would result in the loss of significant site features related to [...] topography that are deemed to be of a greater public value." Further, the project meets City Ordinance of Section 14-506 (b), condition 5 for curbing because "[r]unoff from the development site or within the street does not require curbing for stormwater management." The project meets two conditions and therefore is eligible for a waiver of the curbing requirement.
- Captain Greg Cass of the Portland Fire Department added the provision of a fire hydrant along the access drive to his comments dated September 28, 2005. He states that the hydrant is needed to ensure there is a hydrant every 500 feet. There is an existing hydrant located next to the main entrance to the building. Every face of the building can be reached in less than 500 feet from the hydrant. An additional hydrant is not necessary to meet the 500 foot requirement and is not proposed as part of the project. We have unsuccessfully attempted to contact Captain Cass to resolve the matter and understand that the Planning Department has also attempted to reach Captain Cass.





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- An evaluation has been done to examine alternatives to the proposed project, the impacts of the proposed project on natural resources on the parcel, and ways in which those impacts may be minimized. The evaluation has been attached to this submittal in the form of a memorandum from Woodard & Curran to the Maine Department of Environmental Protection, dated February 22, 2006.

The following responses address comments provided in the memo received from Jim Seymour, Sebago Technics, on January 31, 2006. Our responses have been organized in order of the comments provided.

#### Stormwater Management

##### Comment:

*Our review of the quality calculations revealed that the treatment factors utilized for wooded buffer treatment appear not to be correctly sized and incorporate the use of wetlands, which are not allowed. This affects the overall treatment value, which may reduce the effective sediment removal and not meet the sliding scale factor as declared by the engineer. The engineer must re-evaluate the treatment factors for our or staff review.*

##### Response:

Based on conversations with the City's DRC and with the stormwater review engineer for the Maine Department of Environmental Protection (MeDEP), treatment factors have been reassessed for the Filtration Basins. The stormwater quality calculations have been rerun using a TSS removal factor of 90% for the basins. A dry swale has been added off the end of the rear parking lot to treat runoff from the access road and the rear parking lot. Through the Filtration Basins and the dry swale, the Sliding Scale TSS removal standard (45% for this project) can be achieved without the use of buffers.

##### Comment:

*As attempted all buffers shall be shown on the site plan with labels indicating the width, slope, and percentage of removal efficiency for each buffer shown.*

##### Response:

As stated above, the use of buffers has been eliminated from the project.

##### Comment:

*All structures such as manholes, catch basins, and drainage structures with surface openings must label rim elevations.*

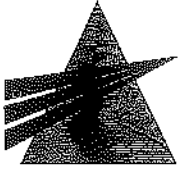
##### Response:

Sheet C202 Proposed Utility Plan has been revised to indicate rim elevations for all structures.

##### Comment:

*The curbing along the access driveway/road along the addition should be extended to discourage scouring at the pavement edge. Therefore, we recommend curbing be extended to the edge of sidewalks at the entrance. The curbing from the building's end sidewalk shall be extended from the circle as well.*

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Response:

Curbing along the access drive has been extended toward the entrance where the road curves and runoff velocities are expected to be higher. No curbing is proposed where the drive takes a straight course, in order to encourage some amount of filtering as runoff passes through the landscaped area. These changes can be seen on Sheet C201 Proposed Site Plan.

Comment:

*The internal parking lot islands must be curbed in the satellite lot, for protection of landscape features.*

Response:

Internal parking lot islands in the northerly parking lot have been designed without curbing in order to break up drainage pathways and facilitate some amount of filtering as runoff passes through landscaped areas.

Comment:

*Will the underground detention/storage require an underdrain due to the depth in poor clay silt soils where water tables could be high?*

Response:

A boring in the area of the proposed subsurface detention structure indicated saturated soils at an elevation of approximately 38 feet. The base of the detention structure will be at 40, providing two feet of separation from the water table. Additionally, the subsurface detention structure will be constructed over a geogrid placed directly on existing soils. The primary outlet is located at the base of the structure; therefore no build-up is expected and no underdrain is proposed.

At the request of the MeDEP, additional test pits were dug by S.W. Cole Engineering in the locations of the proposed filter basins and the dry swale to ensure that a one foot separation could be achieved between the filter layer and seasonal high ground water. The borings indicated that the separation could be achieved, but the test pits were required for confirmation. The summary of the findings is included with this submission in the form of an email to Woodard & Curran, dated Wednesday, February 8, 2006.

Road Access/Circulation

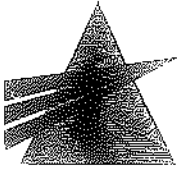
Comment:

*Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.*

Response:

Comments from the City Traffic Engineer are addressed below.

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Comment:

*[excerpt] The width of 20 feet is marginal, and it is clear 24 feet width is desirable. Based on the layout and spacing between the proposed structure we feel 22 feet may be completed with a compromise of 1 foot towards the building and 1 foot towards the wetlands, with the access road from the proposed building's Hutchins Drive end to the curb cut designed to be 24 feet not 22 feet. Final discussion, arguments, and impacts will have to be weighed by the Board. Our feeling is that at a minimum, both the City and applicant, to accomplish and improvement for safety and vehicular passage can make a compromise for a 22-foot road.*

Response:

Based on our understanding of discussions involving City Planning staff, Public Works and the City Traffic Engineer, we continue to request a waiver from the 24-foot wide access drive standard. The 20-foot wide access drive provides for vehicular and pedestrian safety, provides fire access, and minimizes wetland impact.

Comment:

*Details are needed for the sidewalk section along the street frontage and shall be in accordance with City of Portland design standards.*

Response:

A detail showing typical sidewalk construction in accordance with City design standards has been added to Sheet C301.

Utilities

Comment:

*Letters to serve and available capacities have been requested showing that adequate service exists for the development. To date those have not been administered by Public Works.*

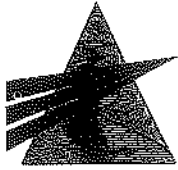
Response:

Our office has had several conversations with Frank Brancely, City of Portland Public Works, regarding sewer collection capacity for the project. Mr. Brancely has assured us that a response is forthcoming. The response will be forwarded upon receipt.

Comment:

*The City wastewater division and City Engineer shall assist review of the construction details and location of the re-located interceptor sewer. We did not receive plans or construction details for the sewer relocation plan or profile design. All designs must be in accordance with City details, and the City must accept relocated easements. This should be directly reviewed by Public Works, but we can assist is so directed.*

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Response:

Rim and invert elevations have been added for the proposed sewer relocation on Sheet C202 Proposed Utility Plan. Due to the small amount of sewer design involved, profiles have not been included. It is our understanding the sewer layout and proposed easement have been reviewed and found acceptable by City of Portland Public Works; we will continue to work with Public Works as we finalize construction documents.

Comment:

*There is a 12 inch steel culvert shown outleling into the stream from either Hutchins Drive or the Water District easement. Please place an easement around this drainage pipe such that either the City or Water District has rights to maintain on private property.*

Response:

The 12-inch steel pipe in question is connected to a blow-off for the Portland Water District (PWD) 42-inch water main and is located on land that is unaffected by the proposed development. The PWD is currently investigating whether an easement is required for this pipe. The Applicants will grant an easement if required by the PWD for the 12-inch steel pipe; however, the pipe does not have any bearing on the project as proposed.

**Grading & Erosion Controls**

Comment:

*The applicant should consider stabilized entrances when building the parking lots and access drives. Notes shall be added addressing mud tracking, pavement cleaning, dust control, and or street sweeping during construction.*

Response:

In order to address erosion and sedimentation control, Sheet C200 Erosion and Sedimentation Control Plan, has been added to the drawing set. Stabilized construction exits have been added and erosion control notes during construction have been included. Additionally, a Notice of Intent (NOI) to comply with the Maine Construction General Permit has been filed with the MeDEP Site Law Minor Amendment. The NOI is accompanied by a written Erosion and Sedimentation Control Plan. Although the MeDEP will send a copy to the City, copies of the NOI and the Erosion and Sedimentation Control Plan have been included with this submission.

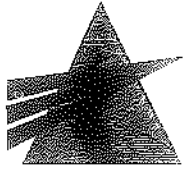
Comment:

*All existing and proposed catch basins in or near the construction area shall be protected with Silt sacs until the base course of paving is completed for the project.*

Response:

We are proposing to protect existing and proposed catch basins using straw bale sediment barriers rather than Silt sacs. Information related to the protection of existing and proposed catch basins has been added

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to Sheet C200 Erosion and Sedimentation Control Plan and a catch basin protection detail has been added to Sheet C303 Civil Details - 4.

General

Comment:

*The project has an attached Geotechnical report, which shall be adhered to during construction. The plans shall add a note referencing the construction measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a profession engineer, and reviewed and approved by the code enforcement officer. It also may be beneficial to require weekly reports from a geotechnical engineer or geologist summarizing findings and construction monitoring during excavation and preparation of the retaining walls and building foundations.*

Response:

The Geotechnical Report shall be adhered to in preparing final design of the proposed project. Additionally, a copy of the report will be included in the construction specifications. S.W Cole will be enlisted to review final design documents to ensure the recommendations presented in the Geotechnical Report have been met as applicable. Construction monitoring and testing will be incorporated into the final construction documents.

Comment:

*The applicant is likely required to file a revised Maine Construction General Permit for this project. This must be obtained prior to the start of construction. Additionally the applicant shall indicate on the drawings a construction elevation benchmark with the datum specified. Ideally this should be in accordance with City datum for sewer project work. Please contact Bill Clark at public Works to confirm Survey information requirements.*

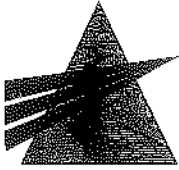
Response:

An NOI to comply with the Maine Construction General Permit has been filed with the McDEP Site Law Minor Amendment. Following procedure, the McDEP will send a copy to the City.

The plans indicate a benchmark in Utility Pole #3.5 between the main entrance to the site and the entrance to the north parking lot. The original survey references the existing site as the vertical datum. We are currently working with Bill Clark to locate a nearby City benchmark to determine the relationship between our vertical datum and the City standard, NVGD 29.

Comment:

*The applicant has appears to have available space for development, but given resource protection limits, treatment measures requiring avoidance of snow storage, and given the extent of parking, snow removal is of some concern. Please provide on a plan to address snow storage locations on site or note on the site plan how it will be removed.*



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Response:

Snow storage areas have been added to Sheet C201 Proposed Site Plan.

The following responses address comments provided to the Planning Department by the City Traffic Engineer on January 31, 2006. Our responses have been organized in order of the comments provided.

Comment:

*The internal roadway providing access to the 43-space parking lot to the rear of the building will not meet general City roadway width standards. The roadway is proposed to be 20 feet. I support a waiver for the roadway width in light of the increased environmental impact a wider facility would have. It will be extremely important that good winter maintenance practices are followed to ensure that the effective width is not reduced due to snow accumulation.*

Response:

Snow removal from the access drive has been discussed above. The 20 foot driveway width will be maintained; no snow storage is proposed for along the roadside.

Comment:

*The driveway "throat" at the Hutchins Drive entrance is currently proposed to be approximately 22 feet. The driveway should be modified such that it is 24 feet wide.*

Response:

The width of the driveway entrance at Hutchins Drive has been increased to 24 feet.

Comment:

*The applicant should provide details on the traffic control/pavement markings at the internal intersection at the main entrance.*

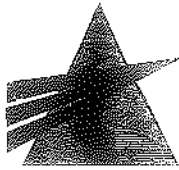
Response:

Pavement markings at the intersection near the main entrance have been added to Sheet C201 Proposed Site Plan.

Comment:

*I have reviewed the proposed parking supply and it is my professional opinion that the parking provisions are reasonable. Under the current proposal, a total of 167 parking spaces will be provided. At the time of project completion, 143 employees can be expected to occupy the facility. Under a full occupancy scenario 207 employees can be expected. A review of parking generation information provided by the Institute of Transportation Engineers indicates approximately 164 parking spaces are required for an office building with 207 employees. Accordingly, I find the supply to be adequate and not excessive.*

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Response:

In an effort to minimize wetland and stream impacts, we have reduced the number of proposed total parking spaces to 164.

Comment:

*Gorrill-Palmer Consulting Engineers, Inc. provided information on the permitting aspect of developments along Hutchins Drive. Based upon the information provided, I concur that a MaineDOT Traffic Movement Permit is not required for the project. However, based upon traffic increases since 1997, I would ask that the applicant conduct an analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and PM peak hours to ensure safe and reasonable operations will be provided following completion of the project.*

Response:

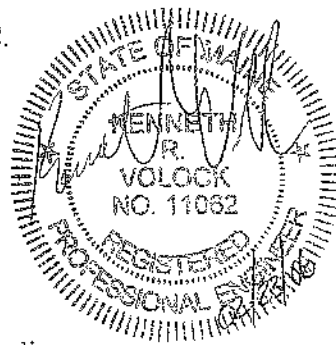
Gorrill-Palmer Consulting Engineers, Inc. has conducted the requested analysis of the intersection of Congress Street and Hutchins Drive. Findings are attached to this submission and have been forwarded directly to the City's Traffic Review Engineer.

Thank you for the assistance you have provided thus far. We look forward to continuing our work with your office and the Planning Board on this project. If you have any questions or comments, please do not hesitate to contact mc at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

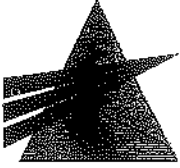
Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01



- Enclosures: Drawings, including:
- Cover
  - G001 General Notes, Legend, Abbreviations and Sheet Index
  - C100 Existing Site Plan
  - C200 Erosion and Sedimentation Control Plan
  - C201 Proposed Site Plan
  - C202 Proposed Utility Plan
  - C300 Civil Details - 1
  - C301 Civil Details - 2
  - C302 Civil Details - 3
  - C303 Civil Details - 4



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Alternatives Analysis and Impact Minimization memorandum from Woodard & Curran  
to the Maine Department of Environmental Protection, dated February 22, 2006

Stormwater Management with attachments, revised February 22, 2006

Findings of February 8, 2006 test pits in the form of an email to Woodard & Curran,  
dated Wednesday, February 8, 2006

Notice of Intent to comply with the Maine Construction General Permit

Erosion and Sedimentation Control Plan: Woodard & Curran Office Expansion

Letter from Gorrill-Palmer Consulting Engineers, Inc. to Mr. Tom Errico, P.E., dated  
February 22, 2006



**From:** Jean Fraser  
**To:** kvolock@woodardcurran.com  
**Date:** 2/8/2006 10:21:58 AM  
**Subject:** W&C Traffic condition

Ken

I have just had a word with Tom Errico and he confirms that Tom Gorrill should be able to show whether or not there will be a problem at that junction when your proposed addition/complex is fully occupied.

If you can submit the information he has indicated and it shows there is no problem, we can remove the condition.

If it shows there will be a problem, it would be good to know the scale of the problem and what needs to be done so that at the Tues meeting with Barry and Alex present we can agree a new condition that addresses that.

Jean

**From:** Sarah Hopkins  
**To:** Alex Jaegerman ; Jean Fraser; Lee Urban  
**Date:** 2/16/2006 11:54:40 AM  
**Subject:** Re: Woodard & Curran

I just called Mark Malone to check in on their progress.

1. They have redesigned the parking to remove 7-8 spaces from the rear wetland area and relocate them up front.
  2. They will submit a new plan to MaryBeth tomorrow
  3. they hope to have some sort of indication to us on Tuesday on whether this will work.
  4. Mark has tried to dissuade Eric from calling and putting added pressure on us and the DEP because he understands that we are all doing the best we can.
  5. We'll keep him on the 2/28 agenda with the understanding that it might not work and they may get bumped.
- sarah

>>> "Alex Jaegerman " <[aqj@portlandmaine.gov](mailto:aqj@portlandmaine.gov)> 02/16/2006 10:09:13 AM >>>

To add a postscript to Jean's email, I thought that Marybeth Richardson was willing to consider a modest redesign to minimize disturbance to the wetland buffer, and that W&C would be working on that with the hopeful expectation that a compromise w/ DEP is likely. I am optimistic that this will happen. Ball is in W&C court, then DEP, then we can proceed back to the Planning Board.

Alex.

>>> Jean Fraser 02/16/2006 9:54:08 AM >>>  
I'll start this off...

Marybeth Richardson's bottom line is that they need to convince her that they have looked at all the alternatives and taken every reasonable step to avoid impact on the brook; she was particularly concerned about the parking area to the rear of the proposed new building. She has asked W & C to show her a revised layout and she is reserving her position until she sees that.

Barry is hopeful he can complete a revised layout and get her comments to us Wednesday so that he can stay on the agenda for a Hearing for Feb 28th. As it was tabled from the 7th we will leave it on the agenda but it may need to be tabled again depending on when and what Marybeth says.

Should anyone ask re the delay, it is my view that Ken Volock was a bit naive to think that telephone/e-mail conversations with the MDEP back in December were adequate given that the proposals were touching the wetlands and within 75 feet of the brook; both Sarah and I advised Barry/Ken (December) that the wetlands/brook issue would be problematic and that they needed to get the MDEP on board before it went to the Planning Board. (I believe they first met with MDEP on Feb 8th).

On the other issues discussed at the meeting (Conditions ii and xii) I think there was agreement in the end and we need to do some work on revising the wording of the conditions and get DRC up to date.

I have just seen your e-mail re Eric Cianchette and will leave Sarah and Alex to comment re that- however, I would also comment that we have already recommended a waiver re the width of their access road (should be 24 feet and they propose 20 feet) and therefore I am not sure what else the City can do to help.

Jean

>>> Lee Urban 2/16/2006 6:45:29 AM >>>  
Good morning, . . .

In the event that Eric Cianchette calls me, it would be good for me to know how Tuesday's meeting went. So, how did it go?

Thanks.

>>> "Sarah Hopkins " <[SH@portlandmaine.gov](mailto:SH@portlandmaine.gov)> 2/10/2006 2:05:36 PM >>>

Excellent!

>>> Jean Fraser 02/10/2006 10:03:40 AM >>>

Sarah,

Following Marybeth Richardson's telephone call to me (in which she expressed serious concerns over whether Woodard & Curran have taken all reasonable steps to minimize impact on the brook and wetlands), and your suggestion that she be invited to our meeting on Tues Feb 14th (11:15am) so we can all get on th same page,

I confirm that she will be attending the meeting though may be a little late as she has a 9:30 meeting before it.

I have advised Ken Volock and he will advise Barry Sheff. Barry has already met with Marybeth (Wed) and is aware of the issues but didn't hear all of her concerns as he had to leave early.

She is just attending re Woodard & Curran but I guess you could tack on a separate discussion re notification protocol if you wish.

Jean

(cc'ing Alex in case Barry calls...)

**From:** Jean Fraser  
**To:** jseymour@sebagotechnics.com  
**Date:** 2/14/2006 3:23:21 PM  
**Subject:** Woodard & Curran

Hi Jim,

I think I may have mentioned to you that this was tabled and not considered on Feb 7th, mainly because the MDEP issues and some drainage issues were unresolved and they were unhappy with 2 of the conditions which related to traffic and a condition preventing the creation of additional impervious surface. ( I sent you a copy of the PB Hearing report on Feb 6th).

Barry Sheff asked for a meeting with Alex, Sarah and me which was held this morning- mainly to discuss the 2 conditions. It was also attended ( a last minute decision last week after we discovered that MDEP were extremely unhappy with this proposal) by Marybeth Richardson of MDEP- Sarah felt we all needed to hear her concerns.

Most of the meeting involved Marybeth reviewing her concerns and asking for parking to be located elsewhere than within 75 feet of the brook. Barry Sheff and Ken Volock are going to do a revised proposal which allows reduction of the parking at the back of the addition and get it to her soon, in the hopes that we have her views in time for them to be included in a revised report which I have to finalize next week.

Marybeth also said that the detention ponds are fine and requested that no buffers be used for infiltration.

In that context Alex asked Barry/Ken to send you direct a copy of the revised plan and stormwater drainage implications that are sent to Marybeth, in order to (hopefully) give you time to get me comments before the deadline for the report. (We are aiming for a Hearing on Feb 28th although it may well have to be tabled again until March 14). Also they will be sending you revised calculations (which apparently favor them).

I had put in a condition in the report which reflected your comments directly:

"x. That the applicant shall address the comments raised by the Development Review Coordinator (Jim Seymour of Sebago Technics) in his memorandum of January 31, 2006 concerning labeling of rim elevations, curbing along the access road, curbing of the satellite parking lot islands, the need for an underdrain for the underground detention/storage and the need for construction elevation benchmarks with the datum specified."

I understand they have addressed all but one of these (and you will have that information too although I requested that it not be sent to you in dribs and drabs) but that in respect of the curbing a question has been raised. Marybeth and Ben (of MDEP- don't know his surname but I presume you know him) support the applicants view, which is that they are avoiding curb along parts of the access road (nearest Hutchins) and in the parking lots to allow those areas to act as infiltration. Marybeth is going to have Ben's review sent to you and maybe this part of the condition needs to be amended.

I think everything else in your comments have been addressed so this outstanding piece shouldn't be huge.

Our view is that if Marybeth indicates that she can permit the minor amendment to the SLOD then we will recommend approval with conditions, including the one that limits future increases in impervious area.

Clear as mud...so please stand by,  
thanks  
Jean

Meeting 2.14.06

Follow-up to tabled PB Hearing Report

Present: Barry Shett + Ken Volock, Woodard + Curran  
 Mark Malone - agent for applicant?  
 Marybeth Richardson, MDEP  
 Alex J, Sarah H, Jeff F - Planning Division

1. State - old Chap 500 applies
2. BS - taking credit for infiltration; added dry swale detention at 43 parking lot near bldg.
  - ↑ catch/control filter/media
3. MBR - other issues re brook.
4. ? J Seymour asked re percolation
5. Previous proposal lacked capacity for office growth.
  - disc. of whether prev location of addition could be higher / bigger footprint?

BS - Ideal office design determined footprint + desire to link into existing / create campus  
 small net gain parking - expensive

6. Conflict between industrial<sup>intention</sup> SUD and paving / parking reqs. of offices.

7. MBR outlined State req's + this proposal will destroy stream. Look at other alternatives - this std not been met.

w/ roadway - would be key ~~off~~ evidence all alts. pursued.

8. BS - looked at parking elsewhere (tabled sketches)

9. MBR - pursue relocation of pkg but wd need to see plan
 

- concerned about impact of road; need reinstatement of veg w/ canopy + shrubs
- suggest use of porous pavement - BS concerned w/ stability
- LEED approach good though not a credit



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Planning and Development Department

Planning Division

389 Congress Street, Portland, Maine 04101

(207) 874-8719 Fax (207) 756-8258

10. AJ - circle? level of use? a lot of impervious area  
BS - <sup>used as a</sup> ~~motor~~ <sup>for</sup> deliveries eg FedEx. some client use.  
- relocates existing circle

11. Planting in PWD land not ok w/ PWD tho' been asked. MBR asking if trees can be along frontage

12. Tough site -

13. SH - issue of condition/ dug line in the sand

BS - future technology might allow; tho' don't envision major expansion

MBR - if new dev, would req 100' from brook

- already accepting below 75' + 75' retained non-disturbed - will be a finding

MM - even a new shed would not be allowed under our condition; maybe better MBR's suggestion re 75' is better approach; get Board's auth to do this

AJ - explained purpose of cond. + our view that its reasonable. can go back to Board to seek release from cond. "significant expansion should be contained"

Follow up.

14. SH - Board may have to grant waiver for dev. in 75' feet now/future.

15. AJ - more separation of owner/tenant because of sale of Chianchettes.

16. MM - ~~what about~~ is some % of imp? impervious in sensitive areas; AJ concerned re intensification - we can say more artfully. MM will relay explanation back

17. BS clar. re parking in absolute terms; MBR prefer to look at revised layout and "not go there" unless necessary.

18. Re Cond iii - Calcs error uses to their advantage; MBR prefer to avoid using buffers

**CITY OF PORTLAND, MAINE**

Planning and Development Department

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19. No concern of other drainage conditions -  
intent of not curbing was to get improved infiltration

20. Jim S speak to Ben (MDEP)  
Ben OK re infiltration  
Prob not too concerned

MBR to  
get w/pt of Ben's comments  
to Jim Seymour)  
action  
MBR.

21. Traffic

Condition ii

T Gorill counted intersection to get existing  
+ then will project dev.

Tom Erico needs to look at up/re traffic +  
reverse condition - may not need post-dev  
assessment

22. Timing

on Feb 28 agenda as unfinished business.

could do March 14.

SA - MDEP permit prob 60 days - can't wait for permit  
but we need to know likely view, is it permittable?

Jim S -

action  
Sean.

get plans to him at same time MS  
give him qual. calcs ahead.

Sean to spk to Jim re curbing/infiltration issue

Pl. Bd - formal request to table to March 14<sup>th</sup> may  
be needed if don't make 28<sup>th</sup> Feb.



tel. call from Mary Beth Richardson, MDEP

- 1) Met Ken Volock + Barry Sheff yesterday
- 2) Concerned that we had not notified MDEP of this proposal. I explained timescale + suggested I raise the wider issue of notification with Sarah.
- 3) She outlined her concerns that not enough had been done to minimize adverse impacts on brook - much dev. w/in 75' buffer. Also she had queried why dev. located to north of site and why scale of parking. Barry Sheff did not hear all of this as he left.
- 4) JF confirmed that we had raised similar issues and that the Board had also raised similar concerns/queries at the workshop.
- 5) Our problem was <sup>their</sup> muddled information and their delay (? based on LR emails) in clarifying MDEP permitting status.
- 6) JF mentioned we were meeting them on Tues to ensure they understood what information was needed for the Board, incl. MDEP determinations.



**From:** Jean Fraser  
**To:** Cass, Gregory  
**Date:** 2/6/2006 2:16:28 PM  
**Subject:** Woodard & Curran

Greg,

This is going to a Planning Board Hearing tomorrow night.

If its approved I had included your request for a hydrant on the access road in the conditions- but the applicant has just pointed out that this requirement was not in your comments given to the Workshop on Jan 10th (I hadn't picked up this change as the date in UI is the same) and that the rear of the new building and the back of the South Wing is under 400 feet from the existing hydrant in Hutchins Drive.

So could you please clarify your request for a hydrant on the access road.

Thanks  
Jean

2.7.06  
WFC. Hearing

RWD Rev Mtg Jan 25, 2006.

Discussion outstanding points (see status note Jan 19)

(Tom Enred not here)

AGREED

- ① Penny to check MDEP submission - what more needed
- ② Eric to get Mike to sign RWD easement application
- ③ Tom to decide re 20' (emailed 1.25)
- ④ Marge to renew the alternative ways of analyzing parking (WF send email) (emailed 1.25)
- ⑤ Eric to provide formal comment that curbs not wanted on sidewalk.
- ⑥ Tom needs to say GP stuff OK. (emailed 1.25)
- ⑦ Landscape Plan - OK w/ Jeff ✓ he OK  
1.25.06  
+ will sent formal confirmation

**From:** Jean Fraser  
**To:** "terrigo@wilbursmith.com"@Portland.gwgwia; Schmuckal, Marge  
**Date:** 1/25/2006 11:43:15 AM  
**Subject:** Parking Analysis

At the Planning Board Workshop there was a general concern that the proposed parking was unnecessarily impacting the wetlands and Board members expressly asked the applicant to justify location and numbers of parking spaces.

They also asked for Tom Errico to advise on the "sufficiency of parking"...which I interpret to mean is there a justification for them having 25 spaces over the zoning requirement of 142 spaces (these figures relate to the overall area of office floorspace, both existing and proposed); see analysis below as the new parking is 59 spaces and only 2 spaces over what zoning would require for the new building- the excess of parking was already allowed when the satellite parking was approved in 2000).

This in part begs how the zoning requirement is applied- (see below).

The report for the Hearing will need to give a staff view on the scale of parking so I would appreciate both of your formal comments.

(Tom- they have submitted a huge new submission on Jan 20th which includes parking analysis which I had hoped to give to you this morning at the Dev Rev meeting...could you pick up when next over here please)

**Zoning:** Existing floorspace is 33950 sq ft and proposed is 22680 sq ft; total is 56,630 which should have 142 spaces to meet zoning requirements for the entirety of the site. The total proposed parking (existing plus proposed) is 169 and thus 25 over the apparent zoning requirement----- HOWEVER

The current 33950 sq ft of offices already has 108 spaces which is 23 spaces over the zoning requirement of 85 spaces; this number was reached and expressly approved through site plan review in 2000. The new addition of 22,680 sq ft would on its own need 57 parking spaces to meet zoning which if you add that to the existing you get 165 and they are proposing 59 new spaces to give 167. So the addition and the new parking are consistent and not excessive in zoning terms and the excess was already permitted (one could argue- or not)

Leaving aside the history, they have explained the parking (in the letter of Jan 20th) but not made a strong case for the extra 25 spaces over zoning...do we (Board) need more information?

Would appreciate your view as to what (if any) further information is needed asap and formal comments on the proposals and "parking sufficiency" by Monday, Jan 30 please.

Thanks  
Jean

**From:** "Errico, Thomas" <terrico@wilbursmith.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 2/1/2006 4:27:50 PM  
**Subject:** RE: Woodard and Curran Expansion Project

Jean--

I expect the applicant to conduct a post-development evaluation of the intersection and if that analysis identifies a problem, I would expect some contribution towards correcting the problem. Accordingly, a condition would be required that requires a contribution if deficient conditions are identified. Call me tomorrow if you want to know more.

Tom

---

From: Jean Fraser [mailto:JF@portlandmaine.gov]  
Sent: Wed 2/1/2006 11:15 AM  
To: Errico, Thomas  
Subject: Re: Woodard and Curran Expansion Project

Tom

Re your last point I don't understand when you want them to do the analysis (pre development or post development) and what are we asking them to do a) with the analysis and b) what if they show theres a problem????

Could you make this a bit clearer and are we talking about a condition here?  
thanks  
Jean

>>> "Thomas Errico" <terrico@wilbursmith.com> 1/30/2006 1:55:18 PM >>>  
Jean-

I have reviewed the December 2005 site plan prepared by Woodard and Curran and the January 23, 2006 letter from Gorrill-Palmer Consulting Engineers, Inc. and offer the following comments:

\* The internal roadway providing access to the 43-space parking lot to the rear of the building will not meet general City roadway width standards. The roadway is proposed to be 20 feet. I support a waiver for the roadway width in light of the increased environmental impact a wider facility would have. It will be extremely important that good winter maintenance practices are followed to ensure that the effective width is not reduced due to snow accumulation.

\* The driveway "throat" at the Hutchins Drive entrance is currently proposed to be approximately 22 feet. The driveway should be modified such that it is 24 feet wide.

\* The applicant should provide details on the traffic control/pavement markings at the internal intersection at the main entrance.

**From:** Jean Fraser  
**To:** Errico, Thomas  
**Date:** 2/1/2006 11:15:36 AM  
**Subject:** Re: Woodard and Curran Expansion Project

Tom

Re your last point I don't understand when you want them to do the analysis (pre development or post development) and what are we asking them to do a) with the analysis and b) what if they show theres a problem????

Could you make this a bit clearer and are we talking about a condition here?

thanks

Jean

>>> "Thomas Errico" <terrico@wilbursmith.com> 1/30/2006 1:55:18 PM >>>  
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\* The internal roadway providing access to the 43-space parking lot to the rear of the building will not meet general City roadway width standards. The roadway is proposed to be 20 feet. I support a waiver for the roadway width in light of the increased environmental impact a wider facility would have. It will be extremely important that good winter maintenance practices are followed to ensure that the effective width is not reduced due to snow accumulation.

\* The driveway "throat" at the Hutchins Drive entrance is currently proposed to be approximately 22 feet. The driveway should be modified such that it is 24 feet wide.

\* The applicant should provide details on the traffic control/pavement markings at the internal intersection at the main entrance.

\* I have reviewed the proposed parking supply and it is my professional opinion that the parking provisions are reasonable. Under the current proposal, a total of 167 parking spaces will be provided. At the time of project completion, 143 employees can be expected to occupy the facility. Under a full occupancy scenario 207 employees can be expected. A review of parking generation information provided by the Institute of Transportation Engineers indicates approximately 164 parking spaces are required for an office building with 207 employees. Accordingly, I find the supply to be adequate and not excessive.

\* Gorrill-Palmer Consulting Engineers, Inc. provided information on the permitting aspect of developments along Hutchins Drive. Based upon the information provided, I concur that a MaineDOT Traffic Movement Permit is not required for the project. However, based upon traffic increases since 1997, I would ask that the applicant conduct an analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and PM peak hours to ensure safe and reasonable operations will be provided following completion of the project.

If you have any questions or comments, please contact me.

Best Regards,

Thomas A. Errico, P.E.

Senior Transportation Engineer

Wilbur Smith Associates

59 Middle Street

Portland, Maine 04101

(207) 871-1785 Phone

(207) 871-5825 Fax

**From:** "James Seymour" <jseymour@sebagotechnics.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 1/31/2006 11:53:47 AM  
**Subject:** RE: Woodard and Curran Expansion Project

Jean,  
I read Tom's response and agree. I think a compromise to 22 feet will satisfy all better and have recommended such. If the compromise fails I will live with the results. Other issues are attached on stormwater which is not quite right, and who is reviewing the sewer plans(Not Me! I haven't seen them). Most other items can be resolved peacefully. Good luck.

<<05P225mem2.doc>>

Jim Seymour P.E.  
Sebago Technics Inc  
(207) 856-0277 x 277

> -----Original Message-----

> From: Jean Fraser [SMTP:JF@portlandmaine.gov]  
> Sent: Tuesday, January 31, 2006 9:11 AM  
> To: James Seymour  
> Subject: Fwd: Woodard and Curran Expansion Project

>

> Jim

>

> Re the access road/throat widths, it might be helpful if you stick with your original comments in memo of Dec 22 so you and Tom (see below) are not in conflict. Jean

>

> >>> "Thomas Errico" <terrico@wilbursmith.com> 1/30/2006 1:55:18 PM >>>

> Jean-

>

>

>

> I have reviewed the December 2005 site plan prepared by Woodard and Curran  
> and the January 23, 2006 letter from Gorrill-Palmer Consulting Engineers,  
> Inc. and offer the following comments:

>

>

>

> \* The internal roadway providing access to the 43-space parking lot to  
> the rear of the building will not meet general City roadway width standards.  
> The roadway is proposed to be 20 feet. I support a waiver for the roadway  
> width in light of the increased environmental impact a wider facility would  
> have. It will be extremely important that good winter maintenance practices  
> are followed to ensure that the effective width is not reduced due to snow  
> accumulation.

> \* The driveway "throat" at the Hutchins Drive entrance is currently  
> proposed to be approximately 22 feet. The driveway should be modified such  
> that it is 24 feet wide.

> \* The applicant should provide details on the traffic control/pavement  
> markings at the internal intersection at the main entrance.

> \* I have reviewed the proposed parking supply and it is my  
> professional opinion that the parking provisions are reasonable. Under the  
> current proposal, a total of 167 parking spaces will be provided. At the  
> time of project completion, 143 employees can be expected to occupy the  
> facility. Under a full occupancy scenario 207 employees can be expected. A  
> review of parking generation information provided by the Institute of

> Transportation Engineers indicates approximately 164 parking spaces are  
> required for an office building with 207 employees. Accordingly, I find the  
> supply to be adequate and not excessive.  
> \* Gorrill-Palmer Consulting Engineers, Inc. provided information on  
> the permitting aspect of developments along Hutchins Drive. Based upon the  
> information provided, I concur that a MaineDOT Traffic Movement Permit is  
> not required for the project. However, based upon traffic increases since  
> 1997, I would ask that the applicant conduct an analysis of the Congress  
> Street/Hutchins Drive intersection during the weekday AM and PM peak hours  
> to ensure safe and reasonable operations will be provided following  
> completion of the project.

>

>

>

> If you have any questions or comments, please contact me.

>

>

>

> Best Regards,

>

>

>

> Thomas A. Errico, P.E.

>

> Senior Transportation Engineer

>

> Wilbur Smith Associates

>

> 59 Middle Street

>

> Portland, Maine 04101

>

> (207) 871-1785 Phone

>

> (207) 871-5825 Fax

>

>

>

>

>

CC: <terrigo@wilbursmith.com>, <kvolock@woodardcurran.com>





05P225

**TO:** Jean Fraser – Planner  
**FROM:** Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.  
**RE:** Major Site Plan Review: 41 Hutchins Drive, Woodard & Curran  
Expansion  
**DATE:** January 31, 2006

---

Sebago Technics has reviewed the revised submittal of the Major Site Plan application and supporting documentation with latest revision dated January 20, 2006 for the proposed expansion of their current office complex located at 41 Hutchins Drive in the City of Portland. It is our understanding that this development is on a lot, which was part of the Stroudwater Estates Subdivision, which obtained approval of a Maine DEP Site Location of Development permit in the 1980's. Since this site has not reached a threshold of 3 acres impervious it has not triggered a separate requirement for a Site Location permit based on current DEP standards. We respectfully offer the following comments in outline format:

1. Stormwater Management

Review of the stormwater management plan and subsequent runoff quantity and quality calculations were in a state of flux with the recent transition of the new Chapter 500: Stormwater Management Law and given the City was relieved of its delegated review authority, both the MeDEP and the City of Portland were not clear on the review level required for this site (quantity vs. quality). We discussed a strategy to address concerns of treatment vs. detention for dealing with stormwater management plan with which staff and the Planning Board could support for approval.

- A. The project will shows evidence that they meet the stormwater quality and quantity standard as required by the City's stormwater standard for required treatment when parking areas exceed 25 spaces. The narrative and calculations discussing and showing proof that the standard was submitted for the entire site. Recent meetings disclosed that the previous DEP order required quantity control. The applicant has shown that the peak rate from runoff has been met for the entire site, through detainment measures such as detention and infiltration ponds.

41 Hutchins Drive-  
Woodard and Curran Expansion

-2-

January 31, 2006

Our review of the quality calculations revealed that the treatment factors utilized for wooded buffer treatment appear not to be correctly sized and incorporate the use of wetlands, which are not allowed. This affects the overall treatment value, which may reduce the effective sediment removal and not meet the sliding scale factor as declared by the engineer. The engineer must re-evaluate the treatment factors for our or staff review.

As attempted all buffers shall be shown on the site plan with labels indicating the width, slope, and percentage of removal efficiency for each buffer shown.

- B. All structures such as manholes, catch basins, and drainage structures with surface openings must label rim elevations. ✓
- C. The curbing along the access driveway/road along the addition should be extended to discourage scouring at the pavement edge. Therefore, we recommend curbing be extended to the edge of sidewalks at the entrance. The curbing from the building's end sidewalk shall be extended from the circle as well. ✓
- D. The internal parking lot islands must be curbed in the satellite lot, for protection of landscape features. ✓
- E. Will the underground detention/storage require an underdrain due to the depth in poor clay silt soils where water tables could be high? ✓

## 2. Road Access/Circulation

- A. Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.
- B. The access lanes per driveway standards are required to be 24 feet for two-way access. The applicant has requested a waiver of the standard because of the limitations of the wetlands, which traverse the site. The claim is that any further extension of the fill for the road widening will create difficulties in permitting and unnecessary impacts to the wetlands. The proposed road is 20 feet wide with guardrails on the wetland side and a 5-foot grass esplanade against the building. ✓

Typically, the waiver requests for driveway/aisle widths have occurred with City Infill Sites where property limitations and building structures have a physical and geometrical impact on the redevelopment proposed. This property is unique in that the development and the wetland restraint is a direct result of the actions taken by the developer/applicant. The building size, configuration, parking layout, and expansion planning was determined by the applicant. Property lines and existing buildings are not the restriction, but a natural ✓



41 Hutchins Drive-  
Woodard and Curran Expansion

-3-

January 31, 2006

resource is.

The width of 20 feet is marginal, and it is clear 24 feet width is desirable. Based on the layout and spacing between the proposed structure we feel 22 feet may be completed with a compromise of 1 foot towards the building and 1 foot towards the wetlands, with the access road from the proposed building's Hutchins Drive end to the curb cut designed to be 24 feet not 22 feet. Final discussion, arguments, and impacts will have to be weighed by the Board. Our feeling is that at a minimum, both the City and applicant, to accomplish and improvement for safety and vehicular passage can make a compromise for a 22-foot road.

- C. Details are needed for the sidewalk section along the street frontage and shall be in accordance with City of Portland design standards.

### 3. Utilities

- A. Letters to serve and available capacities have been requested showing that adequate service exists for the development. To date those have not been administered by Public Works
- B. The City wastewater division and City Engineer shall assist review of the construction details and location of the re-located interceptor sewer. We did not receive plans or construction details for the sewer relocation plan or profile design. All designs must be in accordance with City details, and the City must accept relocated easements. This should be directly reviewed by Public Works, but we can assist is so directed.
- C. There is a 12 inch steel culvert shown outleting into the stream from either Hutchins Drive or the Water District easement. Please place an easement around this drainage pipe such that either the City or Water District has rights to maintain on private property.

### 4. Grading & Erosion Controls

- A. The applicant should consider stabilized entrances when building the parking lots and access drives. Notes shall be added addressing mud tracking, pavement cleaning, dust control, and or street sweeping during construction.
- B. All existing and proposed catch basins in or near the construction area shall be protected with Silt sacs until the base course of paving is completed for the project.

### 5. General

- A. The project has an attached Geotechnical report, which shall be adhered to during construction. The plans shall add a note referencing the construction

41 Hutchins Drive-  
Woodard and Curran Expansion

-4-

January 31, 2006

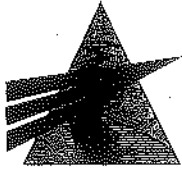
measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a profession engineer, and reviewed and approved by the code enforcement officer. It also may be beneficial to require weekly reports from a geotechnical engineer or geologist summarizing findings and construction monitoring during excavation and preparation of the retaining walls and building foundations.

- B. The applicant is likely required to file a revised Maine Construction General Permit for this project. This must be obtained prior to the start of construction. Additionally the applicant shall indicate on the drawings a construction elevation benchmark with the datum specified. Ideally this should be in accordance with City datum for sewer project work. Please contact Bill Clark at public Works to confirm Survey information requirements.
- C. The applicant has appears to have available space for development, but given resource protection limits, treatment measures requiring avoidance of snow storage, and given the extent of parking, snow removal is of some concern. Please provide on a plan to address snow storage locations on site or note on the site plan how it will be removed.

Overall, the project has addressed many challenges. However, the applicant should make the necessary revisions, as noted in the above comments to conform to City stormwater treatment issues for water quality, and some minor grading and parking layout/aisle concerns. If the board determines that the items left can be agreed to, and will be completed by the applicant, we can support conditional approval for the project

Please contact our office if you have any questions.

JRS/jrs



January 31, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review. These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

Per our phone conversation of January 27, 2006, we are submitting five (5) copies of corrected plans for your review. Specifically, plan sheets have been revised as follows:

- Sheet C100 Existing Site Plan has been revised to remove a manhole that had previously been indicated as existing; and
- Sheet C200 Proposed Site Plan and Sheet C201 Proposed Utility Plan have been revised to show the above manhole as proposed and to show the proper total floor area of 22,680 square feet for the proposed addition.

Thank you for the assistance you have provided. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: Sheet C100 Existing Site Plan  
Sheet C200 Proposed Site Plan  
Sheet C201 Proposed Utility Plan

**From:** Marge Schmuckal  
**To:** Jean Fraser; Marge Schmuckal  
**Date:** 1/30/2006 10:18:52 AM  
**Subject:** Re: 41 Hutchins Drive - Woodard & Curran

I have revised my memo

>>> Marge Schmuckal 1/27/2006 11:41:53 AM >>>

Jean,

I have reviewed the parking for this project. My calculations are based upon plans I received on 1/25/06. Please note that the current plans show a 21,690 sq. ft. new building instead of the 22,680 sq. ft. new building description found in the submitted text. I have chosen to use the square footage used within the submitted text.

<b>Existing Bldgs:</b>	<b>New Bldg:</b>	<b>Totals:</b>
22,766 sq ft required	22,680 sq ft	56,630 / 400 = 141.575 or 142 pkg
11,184 sq ft		

The amount of parking shown on the current plan is 167 parking spaces, which is certainly allowable under zoning.

There are 25 extra parking spaces shown.

I would add that the other I-M zone requirements are being met under this current site plan.

I hope this helps you.

Marge Schmuckal  
Zoning Administrator

**From:** Marge Schmuckal  
**To:** Jean Fraser  
**Date:** 1/27/2006 12:00:19 PM  
**Subject:** Woodard & Curran

Jean,

As a side bar: I think one of the reasons that parking and the location are butting heads is because of the big policy change in allowable useage for the I- M industrial zone. In 2001 the Council allowed general businesses and professional offices to be located within the I-M zone. This is having an impact on the land that was originally subdivided for industrial use. Industrial uses and impacts to the land are quite different from office uses and impact to the land. And parking is showing to be a big impact on this particular lot.

Marge

**CC:** Sarah Hopkins

**From:** Jean Fraser  
**To:** "terrigo@wilbursmith.com"@Portland.gwgwia  
**Date:** 1/27/2006 11:28:42 AM  
**Subject:** Fwd: Wodard & Curran

Tom,

Maybe we are focussing too much on what some feel is an internal commercial circulation road.

Of greater concern perhaps is that the access road where it meets Hutchins is 22 feet wide at the throat; and the access into the enlarged satellite parking ot is 23 feet wide at the throat.

??????????????????

Jean

>>> Jean Fraser 1/25/2006 2:23:24 PM >>>

Just to repeat our discussion at the Jan 11th Dev Rev meeting, there are a number of comments that I need from ou to go in the PB Hearing Report:

1. Re Parking- see e-mail of today's date
2. Re Traffic Permitting issue: see letter and attachments from Gorrill-Palmer e-mailed to you (and with the letters of Jan 20th and 24th, awaiting your collection at planning Reception),which refer to your conclusions from 1995; their conclusion is that the position remains the same for the proposed addition.
3. The 20 foot wide access road. We discussed it with Eric this morning and he felt that if fire were happy (they are) then he doesn't think theres a problem- perhaps because it is straight and vehicles can see each other clearly. Maybe there is a way we can word the report to indicate that this is being allowed in this case to minimize impact on the wetlands and because safety is not an issue (or whatever) so that its not a carte blanche precedent.

Let me know if you need more info etc

Thanks

Jean



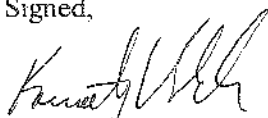


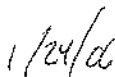
**Neighborhood Meeting Certification**

I, Kenneth Volock (Woodard & Curran, Inc.), hereby certify that a neighborhood meeting was held on Tuesday, January 17, 2006, at the offices of Woodard & Curran, 41 Hutchins Drive, Portland, Maine, at 6pm.

I also certify that on Tuesday, January 10, 2006, invitations were mailed to all addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development and the residents on the "interested parties" list.

Signed,





Date

Attached to this certification are:

1. Copy of the invitation sent
2. Addresses provided by the Planning Department
3. Certified mail receipts
4. Meeting Minutes (with Meeting Handout and Meeting Attendee Sign-In Sheet as enclosures)



January 10, 2006

Neighbor of  
Woodard & Curran  
41 Hutchins Drive  
Portland, Maine 04102

Re: Woodard & Curran Building Addition – Neighborhood Meeting

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland.

Meeting Location: Woodard & Curran Office, 41 Hutchins Drive, Portland

Meeting Date: Tuesday January 17, 2006

Meeting Time: 6:00 PM

The City code requires that property owners within 500 feet of the proposed development (1000 feet for proposed industrial development) and residents on an “interested parties list” be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

The attached sheet should direct you to where the meeting will be held.

If you have any questions please contact Ken Volock at (207) 774-2112, or via email at [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,

WOODARD & CURRAN INC.

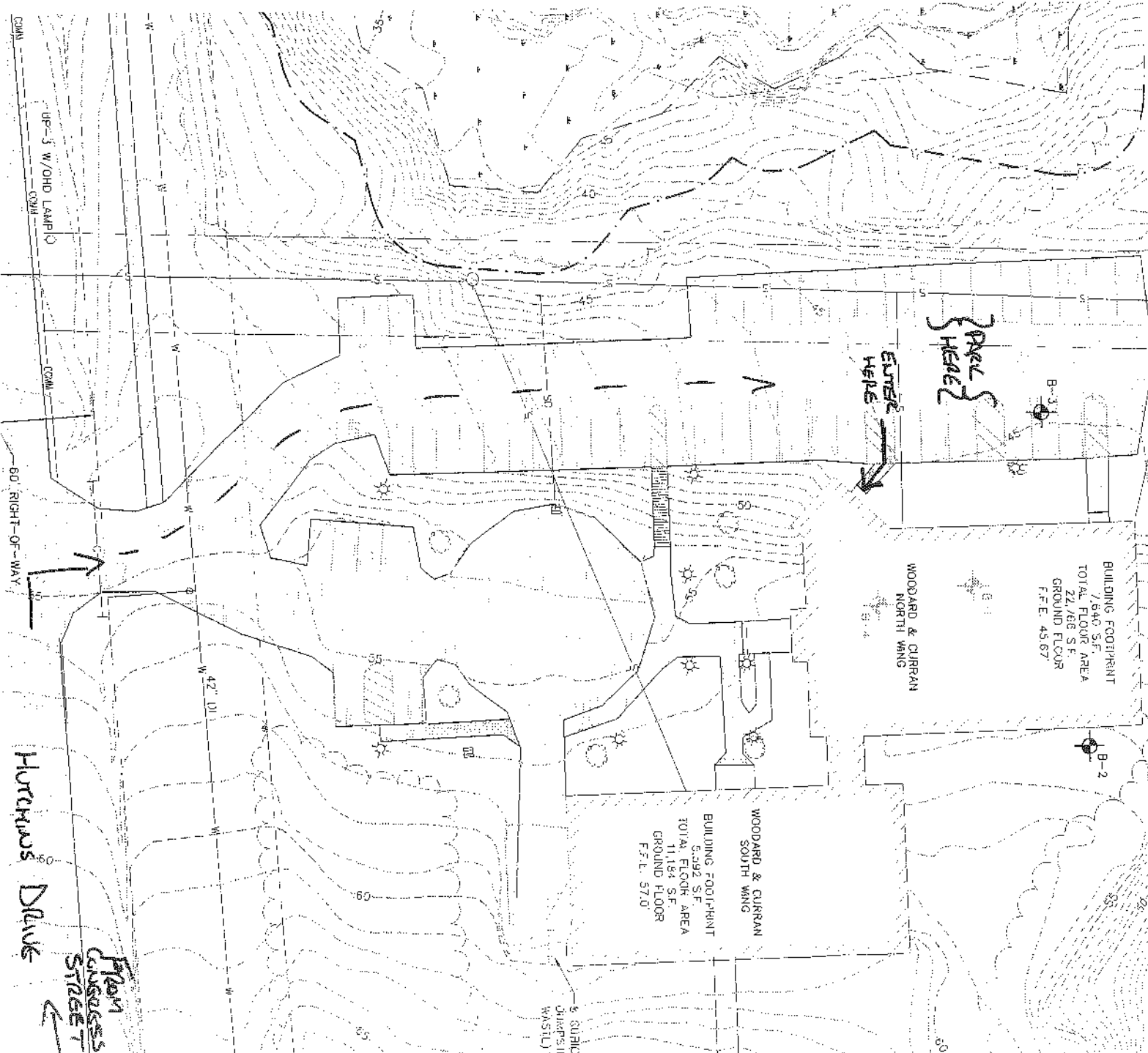
Kenneth Volock  
Engineer

KRV/djt  
203834.01/1.1

Enclosure

Note:

Under Section 14-32(C) of the City Code of Ordinances, an applicant for a major development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting at least seven days prior to the Planning Board public hearing on the proposal.





**WOODARD & CURF**  
Engineering • Science • Oper

41 Hutchins Drive  
Portland, Maine 04102

PLACE STICKER AT TOP  
OF THE RETURN ADDRESS  
**CERTIFIED MAIL**  
RIGHT TO RETURN



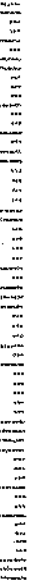
7003 3110 0004 6021 5511



U.S. POSTAGE PERMIT NO. 274  
\$02.79  
MAILED IN PORTLAND, ME 04102

CADCAM Associates  
41 Hutchins Drive  
Portland, Me 04102

04102+1931-41 C021



CBL	OWNER	OWNER MAILING ADDRESS	PROPERTY LOCATION	UNITS
237 A008001	OK PROPERTIES LLC	311 WEED RD SHELBURNE , VT 05482	2300 CONGRESS ST	1
237 A009001	MACK S RICHARD	750 WARREN AVE PORTLAND, ME 04103	2320 CONGRESS ST	1
237 A010001	CONGO ASSOCIATES LLC	9 THOMAS DR WESTBROOK , ME 04092	2338 CONGRESS ST	1
237 A011001	MAINE TURNPIKE AUTHORITY	430 RIVERSIDE ST PORTLAND, ME 04103	2346 CONGRESS ST	0
238 A008001	REGIONAL WASTE SYSTEMS	64 BLUEBERRY RD PORTLAND, ME 04102	BLUEBERRY RD	0
238 A027001	STURBRIDGE YANKEE	90 BLUEBERRY RD PORTLAND, ME 04102	80 BLUEBERRY RD	0
238A A001001	CADCAM ASSOCIATES	41 HUTCHINS DR PORTLAND, ME 04102	41 HUTCHINS DR	1
238A A003001	CONGRESS STREET LLC	PO BOX 1388 BANGOR , ME 04402	2319 CONGRESS ST	1
238A A004001	2301 CONGRESS REALTY LLC	2301 CONGRESS ST PORTLAND, ME 04102	2301 CONGRESS ST	1
238A A005001	REW REALTY LLC	PO BOX 3889 PORTLAND, ME 04104	2273 CONGRESS ST	-1
238A A006001	BLUEBERRY HOLDINGS LLC	PO BOX 1629 PORTLAND , ME 04101	34 BLUEBERRY RD	0
238A B001001	2385 CONGRESS STREET ASSOCIATES LLC	2385 CONGRESS ST PORTLAND , ME 04102	2385 CONGRESS ST	1
238A B002001	MARSHALL & LIBBY REALTY LLC	2367 CONGRESS ST PORTLAND , ME 04102	2355 CONGRESS ST	1
238A B003001	SUNVIEW ASSOCIATES LIMITED	ONE CITY CENTER PORTLAND , ME 04101	34 HUTCHINS DR	0
238A B004001	CBS REALTY LLC	10 ANDOVER RD PORTLAND , ME 04102	66 HUTCHINS DR	1
239 A001001	SPRING HARBOR HOSPITAL	216 VAUGHAN ST GROUND FLOOR PORTLAND, ME 04102	1 HUTCHINS DR R	0
239 A003001	SNYDER SIMON A	528 STROUDWATER ST WESTBROOK, ME 04092	1772 WESTBROOK ST	0
239 A003002	MOBIL PIPE LINE CO PROPERTY TAX DIVISION	P.O.BOX 53 HOUSTON, TX 77001	A	0
239A A001001	RACKET & FITNESS CENTER INC	2445 CONGRESS ST PORTLAND, ME 04102	2445 CONGRESS ST	1
239A A002001	LIVERSIDGE ALEXANDER H	11 COUNTY RD WESTBROOK , ME 04092	2439 CONGRESS ST	0
239A A003001	SPRING HARBOR HOSPITAL	216 VAUGHAN ST GROUND FLOOR PORTLAND , ME 04102	2393 CONGRESS ST	0
239A A004001	AMERICAN NATIONAL RED	2401 CONGRESS ST PORTLAND, ME 04102	2401 CONGRESS ST	1
240 A001001	HUTCHINS DRIVE LLC	ONE CANAL PLAZA 5TH FLOOR PORTLAND , ME 04102	94 HUTCHINS DR	1
240 A002001	UNUM LIFE INSURANCE OF AMERICA	2211 CONGRESS ST PORTLAND, ME 04102	102 HUTCHINS DR	1
240 B002001	ARROW REALTY	34 DIAMOND ST PORTLAND, ME 04101	95 HUTCHINS DR	1
240 B003001	PAZOLT ROBERT	121 HUTCHINS DR PORTLAND , ME 04102	121 HUTCHINS DR	0
240 B004001	SPRING HARBOR HOSPITAL	216 VAUGHAN ST GROUND FLOOR PORTLAND , ME 04102	131 HUTCHINS DR	0

7003 3110 0004 6021 5665

Autchins Dr. LLC

7003 3110 0004 6021 5405

Mobil Pipe Line Co.

7003 3110 0004 6021 5535

Reginal Waste System

7003 3110 0004 6021 5432

Simon Snyder

7003 3110 0004 6021 5542

Main Turnpike Authority

7003 3110 0004 6021 5429

Spring Harbor Hospital

7003 3110 0004 6021 5559

Congo Assoc

7003 3110 0004 6021 5436

CBS Realty

7003 3110 0004 6021 5566

Mack S. Richard

7003 3110 0004 6021 5443

SUNVIEW ASSOC.

7003 3110 0004 6021 5573

OK Properties

7003 3110 0004 6021 5450

Marshall + Libby

7003 3110 0004 6021 5580

Rober Puzolt

7003 3110 0004 6021 5467

Congress St Assoc.

7003 3110 0004 6021 5597

Arrow Realty

7003 3110 0004 6021 5474

REN Realty

7003 3110 0004 6021 5603

UNUM

7003 3110 0004 6021 5481

Blueberry Holdings

7003 3110 0004 6021 5610

Spring Harbor

7003 3110 0004 6021 5498

Congress Realty, Portland

7003 3110 0004 6021 5627

Spring Harbor Hospital

7003 3110 0004 6021 5504

Congress Realty, Bangor

7003 3110 0004 6021 5634

Alex Liversidge

7003 3110 0004 6021 5511

CADAM

7003 3110 0004 6021 5641

Racket + Fitness

7003 3110 0004 6021 5528

Storbridge Yankee

7003 3110 0004 6021 5658

American Red Cross



155 1209 6201 011E 7002

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 Street, Apt. No., or PO Box No. PO. Box 13889  
 City, State, ZIP+4 Port. ME 04104

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 or PO Box No. 11 County Rd  
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 or PO Box No. 2211 Congress St  
 City, State, ZIP+4 Portland, ME 04102

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4634 1201 4000 DTTE 5002  
5695 1209 4000 DTTE 5002  
7003 3110 0000 DTTE 5002  
5695 1209 4000 DTTE 5002  
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7597 6021 1209 4000 0000 0110 3110 3003 7002 5580 1209 4000 0000 0110 3110 3003 7002 5195 1209 4000 0000 0110 3110 3003 7002

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 or PO Box No. 210 Vaughan St. Ground Floor  
 City, State, ZIP+4 Portland, ME 04102

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## Meeting Minutes

### Woodard & Curran Building Addition Neighborhood Meeting – January 17, 2006 Woodard & Curran Office 41 Hutchins Drive Portland

#### Attending:

Ken Volock, Woodard & Curran  
Jon Boyd, Harriman Associates  
Douglas Cardente, 34 Diamond Street, Portland, Maine, 04101

The Neighborhood Meeting for the Woodard & Curran Building Addition project was held at the offices of Woodard & Curran, 41 Hutchins Drive, Portland, at 6pm on Tuesday, January 17, 2006. A summary of the discussions which took place at the meeting is contained below.

1. Ken Volock introduced the proposed development, including the building addition, associated parking, landscaping, environmental impacts and stormwater treatment.
2. The lone abutter attendee, Douglas Cardente, had no objection to the project as proposed, but inquired about the process of going through City Site Plan review. The City Site Plan review process was discussed briefly.
3. Mr. Cardente also inquired about materials of construction and whether those proposed for use were typical. Jon Boyd discussed the materials to be used. Brick will be used on the East, West and South facades and wrapping around corners, where it will be most visible. Metal siding will be used on the North façade to match the north façade of the existing North Wing.
4. The LEED process was also discussed including siting the project as well as several interior measures such as energy efficiency and use of natural light.
5. The meeting adjourned at approximately 6:30pm.

Enclosures: Meeting Handout  
Meeting Attendee Sign-In Sheet



**City of Portland, Maine  
Department of Planning and Development**

Dear Neighbor:

Thank you for attending this evening's neighborhood meeting.

Applicants for major developments, zone changes, and subdivisions of more than five units/lots are required to hold a neighborhood meeting prior to the Planning Board's public hearing on the development proposal.

The purpose of these meetings is to improve communication between neighbors and applicants for development. We have found that neighbors raise questions and offer insight that often improve the design or compatibility of a proposed development.

The City code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list" be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

Should you wish to offer additional comments on this proposed development, you may send correspondence to:

Planning Division  
Department of Planning and Development  
Portland City Hall  
389 Congress Street  
Portland, ME 04101;

Or email:  
sh@portlandmaine.gov;

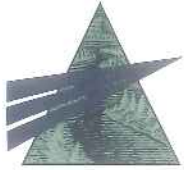
Or call 874-8720.

Thank you for taking the time to attend tonight's meeting.

Sincerely,

Sarah Hopkins  
Development Review Services Manager





*file*

January 24, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows addresses issues that require resolution as we continue towards our Public Hearing, scheduled for February 7, 2006. The information herein supplements that submitted by Woodard & Curran to the Planning Department on January 20, 2006.

The following items were identified as "Next Steps" in the January 10, 2006 Planning Board Workshop Memorandum:

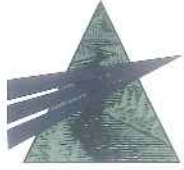
**8. Further discussion between the applicant and the City Arborist to secure approval to the Landscape Plan**

The Landscape Architect for the project, Pat Carroll of Carroll Associates, Inc., has discussed the project with the City Arborist. At this point we believe we have adequately addressed all comments. The design is depicted on Sheet L-1.0 Landscape Plan, which has been attached to this submission.

**9. Applicant needs to hold a neighborhood meeting**

The neighborhood meeting was held at the offices of Woodard & Curran on January 17, 2006. The Neighborhood Meeting Certification has been attached to this submission with the following attachments: a copy of the invitation that was sent to abutters; address of abutters provided by the Planning Department; certified mail receipts; and the meeting minutes with the meeting handout and a list of meeting attendees.





Jean Fraser, City of Portland  
January 24, 2006  
Page 2

In addition, the following item was raised by members of the Planning Board as an outstanding peer review issue:

**Comment from the City's Traffic Engineer on the need for a Traffic Study**

Woodard & Curran has contracted with Gorrill-Palmer Consulting Engineers, to review traffic generation for the site and provided comment on its compliance with existing permits and studies. A letter from Gorrill-Palmer to the City's Traffic Engineer, dated January 23, 2006, evaluating traffic generation historically and as can be expected from the proposed project, has been attached to this submission. In this letter, Gorrill-Palmer concludes that the proposed project will not require an MDOT traffic movement permit. A copy of this letter has previously been emailed directly to the City's Traffic Engineer.

Thank you for the assistance you have provided. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: Sheet L-1.0 Landscape Plan  
Letter from Gorrill-Palmer Consulting Engineers, Inc., to Tom Errico, Wilbur Smith Associates, dated January 23, 2006 (with all attachments)  
Neighborhood Meeting Certification (with all attachments)





Gorrill-Palmer Consulting Engineers, Inc.

*Traffic and Civil Engineering Services*

PO Box 1237  
15 Shaker Rd.  
Gray, ME 04039

207-657-6910  
FAX: 207-657-6912  
E-Mail: mailbox@gorrillpalmer.com

January 23, 2006

Mr. Tom Errico, PE  
Wilbur Smith Associates  
59 Middle Street  
Portland, ME 04101-4211

Re: Proposed Expansion of Woodard and Curran  
Hutchins Drive  
Portland, Maine

Dear Tom:

Woodard and Curran asked Gorrill-Palmer Consulting Engineers Inc. to respond to your request for additional traffic information for the above referenced project. Based on my conversation with you last week, you have requested documentation of the history of the permitting of the site from a traffic perspective, including research and details of prior permitting requirements. The purpose of this letter is to present this information.

The current and proposed site is located on lot 16 of Stroudwater Estates which was originally permitted with 8 lots in 1979 and did not include any provisions regarding traffic nor a traffic impact study. Phase 2 of Stroudwater Estates was permitted in June of 1984 and included an additional 12 lots. The Maine Department of Environmental Protection Site Location of Development Permit found that the applicant had "made adequate provision for traffic movement of all types into, out of or within the development area". No traffic impact study was contained in their files and the permit did not contain any conditions of approval with respect to traffic.

A traffic impact study was completed in November, 1991 by T. Y. Lin International in conjunction with Phase 3 of Stroudwater Estates. The traffic impact study for Phase 3 included 13 lots with approximately 10,000 sf of building space on each lot, or a total of 130,000 sf estimated at 50 percent office and 50 percent light industrial space. The report contained three recommendations:

- "Cummings Road/Spring Street/County Road- Reconstructing the Spring Street and Cummings Road approaches to provide one exclusive left turn lane, one exclusive through lane and one shared through/right turn lane" - A project including these improvements and others has been designed by our office for the Maine DOT and is currently scheduled for construction in 2007 by the Maine Department of Transportation (MaineDOT).
- "Congress Street/Johnson Road- Reconstructing the intersection to provide two exclusive left-turn lanes and one exclusive right-turn lane on the Congress Street eastbound approach" - This work was completed by the City and the MaineDOT several years ago.

Mr. Thomas Errico, PE

January 23, 2006

Page 2 of 2

- "Traffic signal warrant analysis was performed at the Congress Street/Hutchins Drive intersection for the 1996 Build condition. Based on criteria in the Manual on Uniform Traffic Devices, the traffic signals are warranted." - Traffic signals have been installed at this location.

Following the permitting of these three phases, Woodard and Curran expanded in 1996 and the City determined that a traffic study was not required. Documentation of the above summary is attached to this letter.

Currently Woodard and Curran employ 111 persons in their main office building. They have 32 more employees next door in the Annex (formerly occupied by Clark Insurance). Once the proposed building is complete the employees in the Annex will move into the new building bringing the total employees up to 143. The proposed building is designed to have enough room to accommodate approximately 64 more employees, for a total of 207 at full occupancy.

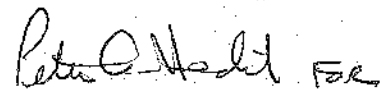
The attached spreadsheet breaks down floor areas for Phase 1 and 2 of the Stroudwater Estates development for prior to 1991 (when the Phase 3 Traffic Impact Study was written), prior to 1997 and post 1997. The only change between 1991 and 1997 is the 22,766 sf addition to the Woodard and Curran building and a 10,057 sf industrial building.

In terms of trip generation after 1997, if we assume the 32 employees now in the Annex and the future 64 employees (a total of 96 employees) have or will be added post 1997, the additional traffic which would be generated by Woodard and Curran is estimated at 65 and 76 trip ends during the AM and PM peak hours respectively based on ITE Land Use code 715, single tenant office building. Adding in the 10,057 sf of additional industrial space since 1997, would yield an additional 10 and 11 trip ends during the AM and PM peak hours respectively for a total of 75 and 87 AM and PM trip ends respectively since 1997. This total is below the MaineDOT threshold of 100 and thus would not require a MaineDOT traffic movement permit.

Please review the information presented in this letter and contact me should you have any further questions.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.



Thomas L. Gorrill, P.E., PTOE  
President

C: Barry Sheff

Stroudwater Estates

	Tax Map/Lot	At time of Phase 3 Traffic		Total Pre-7/97		Post 7/97	
		Office Floor Area	Industrial Floor Area	Office Floor Area	Industrial Floor Area	Office Floor Area	Industrial Floor Area
Phase 1							
Lot 1	238A/A6 *						10057
Lot 2	238A/A5 *	13779		13779			
Lot 3	238A/A4		83960		83960		
Lot 4	238A/A3	25080		25080			
Lot 5	238A/B2	8072		8072			
Lot 6	238A/B1	16637		16637			
Lot 7	239A/A4	10184		10184			
Lot 8	239A/A5 *						
Phase 2							
Lot 9	238A/B3						
Lot 10	238A/B4	9960		9960			
Lot 11	240/A1	9960		9960			
Lot 12a	240/A2		41261		41261		
Lot 12b	240/A3		41261		41261		
Lot 13	240/A4						
Lot 14	240/A5						
Lot 15	238A/A1	11184		11184			
Lot 16	238A/A1			22766			
Lot 17	240/B2	34230		34230			
Lot 18	240/B3		8500		8500		
Lot 19	240/B4						
Lot 20	240/B5						
Total		139086	174982	161852	174982		10057

Have the owner of the solid waste disposal facility fill out Attachment A on page 10. This form or one containing the same information must be submitted with the application.

NOTE: If the solid waste disposal facility is run by the municipality, the letter should be filled out by the Mayor, Town Manager or Selectmen.

19. If project is other than a subdivision, state plans for landscaping and show details on site plan or a separate landscaping plan. Landscape plans should include as a minimum: species type and location of trees and/or shrubs, size of trees and/or shrubs, planting dates. N/A

20. If other than residential subdivision, state below the estimate average number of vehicles per day anticipated on or using the site. The number of vehicles per day will depend on the development of the individual lots.

21. If other than residential subdivision, state below the manner in which police and fire service requirements of the proposed project will be provided. If public departments are to provide service, letters from these departments should be provided.

Police and Fire service will be supplied by the City of Portland.

See Exhibits E and F.

22. Submit the appropriate U.S.G.S. topographic map which includes the project site. Indicate on the map:

a. Location of boundaries of the project as proposed.

b. Location of boundaries of all property you own or control.

23. Submit 12 copies of site plans, drawn to a scale sufficient to show all details and be entirely legible: (Recommended Scale: 1" = 100') (ALL PLANS SHALL BE FOLDED 8½" x 11")

a. Location, function and ground area of all structures and facilities.

b. Location, ground area of parking lots and all roads, length and typical cross-section of roads.

c. The nature and extent of any site work such as filling, grading, drainage, dredging, etc.

d. The nature and extent of any proposed construction or facilities related to the project.

e. The topography of the project site using 5 foot contours.

f. Streams and drainage ways. See enclosed site plans.

24. Attach the results of an on-site soil investigation done by a qualified evaluator INCLUDING A SOILS MAP to the same scale as the site plan. The soils designations, lines or demarcation and test pit locations are to be shown directly on the site plan. If the application is for a subdivision, test pits must be made and reported on each proposed lot. All other applications should have test pits made in areas of proposed subsurface sewage disposal and/or construction location. (SEE PAGE 10 FOR EXAMPLE FORMAT.)

See Exhibit G

25. Attach plans and statements indicating measures which will be taken to control surface water runoff:

a. These provisions should include predevelopment and postdevelopment runoff calculations and complete specifications for any retention device. This requirement may be waived depending on the individual project. Example: subdivisions with no road construction.

See Exhibit H

26. Attach plans and statements indicating measures which will be followed to control erosion and sedimentation during both the construction phase and after completion of the project. These should include, but are not limited to the following:

See Exhibit I



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

DEPARTMENT ORDER

IN THE MATTER OF

STROUDWATER ESTATES      ) SITE LOCATION ORDER  
Portland, Maine      )  
STROUDWATER ESTATES PHASE II      )  
#L-010223-39-A-A (CORRECTED 7/16/84)      ) 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 STROUDWATER ESTATES with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

1. The applicant proposes to expand an existing Board Approved industrial subdivision. The proposed expansion will consist of 12 more lots with an interior road for access.

Access to the site is via Congress Street, City owned and maintained.

Sewer and water service will be provided by the City of Portland.

Solid Waste generated by the new expansion will be collected and disposed of at the Portland Regional Waste Disposal Facility.

Financing for the project is through a \$300,000 U.D.A.G. Grant from the City of Portland. Technical assistance for engineering is being provided by the E.C. Jordan Co. Soils in the project area are classified as weathered silty clays underlain by silty sands. No sand or gravel aquifer was reported in the area.

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 surface water runoff is controlled on individual lots.
- 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.





JOB NUMBER: 51000.21  
DATE ISSUED: 11/25/91

REPORT ON  
TRAFFIC IMPACT STUDY  
STROUDWATER ESTATES PROJECT  
PHASE III  
PORTLAND, MAINE



PREPARED FOR  
GEORGE M. HUTCHINS

PREPARED BY  
T. Y. LIN INTERNATIONAL  
CONSULTING ENGINEERS  
5 FUNDY ROAD  
FALMOUTH, MAINE

NOVEMBER 1991

## SECTION I - INTRODUCTION

Mr. George M. Hutchins retained T. Y. Lin International (TYLI) to prepare a Traffic Impact Study in conjunction with the proposed Phase III of the Stroudwater Estates project. The project site is located in Portland, Maine (see Figure 1), adjacent to Hutchins Drive and Congress Street.

Phase I of the Stroudwater Estates project, which consists of eight (8) approved lots, has three (3) unbuilt lots. Phase II of the project has been approved for 13 lots. However, three of them have not been built and two lots (Lot #14 and #20) have been eliminated due to environmental considerations. In addition, the size of Lot #19, which is not built, has decreased. Phase III as proposed will consist of 13 lots with approximately 10,000 square feet of building space on each lot. For this study, it was assumed that all unbuilt lots in Phase I and II, and all proposed lots in Phase III will consist of 50 percent office and 50 percent light industrial space. Phase III of the project is anticipated to be completed in Year 1996.

This report has been prepared in support of a Maine Department of Environmental Protection Site Location Application and presents the evaluation of public road system impacts resulting from the proposed project. The traffic study has been prepared to conform to all requirements of the Rules Regarding the Traffic Movement Standard of the Site Location Law, Chapter 374.

The purpose of this study is to evaluate the potential impact of traffic generated by the development on the existing street system in the vicinity of the project site. In addition, general travel patterns and safety impacts within the vicinity of the site will also be evaluated.

## SECTION II - DATA COLLECTION

The Maine Department of Transportation (MDOT) provided TYLI with the following:

1. Accident data for the 1988-90 period for the following intersections and roadway segments:

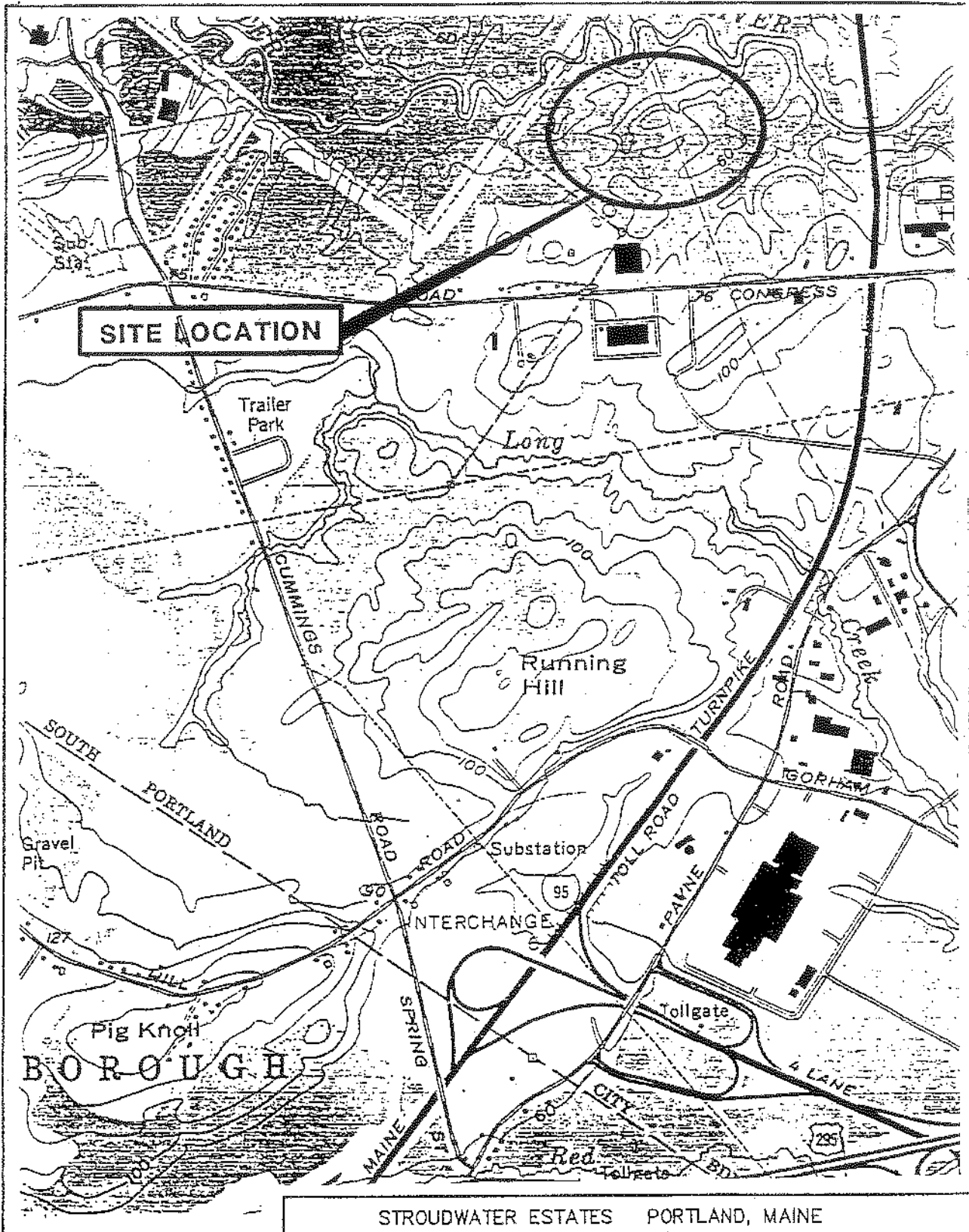
- Congress Street/Hutchins Drive
- Congress Street/Johnson Road
- County Road/Spring Street/Cummings Road (Westbrook)
- Johnson Road/Jetport Drive
- Congress Street between Blueberry Road and Hutchins Drive

In addition, TYLI collected or prepared the following information:

1. Manual turning movement counts for the period of 7:00-9:00 AM and 4:00-6:00 PM at the following intersections:

- Congress Street/Hutchins Drive
- Congress Street/County Road/Spring Street (Westbrook)
- Johnson Road/Jetport Road





STROUDWATER ESTATES PORTLAND, MAINE

SITE LOCATION

(10-0276)

**TYLIN**  
INTERNATIONAL

DECEMBER 1991

FIGURE 1

2. AM and PM turning movement count data from Vanasse Hangen Brustlin, Inc. at the following intersection:
  - Congress Street/Johnson Road
3. 24-hour Automatic Traffic Recorder (ATR) counts on Hutchins Drive north of Congress Street.
4. Collision diagrams for accidents occurring at the following locations:
  - Congress Street/Hutchins Drive
  - Congress Street/Johnson Road
  - County Road/Spring Street/Cummings Road
  - Johnson Road/Jetport Drive
  - Congress Street between Blueberry Road and Hutchins Drive
5. General field investigation of roadway geometrics and signal phasing and timings at intersections in the study area.

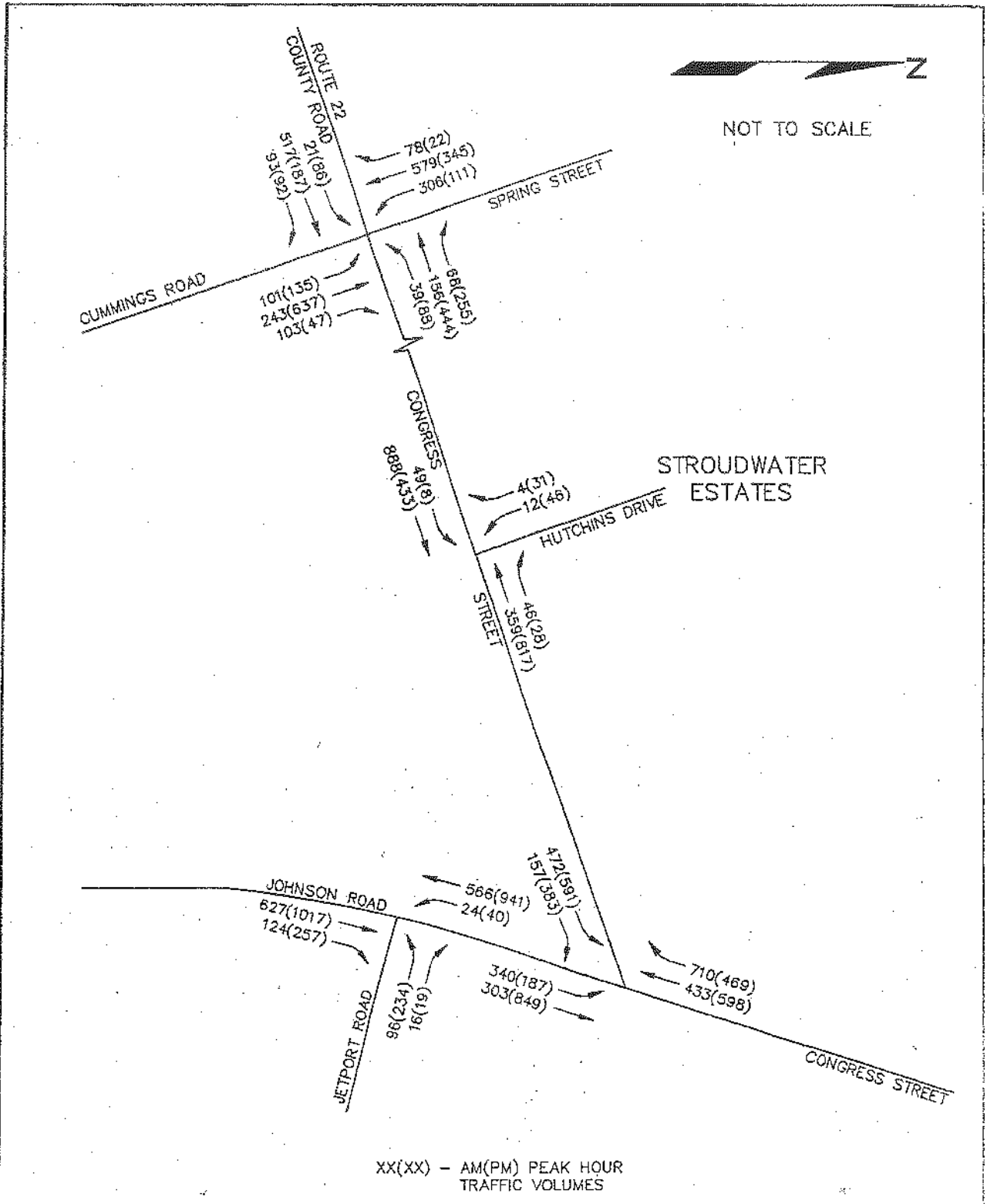
### SECTION III - EXISTING TRAFFIC

In order to estimate the amount of impact the proposed development will have on surrounding roads, the existing traffic patterns and volumes must be established for the Base (i.e., no build) and Build conditions. Traffic impact analysis typically uses volumes and patterns based upon peak hour flows (usually the period of heaviest usage).

It should be noted that the study intersections included in this study were based upon the estimated site generated traffic (Section IV) and the criteria contained in the State Site Location Law, (i.e., site generated traffic of 35 vehicles per hour per lane for through and/or right-turn movements or 25 vehicles per hour per lane for left-turn movements).

To establish the base AM and PM peak hour volumes, AM and PM manual turning movement counts were conducted at the Johnson Road/Jetport Road (09/27/91), County Road/Spring Street/Cummings Road (09/30/91), and Congress Street/Hutchins Drive (10/01/91) intersections. AM and PM turning movement data at the Congress Street/Johnson Road (09/19/91) intersection was obtained from Vanasse Hangen Brustlin, Inc. In addition a 24-hour Automatic Traffic Recorder (ATR) count on Hutchins Drive north of Congress Street was conducted on October 2-7, 1991.

Results of the peak hour turning movement counts indicated that at all intersections the AM peak hour occurred between 7:00-8:00 AM, while the PM peak hour occurred between 4:00-5:00 PM except the Congress Street/Johnson Road intersection. At the Congress Street/Johnson Road intersection the AM peak hour occurred between 7:15-8:15 AM and the PM peak hour occurred between 4:30-5:30 PM.



STROUDWATER ESTATES PORTLAND, MAINE

1991 DESIGN HOURLY VOLUMES

(TD-0276)

**TYLIN**  
INTERNATIONAL

DECEMBER 1991

FIGURE 2

TYIN

The raw AM and PM peak hour volumes were adjusted to represent a Design Hour condition (30th Highest Hour Volume) according to 1991 Maine Department of Transportation weekly group mean factors. The 1991 Design Hour Volumes during the AM and PM peak hour are presented on Figure 2.

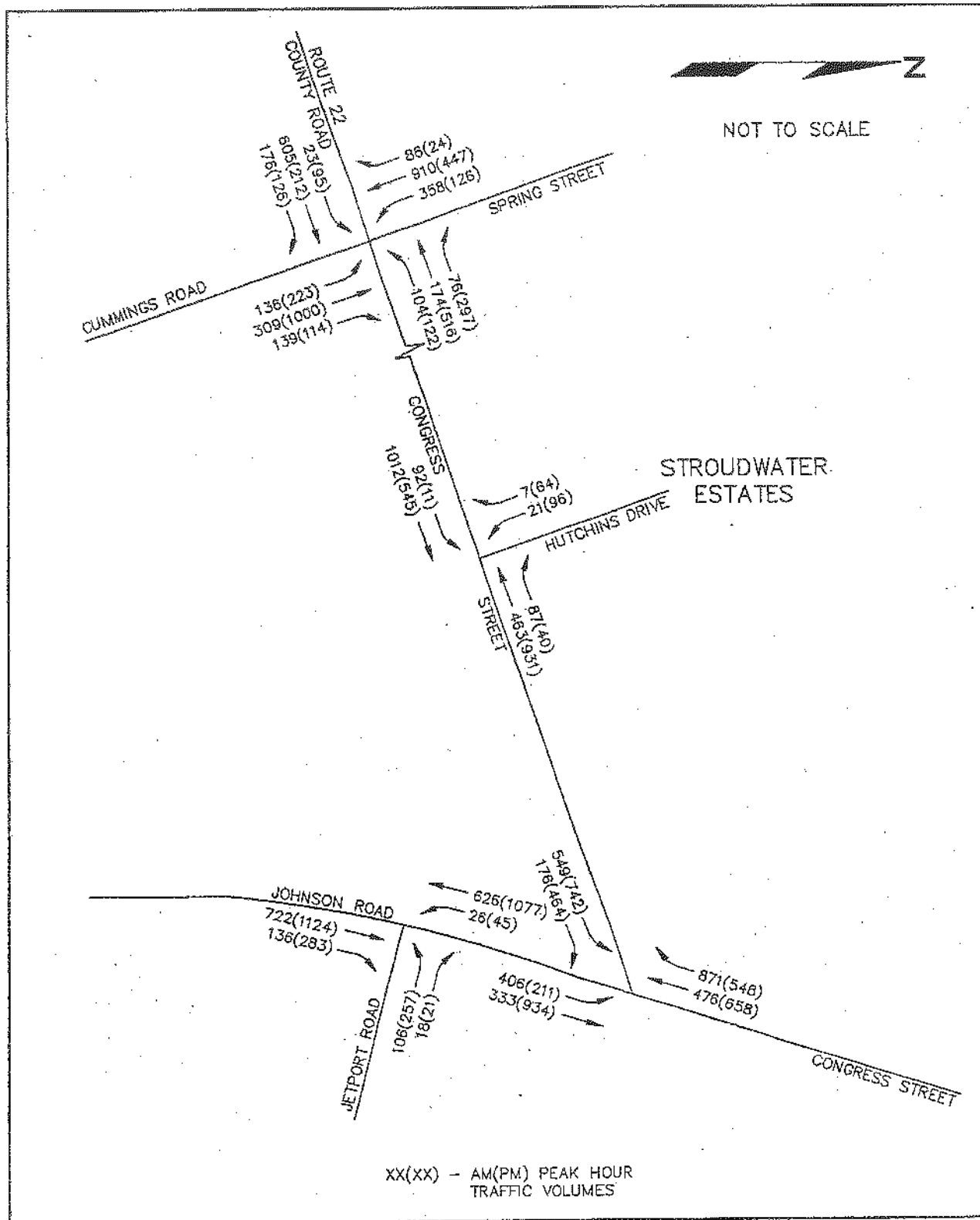
Present plans indicate the proposed project will be constructed over several years with completion expected in 1996. To estimate the 1996 Base (No-Build) traffic volumes, the 1991 Design Hour Volumes were increased by a regional background growth rate, and then traffic from all approved but unbuilt developments in the vicinity of the project were added. According to the City of Portland, roadways in the City are currently experiencing an annual growth of approximately 2 percent, and based upon information contained in the Cummings Road Business Park Traffic Study, prepared by John L. Murphy, P.E., traffic generated by the following list of approved but unbuilt developments were included.

- Stroudwater Estates Phase I & II
- Cummings Road Business Park
- Plaza West
- Scarborough Fair Mall
- Wal-Mart
- Signature Properties/Southborough Office Park
- Sable Oaks Office Park

The 1991 Base traffic volumes were estimated by adjusting the 1991 Design Hour volumes by a 2 percent per year background growth rate and then adding the traffic generated for the approved but unbuilt developments summarized above. Figure 3 presents the 1996 Base traffic volumes during the AM and PM peak hours.

#### SECTION IV - SITE GENERATED TRAFFIC

Site generated trips were estimated utilizing trip generation rates from the Institute of Transportation Engineers publication, Trip Generation (5th edition, 1991). As indicated in Section I of this report, Phase III of the Stroudwater Estates project will consist of 13 developable lots. It was assumed that each lot will consist of 10,000 square feet of building space - 50 percent of office and 50 percent of light industrial space. Two lots (#14 and #20) in Phase II of the project will be eliminated due to environmental considerations. Therefore, trips generated by Phase III of the project will be adjusted accordingly (i.e., traffic generated by Lots 14 and 20 of Phase II will be subtracted from traffic generated by Phase III). The estimated trips generated by Phase III of the Stroudwater Estates project based on the square footage data above are summarized in the following table:



STROUDWATER ESTATES PORTLAND, MAINE

1996 BASE TRAFFIC VOLUMES

(TD-0276)



DECEMBER 1991

FIGURE 3



Estimated Trip Generation

Land Use	AM Peak Hour			PM Peak Hour			Average Weekday
	Enter	Exit	Total	Enter	Exit	Total	
Light Industrial (Phase III, 65,000 Sq. Ft.)	50	10	60	8	56	64	453
General Office (Phase III, 65,000 Sq. Ft.)	185	23	208	38	183	221	1,599
Subtotal	235	33	268	46	239	285	2,052
Light Industrial (Phase II, 10,000 Sq. Ft.)*	8	1	9	1	9	10	70
General Office (Phase II, 10,000 Sq. Ft.)*	29	3	32	6	28	34	246
NET NEW TRIPS	198	29	227	39	202	241	1,736

\* Trips generated by the eliminated Lots 14 and 20 of Phase II.

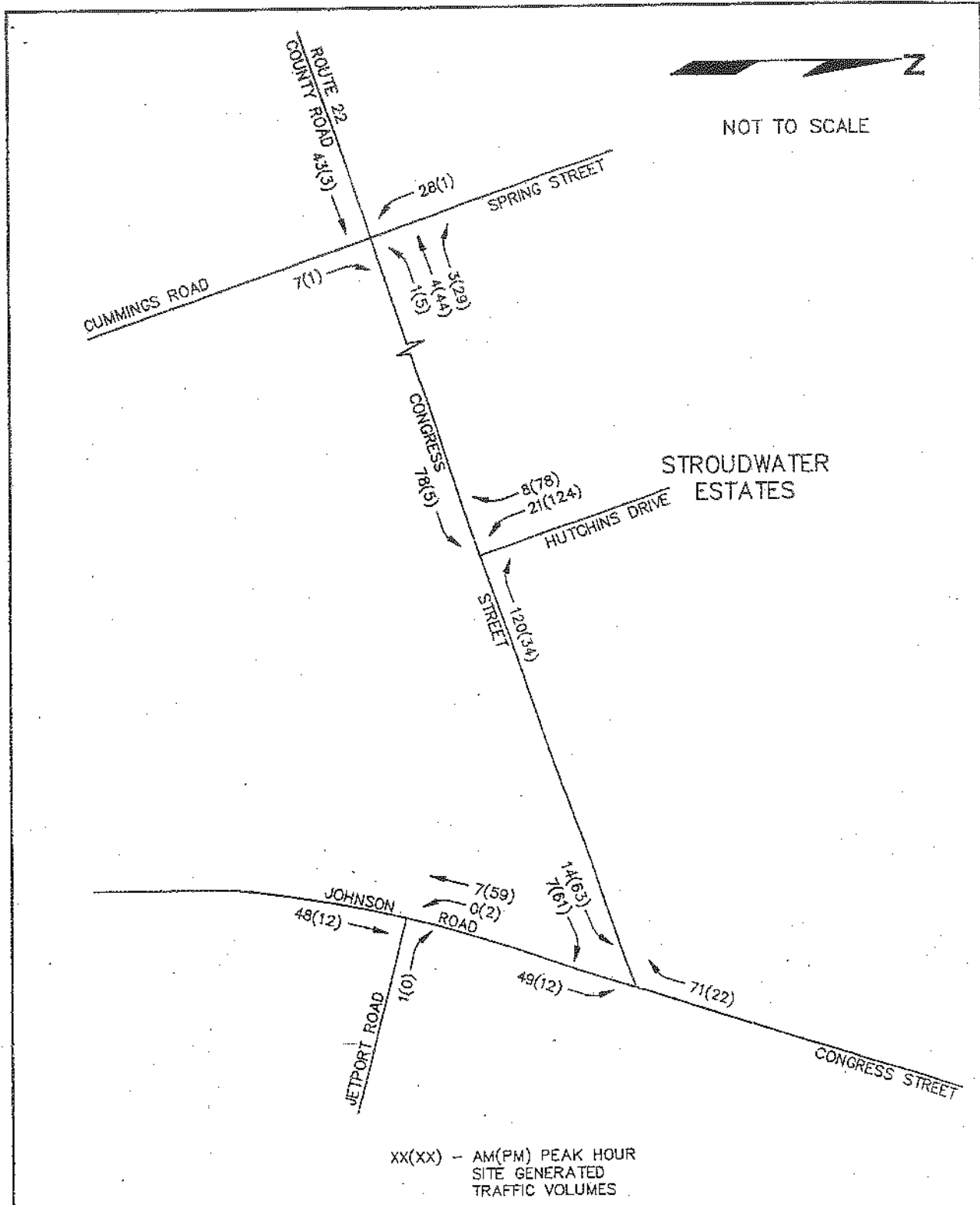
The Proposed project is expected to generate 1,736 new vehicular trips (entering and exiting) on an Average weekday. During the AM peak hour 227 new vehicular trips are expected - 198 entering and 29 exiting. During the PM peak hour, 241 new vehicular trips will be generated - 39 entering and 202 exiting.

The estimated site generated trips were distributed along the street network based on existing travel patterns and the consultant's judgment. The estimated AM and PM peak hour trip distributions are displayed on Figure 4. The 1996 Build traffic volumes during the AM and PM peak hours are shown in Figure 5. These volumes represent the sum of the base traffic volumes plus the estimated site generated traffic volumes.

SECTION V - CAPACITY ANALYSIS

To evaluate the impact of traffic generated by the proposed development on the study intersections, capacity analysis was performed for the 1996 Base and Build conditions. Capacity analysis for signalized intersections were performed according to procedures contained in Chapter 9 of the 1985 Highway Capacity Manual, Transportation Research Board. The Level of Service (LOS) of a signalized intersection is based on the average delay experienced by vehicles wishing to pass through the intersection. The relationship between delay per vehicle and Level of Service is as follows:

<u>Level of Service</u>	<u>Delay</u>
A	0-5 seconds
B	5-15 seconds
C	15-25 seconds
D	25-40 seconds
E	40-60 seconds
F	60+ seconds



STROUDWATER ESTATES PORTLAND, MAINE

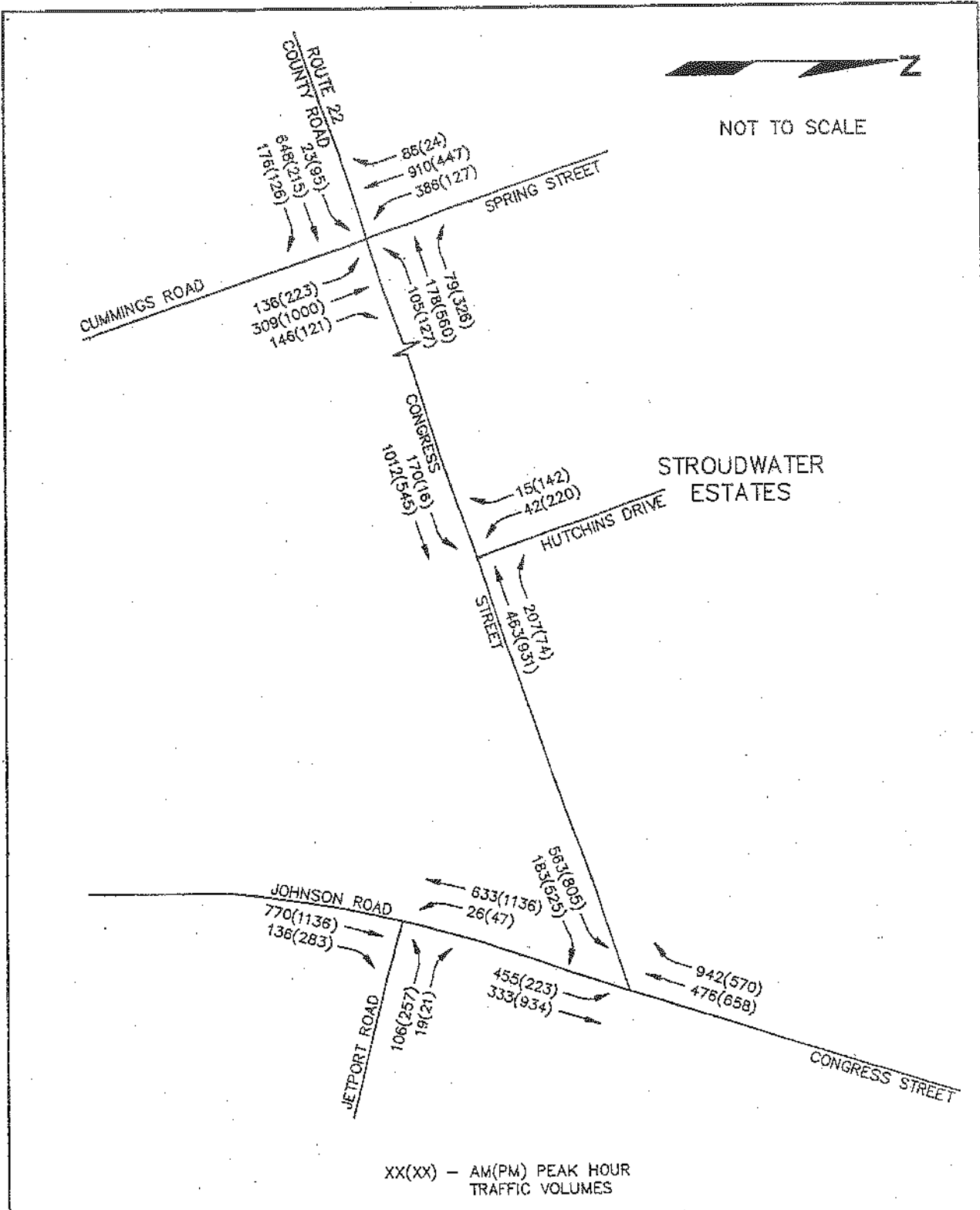
SITE GENERATED TRAFFIC VOLUMES

(TD-0276)

**TYLON**  
INTERNATIONAL

DECEMBER 1991

FIGURE 4



STROUDWATER ESTATES PORTLAND, MAINE

1996 BUILD TRAFFIC VOLUMES

(TD-0276)



DECEMBER 1991

FIGURE 5





The capacity analysis calculations was based upon existing geometric and traffic signal conditions. The results of the calculations are summarized in the following table:

Signalized Intersection Capacity Analysis

<u>Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Level of Service</u>	<u>Delay</u>	<u>Level of Service</u>	<u>Delay</u>
Cummings Rd./Spring St./County Rd.	F (F)	60.18 (71.94)	F (F)	63.12 (64.21)
Congress St./Johnson Rd.	C (C)	17.58 (19.73)	E (E)	48.61 (59.97)
Johnson Rd./Jetport Rd.	A (A)	3.20 (3.26)	B (B)	12.95 (14.72)

XXX - 1996 Base Condition  
(XXX) - 1996 Build Condition

As indicated in the above table, extreme congestion is expected at the Cummings Road/Spring Street/County Road intersection during both the AM and PM peak hours in 1996 (either with or without the proposed project). At the Congress Street/Johnson Road intersection, very long delays can be expected during the PM peak hour in 1996. Minimal delays are expected at the Johnson Road/Jetport Road intersection during both the AM and PM peak hours.

SECTION VI - INTERSECTION IMPROVEMENTS

This section discusses the mitigation actions necessary to provide acceptable Levels of Service at the study intersections. The capacity analysis calculations indicates unacceptable operational conditions are projected at the Cummings Road/Spring Street/County Road and Congress Street/Johnson Road intersections. To improve the operating conditions at each of the deficient locations, it is recommended that the following improvements be implemented:

- Cummings Road/Spring Street/County Road - According to the volume projections, in the year 1996 heavy through volumes are expected on Spring Street during the AM and PM peak hours (900± southbound through vehicles in the AM peak hour and 1000 northbound vehicles in the PM peak hour). Currently, each approach at the intersection consists of one exclusive right-turn lane, one exclusive through lane and one exclusive right-turn lane. In order to accommodate the heavy through volumes on Spring Street/Cummings Road it will be necessary to provide additional capacity. To provide this additional capacity, it is recommended that the exclusive right-turn lane on both Spring Street and Cummings Road be converted to a shared through/right-turn lane. This improvement will require widening on the receiving side of the two lanes for a minimum of 300 feet. Following implementation of this improvement, the



intersection would operate at Level of Service D (delay = 30.60 seconds/vehicle) during the AM peak hour and Level of Service C (delay = 21.21 seconds/vehicle) during the PM peak hour during the 1996 Build condition.

- Congress Street/Johnson Road - Due to the heavy traffic volumes currently traveling through this intersection and the increase expected, unacceptable operating conditions are anticipated during the PM peak hour during 1996 Build condition. To improve operating conditions in 1996 it is recommended that Congress Street eastbound be widened to provide two exclusive left-turn lanes and one exclusive right-turn lane. Following implementation of this improvement, the intersection is expected to operate at Level of Service B (delay = 14.49 seconds/vehicle) during the AM peak hour and Level of Service C (delay = 16.09 seconds/vehicle) during the PM peak hour during the 1996 Build condition.

## SECTION VII - SAFETY

Accident data for the period 1988-90 was obtained from the Maine Department of Transportation for roadways and intersections in the vicinity of the project. A summary of this data is presented below:

<u>Location</u>	<u>1988-90 Accidents</u>	<u>Yearly Average</u>	<u>Critical Rate Factor</u>
Congress St./Johnson Rd.	20	6.67	0.68
Congress St./Hutchins Dr.	1	0.33	0.16
County Rd./Spring St./Cummings Rd.	15	5.00	0.46
Johnson Rd./Jetport Rd.	3	1.00	0.14
Congress St. from Johnson Rd. to UNUM Dr.	2	0.67	0.22
Congress St. from Blueberry Rd. to Hutchins Dr.	3	1.00	0.31

MDOT considers a Critical Rate Factor (CRF) of 1.0 or greater and 8 accidents or more over a three year period as a general guideline to identify potential safety deficiencies. None of the above locations meet these guidelines. The assessment as to whether a safety deficiency exists is primarily based on a review of accident type and location to determine whether any recurring patterns are present.

Therefore, an analysis of the collision diagrams prepared for the Congress Street/Johnson Road and County Road/Spring Street/Cummings Road intersections was conducted and the results are summarized as follows:

- Congress Street/Johnson Road -

Of the 20 reported accidents occurring over 1988-90 period, two primary accident patterns were observed. These patterns include 16 rear-end and 2 turning movement type. Inspection of the collision diagram indicates that of the 16 rear-end accidents, 6 accidents involved through traffic

on the Johnson Road approach, 4 accidents involve right-turn traffic from the eastbound Congress Street approach and 3 accidents involved vehicles traveling to the west on the westbound Congress Street approach. Analysis of the light and roadway conditions of the reported accidents indicates that most accidents occurred during the day (75 percent) and under the dry roadway (80 percent) condition. Speeding and driving under the influence of alcohol were contributing factors in two reported accidents. Improving traffic signal timing to provide longer yellow/clear time and providing advanced signal warning signs may help to reduce accident occurrence at this intersection.

● County Road/Spring Street/Cummings Road -

Of the 15 reported accidents occurring over 1988-90 period, three primary accident patterns were observed. These patterns include 5 angle-type, 4 rear-end and 3 turning movement type. Of the 5 angle-type accidents, 3 accidents were collisions between northbound through vehicles and westbound through vehicles and 2 accidents involved northbound through vehicles and eastbound through vehicles. Speeding was the contributing factor for 3 accidents involving vehicles traveling to the north on the Cummings Road approach. Analysis of the light conditions of the reported accidents indicates that 6 accidents (40 percent) occurred during the dark with street lights on. Recent improvement to the intersection, and the improvements recommended in Section VI should help to reduce accidents.

SECTION VIII - SIGNAL WARRANT ANALYSIS CONGRESS STREET/HUTCHINS DRIVE

Based upon the level of traffic entering and exiting Hutchins Drive in the 1996 Build year, an evaluation of the need for traffic signals was performed. Procedures set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) published by the Federal Highway Administration, 1990, were used in the analysis.

Assessment of the traffic signals was based upon the investigation of Warrant 11 - Peak Hour Volume warrant. According to the MUTCD, the peak hour volume warrant is intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering the major street.

The peak hour volume warrant is satisfied when on an average day the vehicles per hour on the major street and the corresponding vehicles per hour on the minor street meet the threshold values per the MUTCD. Based upon this threshold limit the Congress Street/Hutchins Drive intersection does meet the requirement for traffic signalization.

Because the Stroudwater Estates development is to be phased over several years, the task of predicting when volumes will reach the levels requiring traffic signalization is difficult. In addition, the accuracy of predicting volumes in the distant future can also be erroneous. Therefore, it is recommended that the intersections be monitored and traffic signals be installed when the volume levels indicate there need.



## SECTION IX - CONCLUSIONS AND RECOMMENDATIONS

1. Phase III of the Stroudwater Estates project is expected to consist of the development of 13 lots, containing approximately 130,000 square feet of office and industrial space. Following construction of the project it is expected that 1,736 new vehicular trips (entering and exiting) will be generated on an Average weekday. During the AM peak hour 227 new vehicular trips (198 entering/29 exiting) are expected and 241 trips (39 entering/202 exiting) are anticipated during the PM peak hour.
2. Capacity analysis was performed at the Congress Street/Johnson Road, Johnson Road/Jetport Road, and County Road/Spring Street/Cummings Road intersections. Results of the analysis indicates Level of Service F can be expected at the County Road/Spring Street/Cummings Road intersection during the AM and PM peak hours in the 1996 Build condition. The Congress Street/Johnson Road intersection is expected to operate at Level of Service C in the AM peak hour and Level of Service E in the PM peak hour in the 1996 Build condition. The Johnson Road/Jetport Road intersection is expected to operate at Level of Service B or better during both the AM and PM peak hours during the 1996 Build condition.
3. To improve operating conditions at the County Road/Spring Street/Cummings Road and Congress Street/Johnson Road intersections, the following improvements are recommended:
  - Cummings Road/Spring Street/County Road - Reconstructing the Spring Street and Cummings Road approaches to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane.
  - Congress Street/Johnson Road - Reconstructing the intersection to provide two exclusive left-turn lanes and one exclusive right-turn lane on the Congress Street eastbound approach.
4. Traffic signal warrant analysis was performed at the Congress Street/Hutchins Drive intersection for the 1996 Build condition. Based upon criteria in the Manual on Uniform Traffic Control Devices, traffic signals are warranted.

Because the Stroudwater Estates development is to be phased over several years, it is recommended that the intersection be monitored and traffic signals be installed when the volume levels warrant there need.

**TYLIN** INTERNATIONAL

**RECEIVED**

July 7, 1995

JUL 10 1995

Ms. Mary Conroy  
City of Portland Traffic Engineer  
Traffic Division  
65 Hanover Street  
Portland, Maine 04104

STEVENS MORTON  
ROSE & THOMPSON

RE: Woodard & Curran Expansion/Stroudwater Estates

Dear Ms. Conroy:

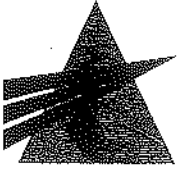
As indicated in our telephone conversation on June 28, 1995, a traffic study for the proposed expansion to the Woodard & Curran building at Stroudwater Estates is not required. If my understanding of this issue is incorrect, please contact me as soon as possible.

Sincerely,

  
TY LIN INTERNATIONAL

Mr. Thomas A. Errico, P.E.  
Transportation Engineer

cc: Dennis Judd, SMRT



January 20, 2006

*(all atts are in Hearing Report)*

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows addresses issues that require resolution as we continue towards our Public Hearing, scheduled for February 7, 2006. These issues include those that were identified in the January 10, 2006 Planning Board Workshop Memorandum as "Next Steps" as well as comments and requests presented by members of the Board during the Workshop. No additional issues arose at the Neighborhood Meeting, held on January 17, 2006, at the offices of Woodard & Curran.

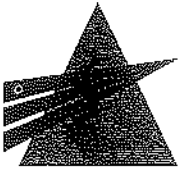
The following items were identified as "Next Steps" in the January 10, 2006 Planning Board Workshop Memorandum:

**1. Submission of an updated boundary survey**

During our phone conversation on January 18, 2006, you indicated that the Boundary Survey is acceptable. As a result, our understanding is that this issue is resolved.

**2. Submission of letters of service availability in respect of the revised building addition from appropriate utility agencies.**

Section 5 - Off-Site Facilities has been revised to reflect the revised building addition. As part of the revised section, updated requests for Ability to Serve letters were sent to the appropriate utilities. Responses confirming the ability to serve the proposed project were received from the Portland Water District in regard to water supply and wastewater treatment. A response has not yet been received from the City of Portland Department of Public Works regarding wastewater collection, but the response will be forwarded upon receipt. The revised Section 5 - Off-Site Facilities has been included with this submission.



Jean Fraser, City of Portland  
January 20, 2006  
Page 2

**3. Submission of documentation of wetland determinations from the MeDEP.**

A Permit by Rule Notification form has been submitted to MeDEP along with a Minor Amendment to the Site Location of Development Permit for Stroudwater Estates Phase II. This is discussed further in the revised Section 8 – State and Federal Permitting included with this submission.

**4. Submission of information regarding the existing private drainage easement across the site.**

The private drainage easements in Stroudwater Estates are maintained by the lot owners. As part of the proposed project, the easements for the site in question will be granted to the City of Portland. Language for the easements will be coordinated with City's Corporate Council.

**5. Resolution of the public easement to be executed in respect of the sidewalk along Hutchins Drive (with Portland Water District)**

An application for the public access easement was sent to Eric Labelle by the Portland Water District. Woodard & Curran will provide the application fee when the City submits the application. It is our understanding that the PWD may waive the easement fee and refund the application fee.

**6. Resolution of the concerns and possible need for a waiver for the 20 foot width of the access road alongside the proposed building addition**

We are still awaiting a decision for the City's traffic engineer on whether this waiver will be granted.

**7. Further discussion between the applicant and the DRC to ensure his concerns are met**

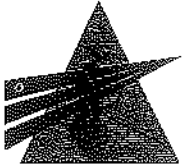
The Stormwater Management Plan was submitted to the DRC prior to this submission to ensure it would be acceptable. The DRC responded that the report looked acceptable, but that he would reserve final comment until the full package was submitted.

**8. Further discussion between the applicant and the City Arborist to secure approval to the Landscape Plan**

The Landscape Architect for the project, Pat Carroll of Carroll Associates, Inc., has discussed the project with the City Arborist. At this point we believe we have adequately addressed all comments. The design is depicted on Sheet L-1.0 Landscape Plan, which will be forwarded once the Landscape Architect has confirmed that he has successfully addressed all comments from the City Arborist.

**9. Applicant needs to hold a neighborhood meeting**

The neighborhood meeting was held at the offices of Woodard & Curran on January 17, 2006. The following items will be forwarded to the City in accordance with "A Guide to Holding Neighborhood Meetings" as provided by the Planning Department: a copy of the invitation that was sent to abutters; certified mail receipts; a list of meeting attendees; meeting minutes; and the meeting certification.



Jean Fraser, City of Portland  
January 20, 2006  
Page 3

In addition, the following items were raised by members of the Planning Board:

**A demonstration of the parking need in excess of the Ordinance**

The need for parking in excess of the Ordinance is discussed in the revised Section 5 – Off-Site Facilities, included with this submission.

**A building by building analysis of parking need and circulation**

An analysis of parking required for each building is present in the revised Section 5 – Off-Site Facilities, included with this submission.

**A demonstration of potential parking expansion to the south of the existing building, lessening the need for the additional parking to be located in close proximity to the wetland**

A discussion of alternative parking areas to the south of the existing building is present in the revised Section 5 – Off-Site Facilities, included with this submission.

**A discussion of the LEED process and how it relates to the site, particularly with respect to the proximity to the wetland**

The LEED process is a points-based system that deals with the project on the whole including the site as well as the building interior and construction. While every effort has been made to minimize wetland impact, the only LEED point associated with wetlands requires development to remain at least 100 feet from any water body, including wetlands. The existing building is already located within 100 feet of the wetland, thus this point is unattainable. As such, LEED points will need to be achieved in other areas.

**Curbing waiver acceptance from the Department of Public Works**

We are still awaiting word on the acceptance of this waiver from the Department of Public Works.

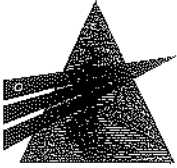
**Comment from the City's Traffic Engineer on the need for a Traffic Study**

Woodard & Curran has contracted with Gorrill-Palmer Consulting Engineers, to review traffic generation for the site and provided comment on its compliance with existing permits and studies. Comments from Gorrill-Palmer will be forwarded to the City for review, upon receipt.

**The need for a Legend/Key to be added to the plans**

Sheet G001 General Notes, Legend, Abbreviations and Sheet Index, which clarifies the symbols and line types used on the Drawings, has been added to the plan set in the revised Section 1, included with this submission.





Jean Fraser, City of Portland  
January 20, 2006  
Page 4

**An analysis of the wetland impact if the access road were widened to 24 feet to comply with the Ordinance**

Currently, the road edge is approximately 8 feet from the wetland. The retaining wall is one foot thick with a foundation that extends another 1.5 feet beyond. With the edge of excavation for the foundation at least another foot and probably more beyond the edge of the foundation, construction activities will likely extend to within only a foot or two from the wetland. Widening the access road to 24 feet will mean the entire retaining wall structure, including the footing, will move 4 feet closer to the wetland. As such, it is likely that if the access lane were widened to 24 feet, some construction activity would occur within the wetland itself.

**Submission of a copy of the NRPA Permit by Rule**

The NRPA Permit by Rule has been submitted as an attachment to the revised Section 8 – State and Federal Permitting, included with this submission.

Thank you for the assistance you have provided. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures:    Section 1 – Development Description with attachments, revised January 20, 2006  
                  Section 4 – Solid Waste with attachments, revised January 20, 2006  
                  Section 5 – Off-Site Facilities with attachments, revised January 20, 2006  
                  Section 6 – Stormwater Management with attachments, revised January 20, 2006  
                  Section 8 – State and Federal Permitting with attachments, revised January 20, 2006

Status as of  
 1-19-06.

w+c Outstanding Issues  
 needing Resolution before Board.

⊗ = raised also/by  
 Planning Bd 1-10-06.

Issue

Status

- |  |   |
|--|---|
| <p>1. ⊗ JS comments need to be addressed</p>   | <p>KV spkng JS week of 1-16 and revised plans to be submitted 1-20-06</p>   |
| <p>2. ⊗ DEP wetlands + stormwater</p>  | <p>⊗ Penny<br/>         KV needs to get letters of non-jurisdiction/OK of the Scheme</p>  |
| <p>3. Status of boundary survey</p>  | <p>✓ Penny Littel confirmed (by phone) that its acceptable 1-18-06</p>  |
| <p>4. acceptability of 20' wide access road [or need for waiver]</p>                                 | <p>EL "not alarmed" email<br/>         Fue "OK" email<br/>         ⊗ Tom E: raised with him at Pub Res Mtgs 1-11 and 1-17 and he to make decision</p> |
| <p>5. PWD Easement for sidewalk</p>  | <p>✓ 1-18 PLittell to get MB to sign request and JF to ask for letter confirming w+c to pay fees/costs (fee of \$ 350)</p>                            |
| <p>6. Other easements, just condition + their legal advisor to draft → PL</p>                        | <p>✓ (PL confirmed this 1-18-06)</p>  |
| <p>7. Sidewalk curbing - Eric has ⊗ said he'll waive curbing but need ⊗ to formalize for hearing</p> | <p>Needs JF action<br/> <u>GET FORMAL VIEW</u></p>  |
| <p>8. Neighborhood Mtg - need up for packet</p>  | <p>✓ held mtg 1-17-06.</p>  |

sewer drainage

see email

**CITY OF PORTLAND, MAINE**

Planning and Development Department

Planning Division

389 Congress Street, Portland, Maine 04101

(207) 874-8719 Fax (207) 756-8258

Status as of 1.19.06

Issue	Status
9. Board requested info on distance between access road + wetland + what is impact on wetland	JS also needs to answer.
10. Board asked why parking couldn't go at southern end to minimize impact on wetland.	✓ Applicant to answer.
11. Board (MRS) needs to understand better how water from Bldgs and parking is treated + where it goes in wetlands	✓
12. More evidence than in letter re need for parking - analysis building by building	✓ see revised submission - always to evaluate
* TE asked re sufficiency of parking	* Email info to TE cc Marge [confirm zoning analysis]
13 Traffic Study (TE comments in memo)	Gorall Palmer helping w/ c re this + will speak to Tom E. (from TE at 1.17 Dring)
14 Landscape Plan	* Jeff happy - lots of maples?
<p>PARKING - existing already 23 over zoning new pkg relates to new front space (?)</p>	

**From:** "Thomas Errico" <terrico@wilbursmith.com>  
**To:** <EJL@portlandmaine.gov>  
**Date:** 1/25/2006 8:40:53 AM  
**Subject:** Woodard and Curran Expansion

Eric-

At some point I would like to talk to you about the above project's proposal to have a 20' wide access road. At this point in time I'm not advocating for or against the proposal. I do not believe this type of lane width has been proposed on other projects, and therefore want to make sure that we don't establish a precedent that we are not totally comfortable with. I think it is important to note that this proposal is not a parking aisle, but a circulatory roadway that will see both trucks and passenger cars. I will not be at today's DR meeting, but would like to resolve this soon. Thanks

Thomas A. Errico, P.E.

Senior Transportation Engineer

Wilbur Smith Associates

59 Middle Street

Portland, Maine 04101

(207) 871-1785 Phone

(207) 871-5825 Fax

**CC:** <KAS@portlandmaine.gov>, "Jean Fraser" <JF@portlandmaine.gov>

**From:** Jean Fraser  
**To:** Littell, Penny  
**Date:** 1/12/2006 10:31:07 AM  
**Subject:** Boundary surveys - Woodard & Curran

Hi Penny,

Have just been reading your note re boundary surveys being required...in the tow lots packet for tonight.

As a new planner and having had my request for an updated boundary survey for Woodard & Curran challenged by the applicant, it would be helpful to have a definitive determination of what information needs to be surveyed by the professional surveyor and included in the survey (and what info can be submitted in another form not by a surveyor).

In the Ordinance, Section 14-525 (b)(1) the boundary survey does not include the information that you refer to in parts of your note eg wetlands and streams, utilities. Maybe it is written elsewhere? Maybe there is a legal definition of a boundary survey? It doesn't even mention adjacent owners or easements but maybe that is in the legal definition of a boundary survey (which is probably not known by all applicants nor this planner)

Therefore I need your opinion on the Woodard & Curran submission.

The issue re Woodard & Curran's submitted boundary survey (attached to the memo, sheet 1) is crucial to the hearing because they say they can't get a surveyor to do a new one for months. They say the one submitted (dated 1988) is correct in terms of property lines and has all the information indicated in the Ordinance; and other information (eg drainage, topography, surrounding property owners) is shown on the site plan (C200).

Can you please advise me as to whether I can accept the submitted Boundary Survey as meeting the City Site Plan checklist/Ordinance requirements. They have submitted all other relevant information (not stated in our Ordinance but indicated in our checklist) on the other plan.

**They have a Hearing on Feb 7th - if we don't accept the submitted boundary survey then their Hearing is delayed. If we delay their hearing I want to be on solid ground as they have specifically asked for this to be dealt with urgently and are holding their neighborhood meeting next week in order to expedite things.**

The wording of the Ordinance is not very solid and I am inclined to accept their submitted survey.

**There is some correspondence on this but I think its a question of fact- does our Ordinance clearly specify what the Survey needs to include; and does the W&C Boundary survey meet our requirements as set out in writing?**

thanks  
Jean

**CC:** Sarah Hopkins



**From:** Jean Fraser  
**To:** Cass, Gregory  
**Date:** 1/11/2006 1:51:50 PM  
**Subject:** Woodard & Curran addition

Greg,

Re: 2005-0225

I note that your comments were generated 9.28.05 and since then we have received a revised scheme in which the building is moved towards the front of the site with a long access road, 20 feet wide, between the new building and the wetlands.

The Review engineers are concerned at the narrow width of the road because it has the building close to it on one side and the wetlands drop off steeply to the north side of it - and when there is snow its effective width will be much less. The Planning Board have asked for a determination as to whether the narrow road width is acceptable and the Review Engineers asked me to check with you that your previous comments still applied to the new layout and that you were OK with the width of that access road.

The latest Site Plan is C200 dated December 2005 and would have been in a set with cover letter which should have reached you early last week- I would be grateful if you could confirm whether your previous comments still stand.

Thanks  
Jean

**From:** "Kenneth Volock" <kvolock@woodardcurran.com>  
**To:** <JF@portlandmaine.gov>, <EJL@portlandmaine.gov>  
**Date:** 1/18/2006 10:04:06 AM  
**Subject:** FW: W&C Office Building Addition

Didn't realize this was sent to Eric's old address.

-----Original Message-----

**From:** Norman Twaddel [mailto:ntwaddel@pwd.org]  
**Sent:** Monday, January 16, 2006 10:14 AM  
**To:** Kenneth Volock; EJL@ci.portland.me.us  
**Subject:** RE: W&C Office Building Addition

Ken, per our conversation Friday, our land policy requires an application form and fees be submitted to me to schedule an easement request to go to the Board. I have prepared an application form in the name of the City of Portland. In the application, the City may request that the fees be waived, but only the trustees have the authority to waive fees. Normally, fees are \$200 application fee and if approved a \$150 processing fee. Attached is the application form. Once we receive it back, I will get this item scheduled for the next available Trustees' agenda. Let me know if you need anything further.

-----Original Message-----

**From:** Kenneth Volock [mailto:kvolock@woodardcurran.com]  
**Sent:** Thursday, December 22, 2005 5:24 PM  
**To:** Norman Twaddel  
**Subject:** RE: W&C Office Building Addition

Norm,

Thanks for the response. I'll contact Dave when we are ready to dig test pits. I am going to first see if I can rework the grading to avoid any cut, but I'm not sure I can.

We will design our landscaping to be completely within our property.

On the easement, when I informed the Planning Department about the District's position on the sidewalk easement, they asked that I confirm with you that they only want a "public access" easement. This would mean that "the City does not want nor require ownership nor maintenance of it, but the public would have a legal right to walk on it." I don't know if this makes a difference to the District or not, but I want to make sure all bases have been covered.

Thanks.

-----Original Message-----

**From:** Norman Twaddel [mailto:ntwaddel@pwd.org]  
**Sent:** Thursday, December 22, 2005 3:10 PM  
**To:** Kenneth Volock  
**Cc:** David W. Coffin; Frank Meader

Subject: RE: W&C Office Building Addition

Ken, I have reviewed the plan with our engineering and operations people. We may have a concern with the proposed grade cut as we do not know the exact depth of the main. We would like to have you do a test pit on our main in the grassy area to verify how much cover we have before we approve any cutting of grade.

We would prefer not to have any plantings placed on our property.

We do not object to the existing sidewalk and any extension required provided it stay the same distance off our water main. However, we do not wish to grant a perpetual easement to the City for the sidewalk. If the City wishes to own and control the sidewalks, they should be relocated out into the 60 foot wide public way which we already donated land to the City for.

You can contact David Coffin at 774-5961 ext. 3041 to arrange someone from the District to be present for a test pit. Once the grade issue is agreed upon, I would be happy to provide an approval letter under the existing agreement. Let me know if you needed anything further.



**Portland Water District  
EASEMENT APPLICATION REQUEST**

---

NAME OF REQUESTOR: **City of Portland**

PWD PROPERTY ADDRESS: **Hutchins Drive - Portland - Southern Feeder Property**

DESCRIPTION OF PROPOSED USE: **Sidewalk - Public Access**

IS TRUSTEE APPROVAL REQUIRED? Yes   X   No           

**Fees:**

- ✓ If Trustee approval is required**, there will be a \$200 initial application fee to cover expenses related to obtaining approval of the application request and a \$150 fee to cover cost of document preparation, recording etc. payable at Deed execution.
- ✓ If Trustee approval is not required**, there will be a \$200 (\$50 application fee and \$150 to cover the cost of document preparation and recording) fee to cover all expenses payable prior to the preparation of the Easement document.

I hereby agree to pay all expenses incurred by the District in the processing of this request as described above.

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

Reviewed and approved by:

Initials

Date

Director of Asset Management & Planning

\_\_\_\_\_

\_\_\_\_\_

Director of Operations

\_\_\_\_\_

\_\_\_\_\_

Right of Way Agent

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
General Manager

\_\_\_\_\_  
Date

**From:** Jean Fraser  
**To:** kvoiclock@woodardcurran.com  
**Date:** 1/18/2006 2:54:58 PM  
**Subject:** Fwd: Easements

Ken,

Further to below...

Re the PWD easement: We need a letter from you/applicant saying that you will pay the fees for this easement request (as we do not think that the PWD should have to forego their fees in this instance) and for any other costs that might arise in order to finalize the easement for public access to the sidewalk (along the whole of the frontage to your property)

For the other 2 easements: Your legal advisor should send draft easements to Penny Littell- the wording is fairly standard and they will know what should be included. I don't get involved except to ensure it happens and that Penny knows the technical issues that might be relevant if any.

Penny Littell is the City's Legal Counsel for planning issues and is based here at City Hall.

Hope that helps.

Jean

>>> Jean Fraser 1/18/2006 2:23:47 PM >>>  
Ken

I have discussed the PWD easement with Eric and we feel Penny Littell needs to be involved at this stage because in requesting the easement the Council is then committed. Eric does not deal with administrative stuff.

Your applicant needs to cover the fees for the PWD request but probably also for the legal costs and other costs- I am awaiting a discussion with Penny on this to see how the paperwork for PWD one should go.

Maybe you need some legal advice too?

Jean

**From:** Jean Fraser  
**To:** Littell, Penny  
**Date:** 1/18/2006 12:17:07 PM  
**Subject:** Fwd: FW: W&C Office Building Addition Easement

Penny,

It appears that Norm of PWD has had a change of heart and has completed an application on behalf of the City (attached). Ken Volock (W & C Eng) sent it to Eric but I spoke to Eric who a) doesn't think its him to sign it/send it; and b) thinks the applicant should pay the fees (I have already indicated this to KV verbally).

Could you please advise as to who and how to proceed re this easement, including the question of these up-front fees?

Re the Sewer Easement and Drainage Easements (the former exists but needs to be relocated; the latter is held by the applicant and it needs to be transferred to the City) I think they are more straightforward though both KV and I need a lesson in procedure re these.

Thanks  
Jean

>>> "Kenneth Volock" <kvolock@woodardcurran.com> 1/18/2006 10:02:54 AM >>>  
Didn't realize this was sent to Eric's old address.

-----Original Message-----

From: Norman Twaddel [<mailto:ntwaddel@pwd.org>]  
Sent: Monday, January 16, 2006 10:14 AM  
To: Kenneth Volock; [EJL@ci.portland.me.us](mailto:EJL@ci.portland.me.us)  
Subject: RE: W&C Office Building Addition

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Thanks.

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Sent: Thursday, December 22, 2005 3:10 PM

To: Kenneth Voiock

Cc: David W. Coffin; Frank Meader

Subject: RE: W&C Office Building Addition

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CC: Labelle, Eric

**From:** "James Seymour" <jseymour@sebagotechnics.com>  
**To:** "Kenneth Volock" <kvolock@woodardcurran.com>  
**Date:** 1/17/2006 9:43:14 AM  
**Subject:** RE: CADCAM Stormwater Management

Ken,  
he report looks good and based on written reports appears acceptable. I will reserve final approval until we see final plans, determine access width is OK, and see easements delineated for ponds and buffers. We may have a few details to review and check the plans following the revisions, though those comments will likely be small or minor things.

I will check in with Jean and see how the rest is coming along.

Jim Seymour P.E.  
Sebago Technics Inc  
(207) 856-0277 x 277

> -----Original Message-----

> From: Kenneth Volock [SMTP:kvolock@woodardcurran.com]  
> Sent: Tuesday, January 17, 2006 9:32 AM  
> To: James Seymour  
> Subject: CADCAM Stormwater Management

>

> Jim,

>

> I have attached pdf files of the revised Stormwater Management section  
> as well as TSS removal calculations for help in your review. Please let  
> me know if you have comments or further questions.

>

> Kenneth Volock

> Woodard & Curran

> 800-426-4262 << File: Stormwater Management.pdf >> << File: TSS removal calculations.pdf >>

**CC:** <jfraser@portlandmaine.gov>

**From:** Jean Fraser  
**To:** kvolock@woodardcurran.com  
**Date:** 1/13/2006 4:59:25 PM  
**Subject:** Woodard & Curran Addition

Ken,

Just to let you know that I am still trying to get a definitive view (from Lega!) on the question of your Boundary Survey so that this does not hold things up.

Tom Errico , Traffic Engineer, is looking again at the issue of the 20 feet wide access road and I will let you know when I get his comments.

Eric has already said he is OK with no curbs on the sidewalk.

I'm assuming that you have probably already spoken with Jim Seymour but let me know if not.

Let me know if theres anything else yout think you need from the City in order to progress to the Hearing. Hope the neighborhood meeting goes OK- probably will have no one show up!!!

Jean (Fraser)  
Planning

874 8728

**From:** Jean Fraser  
**To:** "jseymour@sebagotechnics.com"@Portland.gwgwia;  
"terrigo@wilbursmith.com"@Portland.gwgwia; Labelle, Eric  
**Date:** 1/13/2006 4:55:07 PM  
**Subject:** Fwd: Re: Woodard & Curran addition

Tom, Jim and Eric,

The Planning Board asked Tom Errico for an opinion on the access road and the request for a waiver. (the Board asked for some other things and I am liaising with you separately on those)

I asked Greg just to confirm he was happy from a fire viewpoint with the 20 foot width on the latest layout and please his view (that its OK) below.

Eric- I believe you said you were "not alarmed by the 20' wide drive".

Jim - could you give Tom the benefit of your thoughts as it was you who raised this ...

Tom- Sooooo.....???????

Thanks,  
Jean

>>> Gregory Cass 1/11/2006 4:43:39 PM >>>

The same comments apply

I did review the new plan.

My thoughts on the road are I think we will need definitions for "road, driveway, and fire lane" then the proper standard applied. I would love to see 24'.

I knew there were terrain issues for the property and felt that the standard for a 20' fire lane was ok in this situation.

If You feel we should be more stringent with this egress please let me know. And I will change my comments.

Greg  
874-8405

2005-0025  
2006-0120  
2006-0178  
Admin Dec by Dec 6-21-07

**WOODARD & CURRAN OFFICE EXPANSION - BUILDING ADDITION  
VICINITY OF  
41 HUTCHINS DRIVE**

**SITE PLAN REVIEW**

**CADCAM AND PEGGY AND ERIC CIANCHETTE , APPLICANT**

Submitted to:

Portland Planning Board  
Portland, Maine  
February 7, 2006 Public Hearing

Prepared by:

Jean Fraser, Planner  
February 3, 2006



## I. INTRODUCTION

The joint applicants, CAD/CAM Associates and Peggy and Eric Cianchette have requested site plan approval for the construction of a new 22,680 square foot office building, expansion of existing parking lots and associated utility improvements as an expansion of the Woodard & Curran office complex at 41 Hutchings Drive off of outer Congress Street.

The proposal was considered at a Planning Board Workshop on January 10, 2006 and the following issues were identified as needing resolution (\*ed items raised by the Planning Board):

- a. \*Need for further explanation and justification for scale and location of the parking
  - i. Why not more parking at south end of site rather than where it impacts the wetlands
  - ii. Analysis building by building of parking need
  - iii. Tom Errico's comment on the sufficiency of the parking
- b. \*Traffic Engineer Tom Errico to advise on acceptability of the 20 foot wide access road
- c. \*Need for more information on the impact of the access road on the wetland and the impact if it were widened
- d. \*Better understanding of the treatment of water from buildings and parking areas where it goes into the wetlands
- e. \*Need to address comments from Jim Seymour, Development Review Coordinator
- f. \*Need for letters of non jurisdiction from Maine DEP
- g. Need for additional traffic generation information, including previous permitting
- h. Need for letters of service availability in respect of the revised building addition from appropriate utility agencies.
- i. Further discussion between the applicant and the City Arborist to secure approval to the Landscape Plan
- j. Need for further clarification of the three easements involved in the proposals
- k. Status of the boundary survey and need for plans to have legends/keys etc

Since the January 10, 2006 Workshop the applicant has submitted further information and revised plans to address the above issues, and held a Neighborhood Meeting; documentation is included in Attachment III. The original submission is attached as Attachment I and the Workshop memorandum attachments (except plans and the Stormwater Calculations) are included in Attachment II for information.

Notices for the Hearing were sent to 108 area property owners and interested parties. A notice also appeared in the January 30, 2006 editions of the *Portland Press Herald*.

## II. SUMMARY OF FINDINGS

Zoning:	I-M
Parcel Size:	6.65 acres
Parking Spaces:	59 net additional spaces
Building Floor Area:	22,680 sq ft gross floor area office space
Building Height:	three stories (82 feet)
Uses:	offices

### **III. PROPOSED DEVELOPMENT**

The project site is largely wooded land and buildings on what is also known as Lot 15 & 16 of the Stroudwater Subdivision II, located between the Clark Insurance building and FedEx building in the east side of Hutchins Drive, opposite the junction with Harry Harmon Drive. There are two existing interconnected buildings on the site totaling 33,950 sq ft of office space, comprising a South Wing built in 1986 and a North Wing constructed in 1996. See Attachment I Sections 1&2 as updated by a revised narrative Section 1- Development Description in Attachment III C.

Within the site there are three existing parking lots, each with a separate curb cut and access onto Hutchins Drive. These together with a small parking area at the main entrance provide a total of 108 parking spaces (further detail is provided in Section 1 of Attachment I. The two northern existing parking lots abut a wetlands area that cuts across the site along an unnamed brook.

The proposed building addition will be a detached three-story structure with a footprint of approximately 7560 square feet located north of, and linked directly into, the North Wing of the existing complex. The total potential number of employees will increase from 118 to 207 once the building addition is occupied, and increase of 89 employees (potentially) on the site, and increase of 75%. (Note: elsewhere in the narrative the applicant has used the figure of 143 existing employees which refers to the 111 currently at 41 Hutchins Drive and the 32 currently occupying leased space in the adjacent former Clark Associates building).

Existing parking adjacent to the North Wing will be relocated to the rear of the proposed building, and the existing satellite parking lot on the northern boundary of the site will be expanded by 60 spaces to give a net increase of 59 spaces to serve the new structure.

The proposal includes landscaping around the buildings and parking areas and an extension of the existing sidewalk so that it runs the entire length of the site along Hutchins Drive.

Construction of the project is anticipated to begin in 2006 and be completed by the early Spring of 2007.

### **IV. STAFF REVIEW**

The proposed development has been reviewed by staff for conformance with the relevant review standards of the subdivision and site plan ordinances. Staff comments are highlighted in this report.

The Zoning Administrator has reviewed this project and confirms that 142 parking spaces are required for this proposal and that other I-M zoning requirements are being met (Attachment III G). Though within the I-M zone, the area is increasingly attracting office and medical uses with an associated increase in visitor access.

## V. SITE PLAN REVIEW

### 1/2. Traffic Access

There are three points of access to the site. The main access is to the new building and expanded parking area immediately adjacent and uses an existing access drive off of Hutchins Drive (though reduced in width from 25 feet as existing to 22 feet in width - see Attachment III L Sheets 4 and 5) and then along a new 20 foot wide access road between the new building and the wetland area to provide access to the rear parking lot (43 parking spaces) and dumpster collection.

The existing satellite parking lot is accessed via a separate curb cut (existing about 23 feet wide) near the northern boundary of the site. It previously served a parking lot of 32 spaces and is proposed to serve the expanded parking lot of 92 spaces.

The third curb cut on the site serves the existing 26 space parking lot at the south of the site and no alterations are proposed.

The review of access has focused on the main access with its new internal access road. Where it meets Hutchings Drive it does not meet the City standards of 24 feet wide for two-way traffic. Where the internal road runs alongside the proposed building the applicant has requested a waiver from the 24 foot standard to allow the access road to be 20 feet wide (letter of 12.30.05 in Attachment II I). Staff, particularly the Development Review Engineer Jim Seymour (Attachment II H and III I), have raised concerns over whether this width is workable in this situation, given the need for snow storage and the impact on the wetlands.

The justification for a waiver from the 24 foot standard to 20 feet relies on the issue of impact on the wetlands, which in turn results from the applicant's choice of location, scale and design (eg footprint, location of emergency exits, 5 foot width of esplanade) of the proposed building. Substantial internal discussion has taken place regarding the justification for the waiver, with the main issues being:

- a) Has the applicant done all that they could to resolve the conflict between access road width requirements and wetland protection/avoidance? The applicant has supported the request for the waiver by explaining the local design issue regarding the need for an emergency access from the new building in their letter of 12.30.2005 page 4 (Attachment II I). The applicant has provided more information on the impact of widening the road access to 24 feet and points out that the road would be 4 feet nearer the wetland (compared to 8 feet at closest point in the proposal). Disturbance related to provision/construction of the retaining wall for the access road would bring the work within one or two feet of the wetland if the city's standard were met (letter of 1.20.3006 page 4 Attachment III C).
- b) How serious is the impact on the wetlands? The impact on the wetlands derives from a combination of the location of the building, the access and parking requirements, judgements as to the extent of disturbance likely to result from construction/snow storage and the extent

to which measures to control stormwater quality are incorporated. Without a determination from the MDEP it is difficult to assess this issue (see also Paragraphs 5 and 6 below).

- c) Is there any technical reason why the access road is not safe/workable if it is 20 feet? Given the concerns expressed regarding the 20 foot width of this road, Captain Greg Cass of the Fire Department was requested to confirm his view of the latest proposals; he has accepted the 20 foot width, having taken account of the terrain issue (Attachment III A).

Tom Errico and other City staff have reviewed the issue and although there is not a consensus and Jim Scymour has suggested that 22 feet be required as a compromise, Tom Errico concludes (Attachment III H) that 20 foot could be acceptable given the apparent choice between impact on the wetlands and increasing the road width:

\*The internal roadway providing access to the 43-space parking lot to the rear of the building will not meet general City roadway width standards. The roadway is proposed to be 20 feet. I support a waiver for the roadway width in light of the increased environmental impact a wider facility would have. It will be extremely important that good winter maintenance practices are followed to ensure that the effective width is not reduced due to snow accumulation.

\*The driveway "throat" at the Hutchins Drive entrance is currently proposed to be approximately 22 feet. The driveway should be modified such that it is 24 feet wide.

\*The applicant should provide details on the traffic control/pavement markings at the internal intersection at the main entrance.

### **Traffic Generation**

The scale of the development increases the total number of employees that can be accommodated on this site from 111 (actual) to 207 (potential). The applicant has submitted a revised Section 5.3.1 "Traffic Impacts" and asserts that "the new building will not add to the street traffic along Hutchins Drive" (Attachment III C Section 5). No evidence has been submitted in support of this statement.

On 1.5.2006 Tom Errico requested "The applicant should document that the project expansion meets previous traffic permits issued either by MaineDOT or MaineDEP from a traffic generation perspective." (Attachment II L). In response to this comment the applicant contracted with Gorrill Palmer Consulting Engineers to review traffic generation for the site and to provide comment on compliance with existing permits and studies. Gorrill Palmer have concluded in their letter of January 23, 2006 (Attachment III D) that this proposal is in compliance with previous permits and does not trigger the need for a further MDOT Traffic Movement Permit.

Tom Errico has reviewed the submitted information and comments (Attachment III H):

\*Gorrill-Palmer Consulting Engineers, Inc. provided information on the permitting aspect of developments along Hutchins Drive. Based upon the information provided, I concur that a MaineDOT Traffic Movement Permit is not required for the project. However, based upon traffic increases since 1997, I would ask that the applicant conduct an analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and

PM peak hours to ensure safe and reasonable operations will be provided following completion of the project.

By way of clarification, Tom Errico further commented:

"I expect the applicant to conduct a post-development evaluation of the intersection and if that analysis identifies a problem, I would expect some contribution towards correcting the problem. Accordingly, a condition would be required that requires a contribution if deficient conditions are identified. Call me tomorrow if you want to know more."

**Parking**

The proposed building addition displaces the 44 spaces of existing parking in the center of the site and this is being replaced to the east (rear) of the new building. To provide additional parking on the site to serve the new office floorspace, the satellite parking lot to the north of the site is being expanded by 60 spaces.

The need for this scale of parking has been explained by the applicant in the letter of 12.2.05 (Attachment II G) and amplified at the request of the Planning Board in the revised Section 5: Off Site Facilities (Attachment III C). The definition of need is based on the number of Woodard & Curran current employees and the spaces they use (including off site) which translates into a "need" of .8 parking space per employee.

The proposal includes enough parking to bring the on-site parking provision to the level of .8 parking spaces per existing/potential employee.

There are two ways of analyzing the parking on the site: building by building, and over the site as a whole. These analyses are summarized in the table below (prepared by City Staff):

	<i>Gross Floor Area</i>	<i>Zoning Requirement (rounded up)</i>	<i>On site pkg spaces near (see Existing Site Plan))</i>	<i>Floor area per parking space</i>	<i>Employee Workstations (info from applicant; sizes vary)</i>	<i>Parking spaces/workstation</i>
Existing South Wing	11,184	28	26	430	44	.59
Existing North Wing	22,766	57	50	455	73	.68
Visitors & handi-capped serving both S & N wing			6			
Existing satellite parking lot (Approved in 2000; unused as staff in leased offices use off site parking lot)			32			
Existing taken together	33, 950	85	108	314	117	.92
Proposed Building addition	22,680	57	59 new	384	90	.65
<b>Total when proposed is implemented</b>	<b>56,630</b>	<b>142</b>	<b>167</b>	<b>339</b>	<b>207 (ave workstation is approx. 270 sq ft)</b>	<b>.80</b>
(Zoning)	400	1	----	400	1.5	.67

From the table above it can be seen that the proposal meets the City standards in respect of zoning and, if the applicants assessment of need is accepted, also appears sufficient to satisfy the reasonably foreseeable demand for parking that will be generated by the development.

At the Planning Board Workshop the Board requested Mr Errico comment on the "sufficiency of parking". His comment (Attachment III H) is:

"\* I have reviewed the proposed parking supply and it is my professional opinion that the parking provisions are reasonable. Under the current proposal, a total of 167 parking spaces will be provided. At the time of project completion, 143 employees can be expected to occupy the facility. Under a full occupancy scenario 207 employees can be expected. A review of parking generation information provided by the Institute of Transportation Engineers indicates approximately 164 parking spaces are required for an office building with 207 employees. Accordingly, I find the supply to be adequate and not excessive."

The Planning Board asked for further information regarding the impact of parking on the wetlands area and scope for siting the parking elsewhere. The applicant has addressed this request in a revised Section 5: Off Site Facilities (Attachment III C). The submitted narrative outlines, with illustrations, the disadvantages of relocating some of the parking to the two possible areas in the southern part of the site as mentioned at the Workshop. The applicant considers that the area available to expand the parking next to the South Wing is inadequate to achieve much additional parking. The applicant concludes that the area towards the front of the site at the southern end could provide 16 parking spaces but these would be in front of the south wing and detract from the landscaped setting of the overall office complex.

Staff note that siting parking areas in the southern part of the site would have an advantage (over and above any reduced impact on the wetland areas) of substantially reduced walking distances if the relocation resulted in less expansion of the satellite parking lot.

As stated in the letter from Kenneth Volock of December 30, 2005 (Attachment II I, page 7), the area of wetlands fill associated with the proposed parking amounts to only 50 square feet. The acceptability of this impact needs to be considered in relation to the cumulative impact of the proposals on the wetlands, which is discussed below in paragraph 6, **Wetlands**.

The challenge of meeting office needs for parking may stem from the fact that this site was originally subdivided for industrial uses within the I-M zone, and this scale of parking need would not have been anticipated. The proposals and their impacts suggest that in this case the site may not be appropriate for the scale and use proposed.

The satellite parking lot (proposed for expansion to 90 spaces) is connected to the office complex by an existing 365 foot bituminous asphalt sidewalk which runs over Portland Water District land. Staff raised the possibility of providing a bridge over the wetlands to provide a much shorter link between the expanded parking lot and the office complex, but this was considered impractical because of the impact on the steeply sloping sides of the wetlands area and brook.

### 3. Bulk, Location, Health, Safety Air

The original submission included a site layout with the building addition located towards the back of the site, with a new detention basin between it and the wetlands. The building was similar in scale, with a ground floor of parking for 22 cars and two stories of offices above it (15,000 sq ft). The original Proposed Site Plan is attached for information at Attachment III Ka.

The application was revised in terms of a change in the joint applicants on 10.26.05 (Attachment II D). The proposal was revised and shown in a site plan submitted on 11.22.05 (Attachment II E). The revision involved the relocation of the building addition closer to Hutchins Drive; the parking beneath the building was omitted so that there were three floors of offices (22,680 sq ft).

The larger building and increase in office floor space does not cause health or safety problems as to existing uses in the neighborhood and does not affect the light, air, wind impact or snow loading on any neighboring structure. The building is within required set backs and the structure itself is acceptable.

Construction of the proposal involves retaining walls and foundations in or near wetlands areas and Jim Seymour, the DRC has recommended that a Geotechnical Engineer be involved on a regular basis during construction (Attachment III I page 4).

### 4. Bulk, Location, Height of Proposed Buildings

The three story building rises to 82 feet at the roofline. It is set at a lower level than the existing buildings so that its third floor and roofline tie into the second level and roofline of the existing North Wing. This is illustrated in the submitted elevations included in Attachment III L Sheets 14 and 15. The proposed building is also designed with materials to integrate with the existing complex and is anticipated to create an attractive perspective from Hutchins Drive.

The proposed building does not have any adverse impacts on neighboring structures or property under different ownership and there have been no representations regarding the proposal to the Planning Division.

The only issue raised with the layout is in relation to the width of the access road alongside the proposed building and the distribution of parking and their possible impact on the wetland area, as described elsewhere.

### 5. Sewers, Stormdrains, Water, Solid Waste Disposal

#### Sewers

The applicant has received a letter dated 1.12.2006 from the Portland Water District (Attachment III C Revised Section 5.2) confirming there is adequate capacity to treat the estimated wastewater

from the proposed development. A response from the city with regard to wastewater collection has not been received.

### **Stormdrains**

This development is on a lot that was part of the Stroudwater Estates Subdivision, which obtained approval of a Maine DEP Site Location of Development permit in the 1980's. Since this site has not reached a threshold of 3 acres impervious it has not triggered a separate requirement for a Site Location permit based on current DEP standards.

For this reason and because the application was submitted before Chapter 500 came into force, the City has reviewed the site and DRC (Jim Seymour of Sebago Technics) provided initial comments as set out in Attachment II H. In terms of stormwater drainage, the previous comments focused on ensuring that stormwater was controlled and collected so that it could be treated for quality before entering the wetlands/brook.

Following a meeting where the comments were clarified in detail, the applicant has shown how they intend to address these concerns in the letter from Kenneth Volock of 12.30.05 (Attachment II I) and explained in their revised narrative Section 6 - Stormwater Management (Attachment III C) received January 20, 2006. This narrative addresses the issue of stormwater quality under paragraph 6.3.4 and explains that wooded buffers and constructed filtration basins will comprise the treatment measures.

Jim Seymour, DRC has reviewed the submitted evidence and concludes (Attachment III I) that the further evaluation is required and that approval can be supported if the Board determines that the outstanding issues can be conditioned:

“Our review of the quality calculations revealed that the treatment factors utilized for wooded buffer treatment appear not to be correctly sized and incorporate the use of wetlands, which are not allowed. This affects the overall treatment value, which may reduce the effective sediment removal and not meet the sliding scale factor as declared by the engineer. The engineer must re-evaluate the treatment factors for our or staff review.

As attempted all buffers shall be shown on the site plan with labels indicating the width, slope, and percentage of removal efficiency for each buffer shown.”

Jim Seymours' comments also requested additional curbing and other minor amendments, along with a request for snow removal plan:

“The applicant has appears to have available space for development, but given resource protection limits, treatment measures requiring avoidance of snow storage, and given the extent of parking, snow removal is of some concern. Please provide on a plan to address snow storage locations on site or note on the site plan how it will be removed.”

### **Water**

The applicant has submitted a revised Section 5- Off-Site Facilities (Attachment III C) which



includes a letter dated 1.12.2006 from the Portland Water District confirming that the PWD has the capacity to serve the expanded office facility.

### **Solid Waste Disposal**

The applicant has submitted a revised narrative in Section 4 – Solid Waste and this is included at Attachment III C. Municipal solid waste is collected in a dumpster located immediately to the rear of the proposed building, accessed via the proposed new access road and through part of the parking lot at the rear.

## **6. Landscaping and Existing Vegetation**

A landscaping plan was submitted on January 4<sup>th</sup>, 2006 but was received too late to be reviewed by the City Arborist before the Workshop. The City Arborist has recently discussed the landscape issues previously raised (Attachment II J) and the Landscape Plan has been revised and submitted (Attachment III L Sheet 11) which meets his concerns.

The site is located within an area of nature and wildlife interest associated with the Stroudwater River. The applicant received confirmation on 9.9.05 from the Maine Natural Areas Program (Maine Department of Conservation)(Attachment I) that there were no rare botanical features documented for the project area. The applicant has received confirmation from the United States Department of the Interior-Fish and Wildlife Service that the proposed project will not infringe upon deer wintering areas near the site and that the project will not affect the habitat of any rare threatened or endangered species (letter dated 9.19.05 within Attachment II D). The applicant has also provided a letter from the Maine Historic Preservation Commission indicating that the proposed project will not adversely affect any areas of historic, architectural or archaeological significance (letter dated 9.22.05 within Attachment II D).

### **Wetlands**

The central part of the site is transgressed by an unnamed brook in a deep cutting which flows to the Stroudwater River. Extensive wetlands are located near this brook as well as along the site boundary to the east. Both parking lots and the access road along the new building are close to the wetland area. Part of the proposed access driveway – stated by the applicant to be 1000 square feet- is located within 25 feet of the wetland, the nearest point being 8 feet from the wetland.

The wetlands on the site are extensive on the northern part of the site and the combination of the impacts from the extended parking and the proposed access road raise concerns. It has been suggested to the applicant that they move more of the development to the southern part of the site (Attachment II E) and the reason for not doing so has in part been explained by the response to the Planning Board request as discussed in Paragraph 1/2 **Traffic** above under **Parking**. It has been suggested in meetings that some of the parking be decked to reduce impact on the wetlands. There has been no discussion regarding the possible relocation or altered footprint for the proposed building.

The impact of the proposed building and extended parking areas could potentially be minimized by the incorporation of measures to capture and treat stormwater run off. This is discussed under Paragraph 5 above under **Stormdrains**, where questions were raised regarding the submitted quality calculations and it is unclear whether the level of treatment is acceptable.

The applicants have submitted a revised Section 8 – State and Federal Permitting (Attachment III C) which sets out the current position regarding MDEP permits. As a result of further discussions, the MDEP have confirmed that they will review the proposed addition as a minor amendment to the existing Site Location of Development (SILOD) Permit (letter from Marybeth Richardson dated 1.17.2006) in Attachment III C. As a minor amendment the MDEP will review water usage, wastewater generation, solid waste and stormwater. A copy of the application is included in the same Section of the narrative. The City has not received any further documentation of the MDEP determination.

The applicant confirmed in the letter of 12.30.05 (Attachment II I) that the area of wetland fill amounts to 50 square feet and is located more than 100 feet from the brook just south of the satellite parking lot expansion. For this reason they confirm that no permitting is required although the City has not received documentation from the MDEP.

An NRPA Wetlands Alteration Permit has been submitted to the MDEP. The applicant initially submitted an NRPA Permit by Rule Notification (PBR) to the MDEP on January 5, 2006 but this was returned and resubmitted with the Minor Amendment Application sent on 1.20.2006- both applications are in Attachment III C Section 8. The City has not been informed of the MDEP determination.

The scale of the proposal and the associated access and parking areas leaves very little in the way of buffers to the wetlands area as all of the proposed development is within 75 feet of the wetlands and some is within 25 feet. A smaller/different building footprint located further back on the site with some decked parking would reduce the impacts. Although the applicant has addressed all the issues previously raised, information that confirms that the scale and impacts of the proposed scheme may be acceptable is not complete. Stormwater quality treatment efficiency is unclear and the MDEP determination has not been received.

Should the Planning Board grant approval, staff recommend that no further development and impervious surfaces, including expanded parking lots, be allowed as the submission is at the limit (if not over) of acceptable impacts on the wetlands.

#### **7. Soils and Drainage**

Jim Seymour has identified a number of small measures that need to be incorporated, including extra curbing, erosion control measures and underdrains as set out in his comments of 1.31.2006 (Attachment III I).

#### **8. Exterior Lighting**

Photometric Plans were submitted with a letter of 1.4.06 (Attachment II K) from Kenneth Volock and catalog cuts were submitted with his letter of 10.26.05 (Attachment II D) and both meet the City standards.

#### 9. Fire

The Captain Greg Cass of the Fire Department originally commented that fire department access to be 20 feet wide, maintained and unobstructed (Attachment II C). In light of the discussions at the Planning Board and the concerns of the Engineering Reviewer, Captain Cass was asked to confirm his views in relation to the most recent plans and he confirmed that 20 feet would be adequate for the access road (Attachment III A).

#### 10. City Infrastructure

The applicant has extended the existing sidewalk along Hutchins Drive in accordance with Ordinance 25 (requirement for sidewalks and curbs along the frontage). The City Engineer, Eric Labelle, has confirmed that "Public Works does not recommend the installation of granite curbing in this location. Drainage on Hutchins Drive is currently conveyed by ditches on the side of the road. The installation of granite curbs would impede drainage and therefore would also require the installation of a piped stormdrain system along Hutchins Drive." (Attachment III J) Details of the sidewalk need to be submitted and be in accordance with City Standards.

The City of Portland has a 10inch sewer main running through the site within a 30 foot easement. The applicant proposes to relocate the sewer and easement to the north so that so that it does not run beneath the proposed building. The diverted sewer is proposed to be 15 feet from the new building addition, centered within a 30 foot easement .

The City Engineer has reviewed plans dated January 2006 and stamped January 20, 2006 and stated "Public Works is satisfied with the proposed relocation of the sewer and sewer easement." (Attachment III J). We have not received detailed plans or construction details for the sewer relocation plan or profile design; these will need to meet City Standards and be directly reviewed by Public Works.

#### 11. Easements

The existing sidewalk connecting the existing satellite parking lot to the main office buildings runs over land owned by the Portland Water District. There is an existing agreement with the applicant that permits the sidewalk to be used by employees and visitors to the existing office complex. The City has requested (Attachment II E) that the sidewalk be extended to the boundaries and made available as a public sidewalk; this would necessitate an easement from the Portland Water District to the City for public access.

The Portland Water District has indicated that it is prepared to grant this easement (e-mail from Norman Twaddel of 1.16.2006 in Attachment III B) and the applicant has confirmed that it will provide the application fee (letter 1.20.06 Attachment C). The City engineer has confirmed that "Public Works has made an application to the Portland Water district requesting a public access

easement over the Portland Water District land. The easement would grant rights to construct, maintain and travel over the existing and proposed sidewalks. (Attachment III J).

The applicant has confirmed that they own and maintain the 30 foot drainage easement over the unnamed brook which runs across the site. The City has requested (Attachment II E) the transfer of the easement to the City and the applicants have confirmed they will grant this easement in their letter of January 20, 2006 (Attachment III C).

The City Engineer has confirmed that Public Works is recommending a drainage easement be granted to the City for the purposes of maintaining and conveying stormwater from Hutchins Drive and the surrounding watershed (Attachment III J).

#### Title, right and interest & Financial Capability

The property is owned by CAD-CAM Associates and there is a purchase and sale agreement with Peggy and Eric Cianchette, as confirmed in the letter (undated but received 11.22.05 from Judy Knaub included in Attachment II F). A copy of the agreement has not been provided. A letter of financial capability was provided by the Bangor Savings Bank on 1.3.06 and is included at Attachment II K.

#### Neighborhood Meeting

A Neighborhood Meeting was held on January 17, 2006 at the offices of Woodard & Curran. The meeting was attended by one person, Douglas Cardente, an abutter who had no objection to the proposal.

## **VI. RECOMMENDATION**

Numerous environmental, stormwater, technical, permitting and traffic issues remain problematic or unresolved with this project. The Board and staff have urged the applicant to consolidate the development into a more compact arrangement and provide larger buffers to the slopes and wetlands. Given costs of decked parking and other site constraints, the applicant has submitted these plans as their best effort to fit the needed program on the site.

Of the many issues identified, the lack of wetlands buffer is most significant. The board will need to determine if the applicant has successfully minimized any adverse environmental effects of the proposed development (Section 14-526 (b)). Options available to the Board are:

- 1) To table this item to resolve the permitting and technical issues, generally accepting the plans as submitted; or
- 2) To approve the plans subject to the proposed conditions of approval; or
- 3) To reject the plan if it finds that environmental effects are excessive. If this latter course is chosen by the Board, a statement of findings should be directed for the next meeting.

## VII. MOTIONS FOR THE BOARD TO CONSIDER

On the basis of plans and materials submitted by the applicant and on the basis of information contained in Planning Report #10-97 relevant to standards for subdivision and site plan regulations, and other findings as follows:

- I. That the plan is in conformance with the site plan standards of the land use code.

### Potential Conditions of Approval

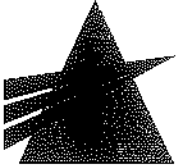
- i. That the applicant receives and submits the required permits from the MDEP prior to the issuance of a building permit.
- ii. That the applicant conducts a post-development analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and PM peak hours to ensure safe and reasonable operations will be provided following completion of the project. In the event that modifications are needed to the intersection to achieve safe and reasonable operations, the applicant shall make a proportional financial contribution to the cost of such modifications.
- iii. That the applicant shall re-evaluate stormwater treatment factors and submit revised calculations and show all buffers on the site plan with labels indicating the width, slope and percentage of removal efficiency for each buffer shown.
- iv. The applicant shall submit a letter from the Engineering Division of Public works verifying adequate sewer capacity to serve this project.
- v. The applicant shall submit a Snow Removal and Maintenance Plan for the 20 foot wide roadway adjacent to the new building to the satisfaction of the Traffic Engineer and the Development Review Coordinator (Jim Seymour of Sebago Technics). The Plan to show how this access will be maintained and kept free of obstructions to ensure fire access if needed.
- vi. The applicant shall present the sidewalk, drainage and sewer easements for final review and approval by Corporation Counsel.
- vii. That the applicant shall revise the plan to provide a 24 foot wide roadway where the main access to the site meets Hutchins Drive.
- viii. The applicant shall provide a fire hydrant on the access road to meet the fire Department requirement of a hydrant every 500 feet.
- ix. The applicant shall submit details of the sidewalk extension and sewer diversion, which must be in accordance with the City Standards and directly reviewed and approved by Public Works.

- x. That the applicant shall address the comments raised by the Development Review Coordinator (Jim Seymour of Sebago Technics) in his memorandum of January 31, 2006 concerning labeling of rim elevations, curbing along the access road, curbing of the satellite parking lot islands, the need for an underdrain for the underground detention/storage and the need for construction elevation benchmarks with the datum specified.
  - xi. The applicant to adhere to the submitted Geotechnical Report during construction and involve a Geotechnical Engineer at regular intervals during the construction of foundations and retaining walls; also to amend the plans to reference the construction measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a professional engineer and reviewed and approved by the code enforcement officer.
  - xii. The applicant to note that no further impervious surfaces shall be created on this site and that further development should be contained within the existing paved and built areas.
- 2 That the Planning Board waives the Technical Standard (Section III 2 A.(b), which requires a 24 foot wide driveway for two-way ingress and egress, in respect of the driveway alongside the proposed new building (excluding where it meets Hutchins Drive) in order to minimize impact on the nearby wetland area.
- 3 That the Planning Board waives the Technical Standard set out in Ordinance Sections 14-498 and 14-499 which requires granite curbs, as the City Engineer does not recommend the installation of granite curbing in this location.

Attachments:

- I. Original Submission - Woodard & Curran Building Addition, CAD-CAM Associates Major Site Plan Application Support document (except plans & stormwater analysis), September 21, 2005
- II. Documents (except plans and previous detailed stormwater analysis) as attached to Planning Board Memorandum of January 10, 2006 – using same letter reference).
  - C. Greg Cass, City of Portland Fire Department, Urban Insight comments 9.28.06
  - D. Kenneth Volock, Woodard & Curran letter dated October 26, 2005, including:
    - a. lighting catalog cuts and photometric plans
    - b. letter from the Department of Inland Fisheries and Wildlife dated September 19, 2005
    - c. letter from the Maine Historic Preservation commission dated September 22, 2005
  - E. Jean Fraser, Planner, City of Portland letter dated November 14, 2005
  - F. Kenneth Volock, Woodard & Curran letter dated November 22, 2005, including:
    - a. letter from Judy Knaub, chief financial Officer, Woodard & Curran, undated
  - G. Kenneth Volock, Woodard & Curran letter dated December 2, 2005
  - H. Jim Seymour, Sebago Technics, DRC comments dated December 22, 2005
  - I. Kenneth Volock, Woodard & Curran letter of December 30, 2005
  - J. Jeff Tarling, City Arborist comments e-mail dated January 5, 2006
  - K. Kenneth Volock, Woodard & Curran letter of January 4, 2006 including

- c. Updated letter of financial capability from Bangor Savings Bank dated January 3, 2006
  - L. Thomas Errico, City Traffic Engineering Reviewer comments, e-mail dated January 5, 2006
- III. Documents and plans submitted since Planning Board Workshop January 10, 2006
  - A. Greg Cass, city of Portland Fire Department, e-mail of January 11, 2006
  - B. Norman Twaddel, Portland Water District e-mail to Ken Volock with PWD Easement Application Request Form attached, January 16, 2006
  - C. Kenneth Volock, Woodard & Curran, letter of January 20, 2006
    - a. Revised Section 1 – Development Description
    - b. Revised Section 4 – Solid Waste
    - c. Revised Section 5 – Off-Site Facilities
    - d. Revised Section 6 – Stormwater Management
    - e. Revised Section 8 – State and Federal Permitting
  - D. Thomas L Gorrill PE, PTOE, Gorrill-Palmer Consulting Engineers Inc, letter dated January 23, 2006 (and cover e-mail from Barry Sheff, PE of Woodard & Curran of the same date)
  - E. Kenneth Volock, Woodard & Curran Neighborhood Meeting Certification dated January 24, 2006
  - F. Kenneth Volock, Woodard & Curran, letter of January 24, 2006
  - G. Marge Schmuckal, Zoning Administrator, e-mail of January 30, 2006
  - II. Thomas Errico, PE, City Traffic Engineering Reviewer comments, e-mail dated January 30, 2006 (plus e-mail of explanation dated February 2, 2006)
  - I. Jim Seymour, Sebago Technics, DRC comments dated January 31, 2006
  - J. Eric Labelle, City Engineer, e-mail of February 2, 2006
  - K. Superseded site plans for building addition towards rear of the site (for info re wetland impacts)
    - a. Proposed Site Plan Sheet C200 (*superseded*- included for information)
    - b. Post-Development Stormwater Plan Figure 6.2, September, 2005 *superseded* -included for information)
  - L. Current site plans for the Woodard & Curran Building Addition, prepared by Woodard & Curran
    - a. Sheet 1, Title Sheet and Site Location Map, submitted January 20, 2006
    - b. Sheet 2, Boundary Survey dated February 1988; submitted September, 2005
    - c. Sheet 3, General Notes, Legend, Abbreviations and Sheet Index, G001 Jan.20, 2006
    - d. Sheet 4, Existing Site Plan, C100 updated December 2005
    - e. Sheet 5, Proposed Site Plan, C200 revised January 2006
    - f. Sheet 6, Proposed Utility Plan, C201 revised January, 2006
    - g. Sheet 7, Civil Details 1 C300 revised January 2006
    - h. Sheet 8, Civil Details 2 C301 revised January 2006
    - i. Sheet 9, Civil Details 3 C302 revised January 2006
    - j. Sheet 10 Civil Details 4 C303 submitted January 2006
    - k. Sheet 11, Landscape Plan L-1.0 revised January 24, 2006
    - l. Sheet 12, Existing Stormwater Plan, Figure 6.1 January, 2006
    - m. Sheet 13, Post-Development Stormwater Plan, figure 6.2 January 2006
    - n. Sheet 14, Building Elevations (West and South), A20.1, revised January 24, 2006
    - o. Sheet 15, Building Elevations (East and North), A20.2, revised January 24, 2006



**WOODARD & CURRAN**  
Engineering • Science • Operations

Attachment I

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
Operational offices throughout the U.S

September 21, 2005

Sarah Hopkins  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition - Major Site Plan Review Application

Dear Sarah:

On behalf of the joint applicants, CADCAM Associates and Rist-Brunet Family Trust, we are submitting fifteen (15) copies of the Major Site Plan Application for the Woodard & Curran Building Addition, with all supporting documentation, to be used in Planning Board review. These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The proposed project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and associated utility improvements. The proposed building addition will be a three-story structure with a building footprint of approximately 7,500 square feet. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking. Construction of the project is anticipated to begin in 2006 and be completed by early spring of 2007.

We look forward to working with your office and the Planning Board on this project. Please do not hesitate to contact Woodard & Curran if you have any questions or comments.

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosure

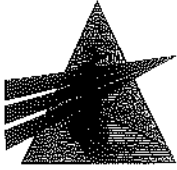




# City of Portland Site Plan Application

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

Address of Proposed Development: <b>41 Hutchins Drive</b>		Zone: <b>I-M</b>											
Total Square Footage of Proposed Structure: <b>28,450 SF</b>		Square Footage of Lot: <b>289,674 SF</b>											
Tax Assessor's Chart, Block & Lot:		Property owner's mailing address:											
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Chart#</td> <td style="text-align: center;">Block#</td> <td style="text-align: center;">Lot#</td> </tr> <tr> <td style="text-align: center;">238A</td> <td style="text-align: center;">A</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">239</td> <td style="text-align: center;">A</td> <td style="text-align: center;">4</td> </tr> </table>	Chart#	Block#	Lot#	238A	A	1	239	A	4	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">CADCAM Associates 41 Hutchins Drive Portland, ME 04102</td> <td style="width: 50%;">Rist-Brunet Family Trust 343 Soquel Avenue PMB 216 Santa Cruz, CA 95062</td> </tr> </table>	CADCAM Associates 41 Hutchins Drive Portland, ME 04102	Rist-Brunet Family Trust 343 Soquel Avenue PMB 216 Santa Cruz, CA 95062	Telephone #: <b>(207) 774-2112</b>
Chart#	Block#	Lot#											
238A	A	1											
239	A	4											
CADCAM Associates 41 Hutchins Drive Portland, ME 04102	Rist-Brunet Family Trust 343 Soquel Avenue PMB 216 Santa Cruz, CA 95062												
Consultant/Agent, mailing address, phone # & contact person:		Applicant's name, mailing address, telephone #/Fax#/Pager#:											
Woodard & Curran, Inc. 41 Hutchins Drive Portland, Maine 04102 (207) 774-2112 Kenny Volock, Engineer		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">CADCAM Associates 41 Hutchins Drive Portland, ME 04102 (207) 774-2112</td> <td style="width: 50%;">Rist-Brunet Family Trust 343 Soquel Avenue PMB 216 Santa Cruz, CA 95062</td> </tr> </table>	CADCAM Associates 41 Hutchins Drive Portland, ME 04102 (207) 774-2112	Rist-Brunet Family Trust 343 Soquel Avenue PMB 216 Santa Cruz, CA 95062	Project name:  Woodard & Curran Building Addition								
CADCAM Associates 41 Hutchins Drive Portland, ME 04102 (207) 774-2112	Rist-Brunet Family Trust 343 Soquel Avenue PMB 216 Santa Cruz, CA 95062												
<b>Proposed Development (check all that apply)</b> <input type="checkbox"/> New Building <input checked="" type="checkbox"/> Building Addition <input type="checkbox"/> Change of Use <input type="checkbox"/> Residential <input type="checkbox"/> Office <input type="checkbox"/> Retail <input type="checkbox"/> Manufacturing <input type="checkbox"/> Warehouse/Distribution <input checked="" type="checkbox"/> Parking lot <input type="checkbox"/> Subdivision (\$500.00) + amount of lots _____ (\$25.00 per lot) \$ _____ <input type="checkbox"/> Site Location of Development (\$3,000.00) (except for residential projects which shall be \$200.00 per lot _____) <input type="checkbox"/> Traffic Movement (\$1,000.00) <input type="checkbox"/> Stormwater Quality (\$250.00) <input type="checkbox"/> Section 14-403 Review (\$400.00 + \$25.00 per lot) <input type="checkbox"/> Other _____													
<b>Major Development (more than 10,000 sq. ft.)</b> <input checked="" type="checkbox"/> Under 50,000 sq. ft. (\$500.00) <input type="checkbox"/> 50,000 - 100,000 sq. ft. (\$1,000.00) <input type="checkbox"/> Parking Lots over 100 spaces (\$1,000.00) <input type="checkbox"/> 100,000 - 200,000 sq. ft. (\$2,000.00) <input type="checkbox"/> 200,000 - 300,000 sq. ft. (\$3,000.00) <input type="checkbox"/> Over 300,000 sq. ft. (\$5,000.00) <input type="checkbox"/> After-the-fact Review (\$1,000.00 + applicable application fee)													
<b>Minor Site Plan Review</b> <input type="checkbox"/> Less than 10,000 sq. ft. (\$400.00) <input type="checkbox"/> After-the-fact Review (\$1,000.00 + applicable application fee)													
<b>Plan Amendments</b> <input type="checkbox"/> Planning Staff Review (\$250.00) <input type="checkbox"/> Planning Board Review (\$500.00)													
- Please see next page -													



Jean Fraser, City of Portland  
December 30, 2005  
Page 3

Comment:

*Consider revising the existing pond to provide infiltration treatment for the current satellite parking area.*

Response:

After revisiting the existing pond, we have determined that it does not have the storage required to function as a filtration basin. As such the pond will remain in its present condition as a detention pond.

Comment:

*Berm landscape Hutchins Street frontage as allowed (outside PWD land or with permission) with berms and tree vegetation.*

Response:

The grading of the area between the existing satellite parking lot and Hutchins Drive has been revised to provide a landscaped berm on either side of the entrance to the parking lot. The berm is located entirely within the CADCAM property.

Building parking lot

Comment:

*Revise parking layout at the east end. Consider semi circle layout for easier access and turnaround movement and dumpster location.*

Response:

The east end of the parking lot was revisited to consider a semi-circular configuration. However, the width of area between 25-foot wetland setbacks does not allow this configuration. Further, the proximity of the brook to the wetland edge in this area does not allow for construction within the setback. The parking configuration remains as most recently proposed.

Comment:

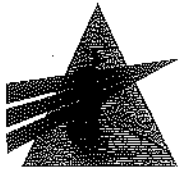
*Regrade east side parking to sheet flow stay on a northeast course and install sediment basin at the end of the parking lot, to then collect sediment and us buffers to further treat runoff.*

Response:

The rear parking lot has been regraded and curbing added to facilitate collection at the northerly end in a small sedimentation basin. Runoff will flow to the basin and receive some pretreatment before being discharged through a level lip spreader into the wooded buffer area behind.

Comment:

*Curb both sides of lower access road to east parking lot from the entrance at Hutchins Dr. to throat of parking lot. The inside edge should begin at sidewalk ramp/crossing.*



Jean Fraser, City of Portland  
December 30, 2005  
Page 2

*storm and treats that volume for the feasible majority of the site proposed for expansion and redevelopment that the larger rain events can be released to the adjacent stream without detaining.*

Response:

Existing buffers will be used to the extent possible in treating runoff from the parking area at the rear of the proposed addition. Runoff from the proposed expansion to the satellite parking lot will be treated using both filtration basins and existing buffers. The narrative and calculations will be included in an updated Stormwater Management Plan (Section 6).

Satellite Parking lot drainage issues

Comment:

*Cape cod curb north side of satellite parking lot and build shallow shelf at slope bottom against curb back.*

Response:

The grading on the north side of the Satellite parking lot expansion has been modified to reflect the shallow shelf and curb. Cape Cod curb has been called out. A detail will be included on a revised detail sheet, to be submitted separately.

Comment:

*Place basin at corners of north side of satellite lot to direct to drainage/treatment basins.*

Response:

The satellite parking lot is graded away from the north edge in an effort to follow existing grading to the extent feasible. As a result, catch basins along the northern side of the lot would not collect any flow and have not been added.

Comment:

*Underdrain the north side of parking lot.*

Response:

The underdrain has been added along the northern edge of the satellite parking lot expansion, discharging to the northernmost filtration basin.

Comment:

*Guardrail is needed on east side of satellite lot where slopes lead to basins/ponds.*

Response:

A guardrail has been added to the east side of the satellite parking lot where the proposed grade slopes into the filtration basin.

Who billing will be sent to: (Company, Contact Person, Address, Phone #)  
Woodard & Curran      Attn: Kenny Volock, Engineer  
41 Hutchins Drive      (207) 774-2112  
Portland, ME 04102.

Submittals shall include (9) separate folded packets of the following:

- a. copy of application
- b. cover letter stating the nature of the project
- c. site plan containing the information found in the attached sample plans check list

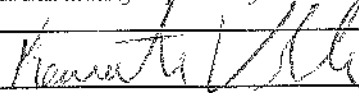
Amendment to Plans: Amendment applications should include 6 separate packets of the above (a, b, & c)

**ALL PLANS MUST BE FOLDED NEATLY AND IN PACKET FORM**

Section 14-522 of the Zoning Ordinance outlines the process; copies are available at the counter at .50 per page (8.5 x11) you may also visit the web site: [ci.portland.me.us](http://ci.portland.me.us) chapter 14

*I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/ her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.*

Signature of applicant:



Date:

9/21/05

This application is for site review ONLY, a building Permit application and associated fees will be required prior to construction.

## Development in Portland

The City of Portland has instituted the following fees to recover the costs of reviewing development proposals under the Site Plan and Subdivision ordinances: application fee; engineering fee; and inspection fee. Performance and defect guarantees are also required by ordinance to cover all site work proposed.

The **Application Fee** covers general planning and administrative processing costs, and is paid at the time of application.

The Planning Division is required to send notices to neighbors upon receipt of an application and prior to public meetings. The applicant will be billed for mailing and advertisement costs. Applicants for development will be charged an **Engineering Review Fee**. This fee is charged by the Planning Division for review of on-site improvements of a civil engineering nature, such as storm water management as well as the engineering analysis of related improvements within the public right-of-way, such as public streets and utility connections, as assessed by the Department of Public Works. The Engineering Review fee must be paid before a building permit can be issued. Monthly invoices are sent out by the Planning Division on a monthly basis to cover engineering costs.

A **Performance Guarantee** will be required following approval of development plans. This guarantee covers all required improvements within the public right-of-way, plus certain site improvements such as landscaping, paving, and drainage improvements. The Planning Division will provide a cost estimate form for figuring the amount of the performance guarantee, as well as sample form letters to be filled out by a financial institution.

An **Inspection Fee** must also be submitted to cover inspections to ensure that sites are developed in accordance with the approved plan. The inspection fee is 2.0% of the performance guarantee amount, or as assessed by the planning or public works engineer. The minimum inspection fee is \$300 for development, unless no site improvements are proposed. Public Works inspects work within the City right-of-way and Planning inspects work within the site including pipe-laying and connections. (The contractor must work with inspectors to coordinate timely inspections, and should provide adequate notice before inspections, especially in the case of final inspection.)

Upon completion of a development project, the performance guarantee is released, and a **Defect Guarantee** in the amount of 10% of the performance guarantee must be provided. The Defect Guarantee will be released after a year.

Other reimbursements to the City include actual or apportioned costs for advertising and mailed notices. All fees shall be paid prior to the issuance of any building permit.

For more information on the fees or review process, please call the Planning Division at 874-8719 or 874-8721.



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## 1. DEVELOPMENT DESCRIPTION

The joint applicants are: CAD-CAM Associates, located at 41 Hutchins Drive, Portland, ME, 04102; and Rist-Brunet Family Trust, 343 Soquel Ave., PMB 216, Santa Cruz, CA 95062. The estimated cost of this project is detailed in Section 9 of this application.

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(1).

### 1.1 INTRODUCTION

CAD-CAM Associates has undertaken planning and preliminary design associated with an addition to its building at 41 Hutchins Drive in Portland, currently occupied by Woodard & Curran, Inc. The project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and associated utility improvements.

A purchase and sale agreement was entered into with the Rist-Brunet Family Trust. Conditions of the agreement include the development of the proposed project by the Rist-Brunet Family Trust and a lease of the property by Woodard & Curran for a period of 11+ years. A copy of the agreement is attached with other title, right and interest documentation in Section 10 of this Application.

*updated by  
letter dated 10-26-05*

### 1.2 EXISTING CONDITIONS

The site consists of two parcels of land, lots #15 & #16 of the Stroudwater Estate Subdivision, owned by CAD-CAM Associates and located at 41 Hutchins Drive. These lots occupy a total area of approximately 6.65 acres.

The site is occupied by an office building with a footprint of 13,232 square feet (approximately 0.3 acres). The building was constructed in two parts. The first, a two-story structure identified on the site plans as the South Wing, was constructed in 1986. The second, a three-story structure identified on the site plans as the North Wing, was constructed in 1996 with a direct connection to the South Wing.

Woodard & Curran has 111 employees located in the building at 41 Hutchins Drive; the capacity of the building is approximately 118. To support that, a total of 76 parking spaces are located proximate to the building, inclusive of employees, handicap and visitor parking. The parking is broken out into 3 areas as follows: 44 spaces located to the north; 26 spaces to the south; and the main entrance leads to visitor parking (4 spaces) and handicapped accessible parking (2 spaces) to the west. Woodard & Curran also has a 32-space overflow parking lot located on the northerly portion of the site linked to the building by an at-grade 365' paved sidewalk paralleling Hutchins Drive.

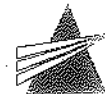
Woodard & Curran also has another 32 employees that currently occupy leased space on the adjacent lot (to the south) in the former Clark Associates building, also on Hutchins Drive. That leased space has its own parking associated with it.

### 1.3 PROPOSED DEVELOPMENT

*updated by letter of 11-22-05*

The proposed building addition will be a three-story structure with a building footprint of approximately 7,500 square feet. The first or ground floor will be partially enclosed and should provide 22 at-grade paved parking spaces. The upper two floors will be office space with a gross floor area of approximately





15,000 square feet, with a direct link to the North Wing. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings.

The building addition will increase employee capacity in the building to approximately 175. The 32 employees currently located in leased space will relocate to the main building. This would bring occupancy in the building to 143 employees, and still allow for growth of roughly 20%.

To make way for the building expansion, approximately 20 parking spaces will be lost from the parking lot just north of the existing building. However, the partially enclosed paved parking area occupying the first story of the building addition should provide 22 spaces. The existing satellite parking lot on the northerly portion of the site will be expanded to provide 67 additional spaces. As a result of the proposed project, off-street parking for the site increase from 108 to 177 spaces.

#### 1.4 DRAWINGS

Attached to this section, we submit the following drawings in accordance with Section 14-525(b):

- Boundary Survey
- C100 Existing Site Plan
- C200 Proposed Site Plan
- C300 Civil Details - 1
- C301 Civil Details - 2
- C302 Civil Details - 3

In accordance with Section 14-525(b)(2),

*§14-525(b)(2)(a) Existing Soil Conditions:* A subsurface investigation, including borings, was performed in August of 1995 during design of the North Wing. The locations of the boring have been depicted on the Site Plans and the results of the borings have been attached to this section.

*§14-525(b)(2)(h) Landscape Plans:* Landscaping design for the project has not been completed at the time of this submittal. The landscaping is to be completed by the project architect and will be submitted as an addendum to this application. *Updated by letter of 1.4.06.*

*§14-525(b)(2)(j) Lighting:* Site lighting design for the project is currently under development. The area surrounding the proposed addition will likely rely on existing lighting. The expansion of the existing satellite parking lot will utilize a similar lighting scheme to that already in place. Each fixture shall be a high pressure sodium, metal halide architectural area light with a 150W lamp mounted on a 15-foot high pole with 0.5 foot pedestal. Fixtures shall be installed with cutoffs to eliminate back lighting. A photometric plan, lighting catalog cut sheets, and other supporting information will be submitted as an addendum to this application. *submitted by letter of 1.4.06*



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*updated by  
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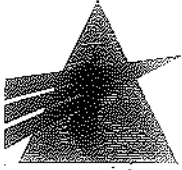
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*updated by letter of 11-22-05*

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Jean Fraser, City of Portland  
January 4, 2006  
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**Section 10 – Title, Right, Interest**

As a matter of clarification, our November 22, 2005 submission included a letter from Judy Knaub, Woodard & Curran Chief Financial Officer, to Sarah Hopkins, City of Portland, indicating the execution of Purchase and Sale Contract between CADCAM Associates and Eric and Peggy Cianchette. This letter supersedes the copy of the Purchase and Sale Agreement between CADCAM Associates and Rist-Brunet Family Trust.

Thank you for the assistance you have provided. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: Sheet L-1.0 Landscape Plan  
Sheet 1 of 2, depicting Photometric calculations for the Proposed Satellite Parking Expansion  
Sheet 2 of 2, depicting Photometric calculations for the Proposed Building Addition and Parking  
Letter from Bangor Savings Bank to City of Portland, dated January 3, 2006



January 3, 2006

Sarah Hopkins  
Development Review Manager  
City of Portland  
389 Congress Street, 4<sup>th</sup> Floor  
Portland, Maine 04101

Dear Sarah:

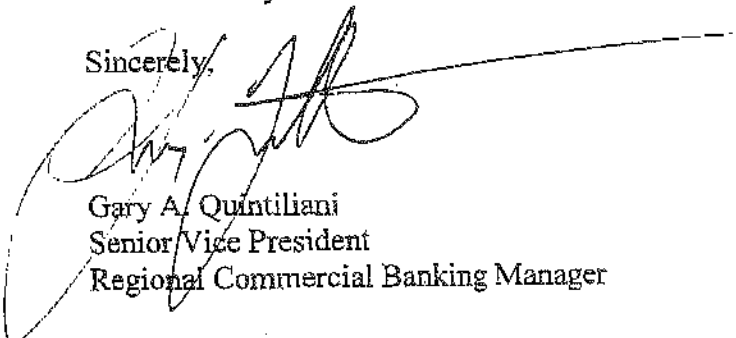
RE: Eric Cianchette

Please be advised that the Bank has a lending and depository relationship with Eric Cianchette and related entities. This relationship is held in high esteem within the Bank, with all accounts being handled in a professional and satisfactory manner.

Based on the financial information provided to the Bank and business dealings with Eric Cianchette, we find her management team to be experienced, professional and capable. As a result, we would consider any requests for development financing seriously, subject to the Bank's normal and customary due diligence and approval process.

If you have any additional questions please feel free to contact me directly at (207) 541-2701. Thank you.

Sincerely,



Gary A. Quintiliani  
Senior Vice President  
Regional Commercial Banking Manager

GAQ/dk

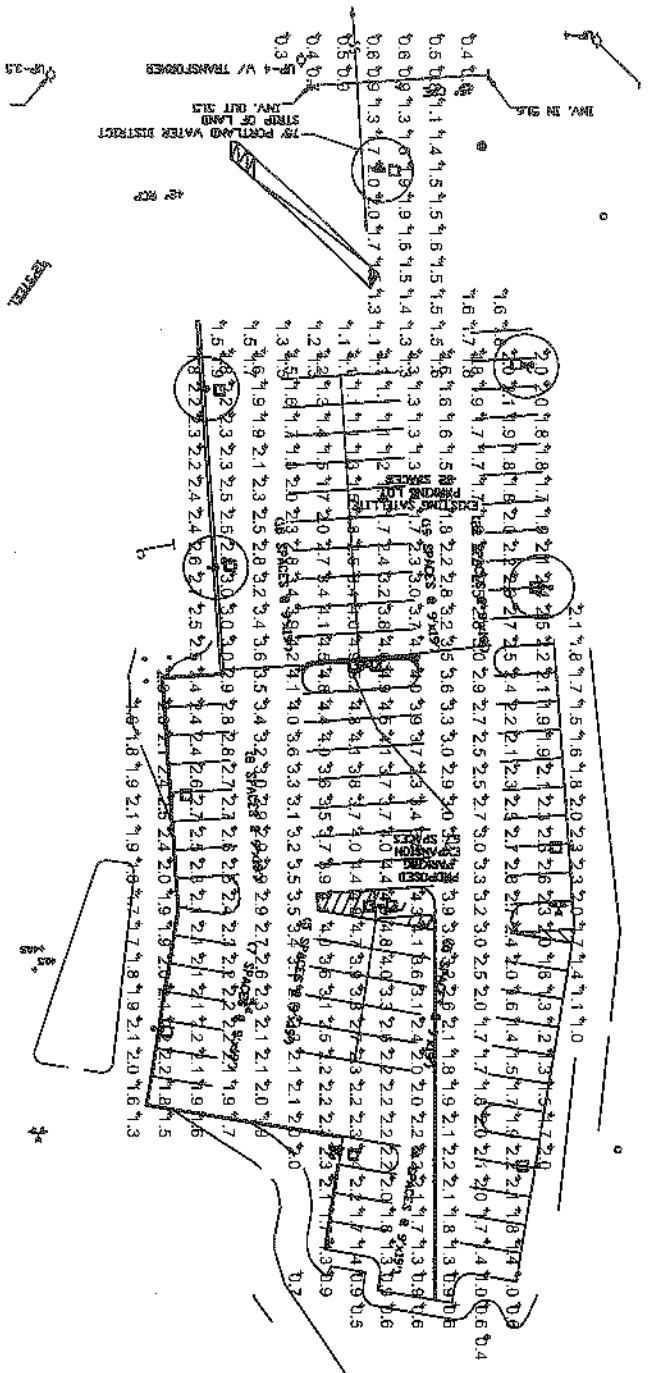
Cc: John Edwards, Senior Credit Delivery Officer  
Mark Butterfield, Vice President, Commercial Banking

### STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	2.4 fc	5.2 fc	0.4 fc	13.0:1	6.0:1
Calc Zone #3	+	1.3 fc	2.0 fc	0.3 fc	6.7:1	4.3:1
Calc Zone #3	+	1.7 fc	3.0 fc	0.3 fc	10.0:1	5.7:1

### LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
<input type="checkbox"/>	A	25	GSS-XX-150-HPS-XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE ROUND DISTRIBUTION	150W HPS CL ED-17	GSS1SHARS.1 es	16000	0.86	150
<input type="checkbox"/>	B	2	GSS-XX-150-HPS-XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE ROUND DISTRIBUTION	150W HPS CL ED-17	GSS1SHARS.1 es	16000	1.00	300



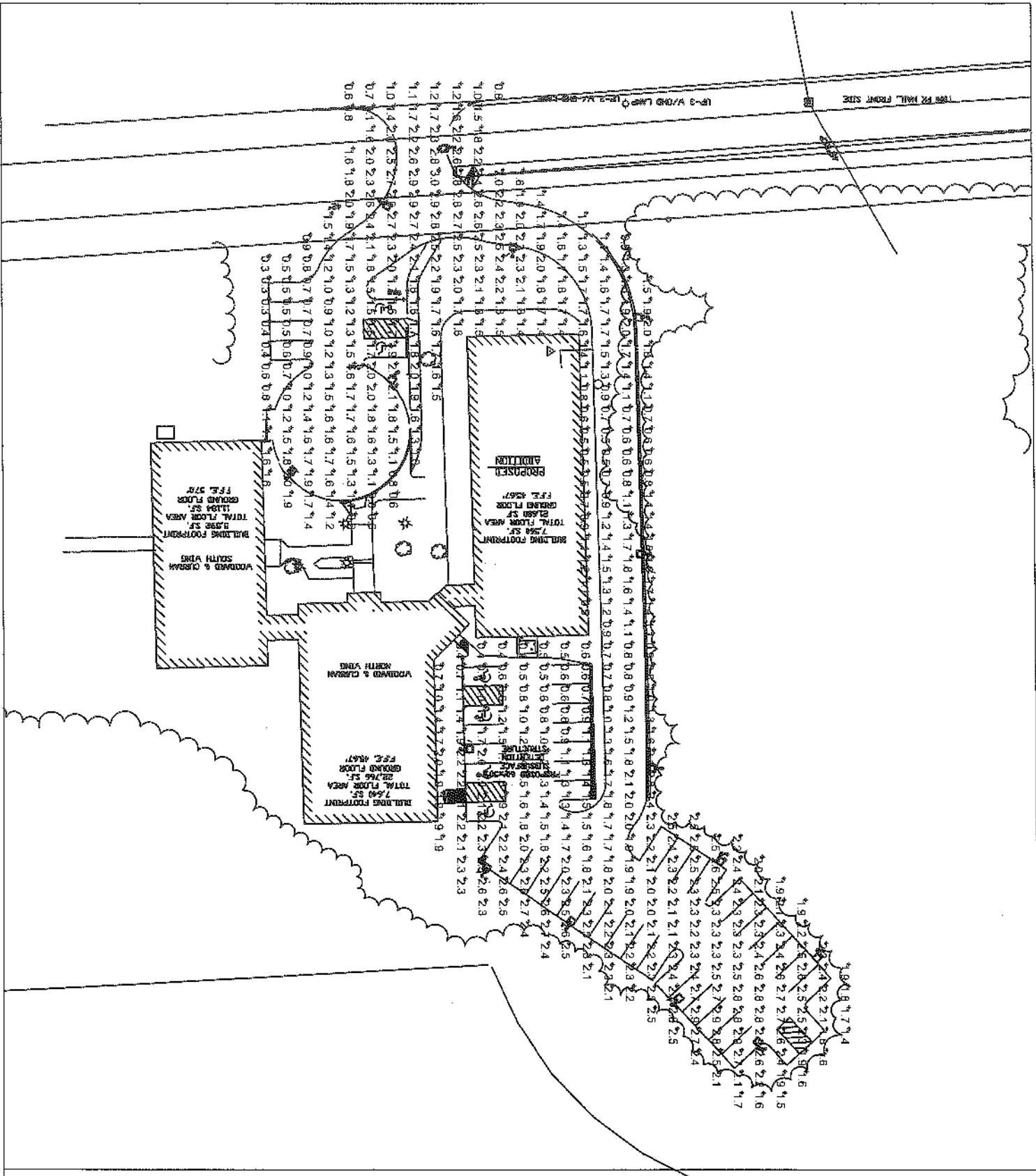
WOODARD CURRAN

Designer  
B.H. MILLIKEN

Date  
Oct 13 2005

Scale  
AS SHOWN

Drawing No.  
1



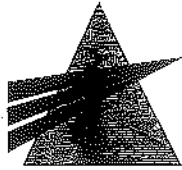
WOODARD CURRAN

Designer  
B.H. MILLIKEN

Date  
Oct 13 2005

Scale  
AS SHOWN

Drawing No.  
1



**WOODARD & CURRAN**  
Engineering • Science • Operations

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
Operational offices throughout the U.S

December 30, 2005

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting 10 copies of additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows included updated plans and addresses comments provided during our meeting on December 20, 2005 at our office and in a memo received from Jim Seymour, Sebago Technics, on December 22, 2005. Specific to issues we have discussed:

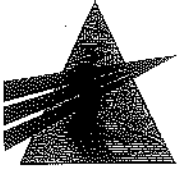
- Abutter information has been added to the Existing Site Plan
- The sidewalk has been extended to be even with the CADCAM property lines in each direction. The Portland Water District has been contacted and is agreeable to the location of the sidewalk; however, they do not wish to grant a perpetual easement to the City for the sidewalk.
- The sewer has been relocated such that it will be 15 feet away from the building addition. The relocated sewer easement has been shown as 30 feet wide, centered on the sewer main.

The following responses address comments provided in the memo received from Jim Seymour, Sebago Technics, on December 22, 2005. Our responses have been organized in order of the comments provided.

### Stormwater Management

#### Comment:

*The project will require evidence that they meet the stormwater quality standard as required by the City's stormwater standard for required treatment when parking areas exceed 25 spaces. A narrative and calculation discussing and showing proof that the standard has been met must be submitted for the entire site. Recent meetings disclosed that the previous DEP order required quantity control. Given the City had authority with DEP with the standards before November 2005, we feel that if the site controls the 2 yr*



Jean Fraser, City of Portland  
December 30, 2005  
Page 4

Response:

The access road has been curbed on both sides; however, the curbing along the inside edge of the road will be terminated about 40 feet beyond the end of the building to allow runoff the flow into the catch basin between the road and the rear parking lot.

Comment:

*Drainage collection is needed for drop-off circle/sheet flow is too indirect and long. Icing and erosion on the driveway edge will occur.*

Response:

A catch basin has been added at the low point of the paved plaza circle to collect runoff.

Comment:

*All piped outlets shall be protected with stone riprap plunge pools and aprons. Inlets shall be riprap-lined aprons appropriately sized.*

Response:

Rip Rap Plunge Pools have been indicated at all outlets where Level Lip Spreaders are also proposed. Where Level Lip Spreaders are not proposed, Rip Rap Aprons have been indicated. Details will be included on a revised detail sheet, to be submitted separately.

Comment:

*Locations of underground storage for detention must be outside of any City sewer easements.*

Response:

The subsurface detention structure is located entirely outside the proposed relocated sewer easement.

Comment:

*The access drive is shown at 20 feet the city standard requires 24 feet for two-way traffic. There appears room next the building for an additional 4 feet given the driveway will be curbed.*

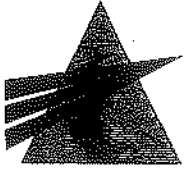
Response:

There is an emergency exit proposed for the north face of the building addition, preventing the location of the road closer to the building. Widening the driveway to twenty-four feet by increasing the width away from the building will bring the road even closer to the wetland. As a result, we are requesting a waiver from the 24 foot wide driveway standard.

Comment:

*The sliver of land between the immediate parking lot just behind the addition and the access driveway should be paved and separated by wood guardrail if the remaining land is less than 2 feet wide.*





Jean Fraser, City of Portland  
December 30, 2005  
Page 5

Response:

The width of the remaining land varies between two and six feet. As a result, we prefer to leave this small area unpaved.

Comment:

*The four space parking area on the south side of the building front, should consider underdrain along the edge to alleviate runoff and groundwater in the cut area.*

Response:

The underdrain has been added along the southern edge of the parking spaces, discharging to the nearby catch basin.

Road Access/Circulation

Comment:

*Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.*

Response:

We have not received comments from the City Traffic Engineer.

Comment:

*The access lanes shall be 24 feet for two-way access.*

Response:

As stated above, we are requesting a waiver from the 24 foot wide driveway standard.

Comment:

*The sewer location shall be in the center of the driveway.*

Response:

Based on discussions with Eric Labelle, the proposed relocation of the sewer is 15 feet from the building addition and has been indicated on the drawings.

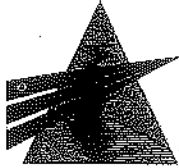
Utilities

Comment:

*Letters to serve and available capacities have been requested showing that adequate service exists for the development.*

Response:

No response required.



Jean Fraser, City of Portland  
December 30, 2005  
Page 6

Comment:

*The City wastewater division and City Engineer shall assist review of the construction details and location of the re-located interceptor sewer.*

Response:

No response required.

**Grading & Erosion Controls**

Comment:

*The applicant should consider mulch berms along with sedimentation fence for an erosion barrier given the close proximity to a stream.*

Response:

The drawings initially called for erosion control mix berms to be installed for erosion control with silt fence to be added in areas of steep slopes. We agree that given the close proximity to the wetlands, the combination of the two is prudent. The detail will be modified to reflect the combination of both measures on a revised detail sheet, to be submitted separately.

Comment:

*Winter erosion control notes will be needed along with formal plans reflecting erosion control notes/measures needed on the site during construction.*

Response:

Erosion Control notes have been previously submitted on Sheet C302.

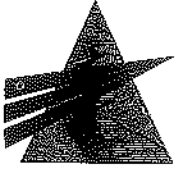
**Water Quality Treatment**

Comment:

*Per the City of Portland Technical and Design Standards and Guidelines, the applicant is required to treat stormwater runoff from parking facilities with 25 cars or more. As previously mentioned the site does not appear to need to conform to the state's Stormwater Law Chapter 500, for water quality. We will refer to treatment measures from the DEP's BMP manual as proof that the entire site conforms to a water quality standard to the maximum extent as feasible.*

Response:

Existing buffers will be used to the extent possible in treating runoff from the parking area at the rear of the proposed addition. Runoff from the proposed expansion to the satellite parking lot will be treated using both filtration basins and existing buffers. The narrative and calculations will be included in an updated Stormwater Management Plan (Section 6).



Jean Fraser, City of Portland  
December 30, 2005  
Page 7

Comment:

*The sizing and detailed specifications with clear relative to the water quality units/measures shown on the plan shall be attached for review along with a site specific maintenance plan and draft contract for cleaning services.*

Response:

Sizing and specifications (where applicable) for stormwater treatment measures, along with the narrative and calculations, will be included in the updated Stormwater Management Plan (Section 6). The site specific maintenance will be updated. Because there are no structural treatment measures proposed, no draft contracts exist.

General

Comment:

*The plans shall reflect the actual amount of wetlands or protected land that will require filling disturbance, and require permitting from the DEP.*

Response:

A small area of wetland fill totaling approximately 50 square feet has been indicated just south of the satellite parking lot expansion. As the area of wetland fill is over 100 feet from the brook running through the center of the site, no permitting is required. No other areas of wetland fill are proposed.

NRPA permitting, in the form of a Permit By Rule (PBR), is required for activities adjacent to protected natural resources. Through discussions with MeDEP, the natural resource of concern on the CADCAM site is the brook running through the middle of the property. The PBR will cover activities within 75 feet of the brook. A copy of the PBR Notification Form will be submitted to the City upon completion.

Comment:

*The applicant is likely required to file a revised Maine Construction General Permit for this project. This must be obtained prior to the start of construction.*

Response:

A Notice of Intent (NOI) to comply with the Maine Construction General Permit will be filed with the Maine Department of Environmental Protection (MeDEP) prior to construction. Following procedure, the MeDEP will send a copy to the City.

Comment:

*The applicant has appears to have available space for development, but given resource protection limits, treatment measures requiring avoidance of snow storage, and given the extent of parking, snow removal is of some concern. Please provide on a plan to address snow storage locations on site.*



Jean Fraser, City of Portland  
December 30, 2005  
Page 8

Response:

There is an area roughly 15 feet wide between the proposed satellite expansion and Filtration Basin #1 and an area about 10 feet wide between the lot and Filtration Basin #2 that can be used for snow storage. Further there is an area off the eastern edge of the lot between the two basins that can be used.

The sedimentation basin off the northern end of the proposed parking lot behind the building addition does not serve as a filtration measure and can therefore be used for snow storage. Additionally, the cut area just south of the four parking spaces near the central plaza will provide snow storage area.

Thank you for the assistance you have provided thus far. We look forward to continuing our work with your office and the Planning Board on this project. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: Sheet C100 Existing Site Plan  
Sheet C200 Proposed Site Plan  
Sheet C201 Proposed Utility Plan

Attachment II.J.

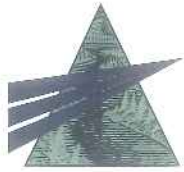
**From:** Jeff Tarling  
**To:** Jean Fraser  
**Date:** 1/5/2006 8:15:48 AM  
**Subject:** Woodward & Curran Landscape

Jean -

I reviewed the proposed Woodward & Curran project on outer Congress Street and offer the following recommendations:

The proposed W&C site plan should include a Landscape Plan. This would include: a) Identifying limits of clearing and protection of trees / vegetation in the "tree-save" areas, b) tree & shrub planting for the new building and parking lot areas, this should reflect the 'campus style' surroundings with groupings of native plant material, the satellite parking lot should have some landscape treatment near Hutchins Drive and the islands should have shade or ornamental tree planting. c) areas around the two new stormwater ponds would benefit from native shrub / tree planting to improve habitat areas disturbed by construction. I would gladly review and work with the applicant on these topics.

Jeff Tarling  
City Arborist



delivered to JF Jan 5<sup>th</sup> 2006

January 4, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows includes lighting and landscaping plans, evidence of financial capacity for the co-applicants Peggy and Eric Cianchette, and clarification on Title Right and Interest per our phone conversation today. The information has been organized according to applicable section within the application.

### **Section 1 – Development Description**

*§14-525(b)(2)(h) Landscaping:* Landscaping for the proposed development is shown on the attached Landscape Plan, Sheet L-1.0. Per our phone conversations today, we have included 5 copies of this submittal. The landscaping design was completed by Carroll Associates.

*§14-525(b)(2)(j) Lighting:* The site lighting has been revised for the satellite parking lot expansion portion of the project and has been updated to include the revised building layout and parking. As such, we have included 5 copies of the updated Photometric Plans, Sheets 1 of 2 and 2 of 2, attached to this submission. The site lighting design was completed by BH Milliken Inc.

### **Section 9 – Financial and Technical Capacity**

As evidence of the financial capacity of the co-applicants, Peggy and Eric Cianchette, to undertake the proposed project, we offer the attached letter from Bangor Savings Bank to Sarah Hopkins, City of Portland, dated January 3, 2006. This letter supersedes the letter from New England Realty Resources, LLC that was included with the initial application. The letter is a faxed copy, so a copy of the original will be forwarded upon receipt. We have included 10 copies of this submission.



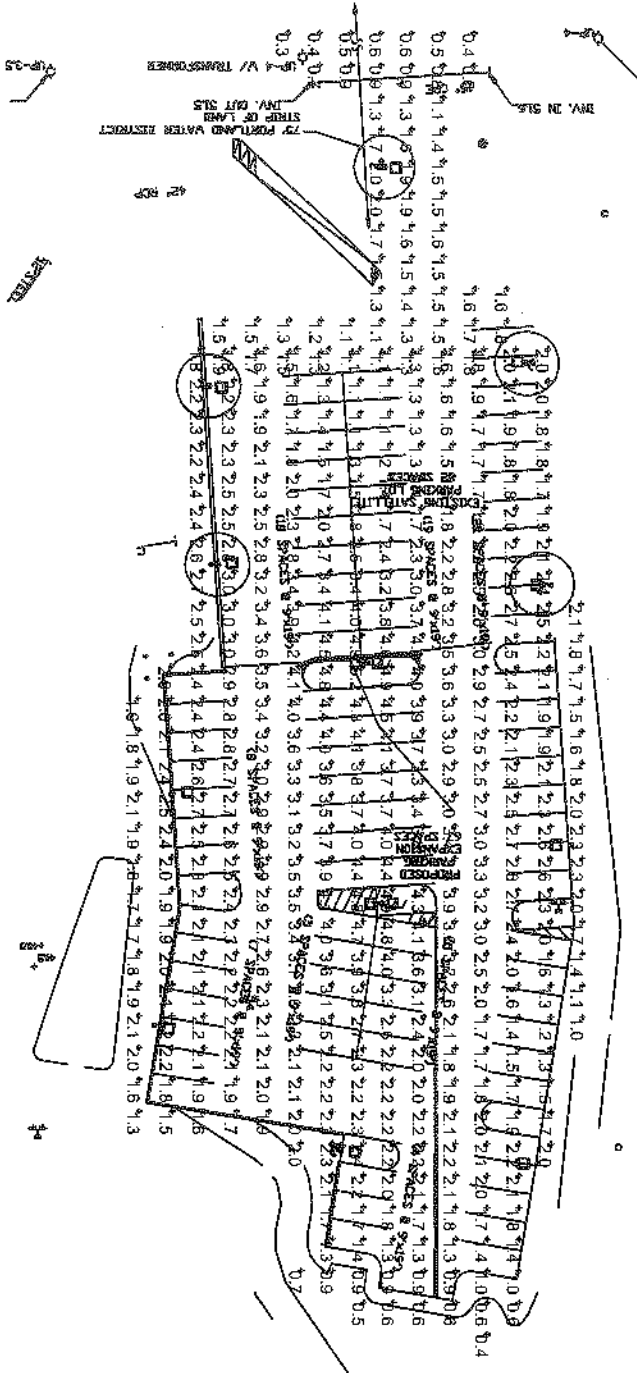


**STATISTICS**

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	2.4 fc	5.2 fc	0.4 fc	13.0:1	6.0:1
Calc Zone #3	+	1.3 fc	2.0 fc	0.3 fc	6.7:1	4.3:1
Calc Zone #3	+	1.7 fc	3.0 fc	0.3 fc	10.0:1	5.7:1

**LUMINAIRE SCHEDULE**

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
<input type="checkbox"/>	A	25	GSS-XX-150-HPS- XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE- ROUND DISTRIBUTION	150W HPS CL ED-17	GSS15HARS.J es	16000	0.86	150
<input type="checkbox"/>	B	2	GSS-XX-150-HPS- XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE- ROUND DISTRIBUTION	150W HPS CL ED-17	GSS15HARS.J es	16000	1.00	300



**WOODARD CURRAN**

Designer  
B.H. MILLIKEN

Date  
Oct 13 2005

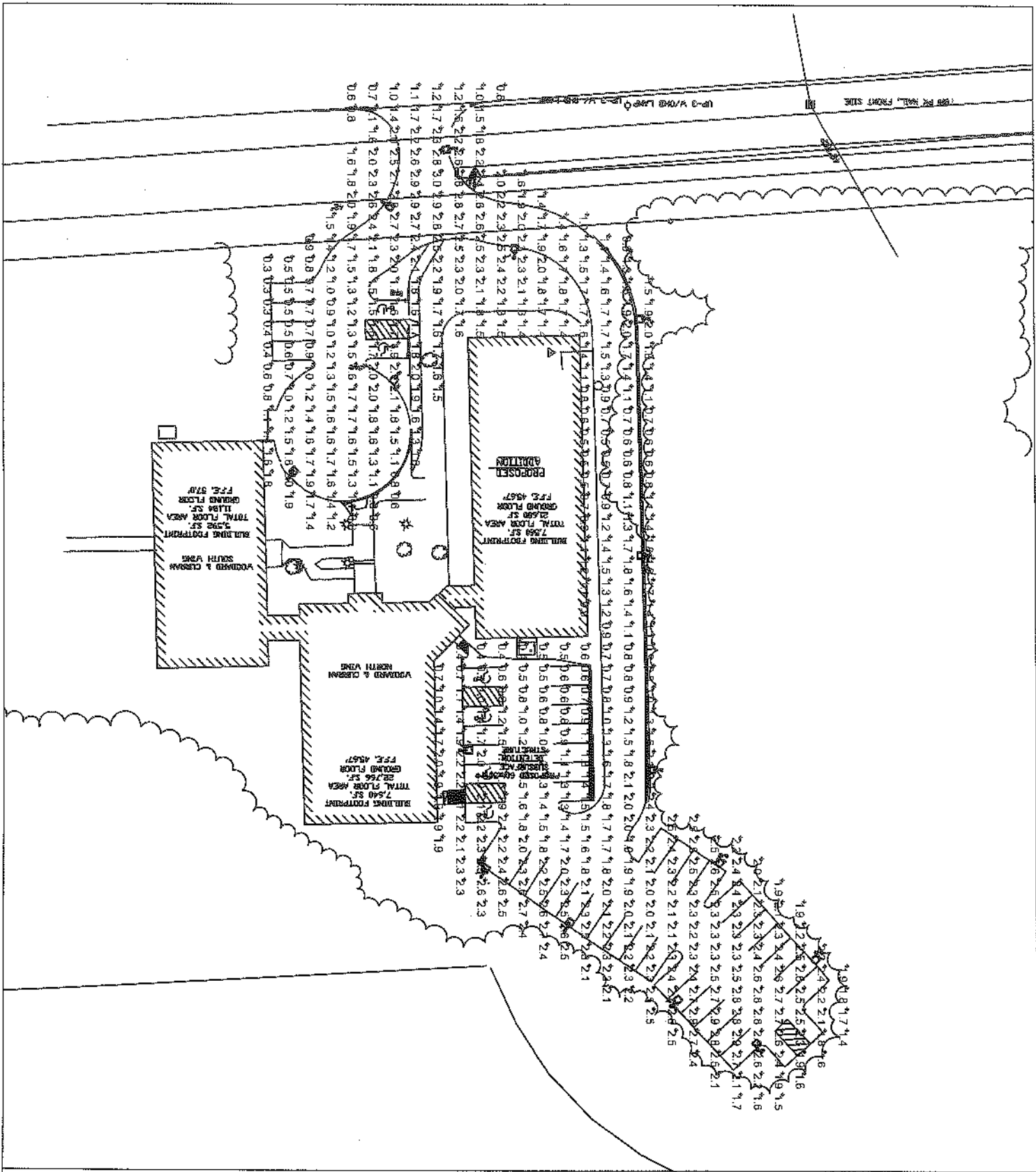
Scale  
AS SHOWN

Drawing No.  
1

Remote Site

Scale 1" = 60'





WOODARD CURRAN

Designer  
B.H. MILLIKEN

Date  
Oct 13 2005

Scale  
AS SHOWN

Drawing No.  
1



January 3, 2006

Sarah Hopkins  
Development Review Manager  
City of Portland  
389 Congress Street, 4<sup>th</sup> Floor  
Portland, Maine 04101

Dear Sarah:

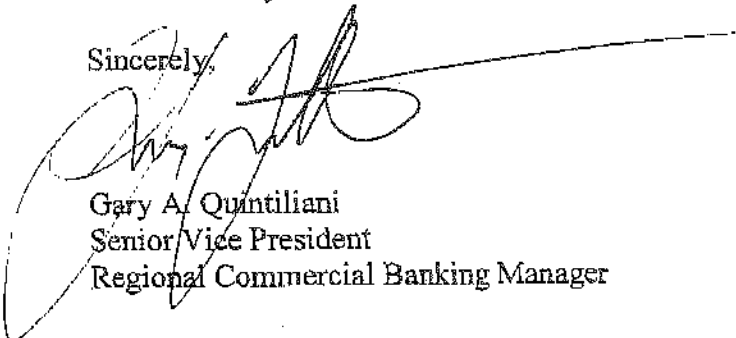
RE: Eric Cianchette

Please be advised that the Bank has a lending and depository relationship with Eric Cianchette and related entities. This relationship is held in high esteem within the Bank, with all accounts being handled in a professional and satisfactory manner.

Based on the financial information provided to the Bank and business dealings with Eric Cianchette, we find her management team to be experienced, professional and capable. As a result, we would consider any requests for development financing seriously, subject to the Bank's normal and customary due diligence and approval process.

If you have any additional questions please feel free to contact me directly at (207) 541-2701. Thank you.

Sincerely,



Gary A. Quintiliani  
Senior Vice President  
Regional Commercial Banking Manager

GAQ/dk

Cc: John Edwards, Senior Credit Delivery Officer  
Mark Butterfield, Vice President, Commercial Banking

Attachment II L.

**From:** "Thomas Errico" <terrico@wilbursmith.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 1/5/2006 2:23:18 PM  
**Subject:** Woodard and Curran Building Addition

Jean-

I have reviewed the most recent submission and have two specific comments.

1. The proposed internal connector road that will access the rear parking area will have a roadway width of 20 feet. This width does not meet City standards. I plan on meeting with other City staff to discuss this issue and will render an opinion in the future.
2. The applicant should document that the project expansion meets previous traffic permits issued either by MaineDOT or MaineDEP from a traffic generation perspective.

Please call me if you have any questions.

Best Regards,

Thomas A. Errico, P.E.  
Senior Transportation Engineer  
Wilbur Smith Associates  
59 Middle Street  
Portland, Maine 04101  
(207) 871-1785 Phone  
(207) 871-5825 Fax

Attachment III A

**From:** Gregory Cass  
**To:** Jean Fraser  
**Date:** 1/11/2006 4:43:39 PM  
**Subject:** Re: Woodard & Curran addition

The same comments apply  
I did review the new plan.

My thoughts on the road are I think we will need definitions for "road, driveway, and fire lane" then the proper standard applied. I would love to see 24'.

I knew there were terrain issues for the property and felt that the standard for a 20' fire lane was ok in this situation.

If You feel we should be more stringent with this egress please let me know. And I will change my comments.

Greg  
874-8405

Attachment III B  
(3 pages)

**From:** "Kenneth Volock" <kvolock@woodardcurran.com>  
**To:** <JF@portlandmaine.gov>, <EJL@portlandmaine.gov>  
**Date:** 1/18/2006 10:04:06 AM  
**Subject:** FW: W&C Office Building Addition

Didn't realize this was sent to Eric's old address.

-----Original Message-----

**From:** Norman Twaddel [mailto:ntwaddel@pwd.org]  
**Sent:** Monday, January 16, 2006 10:14 AM  
**To:** Kenneth Volock; EJL@ci.portland.me.us  
**Subject:** RE: W&C Office Building Addition

Ken, per our conversation Friday, our land policy requires an application form and fees be submitted to me to schedule an easement request to go to the Board. I have prepared an application form in the name of the City of Portland. In the application, the City may request that the fees be waived, but only the trustees have the authority to waive fees. Normally, fees are \$200 application fee and if approved a \$150 processing fee. Attached is the application form. Once we receive it back, I will get this item scheduled for the next available Trustees' agenda. Let me know if you need anything further.

-----Original Message-----

**From:** Kenneth Volock [mailto:kvolock@woodardcurran.com]  
**Sent:** Thursday, December 22, 2005 5:24 PM  
**To:** Norman Twaddel  
**Subject:** RE: W&C Office Building Addition

Norm,

Thanks for the response. I'll contact Dave when we are ready to dig test pits. I am going to first see if I can rework the grading to avoid any cut, but I'm not sure I can.

We will design our landscaping to be completely within our property.

On the easement, when I informed the Planning Department about the District's position on the sidewalk easement, they asked that I confirm with you that they only want a "public access" easement. This would mean that "the City does not want nor require ownership nor maintenance of it, but the public would have a legal right to walk on it." I don't know if this makes a difference to the District or not, but I want to make sure all bases have been covered.

Thanks.

-----Original Message-----

**From:** Norman Twaddel [mailto:ntwaddel@pwd.org]  
**Sent:** Thursday, December 22, 2005 3:10 PM  
**To:** Kenneth Volock  
**Cc:** David W. Coffin; Frank Meader

Subject: RE: W&C Office Building Addition

Ken, I have reviewed the plan with our engineering and operations people. We may have a concern with the proposed grade cut as we do not know the exact depth of the main. We would like to have you do a test pit on our main in the grassy area to verify how much cover we have before we approve any cutting of grade.

We would prefer not to have any plantings placed on our property.

We do not object to the existing sidewalk and any extension required provided it stay the same distance off our water main. However, we do not wish to grant a perpetual easement to the City for the sidewalk. If the City wishes to own and control the sidewalks, they should be relocated out into the 60 foot wide public way which we already donated land to the City for.

You can contact David Coffin at 774-5961 ext. 3041 to arrange someone from the District to be present for a test pit. Once the grade issue is agreed upon, I would be happy to provide an approval letter under the existing agreement. Let me know if you needed anything further.

**Portland Water District  
EASEMENT APPLICATION REQUEST**

---

---

NAME OF REQUESTOR: **City of Portland**

PWD PROPERTY ADDRESS: **Hutchins Drive - Portland - Southern Feeder Property**

DESCRIPTION OF PROPOSED USE: **Sidewalk - Public Access**

IS TRUSTEE APPROVAL REQUIRED? Yes   **X**   No           

**Fees:**

- ✓ If Trustee approval is required**, there will be a **\$200** initial application fee to cover expenses related to obtaining approval of the application request and a **\$150** fee to cover cost of document preparation, recording etc. payable at Deed execution.
- ✓ If Trustee approval is not required**, there will be a **\$200** (*\$50 application fee and \$150 to cover the cost of document preparation and recording*) fee to cover all expenses payable prior to the preparation of the Easement document.

**I hereby agree to pay all expenses incurred by the District in the processing of this request as described above.**

\_\_\_\_\_  
**Signature of Applicant**

\_\_\_\_\_  
**Date**

**Reviewed and approved by:**

Initials

Date

Director of Asset Management & Planning

\_\_\_\_\_

\_\_\_\_\_

Director of Operations

\_\_\_\_\_

\_\_\_\_\_

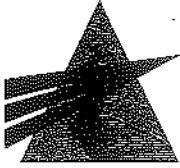
Right of Way Agent

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
**General Manager**

\_\_\_\_\_  
**Date**



**WOODARD & CURRAN**  
Engineering · Science · Operations

Attachment III C

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
Operational offices throughout the U.S

January 20, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows addresses issues that require resolution as we continue towards our Public Hearing, scheduled for February 7, 2006. These issues include those that were identified in the January 10, 2006 Planning Board Workshop Memorandum as "Next Steps" as well as comments and requests presented by members of the Board during the Workshop. No additional issues arose at the Neighborhood Meeting, held on January 17, 2006, at the offices of Woodard & Curran.

The following items were identified as "Next Steps" in the January 10, 2006 Planning Board Workshop Memorandum:

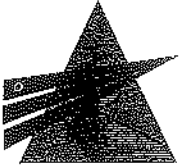
**1. Submission of an updated boundary survey**

During our phone conversation on January 18, 2006, you indicated that the Boundary Survey is acceptable. As a result, our understanding is that this issue is resolved.

**2. Submission of letters of service availability in respect of the revised building addition from appropriate utility agencies.**

Section 5 - Off-Site Facilities has been revised to reflect the revised building addition. As part of the revised section, updated requests for Ability to Serve letters were sent to the appropriate utilities. Responses confirming the ability to serve the proposed project were received from the Portland Water District in regard to water supply and wastewater treatment. A response has not yet been received from the City of Portland Department of Public Works regarding wastewater collection, but the response will be forwarded upon receipt. The revised Section 5 - Off-Site Facilities has been included with this submission.





Jean Fraser, City of Portland  
January 20, 2006  
Page 2

**3. Submission of documentation of wetland determinations from the MeDEP.**

A Permit by Rule Notification form has been submitted to MeDEP along with a Minor Amendment to the Site Location of Development Permit for Stroudwater Estates Phase II. This is discussed further in the revised Section 8 – State and Federal Permitting included with this submission.

**4. Submission of information regarding the existing private drainage easement across the site.**

The private drainage easements in Stroudwater Estates are maintained by the lot owners. As part of the proposed project, the easements for the site in question will be granted to the City of Portland. Language for the easements will be coordinated with City's Corporate Council.

**5. Resolution of the public easement to be executed in respect of the sidewalk along Hutchins Drive (with Portland Water District)**

An application for the public access easement was sent to Eric Labelle by the Portland Water District. Woodard & Curran will provide the application fee when the City submits the application. It is our understanding that the PWD may waive the easement fee and refund the application fee.

**6. Resolution of the concerns and possible need for a waiver for the 20 foot width of the access road alongside the proposed building addition**

We are still awaiting a decision for the City's traffic engineer on whether this waiver will be granted.

**7. Further discussion between the applicant and the DRC to ensure his concerns are met**

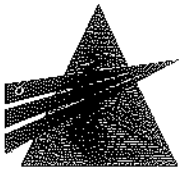
The Stormwater Management Plan was submitted to the DRC prior to this submission to ensure it would be acceptable. The DRC responded that the report looked acceptable, but that he would reserve final comment until the full package was submitted.

**8. Further discussion between the applicant and the City Arborist to secure approval to the Landscape Plan**

The Landscape Architect for the project, Pat Carroll of Carroll Associates, Inc., has discussed the project with the City Arborist. At this point we believe we have adequately addressed all comments. The design is depicted on Sheet L-1.0 Landscape Plan, which will be forwarded once the Landscape Architect has confirmed that he has successfully addressed all comments from the City Arborist.

**9. Applicant needs to hold a neighborhood meeting**

The neighborhood meeting was held at the offices of Woodard & Curran on January 17, 2006. The following items will be forwarded to the City in accordance with "A Guide to Holding Neighborhood Meetings" as provided by the Planning Department: a copy of the invitation that was sent to abutters; certified mail receipts; a list of meeting attendees; meeting minutes; and the meeting certification.



Jean Fraser, City of Portland  
January 20, 2006  
Page 3

In addition, the following items were raised by members of the Planning Board:

**A demonstration of the parking need in excess of the Ordinance**

The need for parking in excess of the Ordinance is discussed in the revised Section 5 – Off-Site Facilities, included with this submission.

**A building by building analysis of parking need and circulation**

An analysis of parking required for each building is present in the revised Section 5 – Off-Site Facilities, included with this submission.

**A demonstration of potential parking expansion to the south of the existing building, lessening the need for the additional parking to be located in close proximity to the wetland**

A discussion of alternative parking areas to the south of the existing building is present in the revised Section 5 – Off-Site Facilities, included with this submission.

**A discussion of the LEED process and how it relates to the site, particularly with respect to the proximity to the wetland**

The LEED process is a points-based system that deals with the project on the whole including the site as well as the building interior and construction. While every effort has been made to minimize wetland impact, the only LEED point associated with wetlands requires development to remain at least 100 feet from any water body, including wetlands. The existing building is already located within 100 feet of the wetland, thus this point is unattainable. As such, LEED points will need to be achieved in other areas.

**Curbing waiver acceptance from the Department of Public Works**

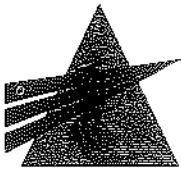
We are still awaiting word on the acceptance of this waiver from the Department of Public Works.

**Comment from the City's Traffic Engineer on the need for a Traffic Study**

Woodard & Curran has contracted with Gorrill-Palmer Consulting Engineers, to review traffic generation for the site and provided comment on its compliance with existing permits and studies. Comments from Gorrill-Palmer will be forwarded to the City for review, upon receipt.

**The need for a Legend/Key to be added to the plans**

Sheet G001 General Notes, Legend, Abbreviations and Sheet Index, which clarifies the symbols and line types used on the Drawings, has been added to the plan set in the revised Section 1, included with this submission.



Jean Fraser, City of Portland  
January 20, 2006  
Page 4

**An analysis of the wetland impact if the access road were widened to 24 feet to comply with the Ordinance**

Currently, the road edge is approximately 8 feet from the wetland. The retaining wall is one foot thick with a foundation that extends another 1.5 feet beyond. With the edge of excavation for the foundation at least another foot and probably more beyond the edge of the foundation, construction activities will likely extend to within only a foot or two from the wetland. Widening the access road to 24 feet will mean the entire retaining wall structure, including the footing, will move 4 feet closer to the wetland. As such, it is likely that if the access lane were widened to 24 feet, some construction activity would occur within the wetland itself.

**Submission of a copy of the NRPA Permit by Rule**

The NRPA Permit by Rule has been submitted as an attachment to the revised Section 8 – State and Federal Permitting, included with this submission.

Thank you for the assistance you have provided. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures:    Section 1 – Development Description with attachments, revised January 20, 2006  
                  Section 4 – Solid Waste with attachments, revised January 20, 2006  
                  Section 5 – Off-Site Facilities with attachments, revised January 20, 2006  
                  Section 6 – Stormwater Management with attachments, revised January 20, 2006  
                  Section 8 – State and Federal Permitting with attachments, revised January 20, 2006

## 1. DEVELOPMENT DESCRIPTION

The joint applicants are: CAD-CAM Associates, located at 41 Hutchins Drive, Portland, ME, 04102; and Peggy and Eric Cianchette, c/o ELC, Inc., 42 Market Street, Portland, Maine 04101.

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(1).

### 1.1 INTRODUCTION

CAD-CAM Associates has undertaken planning and preliminary design associated with an addition to its building at 41 Hutchins Drive in Portland, currently occupied by Woodard & Curran, Inc. The project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and associated utility improvements.

A purchase and sale agreement was entered into with Peggy and Eric Cianchette. Conditions of the agreement include the development of the proposed project by Peggy and Eric Cianchette and a lease of the property by Woodard & Curran. Documents confirming the agreement are attached with other title, right and interest documentation in Section 10 of this Application.

### 1.2 EXISTING CONDITIONS

The site consists of two parcels of land, lots #15 & #16 of the Stroudwater Estate Subdivision, owned by CAD-CAM Associates and located at 41 Hutchins Drive. These lots occupy a total area of approximately 6.65 acres.

The site is occupied by an office building with a footprint of 13,232 square feet (approximately 0.3 acres). The building was constructed in two parts. The first, a two-story structure identified on the site plans as the South Wing, was constructed in 1986. The second, a three-story structure identified on the site plans as the North Wing, was constructed in 1996 with a direct connection to the South Wing.

Woodard & Curran has 111 employees located in the building at 41 Hutchins Drive; the capacity of the building is approximately 118. To support that, a total of 76 parking spaces are located proximate to the building, inclusive of employees, handicap and visitor parking. The parking is broken out into 3 areas as follows: 44 spaces located to the north; 26 spaces to the south; and the main entrance leads to visitor parking (4 spaces) and handicapped accessible parking (2 spaces) to the west. Woodard & Curran also has a 32-space parking lot located on the northerly portion of the site linked to the building by an at-grade 365' paved sidewalk paralleling Hutchins Drive.

Woodard & Curran also has another 32 employees that currently occupy leased space on the adjacent lot (to the south) in the former Clark Associates building, also on Hutchins Drive. That leased space has its own parking associated with it.

In accordance with Section 14-525(b)(2),

*§14-525(b)(2)(a) Existing Soil Conditions:* A subsurface investigation, including borings, was performed in August of 1995 during design of the North Wing. The locations of the boring have been depicted on the Site Plans and the results of the borings have been attached to this section.

- C200 Proposed Site Plan
- C201 Proposed Utility Plan
- C300 Civil Details - 1
- C301 Civil Details - 2
- C302 Civil Details - 3
- C303 Civil Details - 4

## 1.5 ATTACHMENTS

Figure 1.1 USGS Topographic map

Figure 1.2 Aerial Photograph

Results of Soil Borings

Draft Geotechnical Report

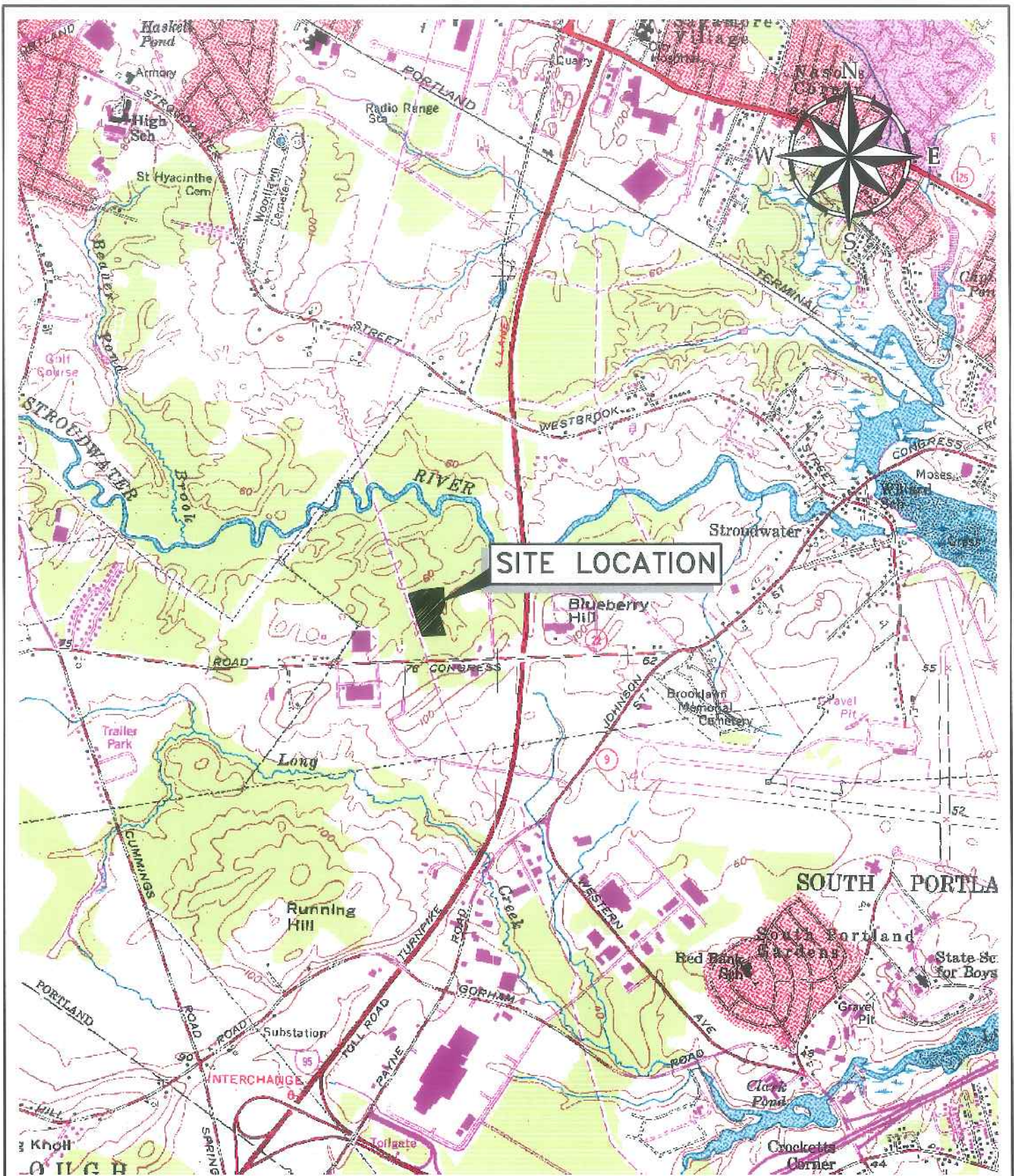
Photometric Plans, Sheet 1 of 2 and Sheet 2 of 2

Boundary Survey

Cover Sheet

- G001 General Notes, Legend, Abbreviations and Sheet Index
- C100 Existing Site Plan
- C200 Proposed Site Plan
- C201 Proposed Utility Plan
- C300 Civil Details - 1
- C301 Civil Details - 2
- C302 Civil Details - 3
- C303 Civil Details - 4
- A20.1 Building Elevations
- A20.2 Building Elevations






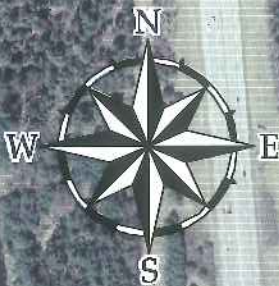
**SITE LOCATION**

NOTE:  
 TOPO QUADS OBTAINED FROM MAINE OFFICE  
 OF GEOGRAPHIC INFORMATION SYSTEMS.



 <b>WOODARD &amp; CURRAN</b> Engineering · Science · Operations PORTLAND, MAINE 800-426-4262	<b>USGS TOPOGRAPHIC MAP</b>		CAD-CAM ASSOCIATES PORTLAND, MAINE	JOB NO: 203834.03 DATE: SEPTEMBER 2005 SCALE: 1" = 2000'
	DESIGNED BY: JBC DRAWN BY: JBC	CHECKED BY: BSS 20383401-U001.1.dwg	<b>WOODARD &amp; CURRAN INC.</b> OFFICE EXPANSION 41 HUTCHINS DRIVE, PORTLAND, ME	





**SITE LOCATION**

**NOTE:**

AERIAL PHOTOS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.




**WOODARD & CURRAN**  
 Engineering • Science • Operations  
 PORTLAND, MAINE 800-426-4262

**AERIAL PHOTOGRAPH**

DESIGNED BY: JBC	CHECKED BY: BSS
DRAWN BY: JBC	20383401-U001.2.dwg

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.03  
 DATE: SEPTEMBER 2006  
 SCALE: 1" = 300'  
 Figure 1.2

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-1
DATE-TIME START:	FINISH:	SHEET 1 OF 1
ENGINEER: J.M. Moody	WEATHER: Rain, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:

DRILLING METHOD: 4 1/4 hollow stem augers	SAMPLING METHOD: 24 split spoon sampler
---	---

GROUNDWATER LEVEL	DATE-TIME					NOTES TO GWL:
	DAYS-HOURS					
	DEPTH					

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		
S-1	3	0-2	24		1		Brown, medium-stiff, silty clay. Trace fine sand.
	3				2		
	6				3		
					4		
S-2	4	5-7	24		5		Olive gray, medium stiff, silty clay.
	3				6		
	4				7		
					8		
					9		Rig got stuck prior to advancing the 5'-10' auger - relocate.
S-3		10-12	24		10		
					11		
					12		
					13		End of boring at 5'-7' spoon, 5' augers.




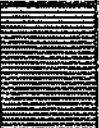


# Field Boring Log (soil)

# WOODARD & CURRAN INC. CONSULTING ENGINEERS

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-2
DATE-TIME START: 6/15/95 10:45	FINISH: 6/15/95 13:45	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: Rain, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:

DRILLING METHOD: 4 1/4 hollow stem augers	SAMPLING METHOD: 24 split spoon sampler
---	---

GROUNDWATER LEVEL	DATE-TIME							NOTES TO GWL:
	DAYS-HOURS							
	DEPTH							

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		Outside Kurt Marston's office 60 feet from building
S-1	12" Wt. of Hammer	0-2	24	11	0		Brown, medium-compact, silty, clay-dessicated, mottled.
	5				1		
	9				2		
					3		
					4		
S-2	3	5-7	24	20	5		Olive gray, medium stiff, silty clay - Entire sample came out of spoon as one piece
	5				6		
	8				7		
					8		
					9		
S-3	1	10-12	24	24	10		Olive gray, soft silty clay.
	2				11		
	3				12		
					13		
							Softer material below 13 feet.

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-2

SURFACE ELEVATION:

SHEET 2 of 3

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	NOTES:	
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:	
					13			
					14			
					15			
S-4	Wt. of Rods for 24"	15-17	24	24	16			Gray, very soft silty clay.
					17			
					18			
					19			
S-5	Wt. of Rods for 24"	20-22	24	24	20			Blue-gray, very soft silty clay.
					21			
					22			
					23			
					24			
S-6	Wt. of Rods for 24"	25-27	24	24	25			Blue-gray, very soft silty clay - moist.
					26			
					27			
					28			
					29			
S-7	Wt. of Rods for 18"	30-32	24	24	30			Blue-gray, very soft silty clay - moist.
					31			
					32			
					33			

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-2

SURFACE ELEVATION:

SHEET 3 of 3



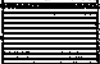


SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					33		
					34		
S-8	4 1	35-37	24	23	35		Gray, silty, fine to coarse sands.
	1 3				36		
					37		End of boring at 35 feet - Sample to 37 feet.
					38		
					39		
					40		
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-3
DATE-TIME START: 6/15/95 15:00	FINISH: 6/15/95	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: drizzle, cool	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob, Steve	DATUM:
DRILLING METHOD: 4" Drive and Wash	SAMPLING METHOD: 24 split spoon sampler 24" Shelby Tubes	

GROUNDWATER LEVEL	DATE-TIME						NOTES TO GWL:
	DAYS-HOURS						
	DEPTH						

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							FORESTED - Far corner of new building from present building. COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
S-1	1	0-2	24	10	0		Brown, medium-stiff silts and clays. Trace fine sands.
	4				1		
	4				2		
S-2	2	5-7	24	22	5		Olive-gray, medium-stiff to stiff silty clay. Trace reddish brown fine sands.
	4				6		
	6				7		
S-3	1	10-12	24	24	10		Olive gray, soft silty clay.
	2				11		
	1				12		
					12		Blue-gray, medium-stiff silty clay.
					13		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-3

SURFACE ELEVATION:

SHEET 2 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					13		
					14		
S-4		15-17	24	15	15		
					16		Drive a Shelby Tube (24") injected with water pressure.
					17		m/c = 47.0%, qp = 1.0 ksf, LV = 0.48 ksf
					18		
					19		
S-5	Wt. of Rods	20-22	24	24	20		Blue-gray, soft silty clays.
					21		
					22		
					23		
					24		
S-6		25-27	24	23	25		Shelby Tube - (B-3-5-6).
					26		m/c=40.8%, qp = 1.2 ksf, LV = 1.06 ksf
					27		
S-7	Wt. of Rods	27-29	24		27		Blue-gray soft silty clay -
					28		2 thin (< 1mm) sand lenses.
					29		
					30		
					31		
					32		
					33		Drillers notice change to coarser-grain material at 33" below ground surface.

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-3

SURFACE ELEVATION:

SHEET 3 of 3

SAMPLE NO.	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					33		
					34		
S-8	24 14	35-37	24		35		
	16 19				36		Light brown, compact, fine to coarse sands, some fine gravel and silt.
					37		
					38		
					39		
					40		End of boring at 35 feet - Sample to 37 feet.
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran	PROJECT NO.:	BORING NO.: B-4
DATE-TIME START: 6/16/95 13:00	FINISH: 6/16/95	SHEET 1 OF 3
ENGINEER: J.M. Moody	WEATHER: Sunny, 70°s	SURFACE ELEVATION:
CONTRACTOR: N.H. Boring	DRILLER: Bob	DATUM:

DRILLING METHOD:	SAMPLING METHOD: Shelby Tubes 24" split spoon
------------------	--

GROUNDWATER LEVEL	DATE-TIME							NOTES TO GWL:
	DAYS-HOURS							
	DEPTH							

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	SURFACE CONDITIONS OR OTHER NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					0		50 feet from building toward south end of parking lot.
					1		
					2		Gray-brown, mottled silty clay. Trace fine sand. No sample at 5 feet.
					3		
					4		
					5		
					6		
					7		
					8		
					9		
S-1	Wt. of Rods 3	10-12	24	24	10		Olive gray, soft to medium-stiff silty clay- moist.
	2				11		
	1				12		
					13		

# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran

PROJECT NO.:

BORING NO.: B-4

SURFACE ELEVATION:

SHEET 2 of 3

SAMPLE NO:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	INCHES RECOVERY	DEPTH (FT)	SOIL LEGEND	NOTES:
							COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:
					13		
					14		Clays turn from olive-gray to blue-gray.
S-2	Wt of Rods	16-18	24	24	15		
					16		Blue-gray, soft silty clay - moist.
					17		
					18		
					19		
S-3		20-22	24	23	20		Shelby Tube sample (B-4 - S-3)
					21		mc = 49%, qp = 1.0 ksf, LV = 0.41 ksf
					22		
					23		
S-4	Wt of Rods	24.5-26.5	24	24	24		Blue-gray, soft silty clay.
					25		
					26		
					27		
					28		
					29		
					30		Drill to 33 feet below ground surface.
					31		
					32		
					33		



# Field Boring Log (soil)

**WOODARD & CURRAN INC.**  
**CONSULTING ENGINEERS**

PROJECT: Woodard & Curran				PROJECT NO.:		BORING NO.: B-4	
SAMPLE NO.:	BLOWS PER 6"	SAMPLE RANGE (FT.)	INCHES SAMPLED	RECOVERY INCHES	SURFACE ELEVATION:		SHEET 3 of 3
					DEPTH (FT)	SOIL LEGEND	
NOTES:							
COLOR, DENSITY, SOIL ADMIXTURES, STRENGTH, ODOR, TYPE QUALIFICATIONS:							
					33		Sands and fine gravels, some silt - moist.
S-5	10 11	33-35	24	10	34		
	8 8				35		
					36		
					37		
					38		
					39		End of boring at 33 feet below ground surface.
					40		Last sample at 33 feet to 35 feet below ground surface.
					41		
					42		
					43		
					44		
					45		
					46		
					47		
					48		
					49		
					50		
					51		
					52		
					53		

# S.W. COLE

ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS

Six Liberty Drive, Bangor, ME 04401 TEL (207) 848-5714 FAX (207) 848-2403

Gray Plaza, P.O. Box 378, Gray, ME 04039 TEL (207) 657-2866 FAX (207) 657-2840  
161 Water St., P.O. Box 220, Caribou, ME 04736 TEL (207) 496-1511 FAX (207) 496-1501

95-340 M

July 17, 1995

Woodard & Curran, Inc.  
Attn: Mr. Eric Carlson  
41 Hutchins Drive  
Portland, ME 04102

Subject: Laboratory Testing  
Woodard & Curran, Inc. Addition

Dear Eric,

As requested, we have completed standard tube openings on boring samples B-4 and B-3. The results are reported below with the unconfined test results attached. Also please find attached consolidation void - ratio graph for B-4, sample 3.

	Boring/Sample #		
	B-3, S-4	B-3, S-6	S-4, S-3
Section	½-3"	½-3"	½-3"
M/C %	46.4	41.3	47.3
qp, TSF	0.5	0.5	0.5
Torvane, TSF	0.25	0.29	0.25
Section	3-9"	3-9"	3-9"
M/C %	44.9	37.2	45.8
qp, TSF	0.5	0.5	0.5
Torvane, TSF	0.22	0.30	0.17
Section	9-15"	9-15"	9-14"
M/C %	46.8	41.0	50.2
qp, TSF	0.5	0.75	0.50
Torvane, TSF	0.26	0.33	0.20
Section	15-15½"	15-21"	14-17"
M/C %	50	39.9	52.9
qp, TSF	N/A	1.0	N/A
Torvane, TSF	N/A	0.23	N/A
Section	---	21-21¼"	---
M/C %	---	44.7	---
qp, TSF	---	0.25	---
Torvane, TSF	---	1.5	---

S. W. COLE ENGINEERING, INC.  
GEOTECHNICAL CONSULTANTS  
95-340 M  
July 17, 1995

If you have any questions or if we may be of further assistance, please do not hesitate to call.

Very truly yours,

S.W. COLE ENGINEERING, INC.



Eric J. Gallant, Laboratory Manager

EJG:slh

## S.W. COLE ENGINEERING, INC.

## UNCONFINED COMPRESSION TEST

DATE 07-17-1995

JOB NAME	W&C ADDITION	# 17499 PROVING RING
JOB NUMBER	95-340M	U TUBE
SAMPLE NUMBER	4	0.0278 SQ FT INITIAL AREA
BORING NUMBER	3	0.0299 SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	9	2.8	101.3	0.7
2	14	4.4	156.9	1.1
3	23	7.2	256.7	1.8
4	34	10.7	377.9	2.6
5	52	16.3	575.5	4.0
6	74	33.4	1172.2	8.1
7	94	48.9	1709.6	11.9
8	114	64.7	2250.3	15.6
9	121	70.2	2431.6	16.9
10	123	71.8	2475.5	17.2
11	121	70.2	2410.6	16.7
12	121	70.2	2400.1	16.7
13	118	67.8	2309.1	16.0
14	115	65.5	2218.8	15.4
15	110	61.5	2076.0	14.4
16	108	59.9	2013.9	14.0
17	106	58.4	1952.2	13.6

S.W. COLE ENGINEERING, INC.  
UNCONFINED COMPRESSION TEST

DATE 07-17-1995

JOB NAME W&C ADDITION # 17499 PROVING RING  
JOB NUMBER 95-340M U TUBE  
SAMPLE NUMBER 6 0.0278 SQ FT INITIAL AREA  
BORING NUMBER 3 0.0291 SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	4	1.3	45.0	0.3
2	14	4.4	156.9	1.1
3	32	10.0	357.2	2.5
4	72	31.8	1127.3	7.8
5	102	55.2	1946.2	13.5
6	114	64.7	2269.7	15.8
7	113	63.9	2232.4	15.5
8	109	60.7	2113.2	14.7
9	91	46.6	1614.3	11.2
10	91	46.6	1607.3	11.2
11	86	42.7	1467.0	10.2

## S.W. COLE ENGINEERING, INC.

## UNCONFINED COMPRESSION TEST

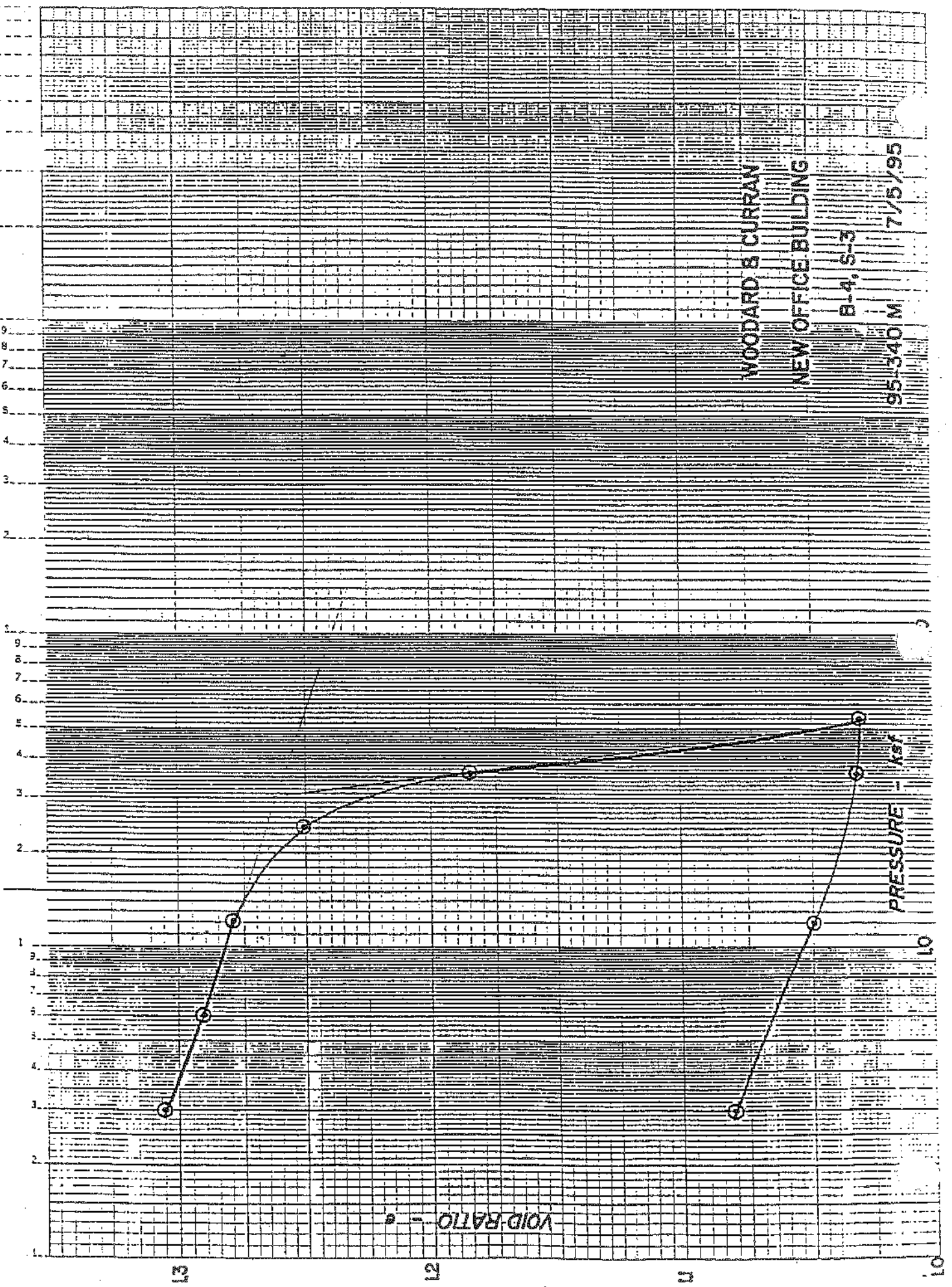
DATE 07-17-1995

JOB NAME W&C ADDITION # 17499 PROVING RING  
JOB NUMBER 95-340M U TUBE  
SAMPLE NUMBER 3 0.0278 SQ FT INITIAL AREA  
BORING NUMBER 4 0.0307 SQ FT FINAL AREA

	LOAD DIAL	LOAD (lbs)	STRESS (psf)	STRESS (psi)
1	4	1.3	45.0	0.3
2	12	3.8	134.5	0.9
3	18	5.7	200.9	1.4
4	24	7.5	266.8	1.9
5	32	10.0	354.2	2.5
6	42	13.2	462.9	3.2
7	54	17.9	624.9	4.3
8	74	33.4	1162.2	8.1
9	83	40.4	1399.2	9.7
10	94	48.9	1687.6	11.7
11	96	50.5	1734.1	12.0
12	103	56.0	1915.1	13.3
13	104	56.8	1933.6	13.4
14	104	56.8	1925.0	13.4
15	106	58.4	1969.7	13.7
16	105	57.6	1934.5	13.4
17	104	56.8	1899.5	13.2
18	103	56.0	1864.7	12.9
19	102	55.2	1830.2	12.7
20	102	55.2	1821.9	12.7
21	102	55.2	1813.7	12.6
22	101	54.4	1779.6	12.4
23	99	52.9	1720.2	11.9

46 6012

VEE GEOPHYSICAL & ENGINEERING  
EQUIPMENT ASSOCIATES, INC.



WOODARD & CURRAN  
NEW OFFICE BUILDING

B-4, S-3

95-340 M

7/5/95

PRESSURE - ksf

VOID RATIO - e

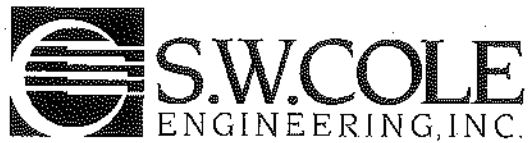
**DRAFT  
GEOTECHNICAL ENGINEERING SERVICES  
PROPOSED BUILDING ADDITION AND PARKING LOT EXPANSION  
WOODARD & CURRAN OFFICES  
41 HUTCHINS DRIVE  
PORTLAND, MAINE**

**05-1126**

**January 5, 2006**

**PREPARED FOR:  
Woodard & Curran, Inc.  
Attention: Kenneth Volock  
41 Hutchins Drive  
Portland, Maine 04102**

**PREPARED BY:**



**286 Portland Road  
Gray, Maine 04039**



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### Attachment A

Sheet 1	Exploration Location Plan
Sheets 2 to 7	Test Boring Logs
Sheet 8	Key to the Notes and Symbols
Sheets 9 to 11	Laboratory Test Results
Sheet 12	Foundation Details

05-1126

January 5, 2006

Woodard & Curran  
Attention: Kenneth Volock  
41 Hutchins Drive  
Portland, Maine 04102

Subject: Geotechnical Engineering Services  
Proposed Building Addition and Parking Lot Expansion  
Woodard & Curran Offices  
41 Hutchins Drive  
Portland, Maine

Dear Kenny:

In accordance with our Agreement dated October 17, 2005, we have made a subsurface investigation for the proposed building addition and parking lot expansion at the Woodard & Curran Offices at 41 Hutchins Drive in Portland, Maine. The purpose of our work was to obtain subsurface information in order to provide geotechnical recommendations for foundations and earthwork associated with the proposed construction. This report presents our findings and recommendations and its contents are subject to the limitations set forth in Attachment A.

## **1.0 INTRODUCTION**

### **1.1 Scope of Work**

Our scope of work included a review of previous explorations coordinated by Woodard & Curran in 1995 for a previous building addition, six test boring explorations, geotechnical laboratory testing, a geotechnical evaluation of the subsurface findings relative to the proposed construction and preparation of this report. It should be noted that our scope of work was modified and expanded as requested by Woodard & Curran to accommodate a change in the site plan which included a new location for the building addition that was made after our planned explorations and laboratory testing had been completed.

## 1.2 Proposed Construction

At the time of our agreement and during our first phase of drilling in October, 2005, we understand development plans called for construction a 7,500 SF, three-story office wing on the northeast side of the existing Woodard & Curran Office building and expansion of the northern satellite parking lot at the facility. The ground floor of the building addition was to be an unheated car parking level at a finished floor elevation of 45.67 feet (project datum) and the upper two floors of the building addition were to be heated office space.

Based on the revised site plans provided, we understand the proposed building addition will be a 7,560 SF, three-story structure situated on the northwest side of the existing building. We anticipate the proposed building will be steel-framed with a brick veneer. All three stories will be enclosed office space and the ground floor has a proposed slab-on-grade at an elevation of about 45.7 feet. Based on the site plans, we understand existing grades within the proposed building addition range from about elevation 45 to 51 feet, requiring a tapered cut approaching 6 feet to establish finished slab grade.

A paved access drive will be constructed along the northerly edge of the proposed building to access an expanded parking area on the northeast side of the existing structures. The new access drive will be situated over an existing slope requiring tapered fills approaching 9 feet in height. We understand that a retaining wall approaching 9 feet in height and approximately 360 feet in total length will be placed along the northerly edge of the new access drive. Based on the topographic information provided, we anticipate that this retaining wall will have negative foreslopes approaching 6 feet in height at an inclination as steep as 1H:1V.

The proposed northern parking lot expansion was not modified from the original proposed site layout and includes construction of 67 new parking spaces, two stormwater filter basins, cuts approaching 9 feet and fills approaching 11 feet. A new site retaining wall approaching 8 feet in height will retain the fill soils on the southerly edge of the proposed parking area expansion. According to the site plans, the new retaining wall will have a negative foreslope approaching 6 feet in height at inclinations as steep as 2H:1V. The northerly side of the proposed parking expansion will have a cut slope approaching 8 feet in height with a slope of 2H:1V.

## **2.0 EXPLORATION AND TESTING**

### **2.1 Exploration**

On October 24, 2005 four test borings (B-101 through B-103 and B-106) were conducted by Great Works Test Borings, Inc. of Rollinsford New Hampshire working under subcontract to S. W. COLE ENGINEERING, INC. These test borings were made for the original proposed building layout. After the site layout was changed, test borings B-104 and B-105 were added to obtain subsurface information beneath the new building location and added access road. Test borings B-104 and B-105 were made on December 5 and 6, 2005 by Great Works Test Boring working under subcontract to S. W. COLE ENGINEERING, INC. The approximate locations of B-101 through B-106 are shown on the "Exploration Location Plan," attached as Sheet 1. Logs these test borings are attached as Sheets 2 through 7. A key to the notes and symbols used on the logs is attached as Sheet 8. The elevation shown on the logs was estimated based on topographic information shown on Sheet 1.

In 1995, Woodard & Curran coordinated four test borings (B-1 through B-4) for the existing "North Wing" of the office building. The approximate location of these test borings are shown on Sheet 1. Logs of these test borings are attached in Appendix A.

### **2.2 Laboratory Testing**

The test borings were made using cased wash boring drilling and rod probing techniques. Soil samples were obtained within the test borings at intervals of 2 and 5 feet using spilt spoon and Standard Penetration Test (SPT) methods. Field Vane Shear Tests were made in the test borings where softer cohesive soil deposits were encountered in order to assess in-situ soil strength properties. The results of Standard Penetration Tests and Field Vane Shear Tests are noted on the logs. Thin-wall Shelby Tube soil samples were obtained within softer cohesive soil deposits within certain test borings.

Laboratory testing was performed on selected samples recovered from the test borings. The results of Moisture Content (ASTM D-2216), Atterberg Limits (ASTM D-4318), and Unconfined Compressive Strength testing are also noted on the logs. The results of one Gradation Test (ASTM C117) are shown on Sheet 9. The results of two One-Dimensional Consolidation Tests (ASTM D-2435) performed on samples of compressible gray silty clay obtained from test borings B-102 and B-105 are shown on Sheets 10 and 11. A third Consolidation Test was unsuccessful due to sample

disturbance, therefore the results of this test are not included in this report. Based upon our laboratory testing, the glaciomarine clays are overconsolidated lean clays.

### 3.0 SUBSURFACE CONDITIONS

#### 3.1 Site Conditions

The site of the proposed structure is on the northwesterly side of the existing north wing in an existing paved parking area. The proposed parking expansion to the east of the proposed building overlies a portion of the existing parking area and also extends to the northeast onto a gently sloping, tree-covered peninsula of land that is surrounded on three sides by a drainage feature. The proposed northerly parking expansion and stormwater filter basins overlie a moderately-steep, wooded slope with grades varying from about 64 feet to 38 feet sloping downward from north to south. A stream separates the northerly parking area from the proposed building area. The stream flows from east to west and exists at about elevation 30 feet.

It should be noted an existing sanitary sewer currently traverses beneath the northerly edge of the proposed building addition footprint and will be relocated. A sanitary sewer lateral from the "South Wing" of the existing office building traverses the west portion of the proposed building.

#### 3.2 Subsurface Conditions

In general, test borings B-101 through B-106 encountered a thin surficial layer of silty topsoil overlying stiff to hard brown silty clay which gradually becomes medium stiff with depth. The brown silty clay overlies soft to medium gray silty clay at depths of 9 to 14 feet from the ground surface overlying gray glacial till at depths of about 25 to 32 feet from the ground surface. The clay strata varied in thickness from about 11 to 20 feet, being thickest under the easterly portion of the proposed addition. Refusal surfaces (probable boulders in till) were encountered at borings B-102 and B-104 at depths of 40 and 44 feet, respectively. Borings B-101, and B-105 were extended to depths of about 55 and 40 feet, respectively, without encountering refusal surfaces. Borings B-103 and B-106 were terminated at depths of 12 feet in gray silty clay.

Not all the strata were encountered within each exploration. For more detail of the subsurface findings at the explorations, refer to the attached exploration logs.

S. W. COLE ENGINEERING, INC. also reviewed previous boring logs (B-1 through B-4) conducted by Woodard & Currari, Inc. It appears that the results of the current explorations (B-101 through B-106) are generally consistent with the results of the previous explorations (B-1 through B-4).

### **3.3 Groundwater Conditions**

In general, the native underlying brown silty clay soils appeared to be wet below about elevation 35 feet (5 to 15 feet below the existing ground surface) at the time of drilling. The existing silty clay soils are poor draining and it should be anticipated that they become wet to saturated seasonally. It should be anticipated that groundwater will fluctuate seasonally and in response to precipitation and snow melt.

### **3.4 Seismic and Frost Conditions**

According to the 2003 International Building Code, utilizing the results of field and laboratory testing, we interpret the subsurface conditions to correspond to a seismic soil Site Class E. The design-freezing index for the Portland area is about 1,250-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet.

## **4.0 EVALUATION AND RECOMMENDATIONS**

### **4.1 General Findings**

Based on the subsurface findings and our understanding of the proposed construction, it appears that the proposed addition can be supported on spread footing foundations. The main geotechnical concerns for the proposed construction are long term settlement due to the underlying compressible clay soils, and sensitive subgrade soils. In general, oversized footings will be needed to help reduce the effective stress increase in the underlying soils and subgrade soils must be overexcavated by about 12 inches and replaced with geotextile fabric wrapped mats of crushed stone (fabric wrapped stone mats) in order to protect the subgrades from disturbance during construction.

### **4.2 Excavation Work**

An erosion control system should be in place prior to construction activity at the site to help protect adjacent drainage ways and properties. Topsoil, organics, stumps and roots must be stripped and grubbed from areas of proposed construction prior to placing fills and foundations. Additionally, existing pavements should be removed prior to fill

placement. Vegetation and existing pavement should remain in areas of inactive construction as long as practical to help reduce surface erosion.

Below the topsoil and organics, excavation will encounter moist to wet silty clay. The silty clay is very sensitive to strength loss when disturbed. All excavations should be made with a smooth edged bucket. Heavy equipment should not operate on exposed subgrades. We recommend that excavation equipment operate on existing soils at an elevation above subgrade elevation such that the subgrade soils are not disturbed by the equipment. If subgrade soils become soft or disturbed during construction, the disturbed soil should be removed and replaced with compacted Structural Fill (below slab areas) or compacted crushed stone overlying geotextile fabric (below foundation areas). Excavations must be properly shored and/or sloped consistent with the OSHA trenching regulations to prevent sloughing and caving of the sidewalls during construction.

The silty clays are poor draining and will pond water if left exposed to precipitation. Based on the limited groundwater information available, it appears sumping and pumping dewatering techniques should be adequate to control water within foundation excavations during construction. Controlling the water levels to at least one foot below soil subgrade elevations will help stabilize the subgrade and provide a more suitable working surface during construction.

#### **4.3 Site and Subgrade Preparation**

As discussed, we recommend excavation and removal of the existing sanitary sewer and lateral from beneath the proposed building. The existing trench backfill soils should be completely removed and backfilled with compacted Structural Fill or Granular Borrow.

Foundations should be placed on 12-inch thick fabric wrapped crushed stone mats overlying stiff, undisturbed, native brown clay. The woven geotextile fabric, such as Mirafi 500X, should wrap around and over the top of the crushed stone such that the fabric extends beneath the footing edges. Slab-on-grade floors should be placed on at least 12 inches of compacted Structural fill overlying a woven geotextile fabric, such as Mirafi 500X, overlying stiff, undisturbed, native brown clay.

Considering the subsurface findings and our understanding of the proposed construction, we anticipate pavement subgrades will likely consist of principally stiff brown clay, compacted granular borrow or common borrow (re-used native brown clay). As such, we recommend pavement subbase gravels be underlain with woven geotextile fabric, such as Mirafi 500X.

We recommend utilities with soft gray clay subgrades be underlain with at least 12 inches of crushed stone over a non-woven filter fabric, such as Mirafi 160N, placed over the undisturbed gray clay trench bottom. The depth of crushed stone should be increased to 2 feet below structures, such as manholes and vaults.

#### 4.4 Foundation Design

##### 4.4.1 Spread Footings and Basement Walls

To protect spread footings and foundation underdrains from freezing temperatures, perimeter footings should be cast at least 4.5 feet below exterior finish grades. Since finish grades will be as high as 4.5 feet above finish floor elevations on the westerly side of the building, we recommend placing these foundations as high in elevation as possible to help improve both the bearing capacity and settlement characteristics of the foundation system. All footings should be underlain with a minimum of 12 inches of compacted crushed stone wrapped in woven geotextile fabric. For spread footings bearing on properly prepared subgrades we recommend the following geotechnical parameters for design consideration:

Recommended Geotechnical Parameters For Spread Footings	
Net Allowable Bearing Pressure	1.5 ksf or less
Base Friction Factor ( $\tan \delta$ )	0.45 (mass concrete to crushed stone)
Passive Lateral Earth Pressure Coeff. ( $K_p$ )	3.0 (compacted structural fill)
At-Rest Lateral Earth Pressure Coeff. ( $K_o$ )	0.5 (compacted structural fill)
Total Unit Weight of Backfill ( $\gamma_c$ )	130 pcf (compacted structural fill)
Internal Friction Angle ( $\phi$ )	30 degrees (compacted structural fill)

These design parameters assume that a clean, compacted, non-frost susceptible, free-draining sand and gravel (Structural Fill) with an internal friction angle of at least 30° is utilized as backfill. These design values do not account for lateral surcharge loads from construction related activities such as compaction equipment or lateral loads due to



wedging of backfill soils. The structural engineer should assess lateral loading both during construction and long term.

Further, we recommend that all perimeter frost walls be damp-proofed and insulated using a 2-inch thickness of rigid insulation to help reduce heat loss through the concrete. On the west, south and north wall lines, where finish floor elevations are planned below proposed exterior grades, the insulation should be placed on the exterior side of the walls. On the east and north wall lines, where the frost wall are planned below the finish floor and exterior grade, the insulation should be placed on the interior side of the frost wall.

#### **4.4.2 Settlement and Seismic Considerations**

In general, less settlement is anticipated in the western and southern portions of the addition because this portion of the building will have a finish floor elevation approaching 4.5 feet below existing grades and the compressible soils in this area were not as thick. The eastern portion of the building will have a finish floor elevation approaching 1-foot above existing grades and the compressible soils are thicker in this area; however, it appears that the soils were cut to achieve proposed grades during construction of the north wing. The northern portion of the building is an area that the finish floor elevation will be close to existing grade and a tapered embankment fill approaching 9 feet thick will be placed adjacent to the northerly wall line to construct the access road. We anticipate settlement to be the greatest magnitude in the north portion of the building.

Based on the loading information you provided for the north wing addition, we have estimated the potential loads for the proposed new addition. Based on the anticipated loading, the proposed and existing grades and the results of our laboratory consolidation testing, we have estimated post-construction settlement may approach 1-inch total and  $\frac{3}{4}$ -inch differential.

According to the 2003 International Building Code, utilizing the results of field and laboratory testing, we interpret the subsurface conditions to correspond to a seismic soil Site Class E.

#### **4.5 Foundation Drainage**

We recommend that a perimeter underdrain be provided within the fabric wrapped crushed stone mats and outside the 1H:1V bearing splay of the perimeter footings.

Rigid, 4-inch diameter, perforated foundation drain pipes with perforations of  $\frac{1}{4}$  to  $\frac{1}{2}$  inch should be utilized. The foundation drains must have positive gravity outlets. Exterior foundation backfill should be sealed with a surficial layer of clayey or loamy soil in areas that are not to be paved or occupied by entrance slabs. This is to reduce direct surface water infiltration into the backfill. Ideally, surface grades should be sloped away from the building to shed surface water. Roof drains must be routed in separate non-perforated drain lines such that roof drainage is not introduced into the foundation drainage system. General underdrain details are shown on Sheet 12.

#### **4.6 Slab-on-Grade Floors**

Slab-on-grade floors in heated spaces may be designed using a subgrade reaction modulus of 150 pci provided the concrete slab is underlain by at least 12 inches of compacted Structural Fill overlying a woven geotextile fabric, such as Mirafi 500X, overlying properly prepared subgrades.

For slab-on-grade floors, we recommend that a 15-mil vapor barrier be placed directly below the floor slab concrete. The vapor barrier should have a permeance that is less than the floor covering being applied on the slab and should be installed according to the manufacturer's recommended methods including taping all joints and wall connections. Flooring suppliers should be consulted relative to acceptable vapor barrier systems for use with their products. The vapor barrier must have sufficient durability to withstand direct contact with the sub-slab fill and construction activity.

We recommend that control joints be installed within floor slabs to accommodate shrinkage in the concrete as it cures. In general, control joints are usually installed at 10 to 15 foot spacing; however, the actual spacing of control joints should be determined by the structural engineer. We recommend that slabs be wet-cured for a period of at least 7 days after casting as a measure to reduce the potential for curling of the concrete and excessive drying/shrinkage. We further recommend that consideration be given to using a curing paper or curing compound after the wet-cure period to improve the quality of the completed floor.

#### **4.7 Entrance Slabs and Sidewalks**

Entrance slabs and sidewalks adjacent to the building should be designed to reduce the adverse effects of frost action between adjacent pavement, doorways, and entrances. We recommend that a frost control zone of structural fill be provided to a depth of at

least 4.5 feet below the top of entrance slabs and sidewalks. The Structural Fill should extend horizontally outward from the building the full width and length of entrance slabs and then transition up to bottom of adjacent pavement or sidewalk sub-base at a 3H:1V or flatter slope. This is to help reduce differential movement due to frost. General details of this frost transition zone are shown on Sheet 12.

#### 4.8 MSE Walls

Based upon the subsurface findings and our understanding of the proposed construction, we anticipate that MSE walls will be considered for construction adjacent to the access road and adjacent to the expanded northerly parking area. MSE walls can tolerate some settlement and generally perform better than rigid concrete walls when settlement is anticipated. MSE Walls should be founded on stable deposits of relatively stiff, undisturbed, native brown silty clay. For MSE Walls constructed on properly prepared subgrades, we recommend the following geotechnical parameters for design:

- Design Frost Depth = 4.5 feet
- Net Allowable Bearing Pressure = 1.5 ksf
- Foundation Base Friction Factor = 0.4 (Crushed Stone)
- Reinforced Zone Backfill Unit Weight = 125 pcf (Structural Fill)
- Reinforced Zone Internal Friction Angle = 32 degrees (Structural Fill)
- Retained Soil Unit Weight = 125 pcf (Granular or Common Borrow)
- Retained Soil Internal Friction Angle = 26 degrees (Granular or Common Borrow)

Design of the MSE Walls must consider increased embedment depth to account for the negative foreslope in front of the walls as well as surcharge loads from traffic loading. We recommend the MSE Wall be designed considering a minimum geogrid length of at least 70 percent of the overall wall height. Ideally, at least 4.5 feet (horizontal measure) of Structural Fill should be used as backfill behind the wall to control potentially adverse frost thrust on the wall. A perforated 4-inch diameter underdrain pipe enveloped in crushed stone and wrapped in geotextile filter fabric should be installed at the back of the reinforced zone. The underdrain must be provided with a positive gravity outlet.

We understand that retaining wall design will be completed by others and that S. W. COLE ENGINEERING, INC. will be engaged to perform a global stability analysis and internal stability checks of the walls during design and prior to construction.

#### 4.9 Backfill and Compaction

The native soils are frost susceptible silty clay and are not suitable for reuse as backfill adjacent to foundations and retaining walls. We recommend foundation and wall backfill materials consist of clean sand and gravel meeting the gradation requirements for Structural Fill, as given below. Structural Fill should also be used as backfill for MSE Walls within the reinforced soil zone.

Structural Fill	
Sieve Size	Percent Finer by Weight
4 inch	100
3 inch	90 to 100
¾ inch	25 to 90
No. 40	0 to 30
No. 200	0 to 5

Crushed Stone used under footings should meet the gradation given below. A nominal size ¾-inch crushed stone usually meets these gradation requirements.

Crushed Stone	
Sieve Size	Percent Finer by Weight
1 inch	100
¾ inch	90 to 100
3/8 inch	0 to 75
#4	0 to 25
#10	0 to 5

We understand that grades under the proposed access road and grades in the proposed northerly parking lot expansion area will require as much as 10 feet of compacted fill. Grades in paved areas can be raised using compacted Common Borrow or Granular Borrow. Common Borrow is generally a mixture of sand, silt and clay at a compactable moisture content that meets the requirements of MDOT Standard

Specification 703.18. Granular Borrow is generally a mixture of sand, silt and gravel at a compactable moisture content meeting the gradation requirements of MDOT Standard Specification 703.19, as given below.

Granular Borrow	
Sieve Size	Percent Finer by Weight
6 inch	100
#40	0 to 70
#200	0 to 20

Based on the observations made at the explorations, it appears that the existing native brown clays that are to be excavated are at moisture contents that are too wet for reuse as Common Borrow without drying. The existing base and subbase fills in paved areas can likely be reused as compacted Granular Borrow.

Fill and backfill beneath building and paved areas should be compacted to 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed stone below footings should be compacted to 100 percent of its dry rodded unit weight as determined by ASTM C-29. Retaining wall and MSE Wall backfill should be compacted to between 92 to 95 percent of its maximum dry density as determined by ASTM D-1557. Lift thickness should be 6 to 12 inches such that desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment.

#### **4.10 Pavements**

Based on our understanding of the proposed construction, we anticipate pavements will be used for parking and access drives for passenger cars. Pavement subgrades should be sloped and subbase gravel daylighted to provide underdrain relief of the pavement gravels. Where daylighting of subbase gravel is not possible, we recommend MDOT Type B Underdrains be installed to provide underdrain relief for pavement gravels. It must be understood that without replacement of the native soil below pavements with non-frost susceptible soil for the full depth of frost penetration, some frost related movement of the pavements will occur.

Based on our experience with projects of similar size and scope, and considering the subsurface conditions encountered, we offer the following standard duty pavement structure for car parking and access drive areas:

<b>Recommended Standard Duty Pavement (Car Parking)</b>	
Pavement Layer	Thickness
MDOT 9.5 mm Superpave or Grade C Hot Mix Asphalt	1.25 inches
MDOT 12.5 mm Superpave or Grade B Hot Mix Asphalt	1.75 inches
MDOT Crushed Aggregate Base 703.06 Type A	3 inches
Maine DOT Aggregate Subbase 703.06 Type D	12 inches
Woven Subgrade Geotextile, Mirafi 500X	YES

The bituminous pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. Tack coat should be applied between successive lifts of asphalt, as necessary. The base and subbase materials should be compacted to at least 95 percent of their maximum dry densities as determined by ASTM D-1557. We recommend that all fill placed below the base and subbase materials to subgrade level be compacted to at least 95 percent of ASTM D-1557.

#### 4.11 Weather Considerations

If foundation construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and pavement must not be placed on frozen soil and once placed, the soil beneath structures must be protected from freezing.

#### 4.12 Design Review and Construction Testing

S. W. COLE ENGINEERING, INC. should be retained to review the final design and specifications to determine that our earthwork recommendations have been properly interpreted and implemented.

A soils, asphalt, and concrete testing program should also be implemented during construction to observe compliance with the design concepts, plans and specifications. S. W. COLE ENGINEERING, INC. is available to provide field and laboratory testing services for soil, concrete, masonry, steel, fireproofing and asphalt construction materials.



05-1126  
January 5, 2006

#### 5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. If you have any questions, please do not hesitate to contact us.

Sincerely,

**S. W. COLE ENGINEERING, INC.**

Andrew R. Simmons, P.E.  
Geotechnical Engineer

Timothy J. Boyce, P.E.  
Senior Geotechnical Engineer

ARS-TJB:pfh

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DRAFT

## ATTACHMENT A - LIMITATIONS

This report has been prepared for the exclusive use of Woodard & Curran Inc. for specific application to the proposed office addition on 41 Hutchins Drive in Portland, Maine. S. W. COLE ENGINEERING, INC. has endeavored to conduct the work in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

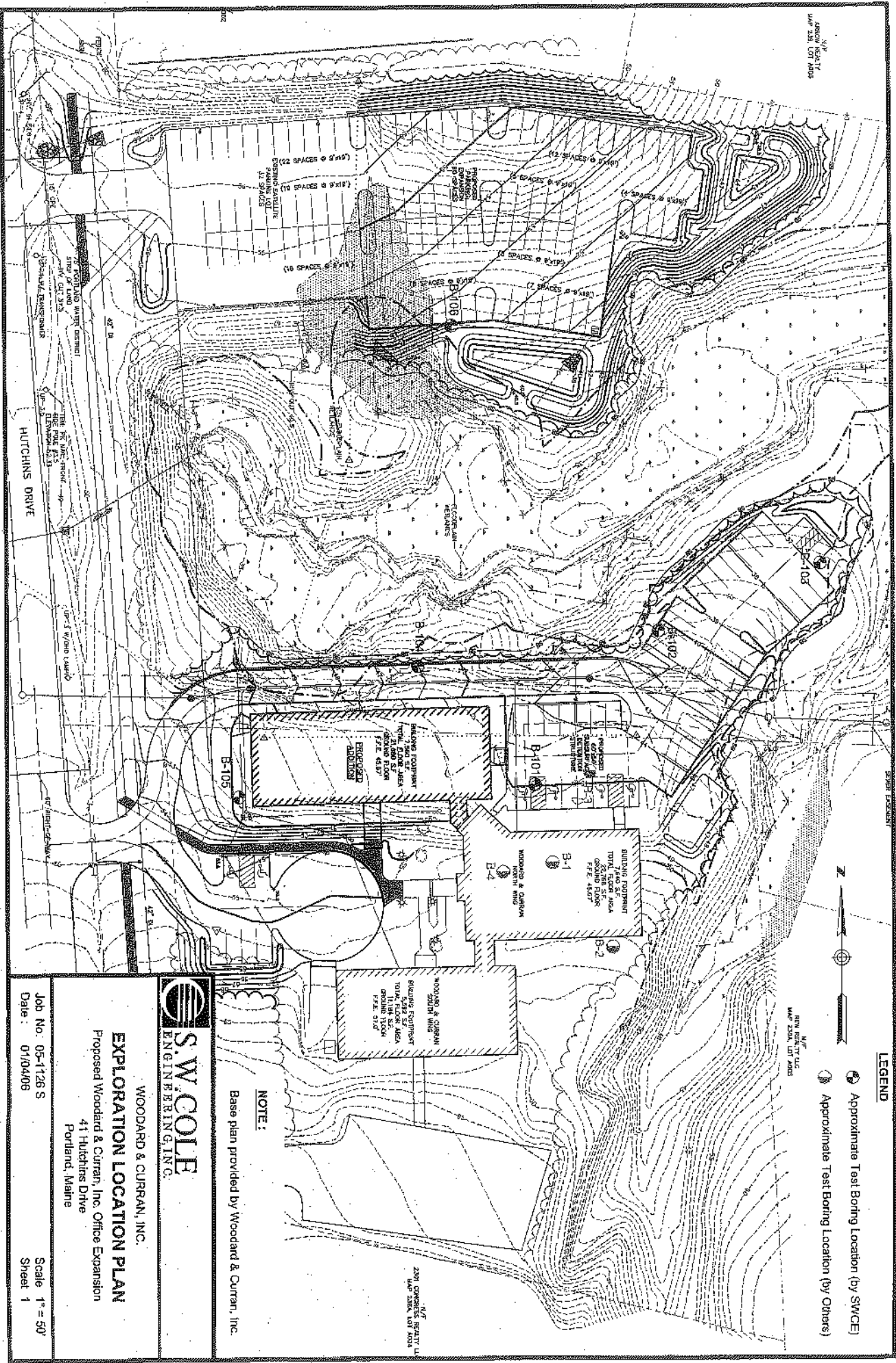
The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S. W. COLE ENGINEERING, INC.'s scope of work has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S. W. COLE ENGINEERING, INC. should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless S. W. COLE ENGINEERING, INC reviews the changes.





ASBORN ROAD LOT 11  
MAP 20A, LOT 10A

WOODWARD & CURRAN  
MAP 20A, LOT 10A

20A CONCRETE SLAB LOT 11  
MAP 20A, LOT 10A

**LEGEND**  
 ○ Approximate Test Boring Location (by SWCE)  
 ● Approximate Test Boring Location (by Others)

**NOTE:**  
 Base plan provided by Woodward & Curran, Inc.



**WOODWARD & CURRAN, INC.**  
**EXPLORATION LOCATION PLAN**  
 Proposed Woodward & Curran, Inc. Office Expansion  
 41 Hutchins Drive  
 Portland, Maine

Job No: 05-1726 S  
 Date: 01/04/06  
 Scale 1" = 50'  
 Sheet 1



# BORING LOG

BORING NO.: **B-101**  
 SHEET: **1 OF 1**  
 PROJECT NO.: **05-1126**  
 DATE START: **10/24/2005**  
 DATE FINISH: **10/24/2005**  
 ELEVATION: **45' +/-**  
 SWC REP.: **A. SIMMONS**

PROJECT / CLIENT: **PROPOSED WOODARD & CURRAN INC. OFFICE EXPANSION / WOODARD & CURRAN INC.**  
 LOCATION: **41 HUTCHINS DRIVE, PORTLAND, MAINE**  
 DRILLING CO.: **GREAT WORKS TEST BORINGS, INC.** DRILLER: **JEFF LEE**

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4.0 IN	140 LB.	30 IN.
SAMPLER:	SS	1 3/8 IN	140 LB.	30 IN.
CORE BARREL:				

WATER LEVEL INFORMATION  
 SOILS SATURATED @ 7 FEET

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER				DEPTH	STRATA & TEST DATA	
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24			
									3"	BITUMINOUS ASPHALT	
	1D	24"	12"	2.5'	10	16	5	4	2.0'	BROWN SILTY GRAVELLY SAND (FILL)	
	2D	24"	24"	4.5'	5	5	6	6		BROWN SILTY CLAY w = 28.3% qp = 5 KSF - VERY STIFF -	
	3D	24"	24"	7.0'	3	4	4	4		w = 29.7% qp = 5 KSF - MEDIUM -	
	4D	24"	24"	9.0'	4	5	5	5	9.5'	w = 37.0% qp = 2 KSF	
	5D	24"	24"	12.0'	WOH						w = 43.3% qp = 0.5 KSF qp < 0.25 KSF
	1U	24"	24"	17.0'	HYDRAULIC						W <sub>L</sub> = 39 W <sub>P</sub> = 21
	Sv: 3.5x7			20.8'	58/8						Sv = 0.60 / 0.08 KSF
				21.6'	56/9						Sv = 0.58 / 0.09 KSF
									25.6'	w = 34.1%	
	2U	24"	5"	27.0'	HYDRAULIC						GRAY SILTY FINE SAND, SOME GRAVEL (GLACIAL TILL) WITH COBBLES
	6D	24"	24"	32.0'	11	12	25	37		~ DENSE ~ w = 10.7%	
									55.0'	ADVANCE RODS TO 55 FEET BOTTOM OF EXPLORATION @ 55 FEET	

SAMPLES: SOIL CLASSIFIED BY:  
 D = SPLIT SPOON  
 C = 3" SHELBY TUBE  
 U = 3.5" SHELBY TUBE

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

(2)

BORING NO.: **B-101**



# BORING LOG

BORING NO.: **B-102**

SHEET: **1 OF 1**

PROJECT NO.: **05-1126**

PROJECT / CLIENT: **PROPOSED WOODARD & CURRAN INC. OFFICE EXPANSION / WOODARD & CURRAN INC.**

LOCATION: **41 HUTCHINS DRIVE, PORTLAND, MAINE**

DATE START: **10/24/2005**

DATE FINISH: **10/24/2005**

DRILLING CO.: **GREAT WORKS TEST BORINGS, INC.**

DRILLER: **JEFF LEE**

ELEVATION: **42' +/-**

SWC REP.: **A. SIMMONS**

CASING: **HW 4.0 IN 140 LB. 30 IN.**

SAMPLER: **SS 1 3/8 IN 140 LB. 30 IN.**

CORE BARREL:

WATER LEVEL INFORMATION

SOILS SATURATED @ 7 FEET

CASING BLOW PER FOOT	SAMPLE				SAMPLER BLOWS PER FT				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
	1D	24"	14"	2.0'	1	2	5	8	2'	CLAYEY TOPSOIL
	2D	24"	20"	4.0'	6	15	17	18		BROWN SILTY CLAY ~ HARD ~ qp = 9 KSF
	3D	24"	24"	7.0'	4	5	7	9		qp = 6 KSF
	Sv: 2x4			10.5'		36/6			12.0'	Sv = 2.0/0.33 KSF ~ STIFF ~ Sv = 2.5/0.28 KSF
				11.0'		45/5				
	Sv: 3.5x7			15.8'		55/8				GRAY SILTY CLAY ~ MEDIUM ~ Sv = 0.57/0.08 KSF Sv = 0.57/0.08 KSF
				16.6'		55/8				
	1U	24"	24"	22.0'						qu = 1.2 KSF w = 47.3% W <sub>L</sub> = 44 W <sub>p</sub> = 25
	Sv: 3.5x7			25.8'		62/8			31.5'	Sv = 0.64 / 0.08 KSF Sv = 0.62 / 0.08 KSF
				26.6'		60/8				
	4D	24"	24"	32.0'	WOR/12"	1	5			GRAY SILTY FINE SAND, SOME GRAVEL (GLACIAL TILL) WITH COBBLES
	5D	4"	4"	40.4'	50/4"				40.4'	REFUSAL @ 40.4 FEET (PROBABLE BOULDER IN GLACIAL TILL)

SAMPLES: SOIL CLASSIFIED BY:

D = SPLIT SPOON  
C = 3" SHELBY TUBE  
U = 3.5" SHELBY TUBE

DRILLER - VISUALLY  
 SOIL TECH. - VISUALLY  
 LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

3

BORING NO.: **B-102**



# BORING LOG

BORING NO.: B-103  
 SHEET: 1 OF 1  
 PROJECT NO.: 05-1126  
 DATE START: 10/24/2005  
 DATE FINISH: 10/24/2005  
 ELEVATION: 38' +/-  
 SWC REP.: A. SIMMONS

PROJECT / CLIENT: PROPOSED WOODARD & CURRAN INC. OFFICE EXPANSION / WOODARD & CURRAN INC.  
 LOCATION: 41 HUTCHINS DRIVE, PORTLAND, MAINE  
 DRILLING CO.: GREAT WORKS TEST BORINGS, INC. DRILLER: JEFF LEE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4.0 IN	140 LB.	30 IN.
SAMPLER:	SS	1 3/8 IN	140 LB.	30 IN.
CORE BARREL:				

WATER LEVEL INFORMATION  
 SOILS SATURATED @ 5 FEET

CASING BLOWS PER FOOT	SAMPLE				SAMPLER BLOWS PER F				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
	1D	24"	14"	2.0'	3	2	4	8	6"	FOREST DUFF
	2D	24"	18"	4.0'	6	10	14	13		BROWN SILTY CLAY ~ VERY STIFF ~ qp = 6 KSF
	3D	24"	20"	7.0'	3	5	7	8		~ STIFF ~ qp = 6 KSF
									10.0'	GRAY SILTY CLAY ~ MEDIUM ~ qp = 1.5 KSF
	4D	24"	24"	12.0'	1	2	2	2	12.0'	~ MEDIUM ~ qp = 0.5 KSF
										BOTTOM OF EXPLORATION @ 12.0 FEET

SAMPLES: D = SPLIT SPOON  
 C = 3" SHELBY TUBE  
 U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:  DRILLER - VISUALLY  
 SOIL TECH. - VISUALLY  
 LABORATORY TEST

REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

(4)

BORING NO.: B-103



# BORING LOG

BORING NO.: B-104  
 SHEET: 1 OF 1  
 PROJECT NO.: 05-1126  
 DATE START: 12/5/2005  
 DATE FINISH: 12/6/2005  
 ELEVATION: 42' +/-  
 SWC REP.: A. SIMMONS

PROJECT / CLIENT: PROPOSED WOODARD & CURRAN INC. OFFICE EXPANSION / WOODARD & CURRAN INC.  
 LOCATION: 41 HUTCHINS DRIVE, PORTLAND, MAINE  
 DRILLING CO.: GREAT WORKS TEST BORINGS, INC. DRILLER: JEFF LEE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4.0 IN	140 LB.	30 IN.
SAMPLER:	SS	1 3/8 IN	140 LB.	30 IN.
CORE BARREL:				

WATER LEVEL INFORMATION  
 SOILS SATURATED @ 10 FEET

CASING BLOW FEET F20	SAMPLE				SAMPLER BLOWS PER 6"				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
										BROWN SILTY CLAY  ~ STIFF ~  qp = 6 KSF
	1D	24"	24"	7.0'	4	5	6	8	10.0'	
	1U	24"	21"	12.0'	HYDRAULIC					GRAY SILTY CLAY  ~ MEDIUM ~
	Sv: 3.5x7			15.8'	50/9					Sv = 0.52/0.09 KSF
				16.6'	58/18					Sv = 0.60/0.19 KSF
	2U	24"	24"	22.0'	HYDRAULIC					
	Sv: 3.5x7			25.8'	85/11				25.8'	Sv = 0.88/0.11 KSF
					NO PENETRATION					
	3D	24"	8"	32.0'	41	53	42	34		GRAY SILTY FINE SAND, SOME GRAVEL (GLACIAL TILL) WITH SOME COBBLES  ~ VERY DENSE ~
	3D	0"	0"	35.0'	HOLE CAVED IN				44.5'	
REFUSAL @ 44.5 FEET (PROBABLE BOULDER IN GLACIAL TILL)										

SAMPLES:  SOIL CLASSIFIED BY:   
 D = SPLIT SPOON  DRILLER - VISUALLY  
 C = 3" SHELBY TUBE  SOIL TECH. - VISUALLY  
 U = 3.5" SHELBY TUBE  LABORATORY TEST

REMARKS: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

5

BORING NO.: B-104





# BORING LOG

BORING NO.: **B-106**

SHEET: **1 OF 1**

PROJECT NO.: **05-1126**

DATE START: **10/24/2005**

DATE FINISH: **10/24/2005**

ELEVATION: **43' +/-**

SWC REP.: **A. SIMMONS**

PROJECT / CLIENT: **PROPOSED WOODARD & CURRAN INC. OFFICE EXPANSION / WOODARD & CURRAN INC.**

LOCATION: **41 HUTCHINS DRIVE, PORTLAND, MAINE**

DRILLING CO.: **GREAT WORKS TEST BORINGS, INC.** DRILLER: **JEFF LEE**

CASING: TYPE **HW** SIZE I.D. **4.0 IN** HAMMER WT. **140 LB.** HAMMER FALL **30 IN.**

SAMPLER: **SS** SIZE I.D. **1 3/8 IN** HAMMER WT. **140 LB.** HAMMER FALL **30 IN.**

CORE BARREL:

WATER LEVEL INFORMATION

SOILS SATURATED @ **6 FEET**

CASING DEPTH FEET	SAMPLE				SAMPLER BUDS PER 6'				DEPTH	STRATA & TEST DATA
	NO.	PEN.	REC.	DEPTH @ BOT	0-6	6-12	12-18	18-24		
									2'	FOREST DUFF
	1D	24"	12"	2.0'	1	1	2	4		BROWN SILT SOME CLAY ~ LOOSE ~
	2D	24"	20"	4.0'	4	14	16	20		BROWN SILTY CLAY qp = 9 KSF ~ HARD ~
	3D	24"	24"	7.0'	5	11	10	9		qp = 6 KSF qp = 2 KSF
									11.0'	~ MEDIUM ~
	4D	24"	24"	12.0'	1	1	1	1	12.0'	qp = 2 KSF GRAY SILTY CLAY ~ SOFT ~ qp < 0.25 KSF
										BOTTOM OF EXPLORATION @ 12.0 FEET

SAMPLES:

SOIL CLASSIFIED BY:

REMARKS:

D = SPLIT SPOON  
C = 3" SHELBY TUBE  
U = 3.5" SHELBY TUBE

DRILLER - VISUALLY  
SOIL TECH. - VISUALLY  
LABORATORY TEST

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

7

BORING NO.: **B-106**

## KEY TO THE NOTES & SYMBOLS Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

### Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q <sub>u</sub>	-	unconfined compressive strength, kips/sq. ft. - based on laboratory unconfined compressive test
S <sub>v</sub>	-	field vane shear strength, kips/sq. ft.
L <sub>v</sub>	-	lab vane shear strength, kips/sq. ft.
q <sub>p</sub>	-	unconfined compressive strength, kips/sq. ft. based on pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W <sub>L</sub>	-	liquid limit - Atterberg test
W <sub>p</sub>	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass. RQD is computed from recovered core samples.
γ <sub>T</sub>	-	total soil weight
γ <sub>B</sub>	-	buoyant soil weight

### Description of Proportions:

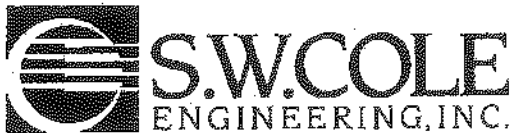
0 to 5% TRACE  
5 to 12% SOME  
12 to 35% "Y"  
35+% AND

**REFUSAL: Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

**REFUSAL: Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.





# Report of Gradation

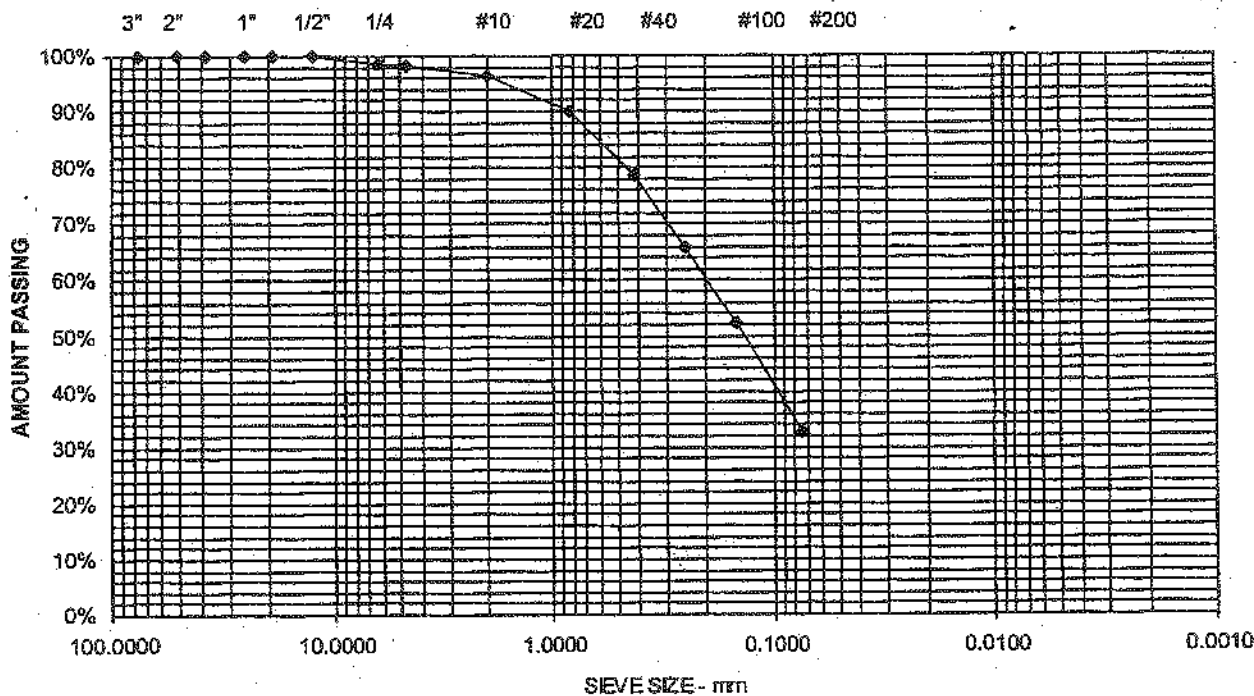
ASTM C-117 & C-136

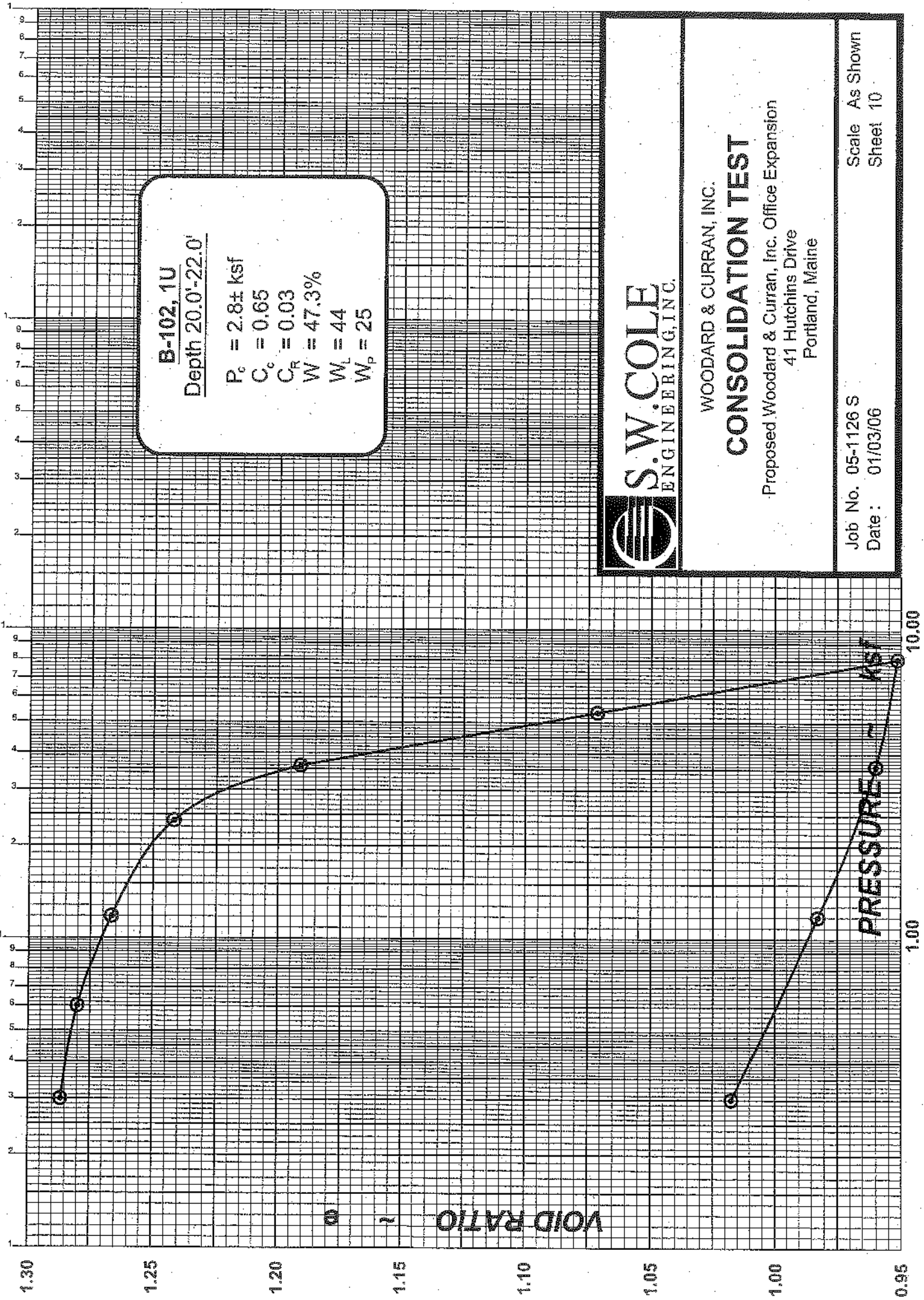
Project Name PORTLAND - PROPOSED OFFICE ADDITION - GEOTECHNICAL SERVICES  
 Client WOODARD & CURRAN, INC.  
 Exploration B-101 6D  
 Material Source 30'-32'

Project Number 05-1126  
 Lab ID 4366G  
 Date Received 11/1/2005  
 Date Complete 11/7/2005  
 Tested By COLIN PATTERSON

STANDARD DESIGNATION (mm/um)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	99	
4.75 mm	No. 4	98	1.6% Gravel
2.00 mm	No. 10	96	
850 um	No. 20	90	
425 um	No. 40	79	65.6% Sand
250 um	No. 60	66	
150 um	No. 100	52	
75 um	No. 200	32.8	32.8% Fines

GRAY SILTY FINE SAND SOME GRAVEL (TILL)





**S.W. COLE**  
 ENGINEERING INC.

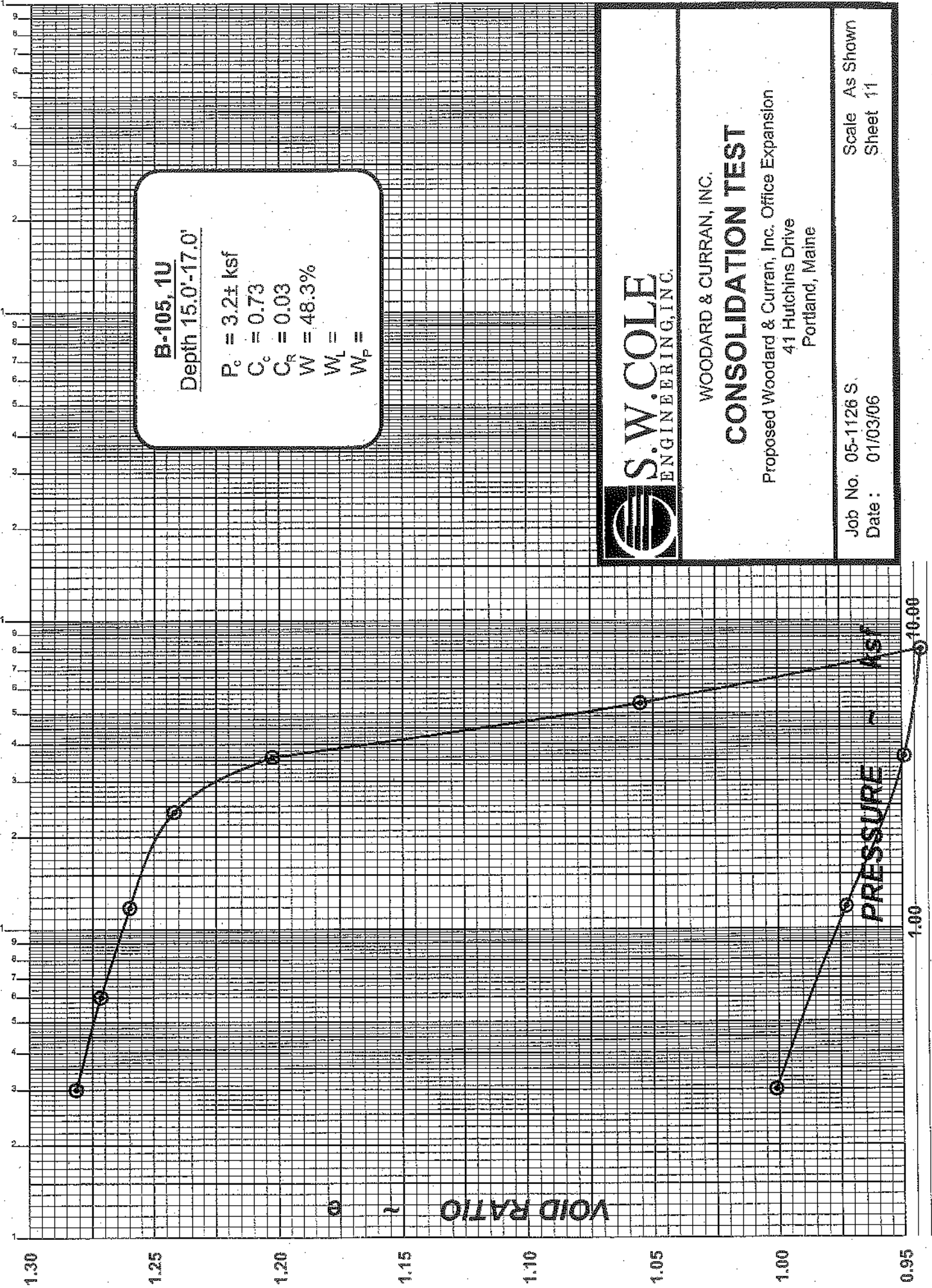
WOODARD & CURRAN, INC.

**CONSOLIDATION TEST**

Proposed Woodard & Curran, Inc. Office Expansion  
 41 Hutchins Drive  
 Portland, Maine

Job No. 05-1126 S  
 Date: 01/03/06

Scale As Shown  
 Sheet 10



**B-105, 1U**  
 Depth 15.0'-17.0'

$P_c = 3.2 \pm$  ksf  
 $C_c = 0.73$   
 $C_R = 0.03$   
 $W = 48.3\%$   
 $W_L =$   
 $W_P =$



**S.W. COLE**  
 ENGINEERING, INC.

WOODARD & CURRAN, INC.

**CONSOLIDATION TEST**

Proposed Woodard & Curran, Inc. Office Expansion  
 41 Hutchins Drive  
 Portland, Maine

Job No. 05-1126 S  
 Date: 01/03/06

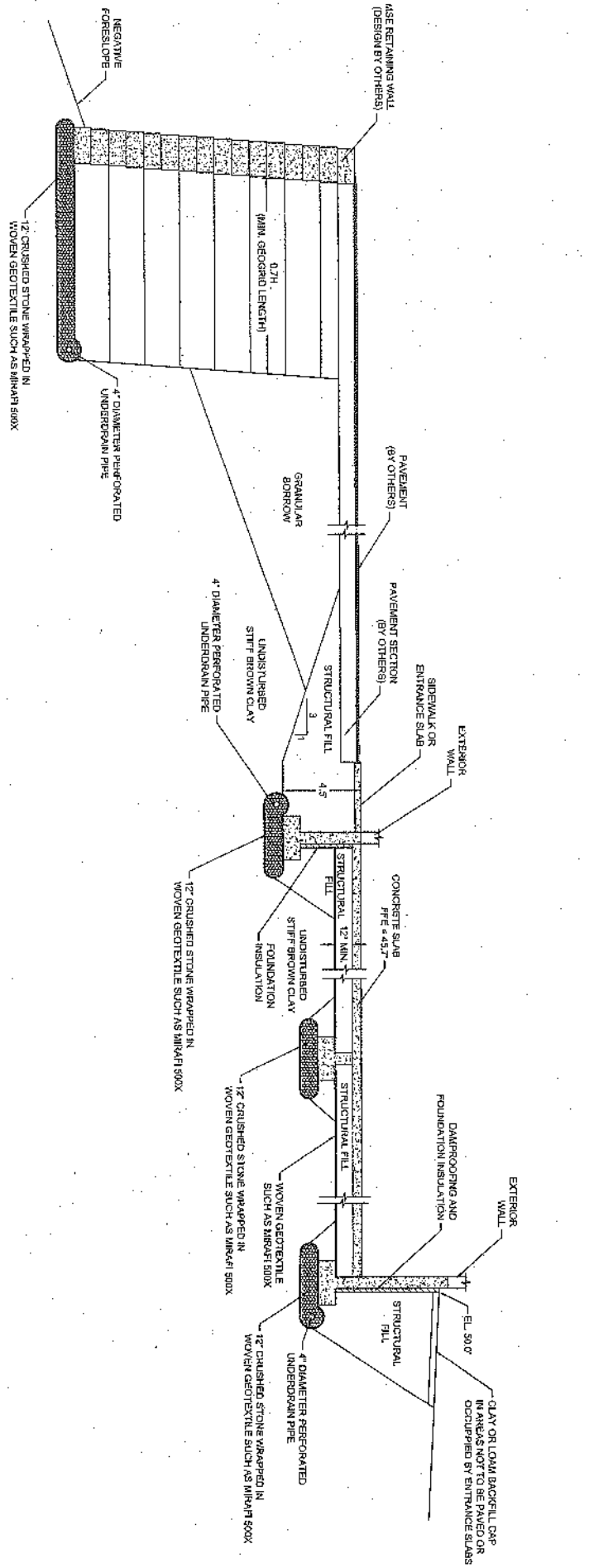
Scale As Shown  
 Sheet 11

VOID RATIO

1.30  
1.25  
1.20  
1.15  
1.10  
1.05  
1.00  
0.95

10.00  
10.0  
5.0  
4.0  
3.0  
2.0  
1.5  
1.0  
1.00

PRESSURE - ksf



**NOTE:**  
MSE WALL AND GEOTEXTILE SHOWN AS SCHEMATIC ONLY.

~ NOT FOR CONSTRUCTION ~

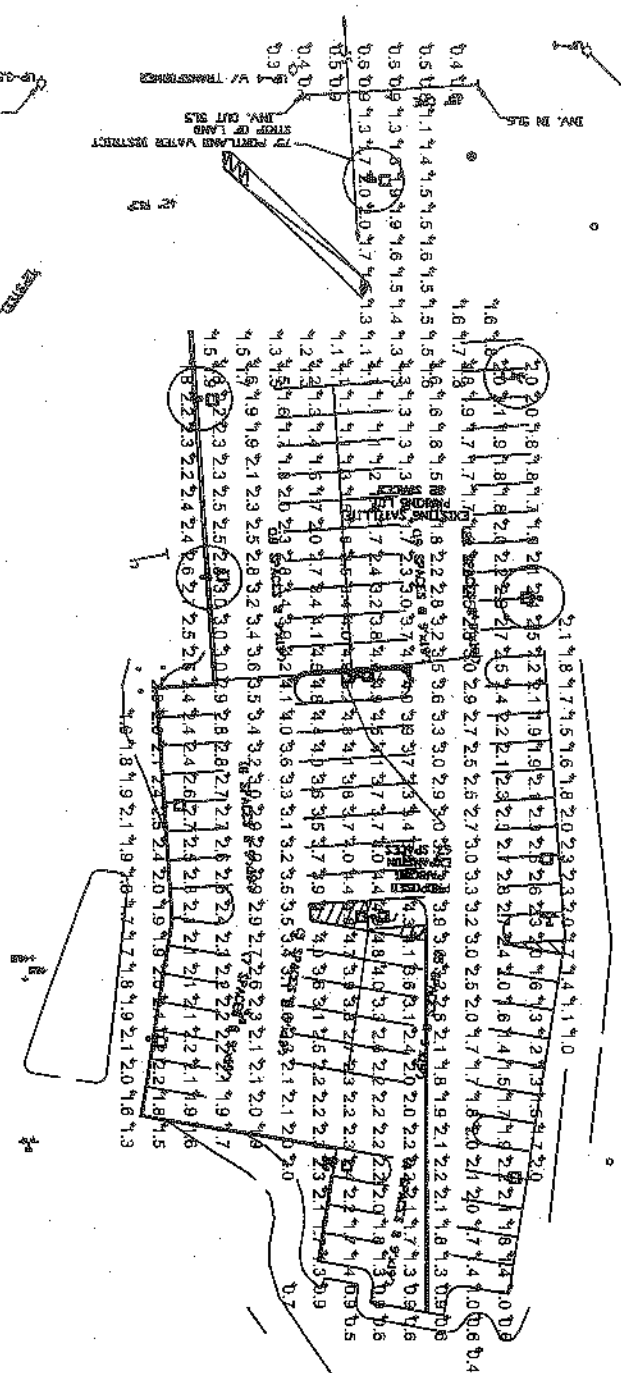
<p><b>S.W. COLE</b> ENGINEERING, INC.</p>	<p>WOODARD &amp; CURRAN, INC. <b>UNDERDRAIN DETAIL</b></p>
	<p>Proposed Woodard &amp; Curran, Inc. Office Expansion 41 Hutchins Drive Portland, Maine</p>
<p>Job No. 05-1126 S Date: 01/06/06</p>	<p>Scale Not to Scale Sheet 12</p>

**STATISTICS**

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	2.4 fc	5.2 fc	0.4 fc	13.0:1	6.0:1
Calc Zone #3	+	1.3 fc	2.0 fc	0.3 fc	6.7:1	4.3:1
Calc Zone #3	+	1.7 fc	3.0 fc	0.3 fc	10.0:1	5.7:1

**LUMINAIRE SCHEDULE**

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
□	A	25	GSS-XX-150-HPS-XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE-ROUND DISTRIBUTION	150W HPS CL ED-17	GSS15HARS.J es	16000	0.86	150
□	B	2	GSS-XX-150-HPS-XX-AR-SG-XX-X	SMALL ARCHITECTURAL AREA LUMINAIRE-ROUND DISTRIBUTION	150W HPS CL ED-17	GSS15HARS.J es	16000	1.00	300



Remote Site  
Scale 1" = 60'

WOODARD CURRAN

Designer  
B.H. MILLIKEN  
Date  
Oct 13 2005  
Scale  
AS SHOWN  
Drawing No.  
1



## 4. SOLID WASTE

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(4).

### 4.1 MUNICIPAL SOLID WASTE

Municipal solid waste is currently collected in an 8 cubic yard dumpster on site (see sheets C100 and C200 which depict its location). This includes all solid waste generated in the existing building as well as that generated by the 32 employees in the adjacent leased office space.

The dumpster is picked up and replaced once per week. In part as a result of Woodard & Curran's internal environmental sustainability initiative (active waste minimization and recycling), the dumpster does not typically fill during a week. Therefore, we anticipate current arrangements for solid waste collection will be sufficient to incorporate the proposed additional space.

### 4.2 CONSTRUCTION/DEMOLITION DEBRIS

The Contractor will be responsible for contracting with a waste management service that will handle the construction waste and debris from the proposed project, such as Troiano Waste Services, Inc., of Portland, Maine, or Pine Tree Waste of Scarborough, Maine. We anticipate construction remnants will be placed in 30 cu.-yd. containers, and will be transported and disposed of at a licensed processing or disposal facility in accordance with applicable laws and regulations.

As part of the construction of the buildings, waste and excess materials will be produced as is typical of any construction project. The amount of waste is based on the size of the building to be constructed. We estimate the building volume waste to be:

- Gross Floor Area of Building Addition (two stories) = 15,000 sq. ft.
- Estimated construction waste = 22,680 sq. ft. @ 2.77 lbs./sq.ft. = 62,825 lbs. = 31.4 tons

In addition to the construction waste, pavement, storm drain piping and sanitary sewer piping will be demolished during construction. The resulting debris is estimated to be:

- Pavement 185 cu. yd.
- Storm Drains 140 linear ft.
- Sanitary Sewer 350 linear ft.

Contract documents shall be written to reuse and recycle existing pavement to the extent practical. The computations of waste volumes are estimates only. Contractors will measure the actual waste volumes at the time of construction and will not rely on estimates provided in this Section.

### 4.3 SPECIAL OR HAZARDOUS WASTE

No special or hazardous wastes are expected to be generated as a result of the construction.

## 5. OFF-SITE FACILITIES

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(5).

### 5.1 WATER SUPPLY

The Portland Water District (PWD) supplies public water to the City of Portland (City) in the immediate vicinity of the project. The site will be supplied from the PWD's 42-inch water main along Hutchins Drive. The average daily water demand for the building after construction of the addition is expected to be approximately 1,230 gallons per day (GPD).

To estimate the water demand for the project, current water usage rates (meter data from July 2004 to July 2005) were used. Anticipated average daily water demand for the building will be as follows:

**Table 5-1: Average Daily Water Usage**

Current Demand	Number of Employees	Average Daily Water Demand (GPD)
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	207	1,450
	Anticipated Future Demand	1,450

The PWD has been contacted regarding the projected water usage requirements and a letter confirming the ability to serve the proposed facility has been requested. The PWD has confirmed that there is adequate capacity within the system to serve the additional water demand.

#### 5.1.1 Water Supply Conclusion

There is adequate capacity within the existing municipal water distribution and at the water treatment plant to supply the daily and emergency (fire service) flows that are required by this project.

#### 5.1.2 Water Supply Attachments

Letter from Woodard & Curran to the Portland Water District, dated January 10, 2006.

Letter from the Portland Water District to Woodard & Curran, dated January 12, 2006.



## **5.2 WASTEWATER DISPOSAL**

The project site is currently served and will continue to be served by the City of Portland's (City) municipal sewer system. A 10-inch gravity sanitary sewer runs through an easement through the site and serves the existing building. The flow is collected and ultimately flows to the East End Wastewater Treatment Plant operated by Portland Water District (PWD).

An estimate of the wastewater discharge generated by the proposed project was developed in the same manner as the Average Daily Water Demand above. We anticipate that insignificant quantities of water will be exported from the system (as drinking water, ice) and have assumed a 100% return of the water demand to the sanitary sewer. As such, the Average Daily Wastewater Discharge for the site is expected to be about 1,450 gallons per day (GPD).

In the City of Portland, wastewater is handled by two different entities. The City is responsible for the collectors in sewer collection system, and the Portland Water District (PWD) operates the majority of the interceptors, pump stations, and the wastewater treatment plants.

Both organizations have been contacted to ensure the collection system and the treatment plant each have adequate capacity to handle wastewater discharged from the site. The Portland Water District has confirmed the East End Wastewater Treatment Plant has adequate capacity to treat the additional wastewater. A response from the City with regard to wastewater collection will be forwarded upon receipt.

### **5.2.1 Wastewater Disposal Conclusion**

The proposed project will discharge sanitary wastewater to the existing municipal sewer system. There is adequate capacity within the collection system and at the wastewater treatment plant to collect and treat the wastewater that will be generated by this project.

### **5.2.2 Wastewater Disposal Attachments**

Letter from Woodard & Curran to City of Portland, dated January 10, 2006.

Letter from Woodard & Curran to the Portland Water District, dated January 10, 2006.

Letter from the Portland Water District to Woodard & Curran, dated January 12, 2006.

## **5.3 STREETS AND PARKING**

The site is located at 41 Hutchins Drive, approximately one tenth of a mile north of Congress Street.

### **5.3.1 Traffic Impacts**

With this project, the new building will not add to the street traffic along Hutchins Drive. The 32 employees located in adjacent leased space will move into the main building, but these employees still travel the same way as they do now. In the long term, the proposed building addition will allow the number of employees to increase from 143 to approximately 207.

Woodard & Curran has contracted with Gorrill-Palmer Consulting Engineers, to review traffic generation for the site and provided comment on its compliance with existing permits and studies. Comments from Gorrill-Palmer will be forwarded to the City for review, upon receipt.

### 5.3.2 Parking

As stated earlier, the project will increase off-street parking from 108 to 167 spaces. City of Portland Code of Ordinances Section 14-332, Paragraph (j), requires office buildings to provide one parking space for every 400 square feet of floor area. Per the Ordinance, the proposed building would require 142 spaces. The proposed 167 spaces will exceed the requirement, and supports our experience in this location which provides a need to accommodate a ratio greater than that in the City's Ordinance.

Under the proposed condition, parking is located in four distinct areas: 26 spaces in the existing parking lot adjacent to the south wing of the building; 6 spaces in the central plaza; 43 spaces in the expanded rear parking lot; and 92 spaces in the expanded parking lot on the northerly portion of the site. These areas provide a total of 167 spaces. The anticipated allocation of parking spaces for each wing of the building is as follows:

	Gross Floor Area (sf)	Parking Spaces	Floor Area per Parking Space (sf)	Number of Workstations
Existing South Wing	11,184	36	320	44
Existing North Wing	22,766	59	385	73
Proposed Building Addition	22,680	72	310	90

This represents a ratio of parking spaces per wing to workstations of roughly 0.8. Currently, the 143 employees (111 in the existing building and 32 in leased spaces next door) use approximately 116 spaces (76 in adjacent parking areas and another 40 in the parking lot for the leased space). The existing ratio of parking spaces used to employees is roughly 0.8 due to carpooling and other modes of transportation; therefore, it is anticipated that the proposed parking will meet the needs of the proposed project. Further, each wing meets the City Ordinance of 1 space per 400 square feet of floor area.

The entire building will be occupied by Woodard & Curran; therefore, employees will move between each building wing without restriction and be seated in workstations based upon project workload. In addition, Woodard & Curran does not intend to provide preferential parking to any company employees. Because of this, an allocation of spaces per building is not appropriate. As a result, parking spaces in specific lots will not be designated for one building wing or another.

Other areas were considered for development for additional parking during planning for the proposed project. Two areas of specific interest were brought up by Board members during the January 10, 2006 workshop.

One area is between the existing southerly parking lot and the south wing, an area that currently falls away from the parking area and is crossed by a bridge to the second floor of the south wing. A sketch of how parking could be added in this area is depicted in the attached Figure 1. In order to develop this area for parking, a significant amount of fill material would be brought in. Further, there is not enough room

between the parking area and the south wing to fit both a driveway and parking spaces. The current configuration would need to be altered to that shown in the sketch. Approximately 4,500 square feet of paved area would need to be added and the parking would only be increased by 5 spaces, from 26 to 31. As a result, this area does not present an attractive option for expanded parking.

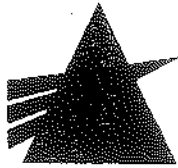
The other area of interest to Board members is the wooded area in front of the south wing, between the building and Hutchins Drive. A sketch of how parking could be added in this area is depicted in the attached Figure 2. Some fill material would need to be brought in for this area as well. This area would require a similar amount of additional pavement as the scenario depicted in Figure 1, but could provide approximately 16 additional parking spaces. The issue we have with this scenario is that the site, as currently designed, has attempted to provide necessary parking behind buildings or otherwise buffered with landscaping to the extent practicable. Clearing the existing wooded area and opening the south wing up to Hutchins Drive would be in sharp contrast to what has been attempted over the rest of the site.

Neither option presents a desirable alternative to the proposed parking as shown on the Plans.

### **5.3.3 Streets and Parking Attachments**

Figure 1 Alternative Parking Layout - 1

Figure 2 Alternative Parking Layout - 2



January 10, 2006

Jay Hewett, Chief Engineer  
Portland Water District  
225 Douglass Street  
P.O. Box 3553  
Portland, Maine 04104-3553

Re: Woodard & Curran Building Addition – Updated Water Demand

Dear Mr. Hewett:

We have prepared Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents have been submitted to the City of Portland Planning Department and are currently in the review process.

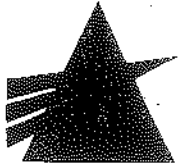
The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map.

We wrote to you previously on August 26, 2005; however since that time the project has changed. The proposed building addition will still be a three-story structure. Originally, only the top two floors were to be developed as office space, with the first floor as partially enclosed parking. Now, all three floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

To estimate the water demand for the project, current water usage rates were used. Anticipated average daily water demand for the building will be as follows:

**Table 5-1: Average Daily Water Usage**

<b>Current Demand</b>	<b>Number of Employees</b>	<b>Average Daily Water Demand (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	207	1,450
	<b>Anticipated Future Demand</b>	<b>1,450</b>



**WOODARD & CURRAN**  
Engineering • Science • Operations

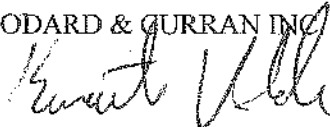
CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
*Operational offices throughout the U.S*

Jay Hewett, Portland Water District  
January 10, 2006  
Page 2

The Major Site Plan review process requires the submission of information that demonstrates the proposed development will have sufficient water supply. Our office is requesting an updated "Ability to Serve" letter from the Portland Water District based on the above mentioned water demand. As stated above, we are already in the review process, so a response at your earliest convenience is appreciated.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

Sincerely,

WOODARD & CURRAN INC  


Kenneth Volock  
Engineer

KRV/djt  
203834.01/1.1

Enclosure



## Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

1/12/2006

Mr. Kenneth R. Volock, Engineer  
Woodard & Curran  
41 Hutchins Drive  
Portland, ME 04102

Subject: Woodard & Curran Office Expansion located on/in 41 Hutchins Drive, Portland

Dear Mr. Volock:

The Portland Water District has received your correspondence dated January 10th, 2006 requesting an updated letter that reflects the District's ability to serve the proposed Woodard and Curran building expansion. Your letter indicated revised daily water usage totalling an anticipated future demand of 1,450 GPD.

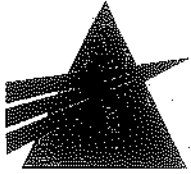
Based on the information which you provided I am pleased to indicate that the Portland Water District has the capacity to serve your expanded office facility. The anticipated daily water consumption is well within the capability of existing water infrastructure serving your site. Further, the District supplies high quality water that meets all applicable federal and state standards.

We look forward to continuing to serve Woodard and Curran, Inc. in your new and expanded facility.

Yours truly,  
Portland Water District

Rico Spugnardi

DocID: 216



January 10, 2006

Mr. Frank Brancely  
City of Portland  
Department of Public Works  
55 Portland Street  
Portland, Maine 04104

Re: Woodard & Curran Building Addition – Updated Sewer Capacity

Dear Mr. Brancely:

We have prepared Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents have been submitted to the City of Portland Planning Department and are currently in the review process.

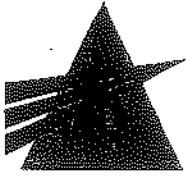
The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map.

We wrote to you previously on August 26, 2005; however since that time the project has changed. The proposed building addition will still be a three-story structure. Originally, only the top two floors were to be developed as office space, with the first floor as partially enclosed parking. Now, all three floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking. We have also previously submitted Sheet C201 Proposed Utility Plan indicating service locations to aid in your review.

To estimate the wastewater generated by the project, current wastewater collection rates were used. Anticipated average daily wastewater generated by the building will be as follows:

**Table 5-1: Average Daily Wastewater Generation**

	<b>Number of Employees</b>	<b>Average Daily Wastewater Generated (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	207	1,450
	<b>Anticipated Future Rate</b>	<b>1,450</b>



Mr. Frank Brancely, City of Portland  
January 10, 2006  
Page 2

The Major Site Plan review process requires the submission of information that demonstrates there is sufficient collection and treatment capacity to serve the proposed development. Our office would like to request an "Ability to Serve" letter from the City of Portland Public Works Department stating the City's sewer collection system in the vicinity of the project has the capacity to convey the wastewater discharge generated by this development. As stated above, we are already in the review process, so a response at your earliest convenience is appreciated.

As you know the proposed development will involve the relocation of the sewer main in this area. We are working with Eric Labelle to ensure the relocated sewer and associated easement are acceptable to the City.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

Sincerely,

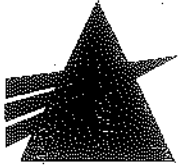
WOODARD & CURRAN, INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01/1,1

Enclosure





January 10, 2006

Mike Greene  
Portland Water District  
225 Douglass Street  
P.O. Box 3553  
Portland, Maine 04104-3553

Re: Woodard & Curran Building Addition – Wastewater Treatment

Dear Mr. Greene:

We have prepared Major Site Plan review documents for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. These documents have been submitted to the City of Portland Planning Department and are currently in the review process.

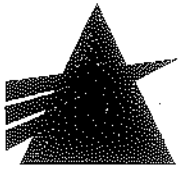
The site consists of two parcels owned by the Applicant, CADCAM Associates. The work limits are shown on the enclosed USGS Topographic Map.

We wrote to you previously on August 26, 2005; however since that time the project has changed. The proposed building addition will still be a three-story structure. Originally, only the top two floors were to be developed as office space, with the first floor as partially enclosed parking. Now, all three floors will be office space with a direct link to the existing building. The connection of this expansion to the existing building provides for the use of existing mechanical systems, elevator, and provides for the free-flow of office personnel without exiting either of the buildings. An existing satellite parking lot on the northerly portion of the site will be expanded to provide additional parking.

To estimate the wastewater generated by the project, current wastewater collection rates were used. Anticipated average daily wastewater generated by the building will be as follows:

**Table 5-1: Average Daily Wastewater Generation**

	<b>Number of Employees</b>	<b>Average Daily Wastewater Generated (GPD)</b>
Existing	143	1,005 (approx. 7 GPD/employee)
With Building Addition	207	1,450
	<b>Anticipated Future Rate</b>	<b>1,450</b>



Mike Greene, Portland Water District  
January 10, 2006  
Page 2

The Major Site Plan review process requires the submission of information that demonstrates there is sufficient collection and treatment capacity to serve the proposed development. Our office would like to request an updated "Ability to Serve" letter from the Portland Water District stating the City Wastewater Treatment Plant has the capacity to treat the wastewater discharge generated by this development. As stated above, we are already in the review process, so a response at your earliest convenience is appreciated.

Please contact me at (207) 774-2112 if you have any questions or if you need additional information. Thank you very much for your assistance.

Sincerely,

WOODARD & CURRAN INC.  


Kenneth Volock  
Engineer

KRV/djt  
203834.01/1.1

Enclosure



**Portland Water District**  
FROM SEBAGO LAKE TO CASCO BAY

January 12, 2006

Ken Volock  
Woodard & Curran  
41 Hutchins Drive  
Portland, Maine 04102

**Re: Woodard & Curran Building Addition**

Dear Mr. Volock,

In response to your letter dated January 10, 2006, this letter confirms that there is adequate capacity at the Portland Water District's East End Wastewater Treatment Facility to accommodate the estimated 445 additional gallons of sewage that will be generated as a result of modifications to the CADCAM Associates project submitted to the Water District in August of 2005.

Average daily design flow at the facility is 19.8 million gallons per day (mgd). Current average daily flow is 17.59 mgd.

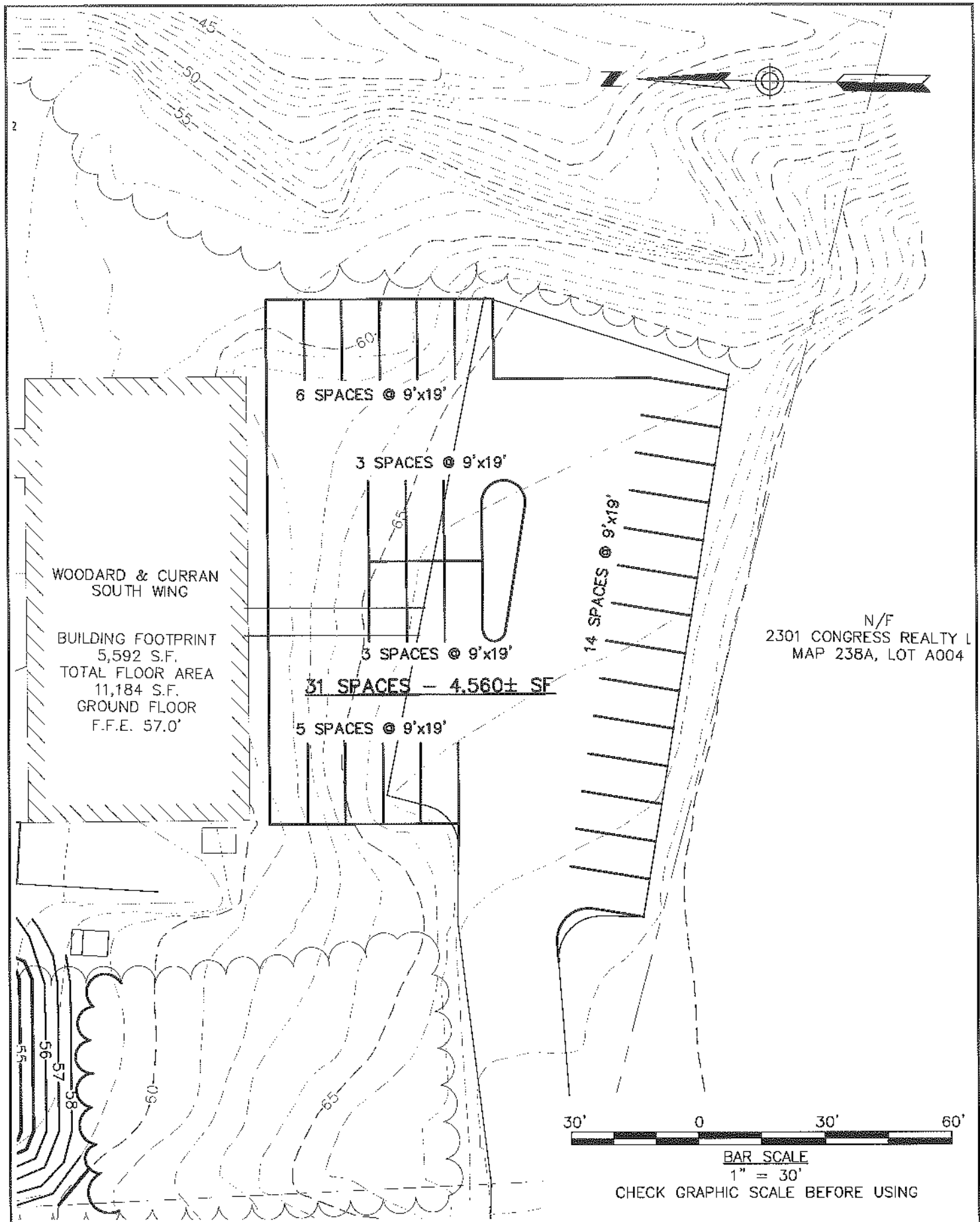
If you have any further questions, please contact me 523-5262.

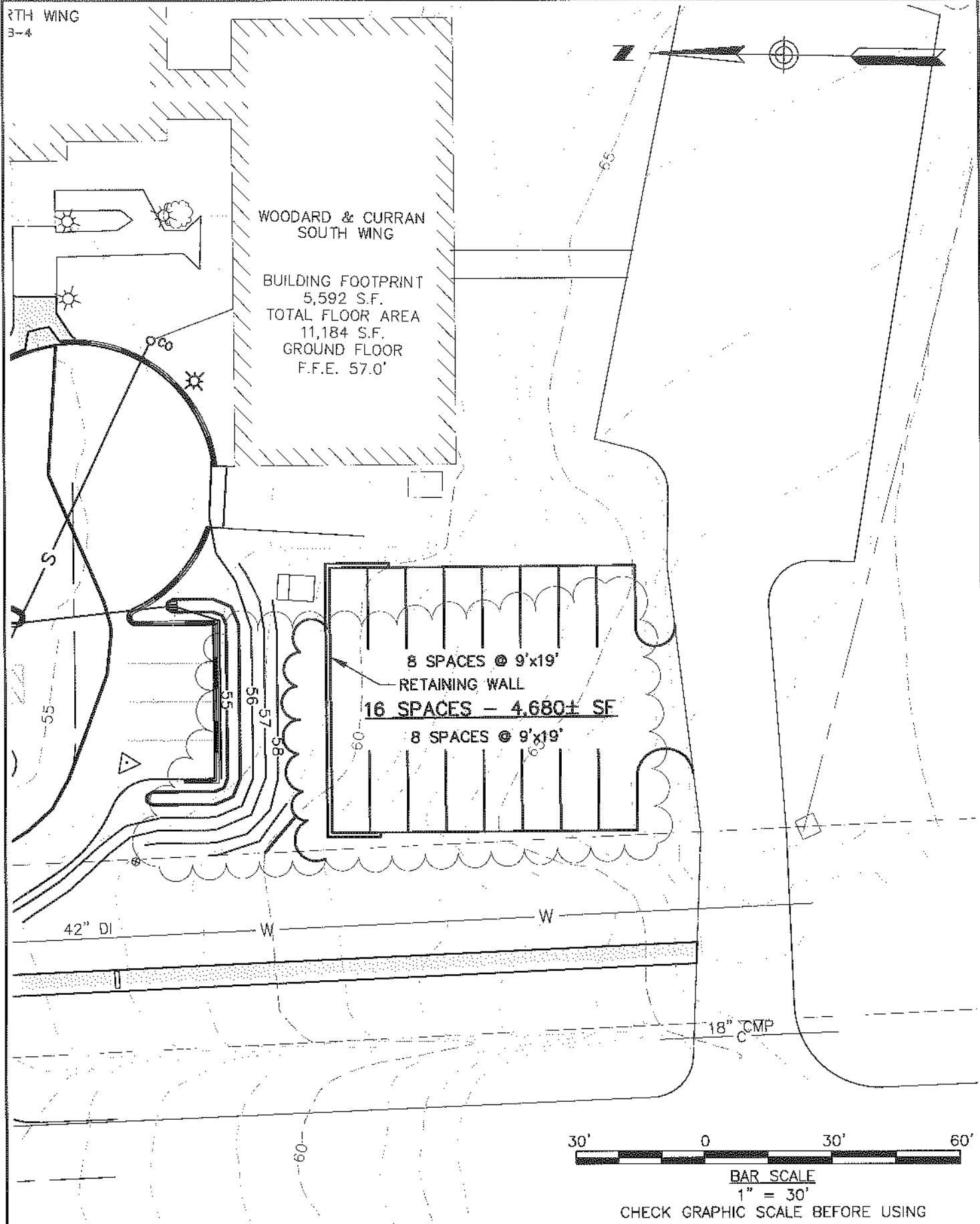
Regards,

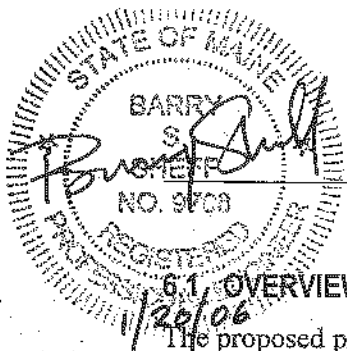
Portland Water District  
Michael Greene  
Plant/Systems Manager, Wastewater

C: Eric Labelle, City of Portland









## 6. STORMWATER MANAGEMENT

### 6.1 OVERVIEW

The proposed project consists of the expansion of the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland. The project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and the relocation of a City of Portland sewer main and its associated easement.

The site consists of two parcels of land, lots #15 & #16 of the Stroudwater Estate Subdivision, owned by CAD-CAM Associates and located at 41 Hutchins Drive. These lots occupy a total area of approximately 6.65 acres. As stated earlier, the site is occupied by an office building with a footprint of 13,232 square feet (approximately 0.3 acres). Other impervious areas on the site include parking lots, paved driveways and walkways which combine to make up 50,170 square feet (approximately 1.15 acres) of paved area.

### 6.2 SITE CHANGES

The proposed building addition will be a three-story structure with a building footprint of approximately 7,560 square feet, with a direct link to the existing North Wing. Other changes to the site include: an addition to the parking lot on the northerly portion of the site; an increase in parking at the rear of the building; the new access drive to rear parking areas; and the redesigned plaza and walkway in the center of the campus. The total increase in paved area is 24,881 square feet. In total, the proposed project will increase site imperviousness by 32,441 square feet (approximately 0.74 acres) to 95,843 square feet (approximately 2.2 acres).

Table 6.1 below indicates the changes in impervious area within the upland portions of the site as a result of the proposed project:

Table 6.1: Site Impervious Area Summary

	Total Site Area (acres)	Impervious Area (acres)	Percent Impervious (%)
Pre-Development	6.65	1.46	21.9
Post-Development	6.65	2.20	33.1
<b>CHANGE</b>	<b>0.00</b>	<b>0.74</b>	<b>11.2</b>

### 6.3 STORMWATER MANAGEMENT DESIGN

Stormwater runoff from the site ultimately flows to an unnamed brook in the 30-foot wide drainage easement running through the middle of the site. The unnamed brook flows through the easement and makes its way to the Stroudwater River, a little more than a quarter of a mile away.

The Woodard & Curran site falls under the existing Site Location of Development permit for Stroudwater Estates Phase II, L-010223-99-A-A. As a condition of that permit, peak discharge from the site must be controlled. Therefore, the project has been designed to prevent an increase in peak runoff from the site.



### 6.3.1 Existing Stormwater Management

The existing building roof drains, a portion of the adjacent parking area to the north, and the adjacent open space to the east collect in a small pond designed to reduce peak discharge rates. Runoff is discharged from the pond through a 6-inch diameter PVC pipe into a wooded area and flows to the brook. The remainder of the adjacent parking area to the north is graded such that stormwater runs off overland into wooded areas and toward the brook. Runoff from the area between the existing building and Hutchins Drive, including the main entrance drive to the building, is collected in a catch basin and piped toward the brook.

The satellite parking lot on the northerly portion of the site drains into another small pond, also designed to reduce peak discharge rates. The pond contains an outlet structure controlling the inlet of a 12-inch corrugated polyethylene culvert. The culvert discharges to a riprap apron and then flows to the brook. The area above the parking lot to the north and west is graded such that runoff is diverted to a ditch along Hutchins Drive and then into the brook through a 48-inch concrete culvert under Hutchins Drive. Runoff from the undeveloped portion of the site, east of the satellite parking lot, flows over land directly to the brook.

### 6.3.2 Proposed Stormwater Management

Runoff from the area between the building and Hutchins Drive, including the main entrance drive to the building, will continue to be collected in a catch basin and piped toward the brook. The existing portion of the satellite parking lot and the area above it to the north and west will drain as in the existing condition. Runoff from the access lane and the existing parking area adjacent to the North Wing will be collected in a catch basin and piped toward the brook. The proposed expansion to parking at the rear of the buildings will not be collected, but rather drain overland into existing wooded buffers and toward the brook.

The roof drains from the entire building will be collected and piped to a subsurface detention structure, similar to the Rainstore product by Invisible Structures, Inc. The detention structure will be located under the parking lot adjacent to the existing North Wing, and will be approximately 60'x50' in area and 2 feet deep. Product cut sheets for the Rainstore product have been included in this section.

According to Invisible Structures product literature, the Rainstore product has 94% void space, providing 2,820 square feet of effective area in the subsurface detention structure; however, in modeling the structure, a conservative area of 2,600 square feet was used. The primary discharge is through a 4-inch culvert at the bottom of the structure (invert elevation 40.0'), detaining flow during the larger storms. A secondary discharge is provided in the form of a 12-inch culvert set one foot above the base of the structure (invert elevation 41.0'). The structure is modeled as Pond 23 in the Post-Development Stormwater Model (see section 6.3.3.2 and the attached HydroCad data). The detention structure will discharge to the proposed catch basin drain between the parking lot and the access lane.

Alternately, a water reclaim system is being considered for the existing and proposed portions of the building. Runoff from the roof drains would be collected and used for water closets. In this case, the subsurface detention structure would be replaced with a collection tank, and if proposed, we would submit additional information at that time to support that proposal.

On the northerly portion of the site, the proposed addition to the satellite parking lot will be collected and treated in two underdrained filter basins. Each basin will drain either through the underdrain or over a spillway and into the brook. The area above the proposed expansion to the north will be diverted to the brook to the east without being collected in either basin.



### 6.3.3 Stormwater Quantity Calculations

The intent of this section is to address the effects of site runoff from a proposed development project on the local watershed. The stormwater modeling presented herein compares the existing site conditions with the proposed site conditions (existing and proposed).

Stormwater modeling was done using the HydroCAD Stormwater Modeling System by Applied Microcomputer Systems. HydroCAD uses TR20 runoff calculation methodology. The computation sheets resulting from the models are attached at the end of this section.

The runoff curve numbers (RCN) for the subcatchments have been computed using the TR55 methodology. The subcatchments were divided based on land use and acreage measurements were used to compute a weighted (composite) RCN.

The time of concentration (Tc) paths for the subcatchments were selected to represent the most hydrologically remote point of the watershed. The Tc paths are shown respectively on the Pre-Development and Post-Development Stormwater Plans. Note that the Tc computations contain time calculations using TR55 sheet flow, shallow concentrated flow equations, and circular channel (pipe).

Soils information used in the computations was obtained from the Soil Survey of Cumberland County, Maine, USDA Soil Conservation Service (SCS Survey). The project site is located in an area of Elmwood and Scantic soils. The Elmwood soils are mapped for the generally higher, drier topography of the site, while the Scantic soils are in the lower, wet regions. An interpretation of the delineation between soils was made using the site's wetland mapping. Selection of the hydrologic soil group for computation of runoff curve numbers assumes that the floodplain wetlands mapped for the project are Scantic soil and the remaining non-floodplain areas are Elmwood soil. The Scantic series soil is Hydrologic Soils Group "D" and the Elmwood series soil is Hydrologic Soils Group "C".

For this project, the 2-, 10-, and 25-year return frequency storms of 24-hour duration were analyzed. A Type III rainfall distribution was applied to these storms. The 2-, 10-, and 25-year 24-hour precipitation measurements (3.0 inch, 4.7 inch, and 5.5 inch, respectively) were taken from Appendix D of the BMPs, rather than the values published in the Portland Technical and Design Standards and Guidelines. Through other work in the City of Portland, we have learned that the values published in the BMPs are preferred.

#### 6.3.3.1 Existing Condition

To model the project, the existing site was separated into multiple drainage area subcatchments. Subcatchments 11X, 12X, 13X, 14X, 21X, 22X, 23X and 24X represent the Existing conditions. These subcatchments are depicted in Figure 6.1 attached to this section. Subcatchments 11X through 14X have been numbered generally west to east along the northerly area of the project site, in the vicinity of the satellite parking lot. Subcatchments 21X through 24X depict the southerly area of the project site, in the vicinity of the building.

Reaches 1R, 2R and 3R are located in the middle of the project site and represent the unnamed brook running through the 30-foot wide drainage easement. Reach SP represents the study point in the brook near the eastern edge of the project site for the purpose of quantity modeling.

Ponds P11 and P23 represent existing ponds where runoff is collected from Subcatchments 11X and 23X respectively. Reaches R11, R12, R22 and R23 represent paths by which Subcatchments 11X, 12X, 22X and 23X respectively, are routed through other subcatchments to the unnamed brook.





The Existing Stormwater Plan drawing, Figure 6.1, attached to this section, depicts the subcatchments, reaches, ponds, and time of concentration paths utilized in the model.

### 6.3.3.2 Post-Development Condition

The proposed site was separated into multiple drainage area subcatchments. Subcatchments 11S through 16S, and 21S through 26S represent the Proposed conditions. These subcatchments are depicted in Figure 6.2 attached to this section. Subcatchments 11S and 12S are similar to subcatchments 11X and 12X respectively. Subcatchments 13S and 14S represent the areas of subcatchments 13X and 14X that are not routed through quality BMPs in the proposed condition. Subcatchments 15S and 16S represent the expansion of the satellite parking lot.

Subcatchment 21S is similar to a portion of subcatchment 21X. Subcatchment 22S is similar to subcatchment 22X, with the addition of a portion of 21X. Subcatchment 23S represents the existing and proposed buildings. Subcatchment 24S and 25S represent the access lane and the existing and proposed rear parking. Subcatchment 26S represents a small area, formerly part of 23X, that runs directly into the woods.

Reaches 1R, 2R and 3R are located in the middle of the project site and represent the unnamed brook running through the 30-foot wide drainage easement. Reach SP represents the study point in the brook near the eastern edge of the project site for the purpose of quantity modeling.

Pond P11 is the same as in the Existing condition. Ponds P15 and P16 represent underdrained filter ponds where runoff is collected from Subcatchments 15S and 16S respectively, and treated. Pond P23 represents the subsurface detention structure where runoff from the roof drains is collected. Reaches R11, R12, R15, R16, R22, R24, R25 and R26 represent paths by which Subcatchments 11S, 12S, 15S, 16S, 22S, 24S, 25S and 26S respectively, are routed through other subcatchments to the unnamed brook. The discharge from P23 is also routed through Reach R25.

The Proposed Stormwater Plan, Figure 6.2, is attached at the end of this section, depicting the subcatchments, reaches, ponds, and time of concentration paths utilized in the model.

### 6.3.3.3 Summary

Peak runoff values calculated for the Existing and Proposed conditions are listed in Table 6.2 below.

Table 6.2: Runoff Summary

STUDY POINT	PEAK RUNOFF 2 Year (CFS)	PEAK RUNOFF 10 Year (CFS)	PEAK RUNOFF 25 Year (CFS)
Existing Condition	4.92	11.33	14.63
Proposed Condition	4.30	11.11	14.55
CHANGE IN RUNOFF	-0.62	-0.22	-0.08

As shown in Table 6.2 and the appended calculations, runoff from the site is decreased slightly during each storm event. The decrease during the 2-year storm is about 13%, whereas the decrease for the 10- and 25-year storms is only around 2% and 0.5%, respectively. The decrease during the 2-year storm is greater than the decreases for the 10- and 25-year storms since the



runoff from the satellite parking expansion detained in the filtration basin represents a much more significant portion.

The watershed routing diagram and model output from HydroCAD is attached at the end of this section for both the Existing and Proposed conditions.

### **6.3.4 Stormwater Quality**

Stormwater quality has been addressed on the site through a combination of native and constructed quality treatment measures. Existing wooded buffers will be used to the extent possible. In order for the wooded buffers to treat stormwater runoff most effectively, level spreaders will be constructed at points where concentrated or channelized flow is about to enter an existing buffer. Additionally, filtration basins will be used to filter runoff from smaller storms and the initial runoff from larger storms.

#### **6.3.4.1 Applicable Standards**

The City of Portland Code of Ordinances was reviewed to determine the applicability of local stormwater quality standards. City Code of Ordinances Section 14-526, Subsection (a), Paragraph 20 states, in part, "Stormwater runoff from paved areas shall be treated to the extent practicable to minimize contaminants." Additionally, the City of Portland Technical and Design Standards and Guidelines, Section V, Subsection 3, Paragraph A states that "[a]ll development proposals shall conform to the standards set forth in Chapter 500 of the Maine Department of Environmental Protection Stormwater Management [...] Rules".

The Maine Department of Environmental Protection (MeDEP) has recently adopted an updated Chapter 500: Stormwater Management. The updated chapter went into affect November 16, 2005. The project has been designed with these new rules in mind where possible.

Through discussions with the Maine Department of Environmental Protection (MeDEP), we have determined that stormwater requirements for the site are covered by the Site Law permit originally granted to Stroudwater Estates Phase II in 1984. As such, the new Chapter 500 does not apply to the proposed project. An email from Linda Kokemuller with the MeDEP, dated December 16, 2005, has been attached to this section as confirmation. The project need only prevent a post-development peak runoff rate in excess of the pre-development rate.

Through discussions with the City's review engineer, it was determined that some level of stormwater quality treatment would be required, even if the project was not required to meet the new Chapter 500. Based on these discussions, the treatment measures were designed to meet the Sliding Scale TSS removal standard, present in the previous Chapter 500 regulations.

Because the project will remain under the coverage of the original Stroudwater Estates Phase II Site Law permit, the site need not meet the BMP Standards set forth in the new MeDEP Chapter 500. However, the expansion to the satellite parking lot has been designed to meet the BMP Standards in an attempt to create a lower impact design.

In summary, the project is designed to meet the Sliding Scale TSS Removal Standard. The satellite parking expansion is designed to meet the BMP Standard, as described in the recently adopted version of MeDEP's Chapter 500: Stormwater Management. We believe that this meets the requirement to treat "to the extent practicable" as described in the City Code of Ordinances.

#### **6.3.4.2 BMP Assessment and Selection**

In Chapter 500: Stormwater Management, the MeDEP suggests four potential treatment methods to comply with the BMP standards:



- Wetponds with detention above the permanent pool,
- Filtration,
- Infiltration, and
- Buffers.

The area required to construct a wetpond to meet the BMP is too great considering the disturbance of forest and wetlands as well as the changes to site topography that would be required. The soils on the site make infiltration difficult, but soils could be brought in to create filtration basins, which do not require as much area as wetponds. The varied site topography prohibits the ability to classify certain areas as buffers under the new Chapter 500; however, given that we are evaluating for quality using the previous Chapter 500, existing buffers have also been evaluated using the previous Chapter 500 standards. The types of BMPs that seem most feasible for the site are existing wooded buffers and constructed filtration basins.

Due to the location of each proposed element of the project, and in an effort to minimize site disturbance, two underdrained filtration basins are proposed to treat runoff from the proposed expansion to the satellite parking lot. Each basin is sized to detain a volume of runoff equal to one inch times the impervious area that drains to it, plus 0.4 inches times the vegetated area that drains to it. The basins are designed so that storage volume will be less than 18 inches deep. The floor of the basin will be constructed with a soil filter layer capable of passing the stored volume within two days. The soil filter layer will be underlain by a well-drained gravel layer with a perforated underdrain. Filter Basin details have been provided on Sheet C301 Civil Details-2, attached to Section I.

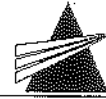
Each basin will have a spillway constructed to allow flow from larger to storms to pass through. Each spillway will be at a height of 18 inches above the basin floor and 18 inches below the top and the basin embankments. The width of each spillway has been design so that the peak height of water in each basin during the 25-year storm will be at least one foot below the top of the embankment.

In accordance with the recently adopted Chapter 500 standards, the required treatment volumes for each of the Filtration Basins are as follows:

- Basin 1:  $(1" \times 0.10 \text{ acre impervious}) + (0.4" \times 0.12 \text{ acre vegetated}) = 537.24$  cubic feet of storage.
- Basin 2:  $(1" \times 0.34 \text{ acre impervious}) + (0.4" \times 0.14 \text{ acre vegetated}) = 1,437.48$  cubic feet of storage.

The required treatment storage must be at a depth of no more than 18 inches. As shown in the attached HydroCad calculations, Filter Basin #1 (modeled as Pond P16) and Filter Basin #2 (modeled as Pond P15), have cumulative storages, at depths of 18 inches, of 561 cubic feet and 1,614 cubic feet, respectively. Both Basins have been sized to provide sufficient treatment storage to comply with the requirements of the recently adopted Chapter 500 Stormwater rules.

Level spreaders are used wherever stormwater runoff must be converted back into sheet flow before passing into existing wooded buffers. Four level spreaders are proposed: one will be constructed at the outlet of the Filtration Basin 1 underdrain and will also catch flow from the Basin 1 spillway; one will be constructed at the base of the retaining wall near the western end of the access lane and will handle flow from Subcatchment 22S; one will be constructed below the retaining wall near the eastern end of the access lane and will handle runoff from Subcatchment 25S and discharge from Pond P23; and the fourth will be located off the northern end of the rear parking area and will handle runoff from Subcatchment 24S.



The design criteria for the level spreaders, presented in the Maine Erosion and Sedimentation Control BMPs, were consulted to determine the required level spreader length. The required lengths at each location are as follows:

- Filtration Basin 1:  $(0.74 \text{ cfs during 10-year storm}) / (0.25 \text{ cfs per linear foot}) = 3 \text{ linear feet.}$
- West side of Access Lane:  $(2.36 \text{ cfs during 10-year storm}) / (0.25 \text{ cfs per linear foot}) = 10 \text{ linear feet.}$
- East side of Access Lane:  $(1.38 \text{ cfs during 10-year storm}) / (0.25 \text{ cfs per linear foot}) = 6 \text{ linear feet.}$
- Rear Parking Area:  $(1.42 \text{ cfs during 10-year storm}) / (0.25 \text{ cfs per linear foot}) = 6 \text{ linear feet.}$

However, the specifications for level spreaders state that the minimum length shall be 12 feet. Therefore, all level spreaders will be 12 feet in length.

#### 6.3.4.3 Stormwater Quality Calculations

As stated above, the removal of TSS from the stormwater flows is achieved through the use of filtration basins and existing wooded buffers. Unfortunately, no TSS removal efficiencies are given for the filtration basins. Therefore, for the purposes of TSS removal calculation, the basins were treated as detention ponds, providing a 10% removal of TSS. (Therefore, TSS removal for the site will actually be much higher than calculated.) The wooded buffers provide varying degrees of treatment based upon their length and slope. The buffer lengths and slopes were determined using the existing survey and in some cases represent a "worst-case scenario". Removal efficiencies are taken from Table 6.1 in the previous version of Stormwater Management for Maine: Best Management Practices (Stormwater BMPs), prepared by the MeDEP. Water quality inlets (Casco Traps) are proposed in the catch basins and provide a 10% reduction in TSS for the runoff that passes through them.

For the purposes of TSS removal calculations, the subcatchments established in the HydroCAD stormwater model were maintained. The calculations are based upon worksheets 1, 2 and 3c from Appendix F of the Stormwater BMPs. Net TSS removal was calculated for each subcatchment individually and then the weighted totals were summed.

The existing and constructed water quality measures for the site will yield a net TSS removal of 54.8%. For a 33.1% impervious site, the Sliding Scale TSS removal standard requires a net TSS removal of roughly 45%; therefore the measures for the site will meet the standard. The individual subcatchment and total site net TSS removal calculations for this project are found attached to this section.

## 6.4 MAINTENANCE OF STORMWATER SYSTEMS

Upon completion of the project, responsibility for overseeing the property will fall on the Facilities Manager, including the inspection and maintenance of the site's stormwater drainage system, treatment measures, roadways, parking areas, permanent erosion control measures, and landscaped areas located outside of City right-of-ways.

At this point it is undecided whether the Facilities Manager will be an agent of the Owner or the tenant. If the responsibility for inspection and maintenance of the site lies with the property owner, information on the responsible party will be forwarded upon receipt. If the responsibility for inspection and maintenance of the site lies with the tenant, Woodward & Curran, the



responsible party will be Brent Powers, who can be reached at 41 Hutchins Drive, Portland, Maine 04102; (207) 774-2112.

#### **6.4.1 Catch Basins**

Catch basins will be inspected semi-annually in spring and fall. These visual inspections ensure the catch basin grate is free of debris and that sediment in the sump has not accumulated above the pipe inverts. If cleaning is required, the Facilities Manager can contract the services of Catch Basin Cleaners [P.O. Box 1579; Meredith, N.H., 03253; (603) 279-3118] or a similar firm.

#### **6.4.2 Parking and Paved Areas**

Parking and paved areas will be inspected annually each spring. Visual inspections will enable site roads and parking areas to be kept clean and clear through contracting periodic sweeping and winter plowing as required. The inspections will also ensure pavement markings are repainted as needed to maintain property traffic circulation and parking space delineation. Paved areas will be plowed and sanded as often as necessary to maintain public safety.

The Facilities Manager will inspect all parking and paved areas in the project site and will have the pavement swept and cleaned within the project site on an annual, as-needed basis. This work will be contracted with Zebra Striping, Inc. [101 Pleasant Hill Rd.; Scarborough, ME, 04074; (207) 883-7081] or a similar firm.

#### **6.4.3 Filter Basins**

The underdrained filter basins will be inspected semi-annually in spring and fall. Additionally, each basin will be inspected following major storms. These inspections will ensure that there is no erosion in the basin, the basin remains capable of filtering runoff within two days, and sediment does not build up.

MeDEP recommends mowing filter basins at least twice each year to allow visual inspection and to prevent the growth of woody plants. At the Woodard & Curran site, each basin will be mowed in conjunction with regular mowing, typically on a weekly basis. Sediment will be removed annually. Any eroding areas will be repaired immediately. Should a basin fail to filter the runoff from a storm within two days, the soil filter layer may need to be retilled. The Facilities Manager would likely hire a local contractor to perform this work.

The basins will not be used for snow storage or for any activities that involve heavy foot traffic. Vehicles will not be allowed within the basins.

### **6.5 CONCLUSION**

The project has been designed to prevent an increase in peak runoff from the site to comply with the existing Site Location permit. Additionally, in order to provide measurable stormwater quality treatment and to comply with the City Ordinance, the project was designed to meet the Sliding Scale TSS removal standard, present in the previous Chapter 500 regulations. The peak runoff rate will decrease during the 2-year storm by about 13%, and by 2% and 0.5% for the 10- and 25-year storms, respectively. The water quality measures for the site will yield a net TSS removal of 54.8 %, exceeding the 45% required by the Sliding Scale TSS removal standard. As designed, the project will meet both goals.

Some aspects of the recently adopted MeDEP Chapter 500: Stormwater Management have been incorporated into the design of the project. Stormwater filtration basins are proposed for the expanded areas of the satellite parking lot. These basins will collect and filter runoff from



smaller storms, and the first flush, which carries the majority of the sediment load, from larger storms.

Upon completion of the project, maintenance responsibility for the site stormwater conveyance and treatment measures will be the responsibility of the Facilities Manager.

## 6.6 ATTACHMENTS

Rainstore, by Invisible Structures, Inc., Product Detail Sheets

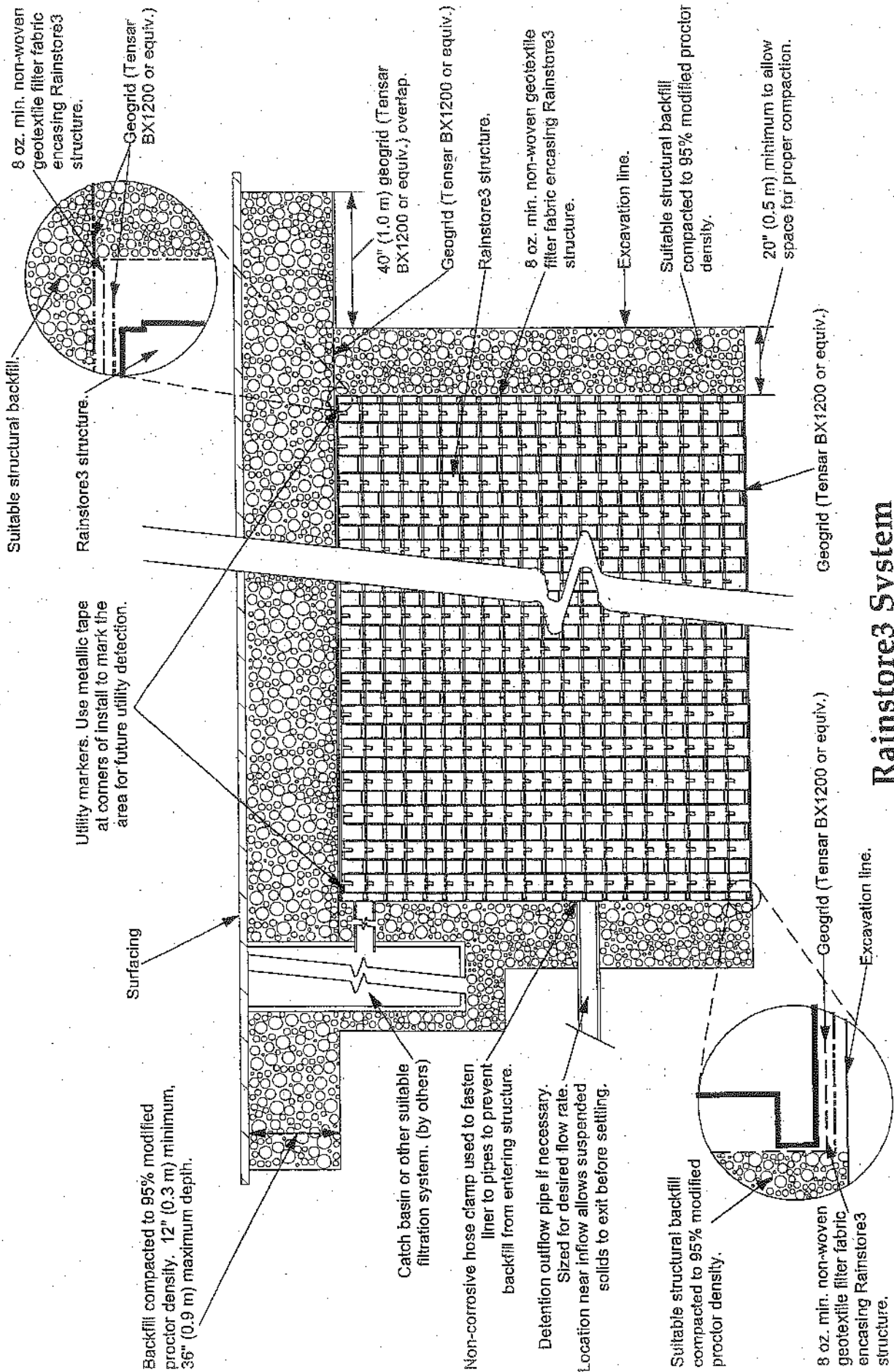
Figure 6.1 – Existing Stormwater Management Plan.

Figure 6.2 – Proposed Stormwater Management Plan.

HydroCAD Calculations (Existing).

HydroCAD Calculations (Proposed).

Water Quality Calculations.



Utility markers. Use metallic tape at corners of install to mark the area for future utility detection.

Surfacing

Backfill compacted to 95% modified proctor density. 12" (0.3 m) minimum, 36" (0.9 m) maximum depth.

Catch basin or other suitable filtration system. (by others)

Non-corrosive hose clamp used to fasten liner to pipes to prevent backfill from entering structure.

Detention outflow pipe if necessary. Sized for desired flow rate. Location near inflow allows suspended solids to exit before settling.

Suitable structural backfill compacted to 95% modified proctor density.

8 oz. min. non-woven geotextile filter fabric encasing Rainstore3 structure.

Suitable structural backfill. 8 oz. min. non-woven geotextile filter fabric encasing Rainstore3 structure.

Rainsore3 structure.

Geogrid (Tensar BX1200 or equiv.)

40" (1.0 m) geogrid (Tensar BX1200 or equiv.) overlap.

Geogrid (Tensar BX1200 or equiv.) Rainsore3 structure.

8 oz. min. non-woven geotextile filter fabric encasing Rainstore3 structure.

Excavation line.

Suitable structural backfill compacted to 95% modified proctor density.

20" (0.5 m) minimum to allow space for proper compaction.

Geogrid (Tensar BX1200 or equiv.)

# Rainstore3 System

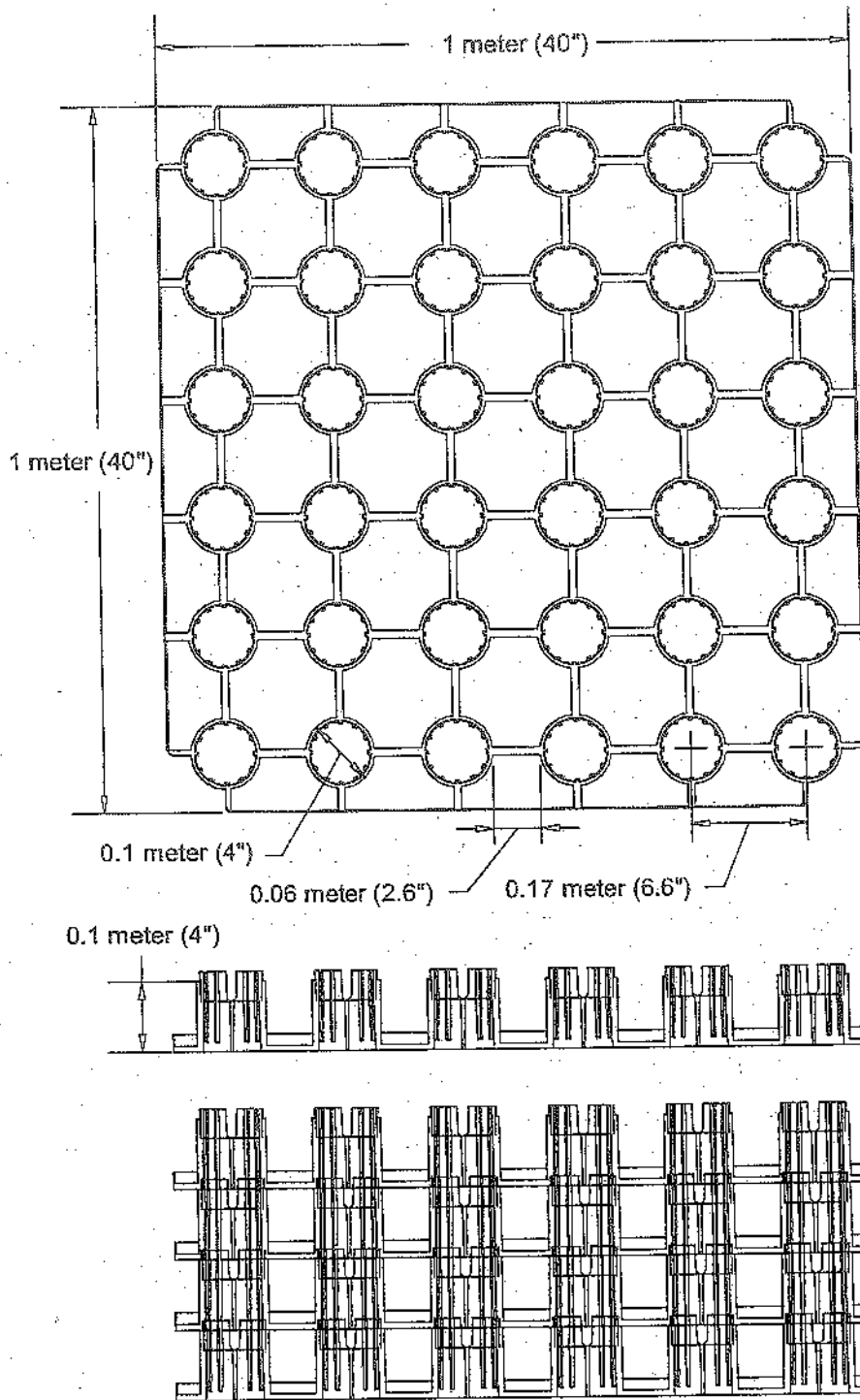
Typical RS3 installation below paving

NOT TO SCALE

Invisible Structures, Inc.  
RS3system.dwg

1600 Jackson Street, Suite 310  
Golden, Colorado 80401  
800-233-1510 FAX: 900-233-1522  
www.invisiblestructures.com 02/04

# Rainstore3 Unit Dimensions



## Rainstore3 Unit Detail

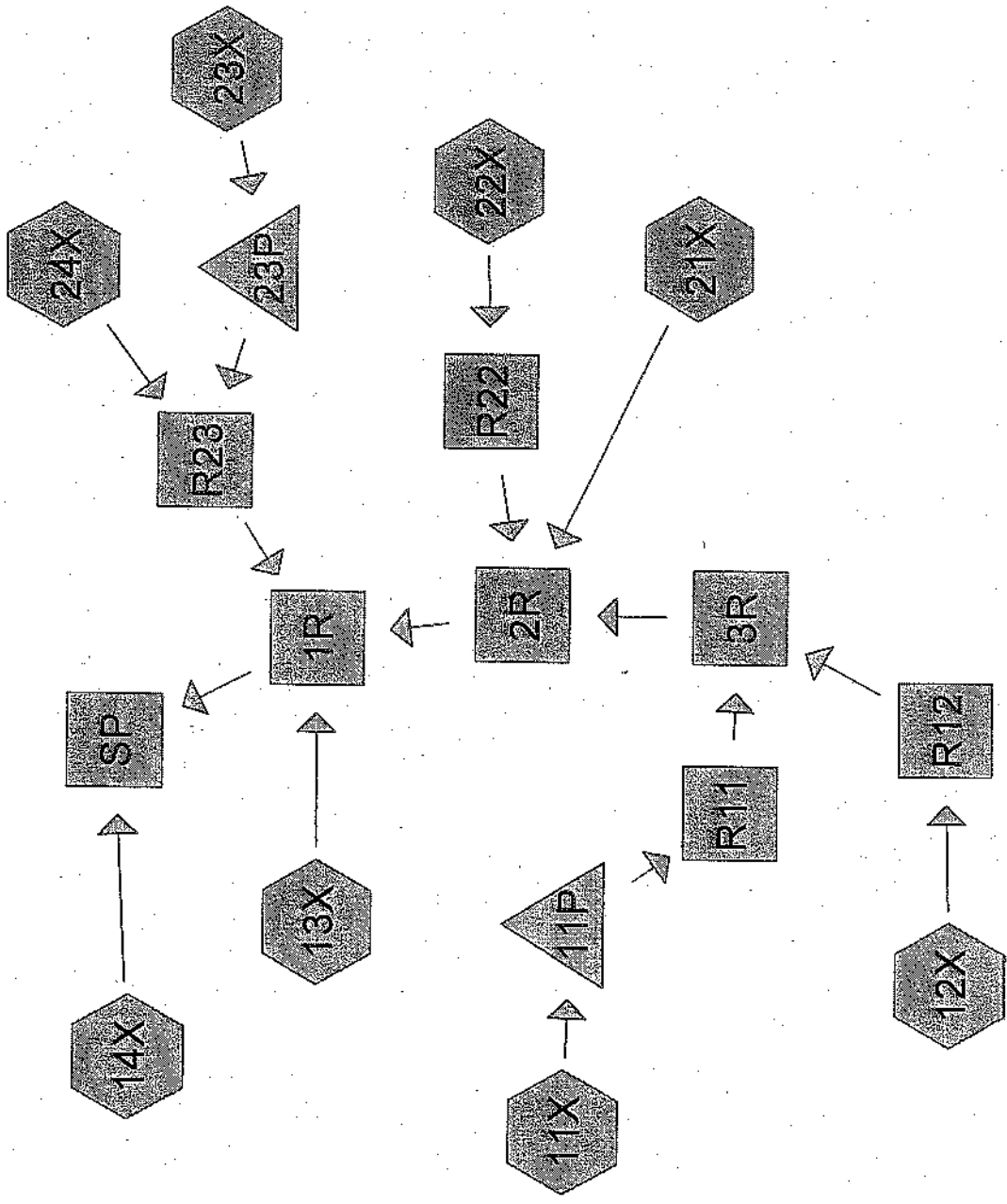
NOT TO SCALE

Invisible  
Structures, Inc.  
RS3detail.dwg

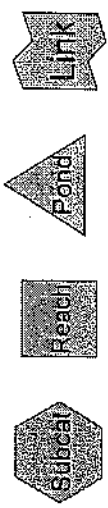
Single Rainstore3 injection molded unit geometry and dimensions

1600 Jackson St. Suite 310  
Golden, Colorado 80401  
800-233-1510 FAX: 800-233-1522  
www.invisiblestructures.com 08/04





Drainage Diagram for CadCam Existing  
 Prepared by {enter your company name here} 12/2/2005  
 HydroCAD® 6.00 s/n 001204 © 1986-2001 Applied Microcomputer Systems



Time span=5.00-30.00 hrs, dt=0.10 hrs, 251 points  
 Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=3.00"  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 11X: Satellite Parking**

Tc=2.1 min CN=95 Area=0.320 ac Runoff= 0.89 cfs 0.065 af

**Subcatchment 12X: North/West of Satellite**

Tc=4.8 min CN=81 Area=0.590 ac Runoff= 0.85 cfs 0.065 af

**Subcatchment 13X: Existing NORTH-CENTRAL**

Tc=15.4 min CN=75 Area=0.910 ac Runoff= 0.70 cfs 0.073 af

**Subcatchment 14X: Existing Northeast**

Tc=20.4 min CN=74 Area=1.040 ac Runoff= 0.67 cfs 0.079 af

**Subcatchment 21X: Existing Central**

Tc=7.3 min CN=79 Area=0.850 ac Runoff= 1.00 cfs 0.084 af

**Subcatchment 22X: Existing Parking and Entrance Circle**

Tc=12.0 min CN=84 Area=0.720 ac Runoff= 1.02 cfs 0.091 af

**Subcatchment 23X: Existing Buildings and surrounding**

Tc=8.3 min CN=91 Area=0.810 ac Runoff= 1.65 cfs 0.140 af

**Subcatchment 24X: Behind Existing Pond**

Tc=11.6 min CN=73 Area=0.240 ac Runoff= 0.18 cfs 0.017 af

**Reach 1R: Existing Swale**

Inflow= 4.50 cfs 0.534 af  
 Length= 200.0' Max Vel= 0.9 fps Capacity= 43.53 cfs Outflow= 4.26 cfs 0.534 af

**Reach 2R: Existing Swale**

Inflow= 2.50 cfs 0.304 af  
 Length= 80.0' Max Vel= 1.3 fps Capacity= 44.69 cfs Outflow= 2.38 cfs 0.304 af

**Reach 3R: Existing Swale**

Inflow= 0.95 cfs 0.129 af  
 Length= 120.0' Max Vel= 0.9 fps Capacity= 63.42 cfs Outflow= 0.87 cfs 0.129 af

**Reach R11: From P11 to Swale**

Inflow= 0.17 cfs 0.064 af  
 Length= 70.0' Max Vel= 0.2 fps Capacity= 33.01 cfs Outflow= 0.17 cfs 0.064 af

**Reach R12: 48" RCP**

Inflow= 0.85 cfs 0.065 af  
 Length= 90.0' Max Vel= 7.0 fps Capacity= 463.95 cfs Outflow= 0.82 cfs 0.065 af

**Reach R22: From 22 to Swale**

Inflow= 1.02 cfs 0.091 af  
 Length= 90.0' Max Vel= 0.4 fps Capacity= 27.37 cfs Outflow= 0.91 cfs 0.091 af

**Reach R23: From Pond23 to Swale**

Inflow= 1.61 cfs 0.157 af  
 Length= 40.0' Max Vel= 0.5 fps Capacity= 21.38 cfs Outflow= 1.45 cfs 0.157 af

**CadCam Existing**

Type III 24-hr Rainfall=3.00" (2-Year Storm)

Prepared by {enter your company name here}

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12/2/2005

**Reach SP: Study Point**

Inflow= 4.92 cfs 0.612 af  
Length= 100.0' Max Vel= 0.4 fps Capacity= 239.77 cfs Outflow= 4.73 cfs 0.612 af

**Pond 11P: Existing Satellie Lot Detention Pond**

Peak Storage= 917 cf Inflow= 0.89 cfs 0.065 af  
Primary= 0.17 cfs 0.064 af Secondary= 0.00 cfs 0.000 af Outflow= 0.17 cfs 0.064 af

**Pond 23P: Pond 23**

Peak Storage= 894 cf Inflow= 1.65 cfs 0.140 af  
Primary= 0.86 cfs 0.133 af Secondary= 0.58 cfs 0.006 af Outflow= 1.45 cfs 0.140 af

**Runoff Area = 5.480 ac Volume = 0.613 af Average Depth = 1.34"**

**CadCam Existing**

Type III 24-hr Rainfall=3.00" (2-Year Storm)

Prepared by {enter your company name here}

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12/2/2005

**Subcatchment 11X: Satellite Parking**

Runoff = 0.89 cfs @ 11.99 hrs, Volume= 0.065 af

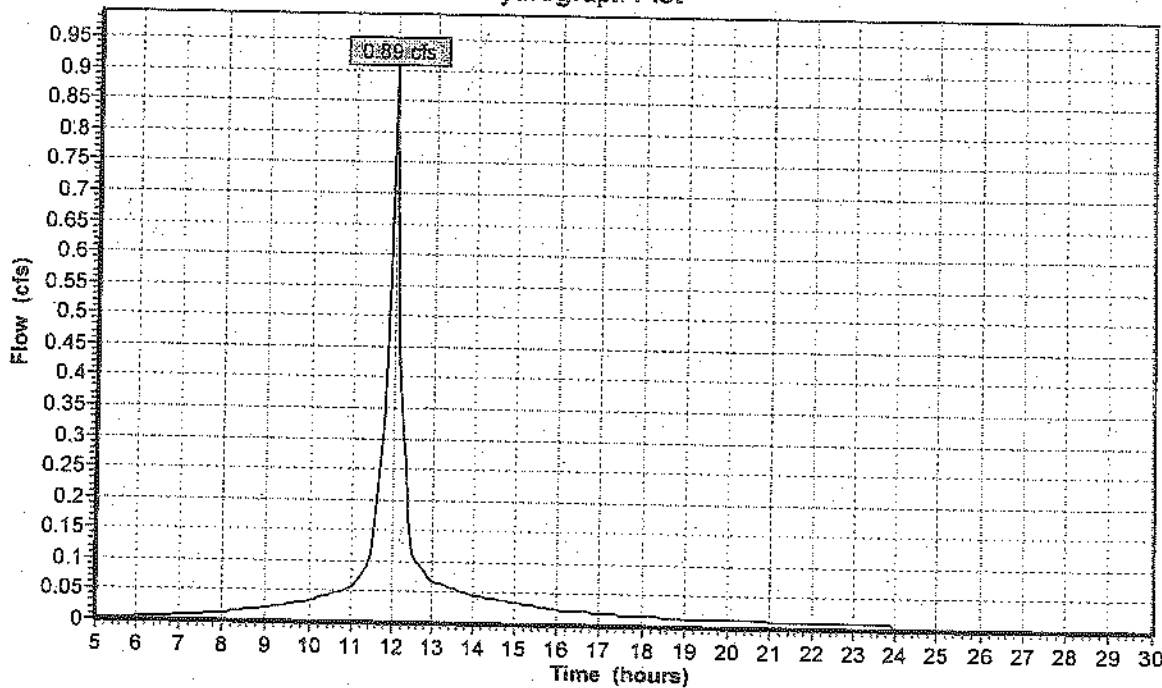
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.270	98	IMPERVIOUS (PARKING LOT)
0.040	74	OPEN SPACE (GOOD)-HSG "C"
0.010	89	RIP RAP-HSG "C"
0.320	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0303	1.6		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
0.1	15	0.3300	4.0		Shallow Concentrated Flow, Segment ID:BC Kv= 7.0 fps
0.9	55	0.0200	1.0		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
2.1	170	Total			

**Subcatchment 11X: Satellite Parking**

Hydrograph Plot



**Subcatchment 12X: North/West of Satellite**

Runoff = 0.85 cfs @ 12.02 hrs, Volume= 0.065 af.

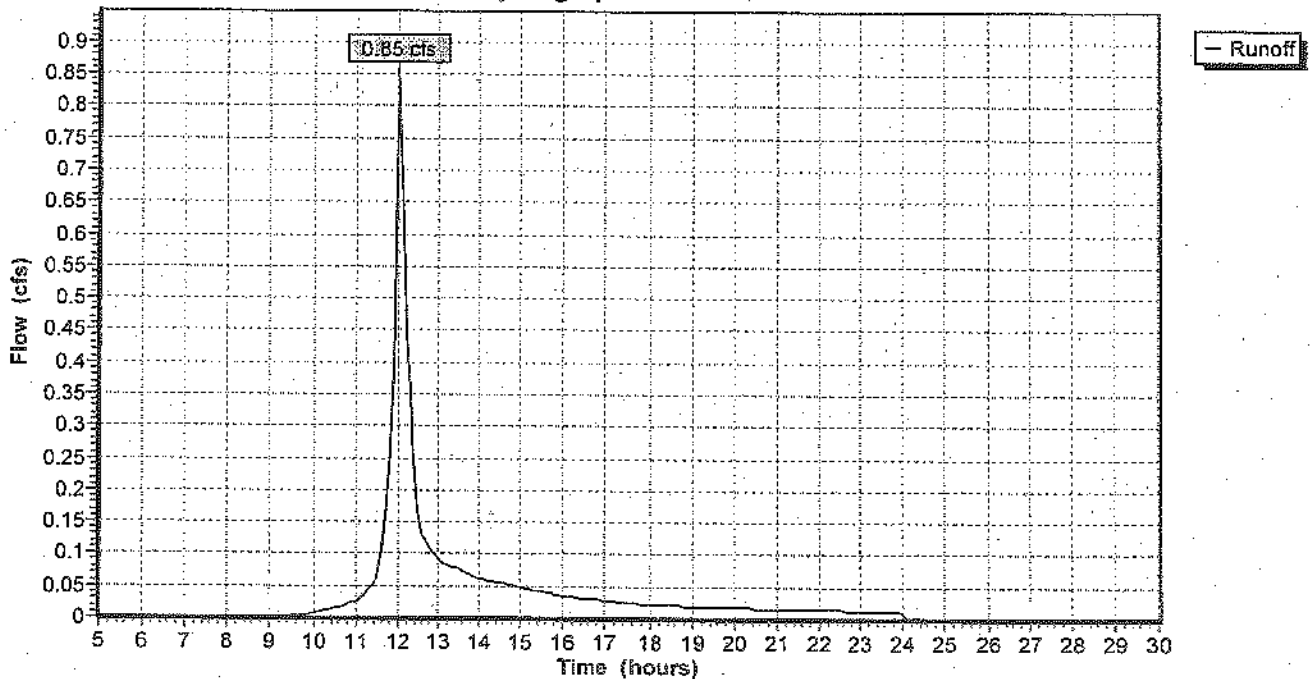
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.020	73	WOODS (FAIR)-HSG "C"
0.400	74	OPEN SPACE (GOOD)-HSG "C"
0.170	98	IMPERVIOUS
0.590	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	16	0.1900	0.2		Sheet Flow, Segment ID:AB Grass: Dense n= 0.240 P2= 3.00"
0.8	13	0.5000	0.3		Sheet Flow, Segment ID:BC Grass: Dense n= 0.240 P2= 3.00"
1.3	185	0.0270	2.5		Shallow Concentrated Flow, Segment ID:CD Grassed Waterway Kv= 15.0 fps
0.2	60	0.0100	5.7	7.00	Circular Channel (pipe), SEGMENT ID:DE Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
1.1	165	0.0300	2.6		Shallow Concentrated Flow, SEGMENT ID:EF Grassed Waterway Kv= 15.0 fps
4.8	439	Total			

**Subcatchment 12X: North/West of Satellite**

Hydrograph Plot



**Subcatchment 13X: Existing NORTH-CENTRAL**

Runoff = 0.70 cfs @ 12.20 hrs, Volume= 0.073 af

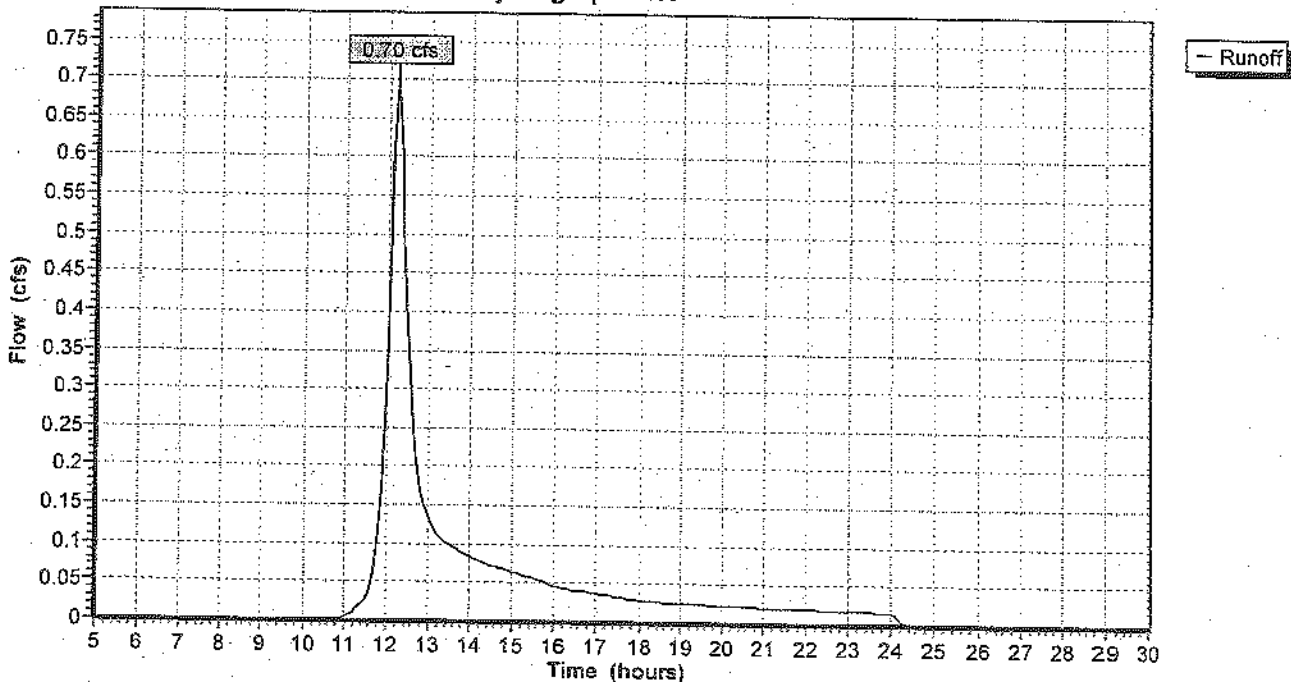
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.000	98	IMPERVIOUS (PAVEMENT)
0.540	73	WOODS (FAIR)-HSG "C"
0.130	74	OPEN SPACE (GOOD)-HSG "C"
0.240	79	WOODS (FAIR)-HSG "D"
0.910	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	35	0.0700	0.1		Sheet Flow, Segment ID:AB Woods: Light underbrush n= 0.400 P2= 3.00"
6.7	65	0.1700	0.2		Sheet Flow, Segment ID:BC Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	130	0.1300	1.8		Shallow Concentrated Flow, Segment C-D Woodland Kv= 5.0 fps
1.7	100	0.0400	1.0		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
15.4	330	Total			

**Subcatchment 13X: Existing NORTH-CENTRAL**

Hydrograph Plot



**Subcatchment 14X: Existing Northeast**

Runoff = 0.67 cfs @ 12.27 hrs, Volume= 0.079 af

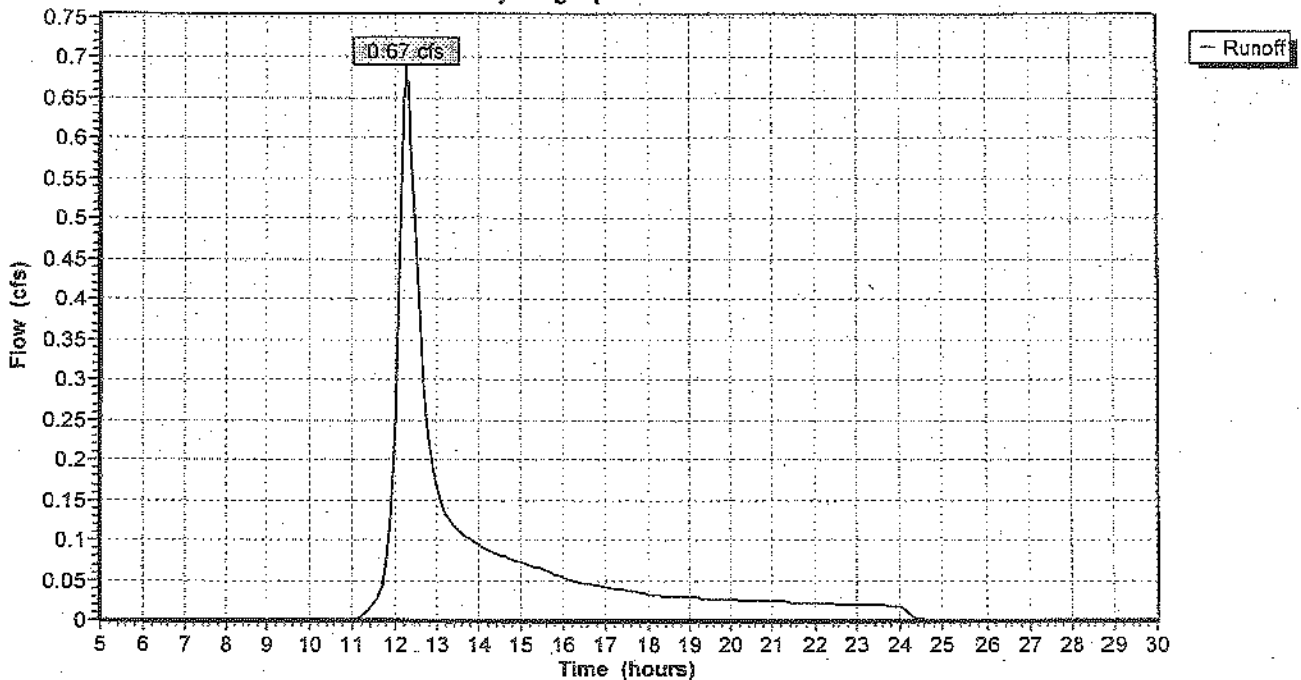
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.810	73	Woods, Fair, HSG C
0.230	79	Woods, Fair, HSG D
1.040	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	60	0.0250	0.1		Sheet Flow, Segment AB Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	40	0.2250	0.2		Sheet Flow, Segment BC Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	90	0.1444	1.9		Shallow Concentrated Flow, Segment CD Woodland Kv= 5.0 fps
0.1	25	0.4400	3.3		Shallow Concentrated Flow, Segment DE Woodland Kv= 5.0 fps
2.0	70	0.0140	0.6		Shallow Concentrated Flow, Segment EF Woodland Kv= 5.0 fps
20.4	285	Total			

**Subcatchment 14X: Existing Northeast**

Hydrograph Plot



**Subcatchment 21X: Existing Central**

Runoff = 1.00 cfs @ 12.08 hrs, Volume= 0.084 af

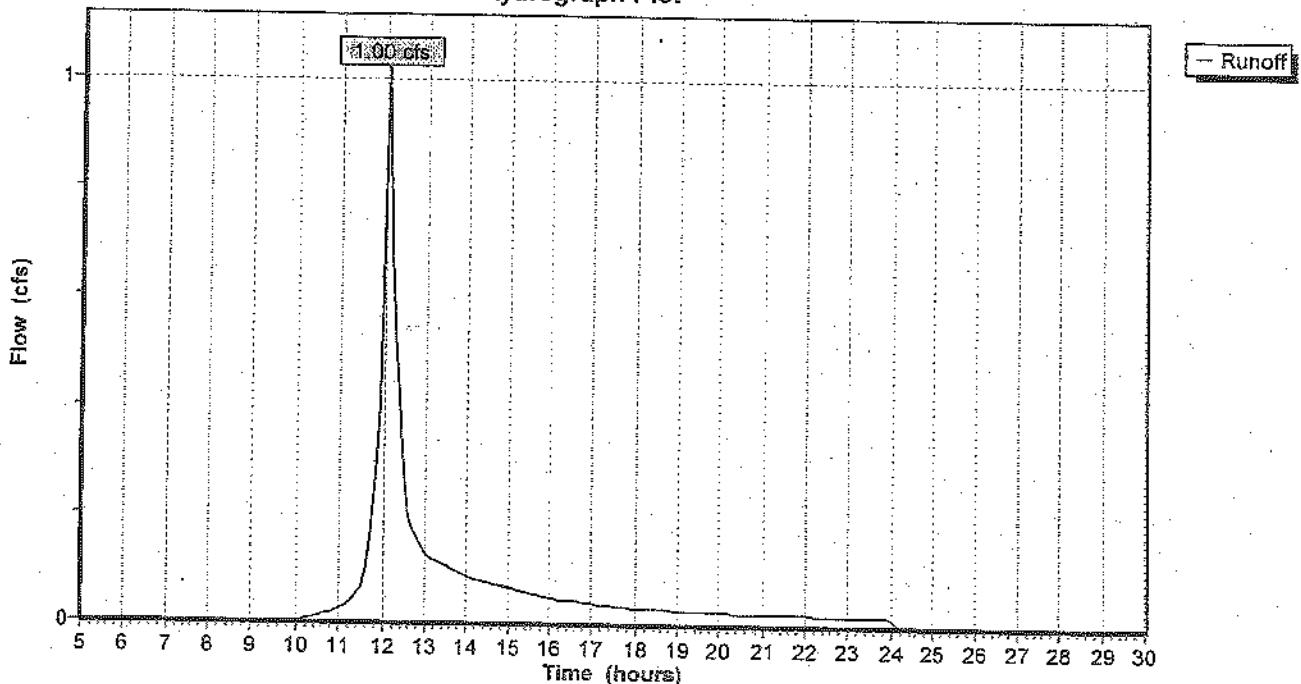
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.260	73	WOODS (FAIR)-HSG "C"
0.250	74	OPEN SPACE (GOODG "C"
0.200	79	WOODS (FAIR)-HSD "D"
0.140	98	IMPERVIOUS (BLDG, PAVEMENT)
0.850	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	75	0.0600	0.2		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.7	15	0.4000	0.4		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
0.2	30	0.2700	2.6		Shallow Concentrated Flow, Segment ID:CD Woodland Kv= 5.0 fps
1.2	80	0.0500	1.1		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
7.3	200	Total			

**Subcatchment 21X: Existing Central**

Hydrograph Plot





**Subcatchment 22X: Existing Parking and Entrance Circle**

Runoff = 1.02 cfs @ 12.13 hrs, Volume= 0.091 af

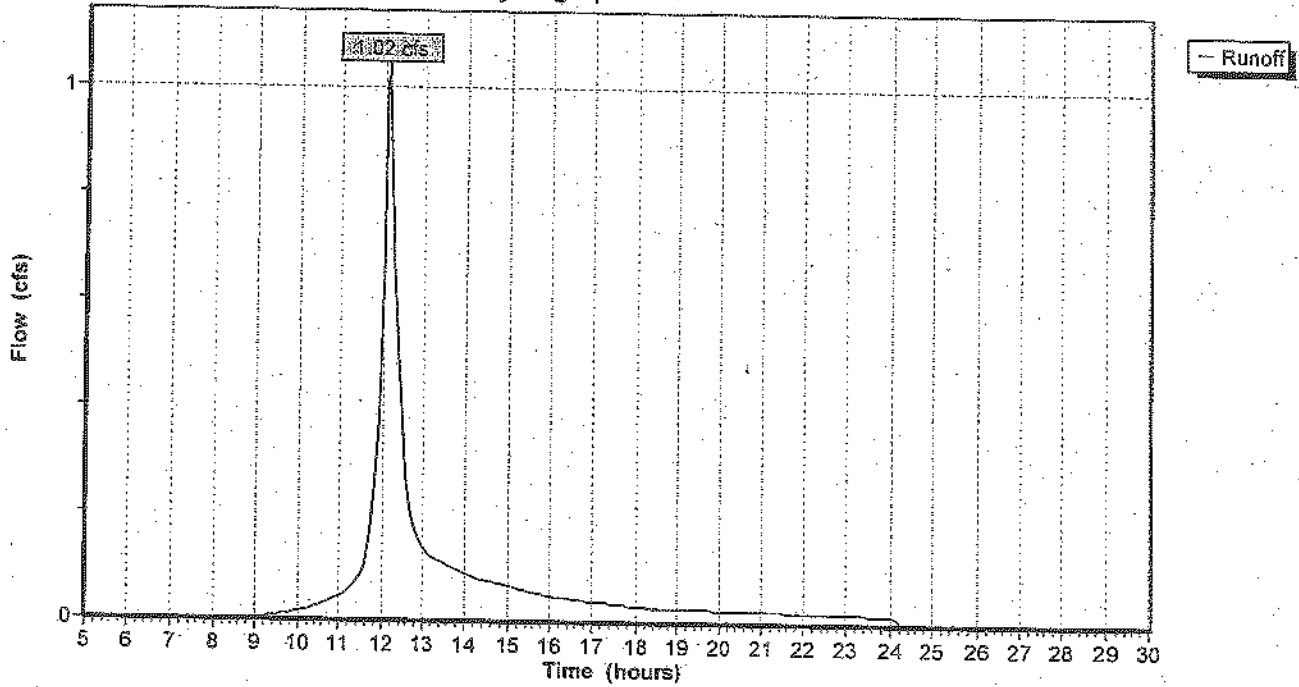
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.130	73	WOODS (FAIR)-HSG "C"
0.280	74	OPEN SPACE (GOODG "C"
0.310	98	IMPERVIOUS (BLDG, PAVEMENT)
0.720	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	15	0.0167	0.1		<b>Sheet Flow, Segment ID:AB</b> Grass: Short n= 0.150 P2= 3.00"
0.4	20	0.0125	0.8		<b>Sheet Flow, SegmentBC</b> Smooth surfaces n= 0.011 P2= 3.00"
7.9	65	0.1100	0.1		<b>Sheet Flow, SegmentCD</b> Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	70	0.0860	1.5		<b>Shallow Concentrated Flow, Segment ID:DE</b> Woodland Kv= 5.0 fps
0.4	90	0.0333	3.7		<b>Shallow Concentrated Flow, Segment ID:EF</b> Paved Kv= 20.3 fps
0.1	65	0.0500	12.0	9.42	<b>Circular Channel (pipe), SegmentFG</b> Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
12.0	325	Total			

### Subcatchment 22X: Existing Parking and Entrance Circle

Hydrograph Plot



**Subcatchment 23X: Existing Buildings and surrounding**

Runoff = 1.65 cfs @ 12.08 hrs; Volume= 0.140 af

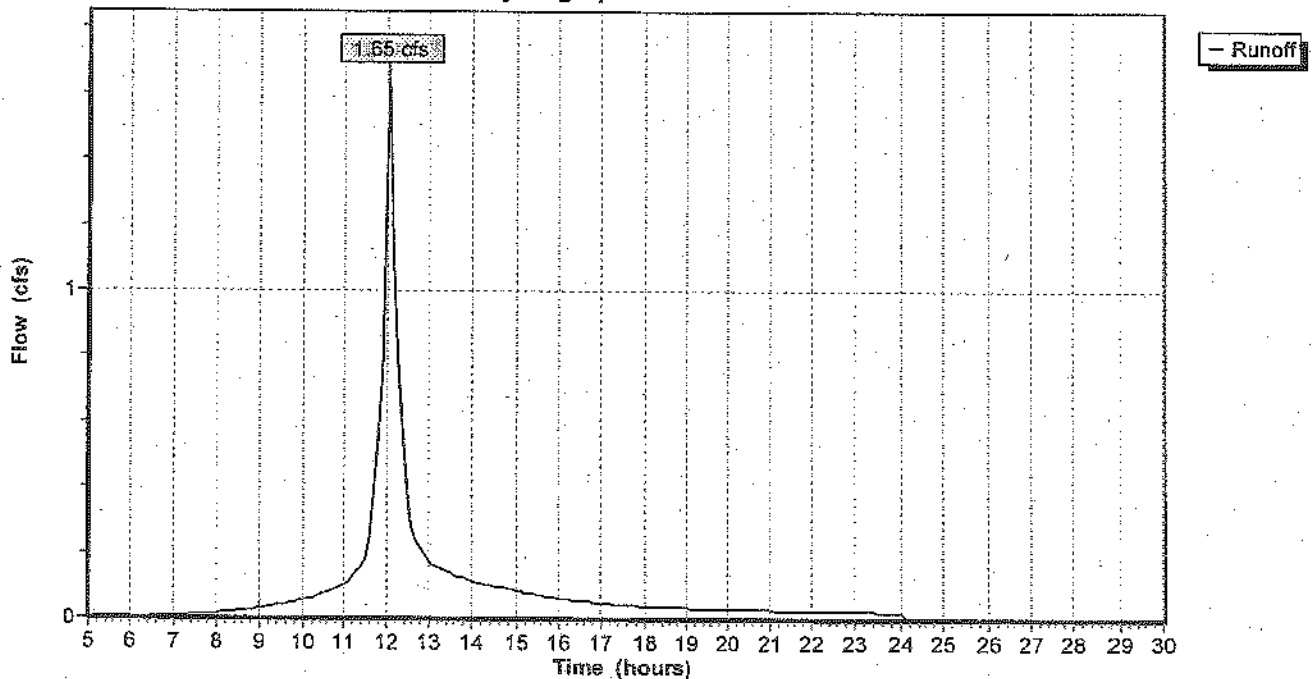
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30:00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.310	79	OPEN SPACE (FAIR)-HSG "C"
0.200	98	Paved parking & roofs
0.300	98	Paved parking & roofs
0.810	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2000	0.3		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
6.4	90	0.0500	0.2		Sheet Flow, Segment ID:BC Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1100	2.3		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
0.0	10	0.3000	3.8		Shallow Concentrated Flow, Segment ID:DE Short Grass Pasture Kv= 7.0 fps
0.9	95	0.0630	1.8		Shallow Concentrated Flow, Segment EF Short Grass Pasture Kv= 7.0 fps
8.3	265	Total			

**Subcatchment 23X: Existing Buildings and surrounding**

Hydrograph Plot



**Subcatchment 24X: Behind Existing Pond**

Runoff = 0.18 cfs @ 12.14-hrs, Volume= 0.017 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

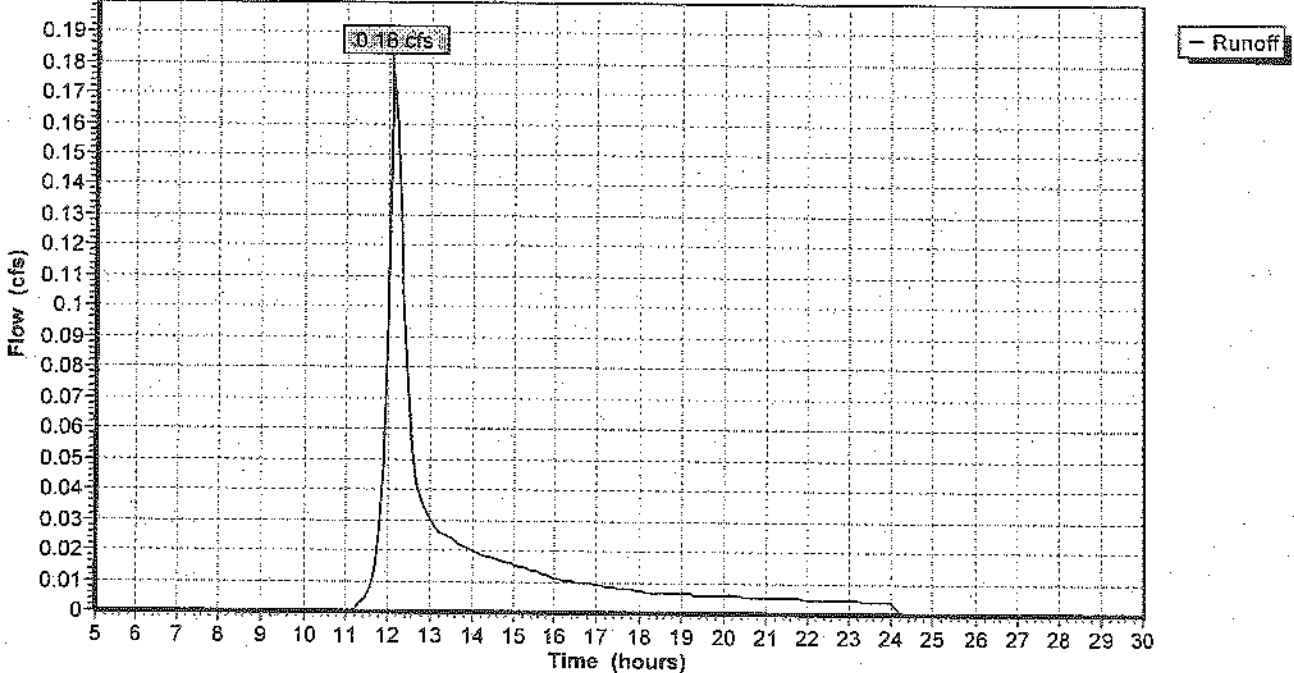
Area (ac)	CN	Description
0.240	73	Woods, Fair, HSG C

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	45	0.1111	0.1		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.00"
4.2	55	0.0545	0.2		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
1.5	125	0.0800	1.4		Shallow Concentrated Flow, CD Woodland Kv= 5.0 fps
11.6	225	Total			

**Subcatchment 24X: Behind Existing Pond**

Hydrograph Plot



Reach 1R: Existing Swale

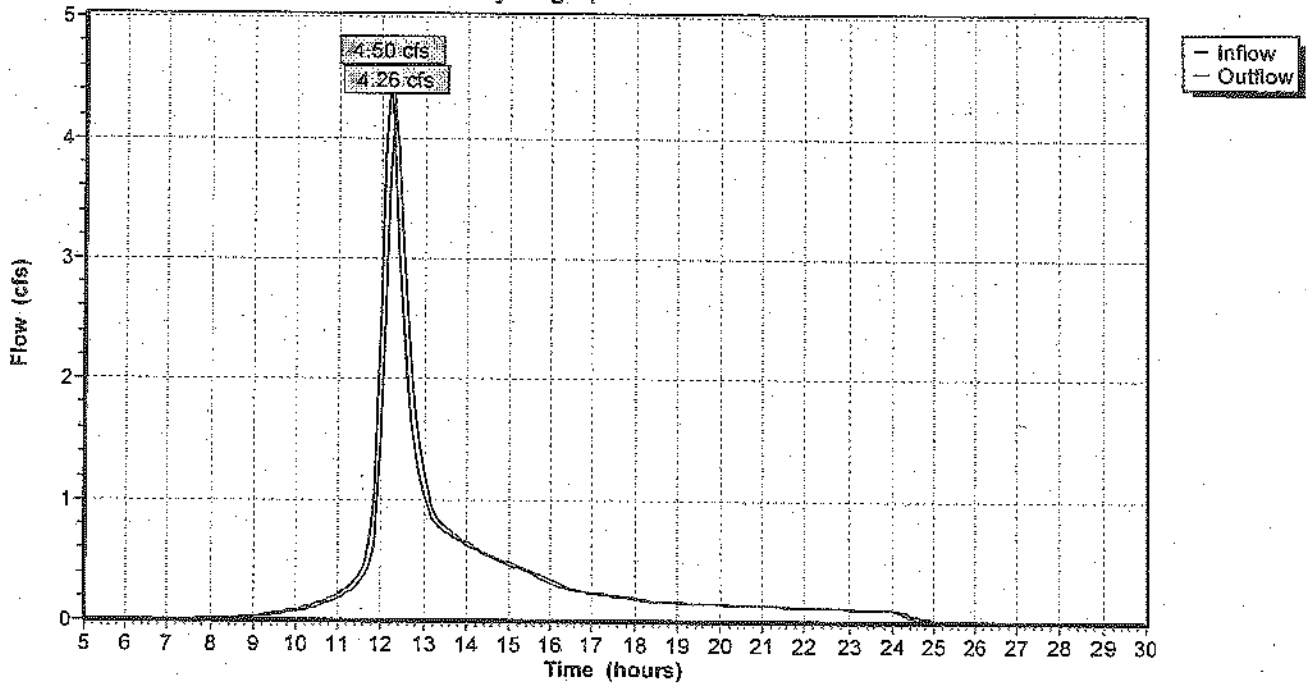
Inflow = 4.50 cfs @ 12.20 hrs, Volume= 0.534 af  
Outflow = 4.26 cfs @ 12.31 hrs, Volume= 0.534 af, Atten= 5%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.9 fps, Min. Travel Time= 3.7 min  
Avg. Velocity= 0.3 fps, Avg. Travel Time= 13.1 min

Peak Depth= 0.57'  
Capacity at bank full= 43.53 cfs  
Inlet invert= 30.00', Outlet invert= 29.50'  
7.00' x 2.00' deep channel, n= 0.050 Length= 200.0' Slope= 0.0025 '  
Side Slope Z-value= 3.0 2.0 '

Reach 1R: Existing Swale

Hydrograph Plot



### Reach 2R: Existing Swale

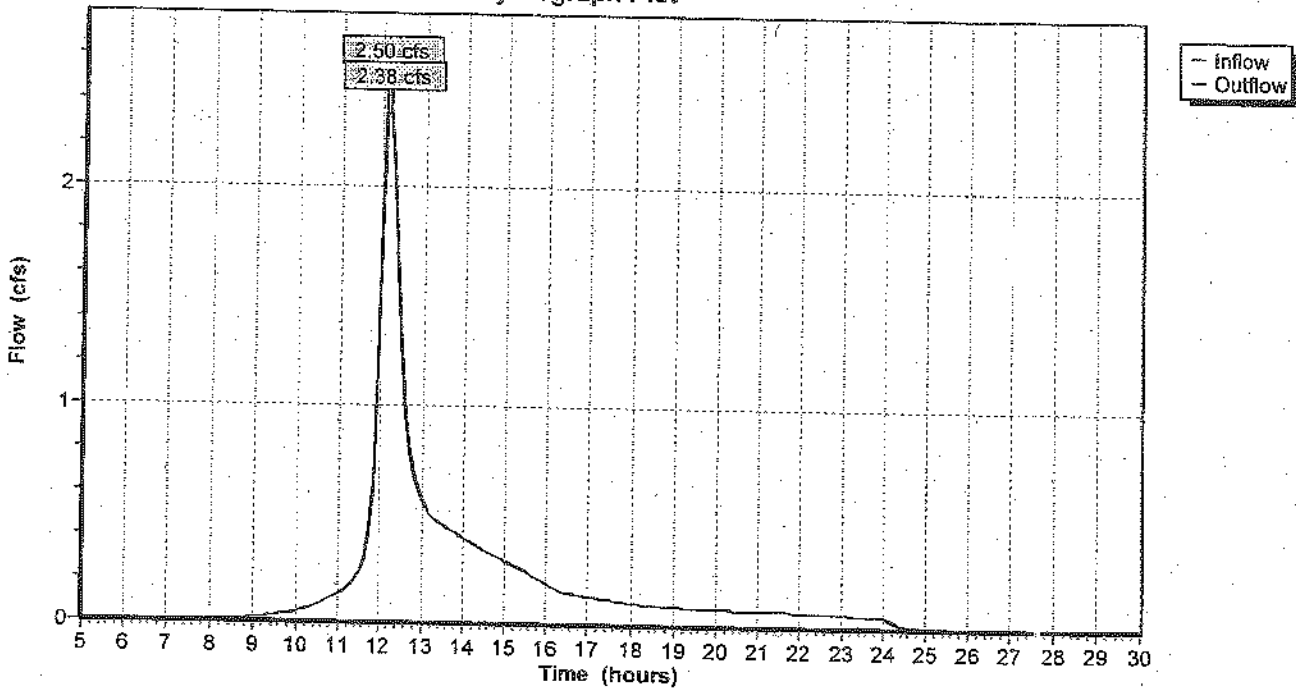
Inflow = 2.50 cfs @ 12.13 hrs, Volume= 0.304 af  
Outflow = 2.38 cfs @ 12.16 hrs, Volume= 0.304 af, Atten= 5%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.3 fps, Min. Travel Time= 1.0 min  
Avg. Velocity = 0.4 fps, Avg. Travel Time= 3.1 min

Peak Depth= 0.34'  
Capacity at bank full= 144.69 cfs  
Inlet Invert= 30.80', Outlet Invert= 30.00'  
5.00' x 3.00' deep channel, n= 0.050 Length= 80.0' Slope= 0.0100 1/  
Side Slope Z-value= 2.0 1'

### Reach 2R: Existing Swale

Hydrograph Plot



### Reach 3R: Existing Swale

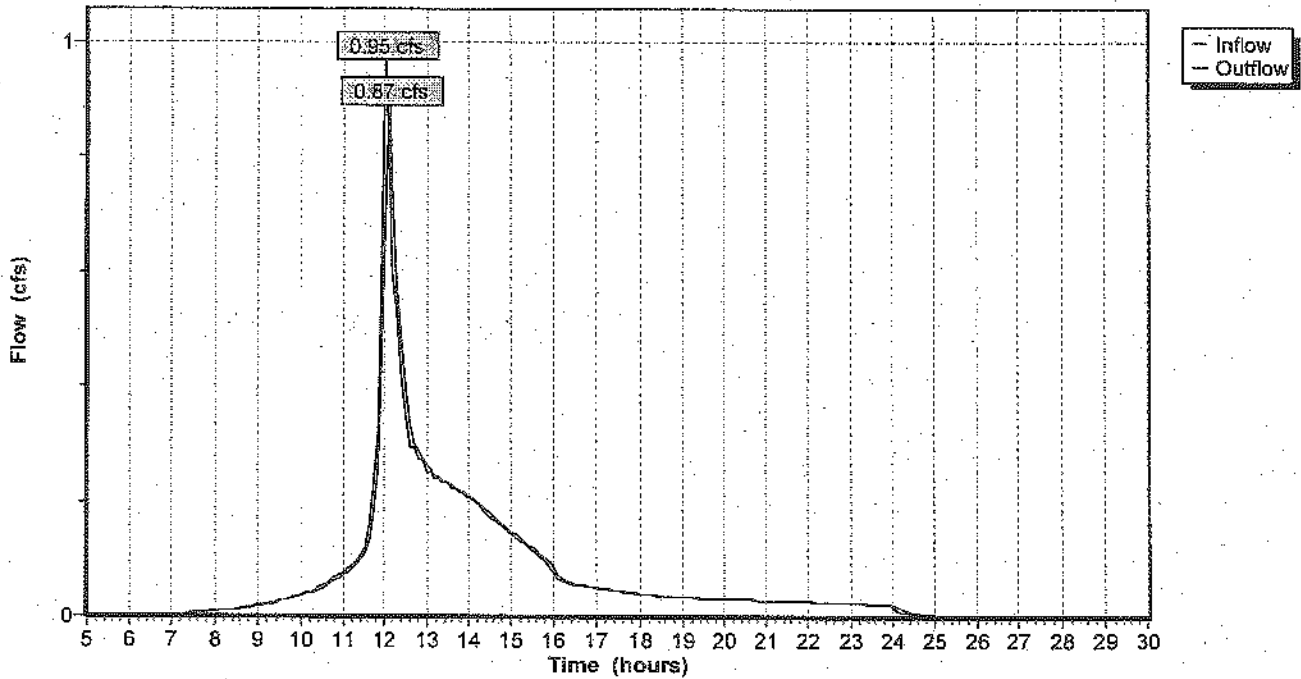
Inflow = 0.95 cfs @ 12.04 hrs, Volume= 0.129 af  
Outflow = 0.87 cfs @ 12.12 hrs, Volume= 0.129 af, Atten= 8%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.9 fps, Min. Travel Time= 2.2 min  
Avg. Velocity= 0.3 fps, Avg. Travel Time= 6.4 min

Peak Depth= 0.19'  
Capacity at bank full= 63.42 cfs  
Inlet Invert= 32.00', Outlet Invert= 30.80'  
5.00' x 2.00' deep channel, n= 0.050 Length= 120.0' Slope= 0.0100 1/  
Side Slope Z-value= 2.0 1'

### Reach 3R: Existing Swale

Hydrograph Plot



### Reach R11: From P11 to Swale

Inflow = 0.17 cfs @ 12.42 hrs, Volume= 0.064 af  
 Outflow = 0.17 cfs @ 12.57 hrs, Volume= 0.064 af, Atten= 0%, Lag= 9.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Max. Velocity= 0.2 fps, Min. Travel Time= 5.3 min  
 Avg. Velocity= 0.1 fps, Avg. Travel Time= 10.8 min

Peak Depth= 0.05'

Capacity at bank full= 33.01 cfs

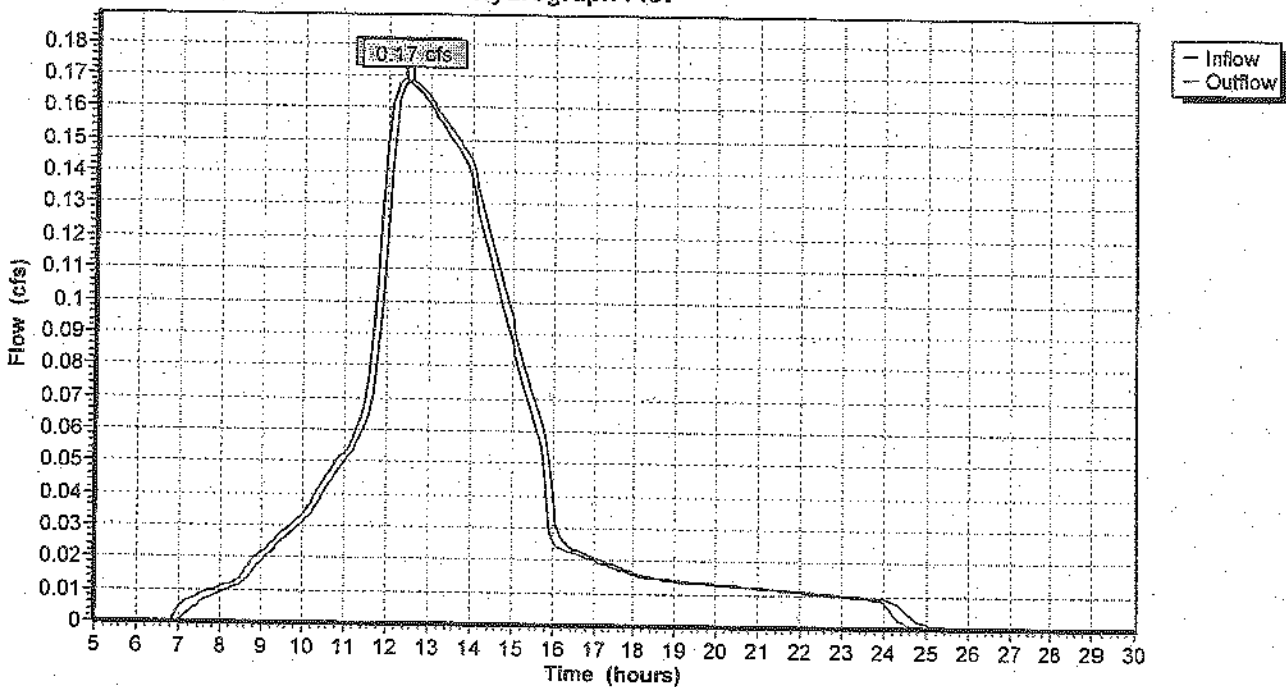
Inlet Invert= 45.90', Outlet Invert= 32.00'

15.00' x 1.00' deep channel, n= 0.400 Length= 70.0' Slope= 0.1986 1'

Side Slope Z-value= 10.0 1'

### Reach R11: From P11 to Swale

Hydrograph Plot





Reach R12: 48" RCP

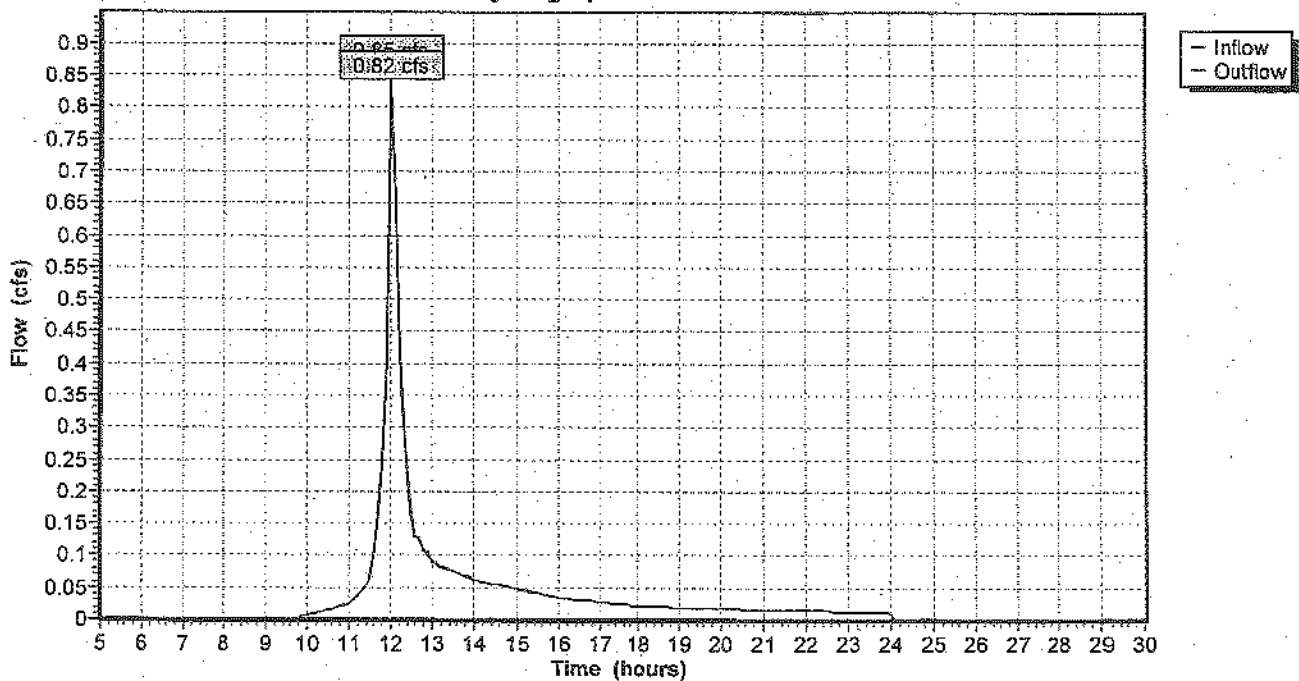
Inflow = 0.85 cfs @ 12.02 hrs, Volume= 0.065 af  
Outflow = 0.82 cfs @ 12.03 hrs, Volume= 0.065 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 7.0 fps, Min. Travel Time= 0.2 min  
Avg. Velocity= 3.5 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.13'  
Capacity at bank full= 463.95 cfs  
Inlet Invert= 40.00', Outlet Invert= 32.00'  
48.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0889 '/

Reach R12: 48" RCP

Hydrograph Plot



Reach R22: From 22 to Swale

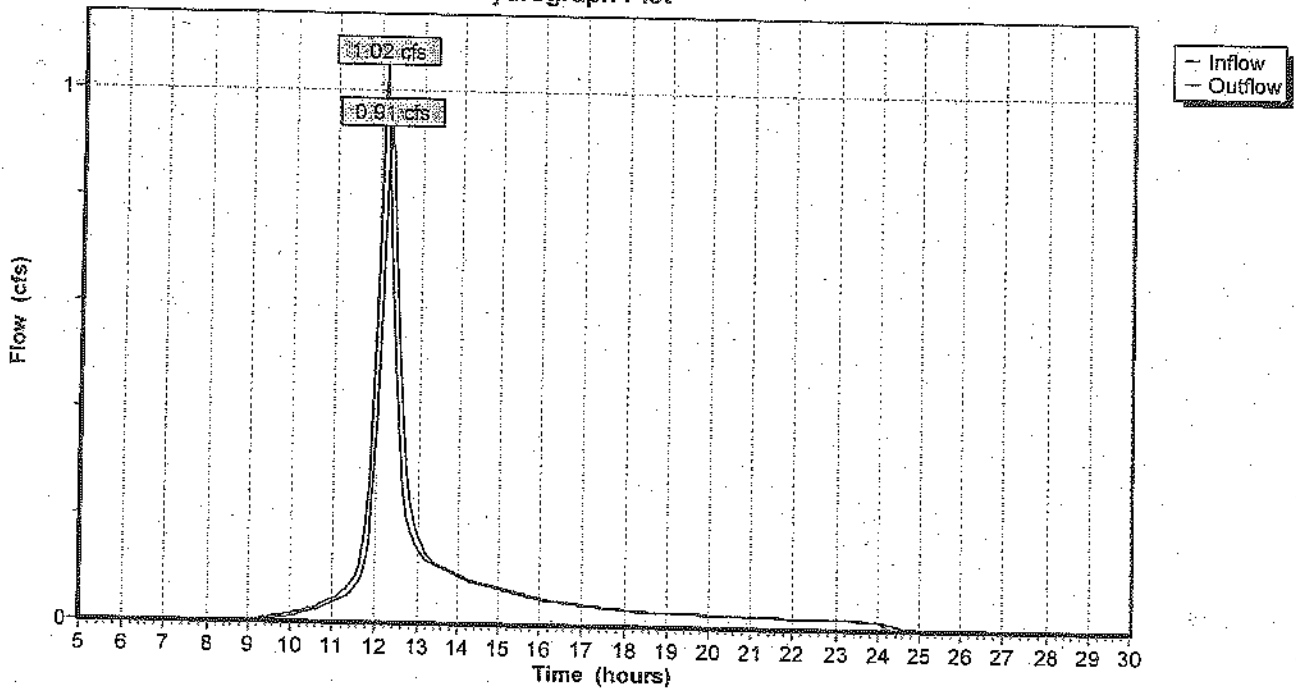
Inflow = 1.02 cfs @ 12.13 hrs, Volume= 0.091 af  
Outflow = 0.91 cfs @ 12.25 hrs, Volume= 0.091 af, Atten= 11%, Lag= 7.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 3.9 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 13.2 min

Peak Depth= 0.15'  
Capacity at bank full= 27.37 cfs  
Inlet Invert= 44.00', Outlet Invert= 30.50'  
15.00' x 1.00' deep channel, n= 0.400 Length= 90.0' Slope= 0.1500 1/  
Side Slope Z-value= 15.0 2.0 1'

Reach R22: From 22 to Swale

Hydrograph Plot



### Reach R23: From Pond23 to Swale

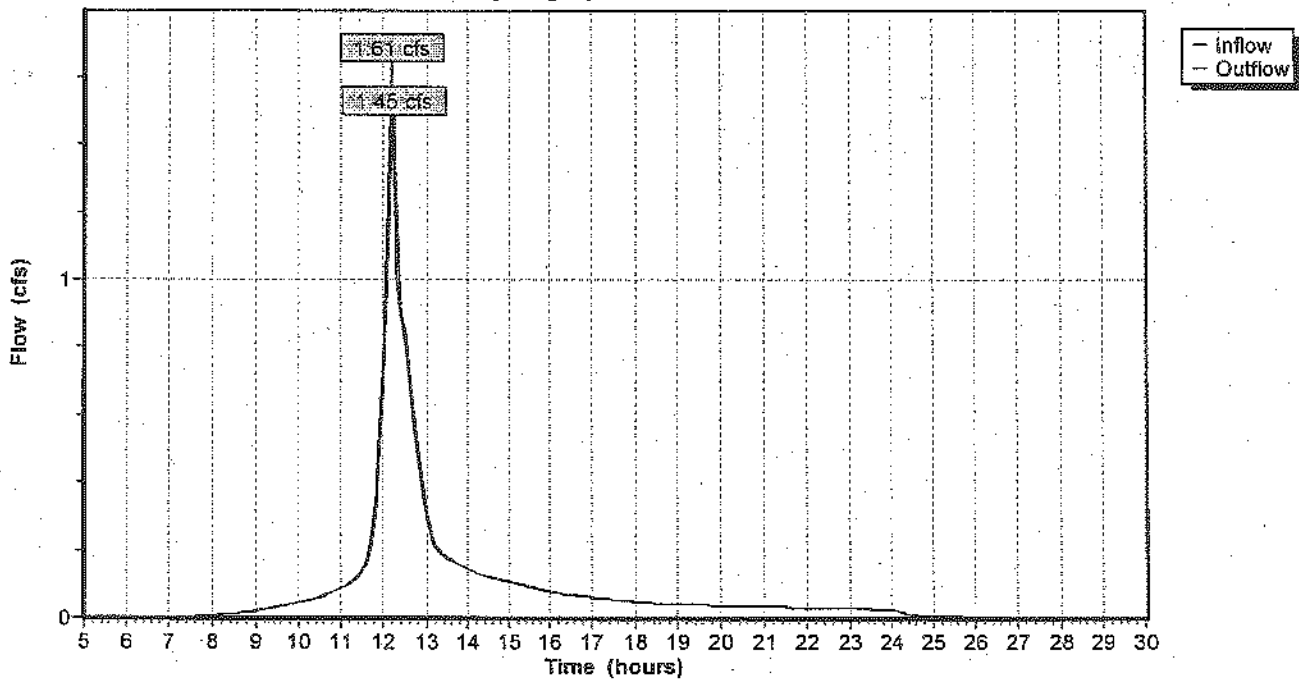
Inflow = 1.61 cfs @ 12.19 hrs, Volume= 0.157 af  
Outflow = 1.45 cfs @ 12.22 hrs, Volume= 0.157 af, Atten= 10%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.5 fps, Min. Travel Time= 1.2 min  
Avg. Velocity= 0.2 fps, Avg. Travel Time= 4.0 min

Peak Depth= 0.30'  
Capacity at bank full= 21.38 cfs  
Inlet Invert= 37.00', Outlet Invert= 30.00'  
5.00' x 1.00' deep channel, n= 0.400 Length= 40.0' Slope= 0.1750 '/'  
Side Slope Z-value= 15.0 '/'

### Reach R23: From Pond23 to Swale

Hydrograph Plot



Reach SP: Study Point

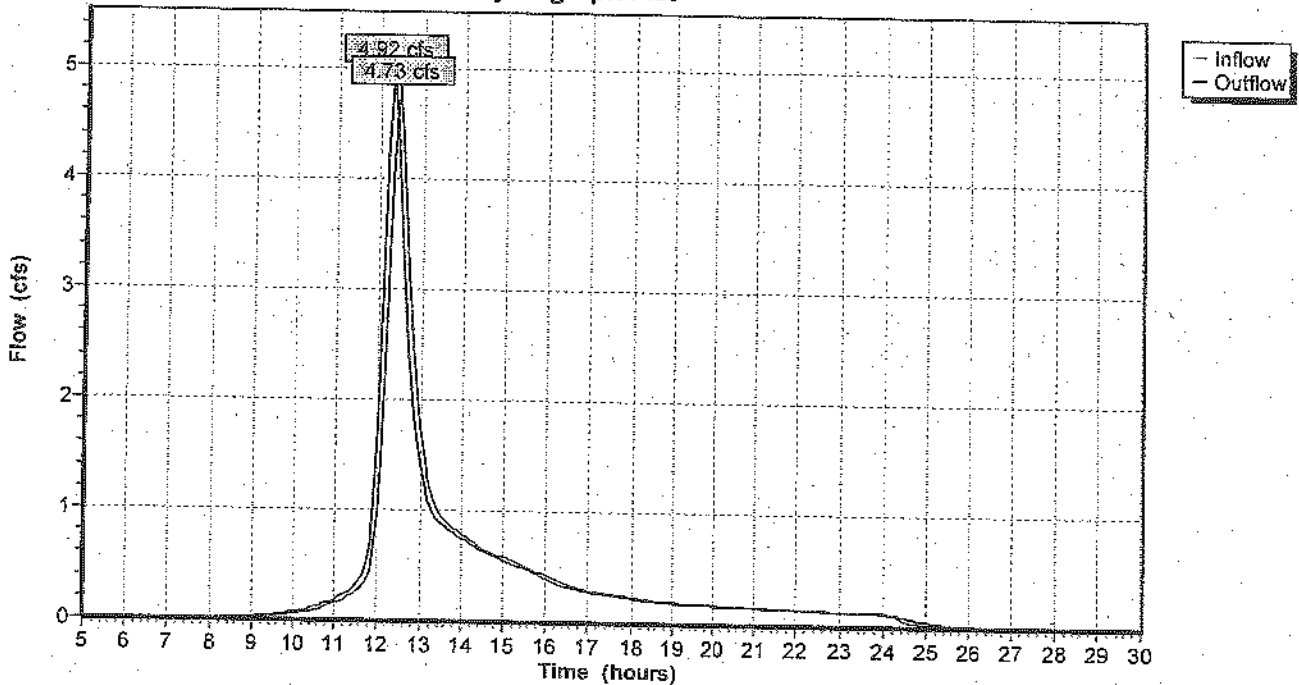
Inflow = 4.92 cfs @ 12.31 hrs, Volume= 0.612 af  
Outflow = 4.73 cfs @ 12.43 hrs, Volume= 0.612 af, Atten= 4%, Lag= 7.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 4.0 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 12.9 min

Peak Depth= 0.31'  
Capacity at bank full= 239.77 cfs  
Inlet Invert= 29.50', Outlet Invert= 29.40'  
35.00' x 3.00' deep channel, n= 0.050 Length= 100.0' Slope= 0.0010 '  
Side Slope Z-value= 5.0 4.0 '

Reach SP: Study Point

Hydrograph Plot



**Pond 11P: Existing Satellite Lot Detention Pond**

Inflow = 0.89 cfs @ 11.99 hrs, Volume= 0.065 af  
 Outflow = 0.17 cfs @ 12.42 hrs, Volume= 0.064 af, Atten= 81%, Lag= 25.5 min  
 Primary = 0.17 cfs @ 12.42 hrs, Volume= 0.064 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 48.47' Storage= 917 cf

Plug-Flow detention time= 55.7 min calculated for 0.064 af (98% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	10	0	0
47.00	117	64	64
48.00	674	396	459
49.00	1,276	975	1,434

**Primary OutFlow (Free Discharge)**

- └─1=Orifice/Grate
- └─2=Orifice/Grate

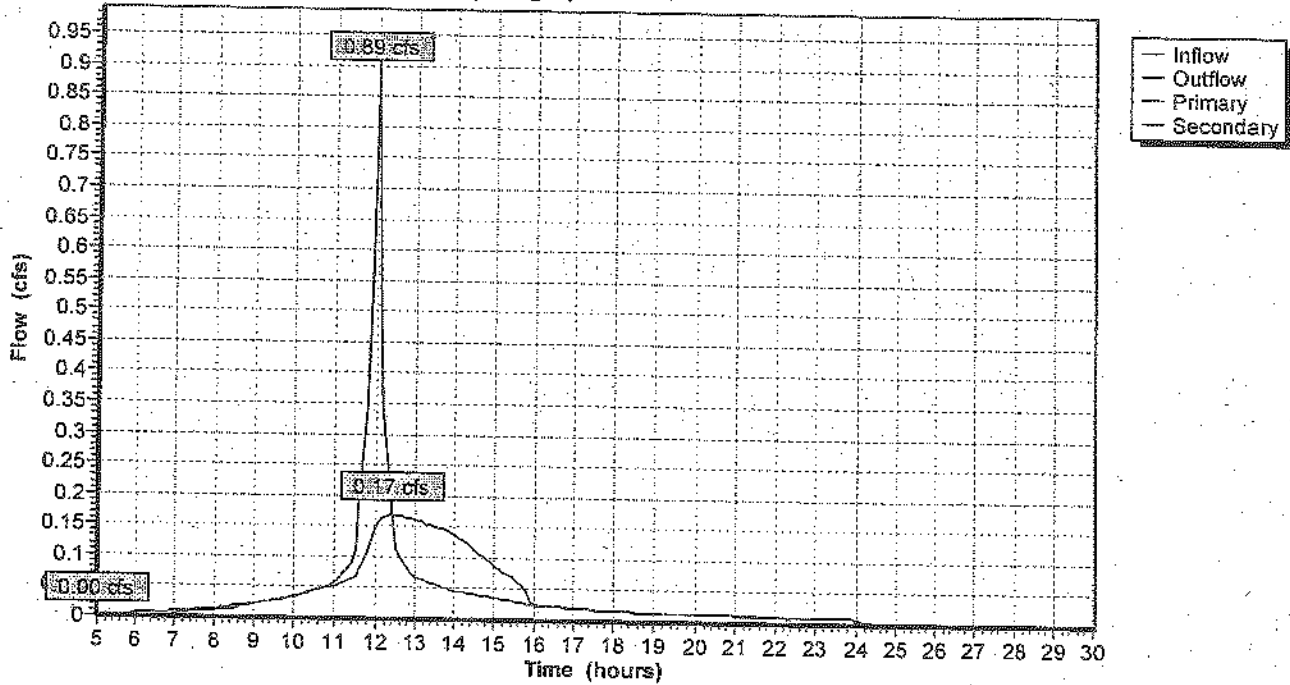
**Secondary OutFlow (Free Discharge)**

- └─3=Sharp-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	46.50'	1.0" Vert. Orifice/Grate C= 0.600
2	Primary	46.80'	2.0" Vert. Orifice/Grate C= 0.600
3	Secondary	48.50'	3.1' long x 0.5' high Sharp-Crested Rectangular Weir 0 End Contraction(s)

### Pond 11P: Existing Satellite Lot Detention Pond

Hydrograph Plot



**Pond 23P: Pond 23**

Inflow = 1.65 cfs @ 12.08 hrs, Volume= 0.140 af  
 Outflow = 1.45 cfs @ 12.20 hrs, Volume= 0.140 af, Atten= 13%, Lag= 6.8 min  
 Primary = 0.86 cfs @ 12.19 hrs, Volume= 0.133 af  
 Secondary = 0.58 cfs @ 12.20 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 41.08' Storage= 894 cf

Plug-Flow detention time= 22.7 min calculated for 0.139 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	608	0	0
41.00	996	802	802
41.50	1,265	565	1,367

**Primary OutFlow (Free Discharge)**

↑1=Culvert

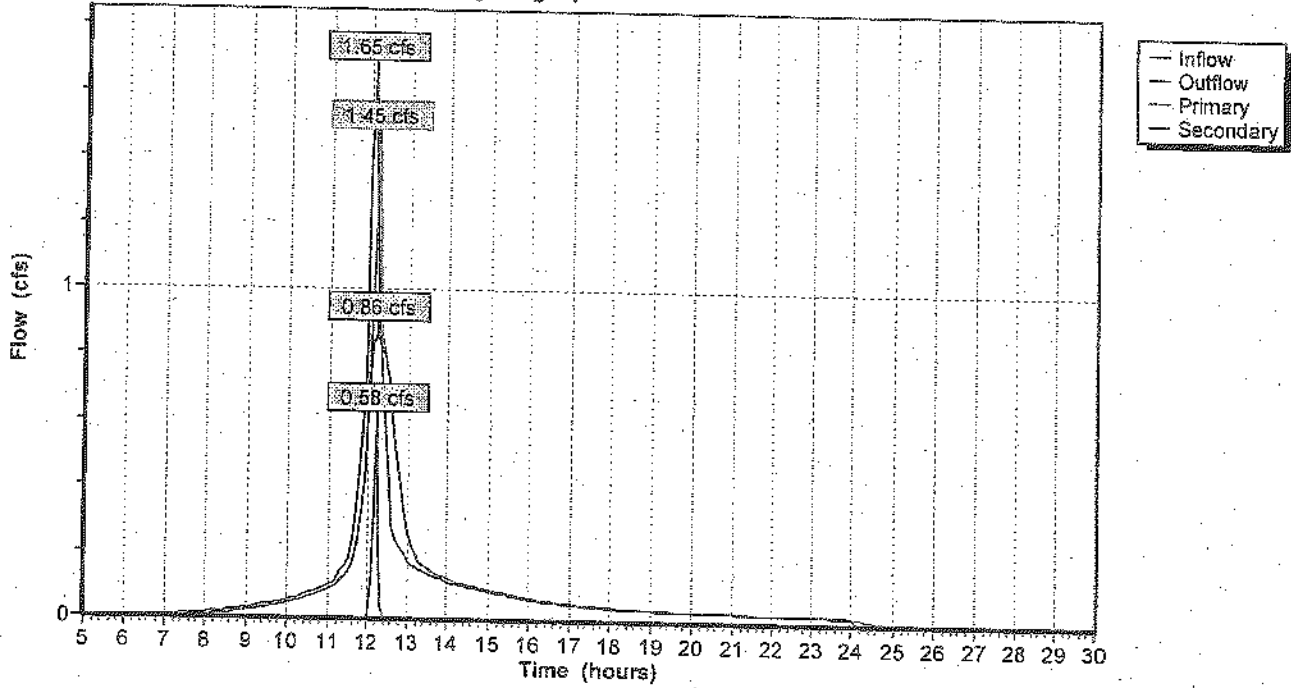
**Secondary OutFlow (Free Discharge)**

↑2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	40.00'	6.0" x 17.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 37.00' S= 0.1765 1' n= 0.011 Cc= 0.900
2	Secondary	41.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.3

### Pond 23P: Pond 23

Hydrograph Plot





Time span=5.00-30.00 hrs, dt=0.10 hrs, 251 points  
 Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=4.70"  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 11X: Satellite Parking**

Tc=2.1 min CN=95 Area=0.320 ac Runoff= 1.44 cfs 0.109 af

**Subcatchment 12X: North/West of Satellite**

Tc=4.8 min CN=81 Area=0.590 ac Runoff= 1.78 cfs 0.134 af

**Subcatchment 13X: Existing NORTH-CENTRAL**

Tc=15.4 min CN=75 Area=0.910 ac Runoff= 1.69 cfs 0.167 af

**Subcatchment 14X: Existing Northeast**

Tc=20.4 min CN=74 Area=1.040 ac Runoff= 1.70 cfs 0.184 af

**Subcatchment 21X: Existing Central**

Tc=7.3 min CN=79 Area=0.850 ac Runoff= 2.17 cfs 0.180 af

**Subcatchment 22X: Existing Parking and Entrance Circle**

Tc=12.0 min CN=84 Area=0.720 ac Runoff= 2.01 cfs 0.180 af

**Subcatchment 23X: Existing Buildings and surrounding**

Tc=8.3 min CN=91 Area=0.810 ac Runoff= 2.87 cfs 0.249 af

**Subcatchment 24X: Behind Existing Pond**

Tc=11.6 min CN=73 Area=0.240 ac Runoff= 0.46 cfs 0.041 af

**Reach 1R: Existing Swale**

Length= 200.0' Max Vel= 1.2 fps Capacity= 43.53 cfs Inflow= 10.30 cfs 1.059 af  
 Outflow= 9.63 cfs 1.059 af

**Reach 2R: Existing Swale**

Length= 80.0' Max Vel= 1.7 fps Capacity= 144.69 cfs Inflow= 5.59 cfs 0.602 af  
 Outflow= 5.48 cfs 0.602 af

**Reach 3R: Existing Swale**

Length= 120.0' Max Vel= 1.2 fps Capacity= 63.42 cfs Inflow= 2.03 cfs 0.242 af  
 Outflow= 2.02 cfs 0.242 af

**Reach R11: From P11 to Swale**

Length= 70.0' Max Vel= 0.4 fps Capacity= 33.01 cfs Inflow= 1.13 cfs 0.108 af  
 Outflow= 0.86 cfs 0.108 af

**Reach R12: 48" RCP**

Length= 90.0' Max Vel= 8.8 fps Capacity= 463.95 cfs Inflow= 1.78 cfs 0.134 af  
 Outflow= 1.74 cfs 0.134 af

**Reach R22: From 22 to Swale**

Length= 90.0' Max Vel= 0.5 fps Capacity= 27.37 cfs Inflow= 2.01 cfs 0.180 af  
 Outflow= 1.82 cfs 0.180 af

**Reach R23: From Pond23 to Swale**

Length= 40.0' Max Vel= 0.7 fps Capacity= 21.38 cfs Inflow= 3.45 cfs 0.290 af  
 Outflow= 3.16 cfs 0.290 af

**Reach SP: Study Point**

Inflow= 11.33 cfs 1.244 af  
Length= 100.0' Max Vel= 0.6 fps Capacity= 239.77 cfs Outflow= 10.82 cfs 1.244 af

**Pond 11P: Existing Satellie Lot Detention Pond**

Peak Storage= 1,141 cf Inflow= 1.44 cfs 0.109 af  
Primary= 0.18 cfs 0.090 af Secondary= 0.95 cfs 0.019 af Outflow= 1.13 cfs 0.108 af

**Pond 23P: Pond 23**

Peak Storage= 1,015 cf Inflow= 2.87 cfs 0.249 af  
Primary= 0.92 cfs 0.207 af Secondary= 2.08 cfs 0.042 af Outflow= 3.00 cfs 0.249 af

**Runoff Area = 5.480 ac Volume = 1.245 af Average Depth = 2.73"**

**Subcatchment 11X: Satellite Parking**

Runoff = 1.44 cfs @ 11.99 hrs, Volume= 0.109 af

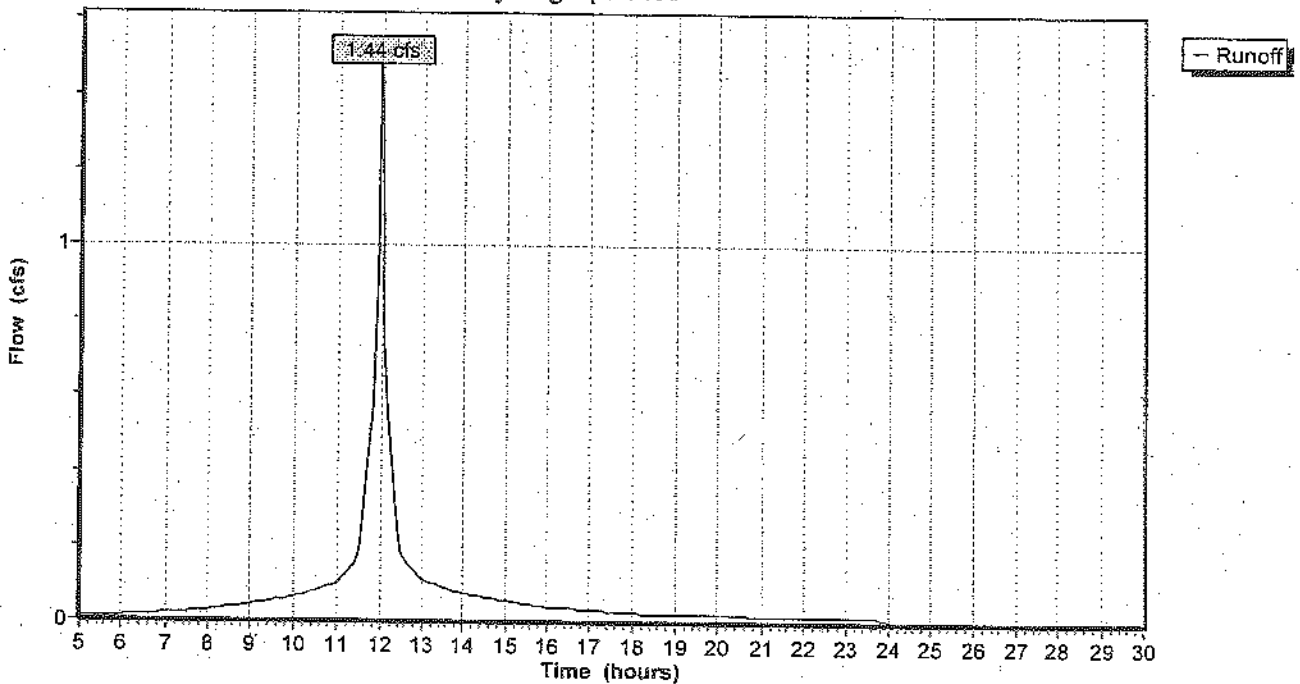
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0:10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.270	98	IMPERVIOUS (PARKING LOT)
0.040	74	OPEN SPACE (GOOD)-HSG "C"
0.010	89	RIP RAP-HSG "C"
0.320	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0303	1.6		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
0.1	15	0.3300	4.0		Shallow Concentrated Flow, Segment ID:BC Kv= 7.0 fps
0.9	55	0.0200	1.0		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
2.1	170	Total			

**Subcatchment 11X: Satellite Parking**

Hydrograph Plot



**Subcatchment 12X: North/West of Satellite**

Runoff = 1.78 cfs @ 12.02 hrs, Volume= 0.134 af

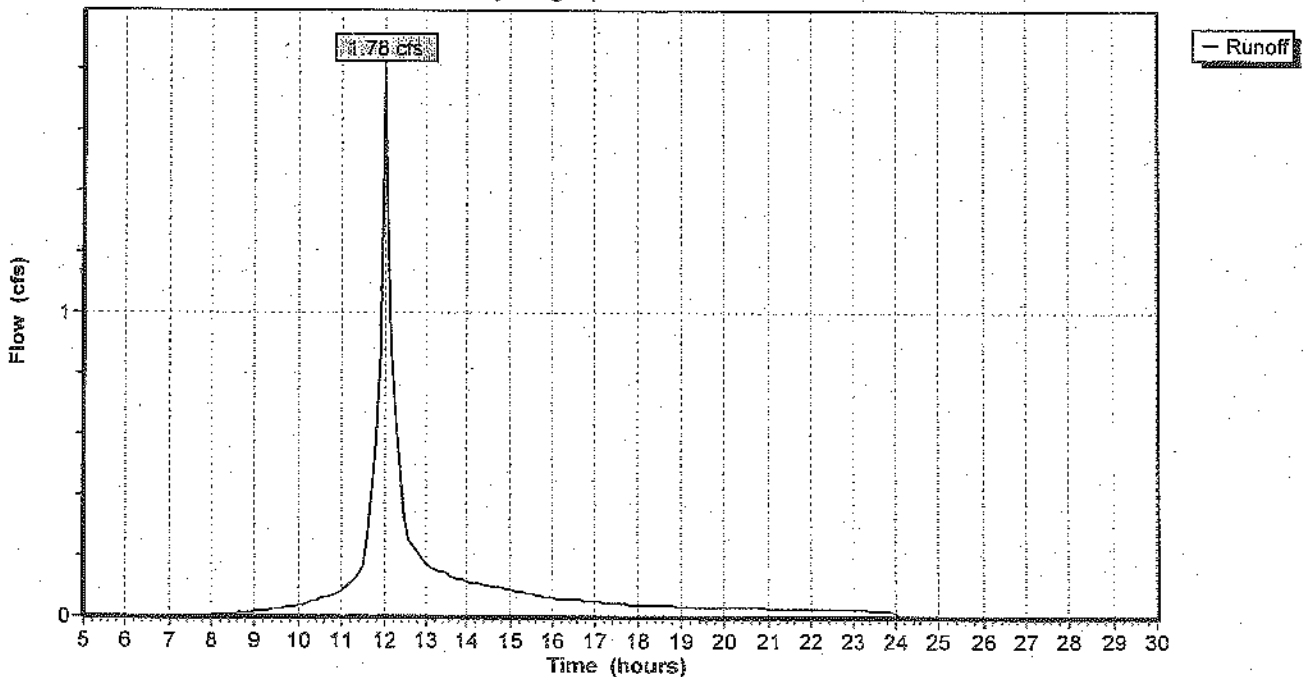
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.020	73	WOODS (FAIR)-HSG "C"
0.400	74	OPEN SPACE (GOOD)-HSG "C"
0.170	98	IMPERVIOUS
0.590	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	16	0.1900	0.2		Sheet Flow, Segment ID:AB Grass: Dense n= 0.240 P2= 3.00"
0.8	13	0.5000	0.3		Sheet Flow, Segment ID:BC Grass: Dense n= 0.240 P2= 3.00"
1.3	185	0.0270	2.5		Shallow Concentrated Flow, Segment ID:CD Grassed Waterway Kv= 15.0 fps
0.2	60	0.0100	5.7	7.00	Circular Channel (pipe), SEGMENT ID:DE Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
1.1	165	0.0300	2.6		Shallow Concentrated Flow, SEGMENT ID:EF Grassed Waterway Kv= 15.0 fps
4.8	439	Total			

**Subcatchment 12X: North/West of Satellite**

Hydrograph Plot



**Subcatchment 13X: Existing NORTH-CENTRAL**

Runoff = 1.69 cfs @ 12.18 hrs, Volume= 0.167 af

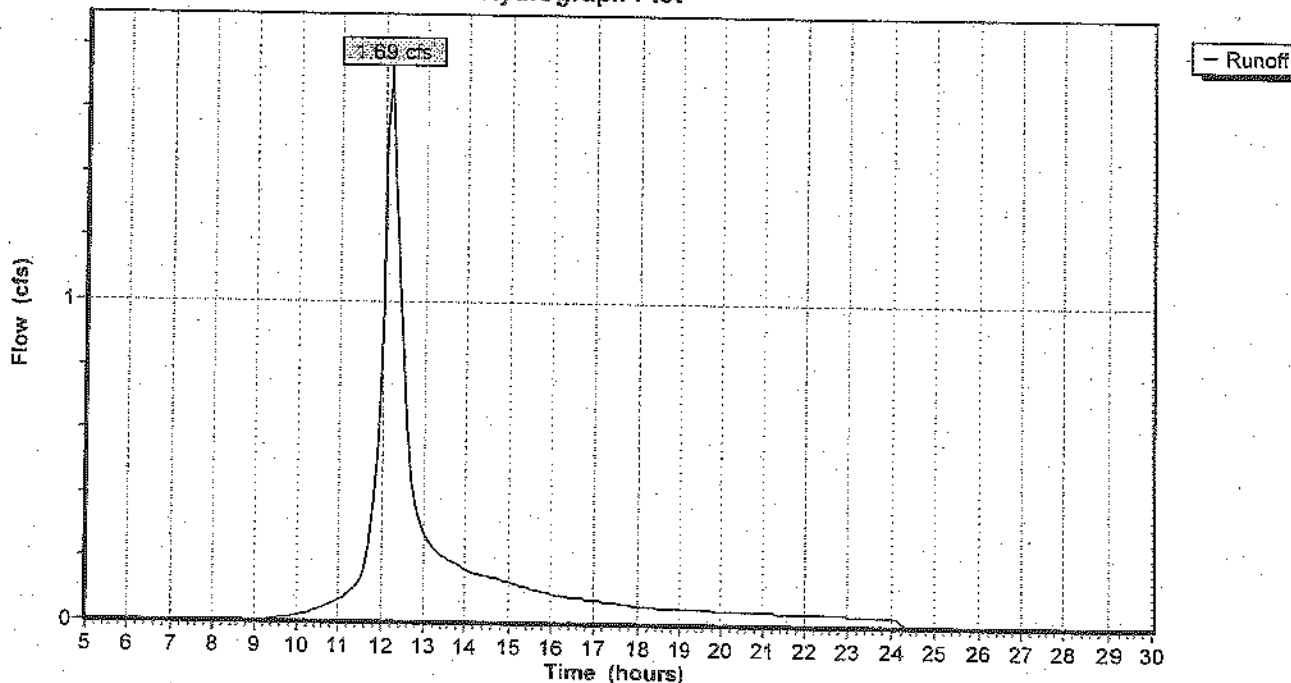
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.000	98	IMPERVIOUS (PAVEMENT)
0.540	73	WOODS (FAIR)-HSG "C"
0.130	74	OPEN SPACE (GOOD)-HSG "C"
0.240	79	WOODS (FAIR)-HSG "D"
0.910	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	35	0.0700	0.1		Sheet Flow, Segment ID:AB Woods: Light underbrush n= 0.400 P2= 3.00"
6.7	65	0.1700	0.2		Sheet Flow, Segment ID:BC Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	130	0.1300	1.8		Shallow Concentrated Flow, Segment C-D Woodland Kv= 5.0 fps
1.7	100	0.0400	1.0		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
15.4	330	Total			

**Subcatchment 13X: Existing NORTH-CENTRAL**

Hydrograph Plot



**Subcatchment 14X: Existing Northeast**

Runoff = 1.70 cfs @ 12.25 hrs, Volume= 0.184 af

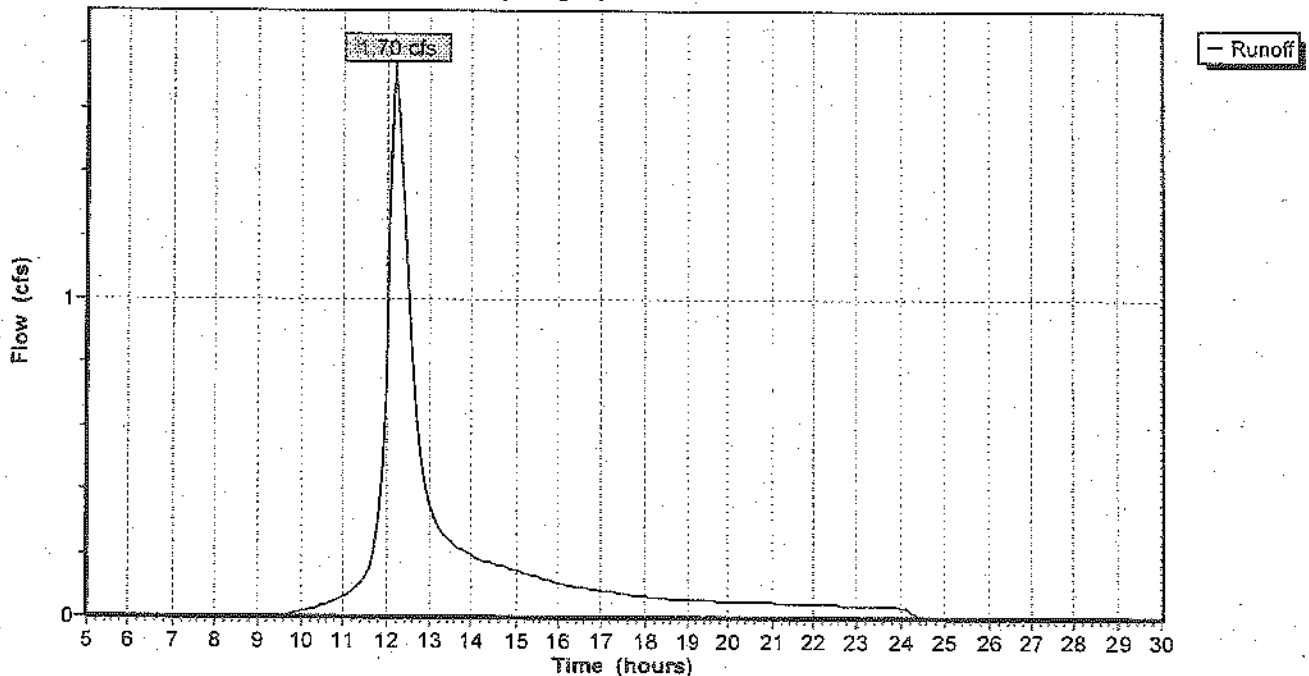
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.810	73	Woods, Fair, HSG C
0.230	79	Woods, Fair, HSG D
1.040	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	60	0.0250	0.1		Sheet Flow, Segment AB Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	40	0.2250	0.2		Sheet Flow, Segment BC Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	90	0.1444	1.9		Shallow Concentrated Flow, Segment CD Woodland Kv= 5.0 fps
0.1	25	0.4400	3.3		Shallow Concentrated Flow, Segment DE Woodland Kv= 5.0 fps
2.0	70	0.0140	0.6		Shallow Concentrated Flow, Segment EF Woodland Kv= 5.0 fps
20.4	285	Total			

**Subcatchment 14X: Existing Northeast**

Hydrograph Plot



**Subcatchment 21X: Existing Central**

Runoff = 2.17 cfs @ 12.07 hrs, Volume= 0.180 af

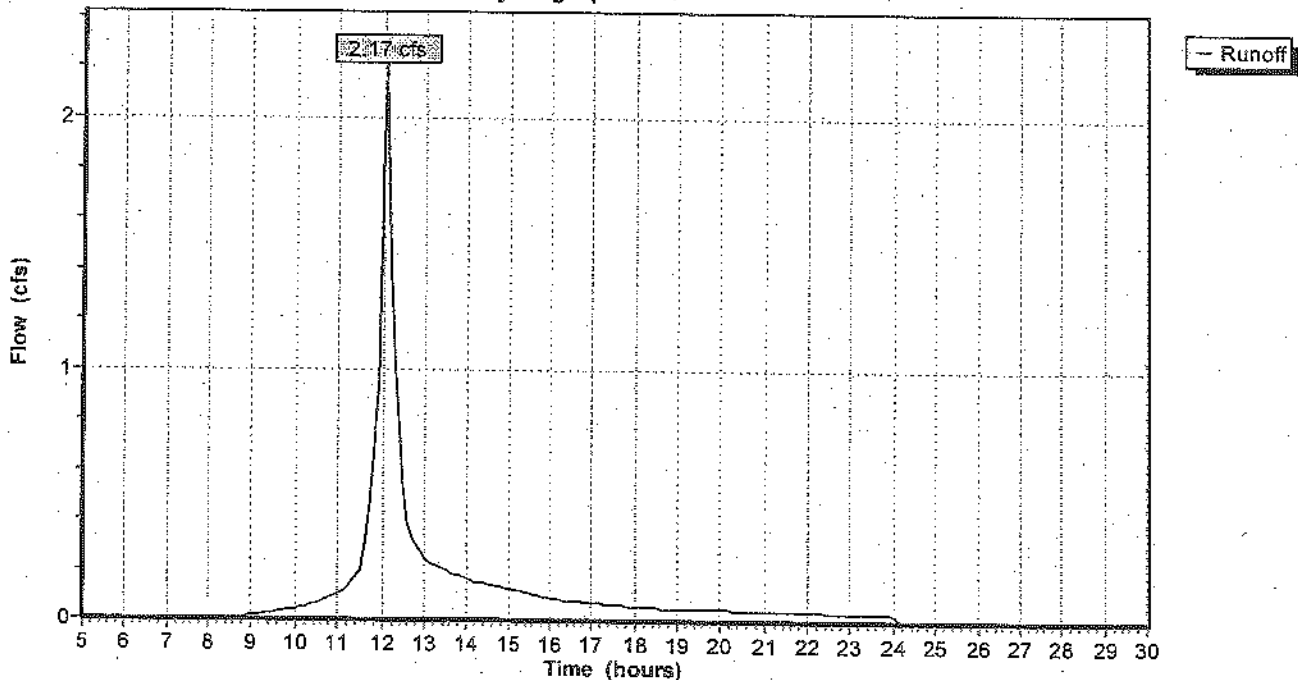
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.260	73	WOODS (FAIR)-HSG "C"
0.250	74	OPEN SPACE (GOODG "C"
0.200	79	WOODS (FAIR)-HSD "D"
0.140	98	IMPERVIOUS (BLDG, PAVEMENT)
0.850	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	75	0.0600	0.2		<b>Sheet Flow, Segment ID:AB</b> Grass: Short n= 0.150 P2= 3.00"
0.7	15	0.4000	0.4		<b>Sheet Flow, Segment BC</b> Grass: Short n= 0.150 P2= 3.00"
0.2	30	0.2700	2.6		<b>Shallow Concentrated Flow, Segment ID:CD</b> Woodland Kv= 5.0 fps
1.2	80	0.0500	1.1		<b>Shallow Concentrated Flow, Segment ID:DE</b> Woodland Kv= 5.0 fps
7.3	200	Total			

**Subcatchment 21X: Existing Central**

Hydrograph Plot



**Subcatchment 22X: Existing Parking and Entrance Circle**

Runoff = 2.01 cfs @ 12.12 hrs, Volume= 0.180 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

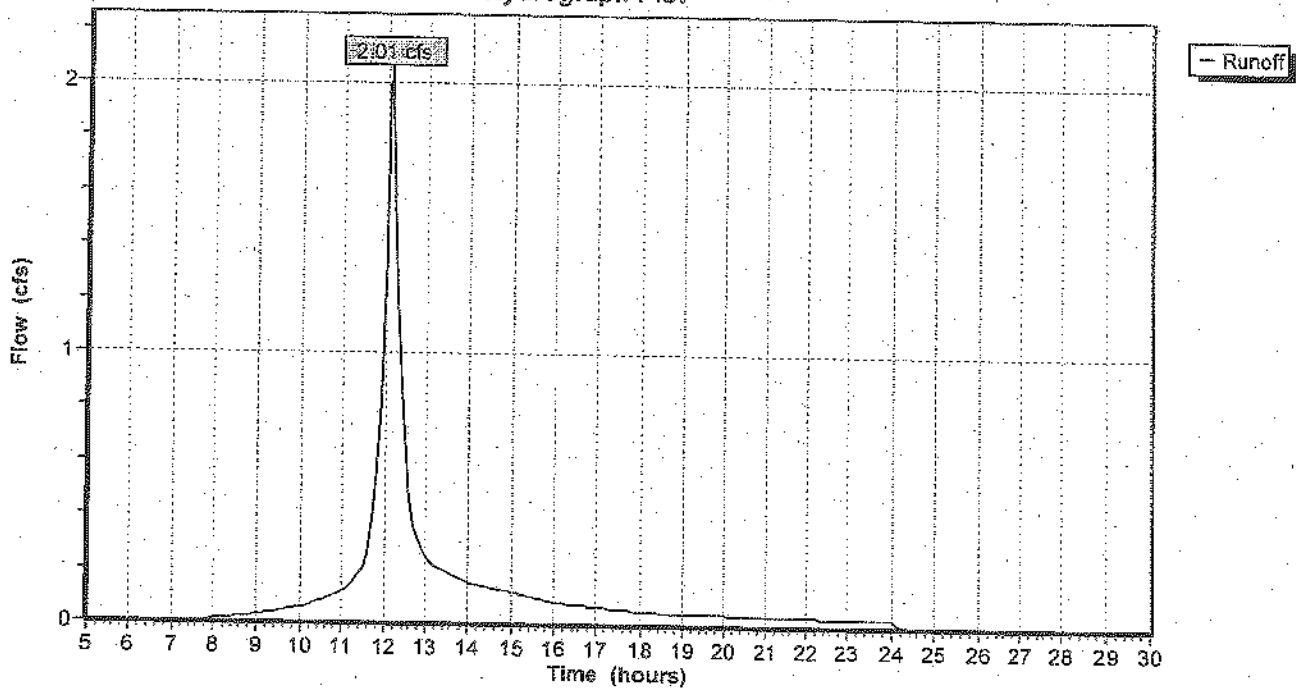
Area (ac)	CN	Description
0.130	73	WOODS (FAIR)-HSG "C"
0.280	74	OPEN SPACE (GOODG "C"
0.310	98	IMPERVIOUS (BLDG, PAVEMENT)
0.720	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	15	0.0167	0.1		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.4	20	0.0125	0.8		Sheet Flow, SegmentBC Smooth surfaces n= 0.011 P2= 3.00"
7.9	65	0.1100	0.1		Sheet Flow, SegmentCD Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	70	0.0860	1.5		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
0.4	90	0.0333	3.7		Shallow Concentrated Flow, Segment ID:EF Paved Kv= 20.3 fps
0.1	65	0.0500	12.0	9.42	Circular Channel (pipe), SegmentFG Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
12.0	325	Total			



### Subcatchment 22X: Existing Parking and Entrance Circle

Hydrograph Plot



**Subcatchment 23X: Existing Buildings and surrounding**

Runoff = 2.87 cfs @ 12.08 hrs, Volume= 0.249 af

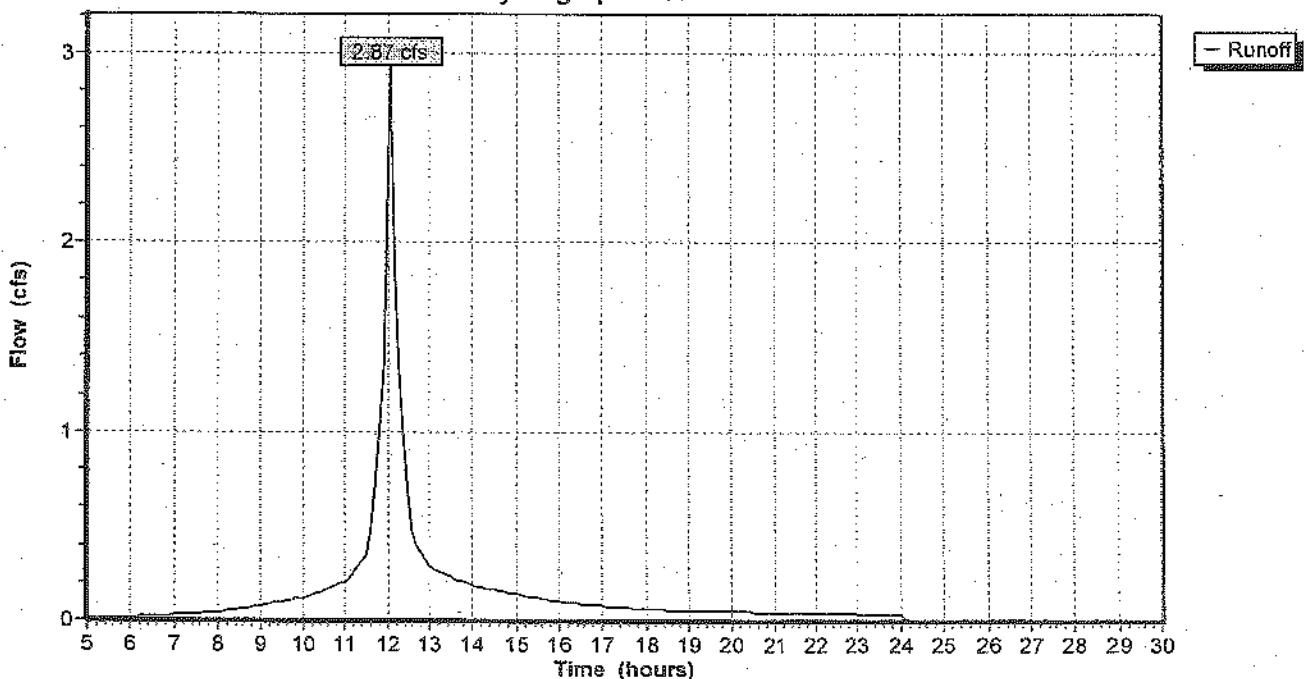
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.310	79	OPEN SPACE (FAIR)-HSG "C"
0.200	98	Paved parking & roofs
0.300	98	Paved parking & roofs
0.810	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2000	0.3		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
6.4	90	0.0500	0.2		Sheet Flow, Segment ID:BC Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1100	2.3		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
0.0	10	0.3000	3.8		Shallow Concentrated Flow, Segment ID:DE Short Grass Pasture Kv= 7.0 fps
0.9	95	0.0630	1.8		Shallow Concentrated Flow, Segment EF Short Grass Pasture Kv= 7.0 fps
8.3	265	Total			

**Subcatchment 23X: Existing Buildings and surrounding**

Hydrograph Plot



**Subcatchment 24X: Behind Existing Pond**

Runoff = 0.46 cfs @ 12.12 hrs, Volume= 0.041 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

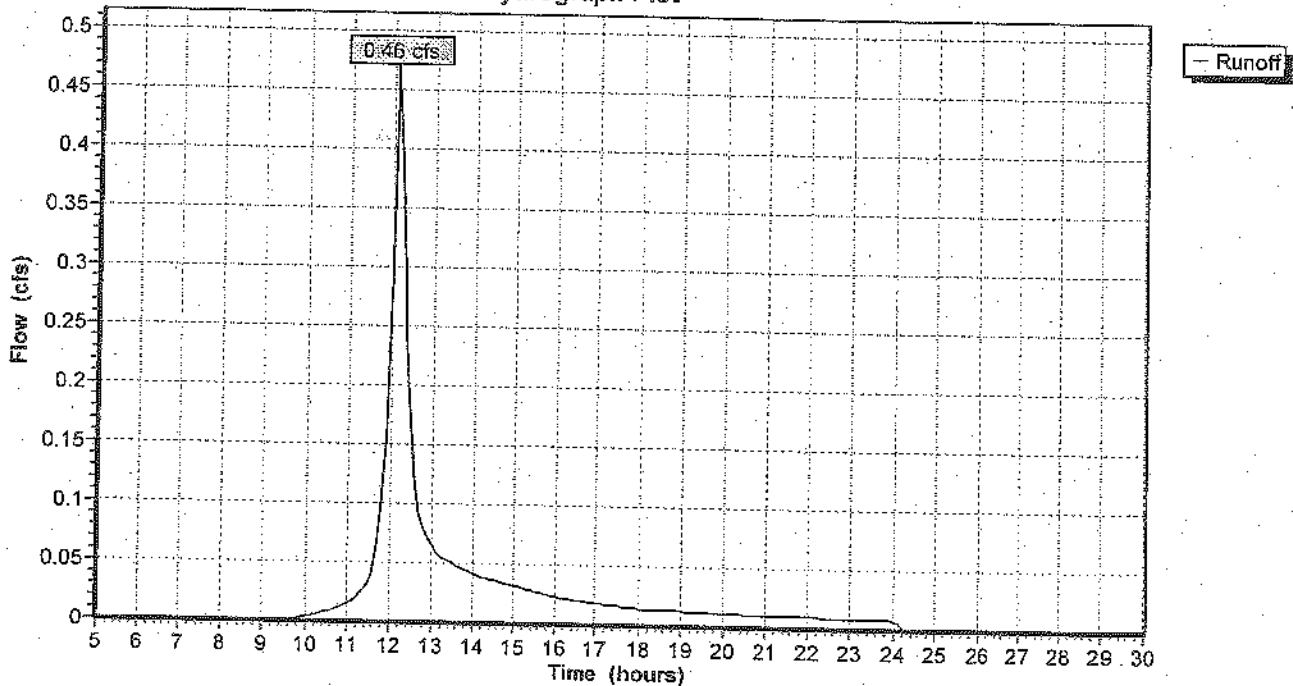
Area (ac)	CN	Description
0.240	73	Woods, Fair, HSG C

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	45	0.1111	0.1		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.00"
4.2	55	0.0545	0.2		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
1.5	125	0.0800	1.4		Shallow Concentrated Flow, CD Woodland Kv= 5.0 fps
11.6	225	Total			

**Subcatchment 24X: Behind Existing Pond**

Hydrograph Plot



### Reach 1R: Existing Swale

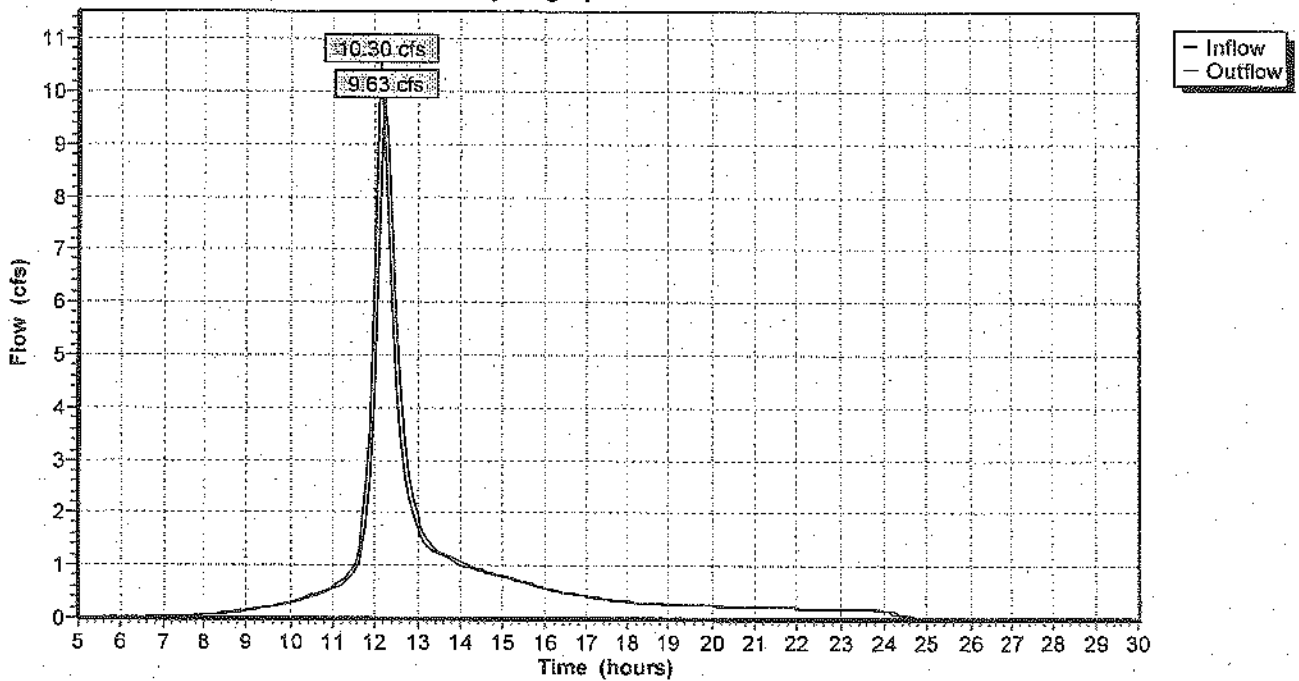
Inflow = 10.30 cfs @ 12.14 hrs, Volume= 1.059 af  
Outflow = 9.63 cfs @ 12.24 hrs, Volume= 1.059 af, Atten= 7%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.2 fps, Min. Travel Time= 2.8 min  
Avg. Velocity= 0.3 fps, Avg. Travel Time= 10.6 min

Peak Depth= 0.92'  
Capacity at bank full= 43.53 cfs  
Inlet Invert= 30.00', Outlet Invert= 29.50'  
7.00' x 2.00' deep channel, n= 0.050 Length= 200.0' Slope= 0.0025 1'  
Side Slope Z-value= 3.0 2.0 1'

### Reach 1R: Existing Swale

Hydrograph Plot



**CadCam Existing**

Type III 24-hr Rainfall=4.70" (10-Year Storm)

Prepared by {enter your company name here}

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**Reach 2R: Existing Swale**

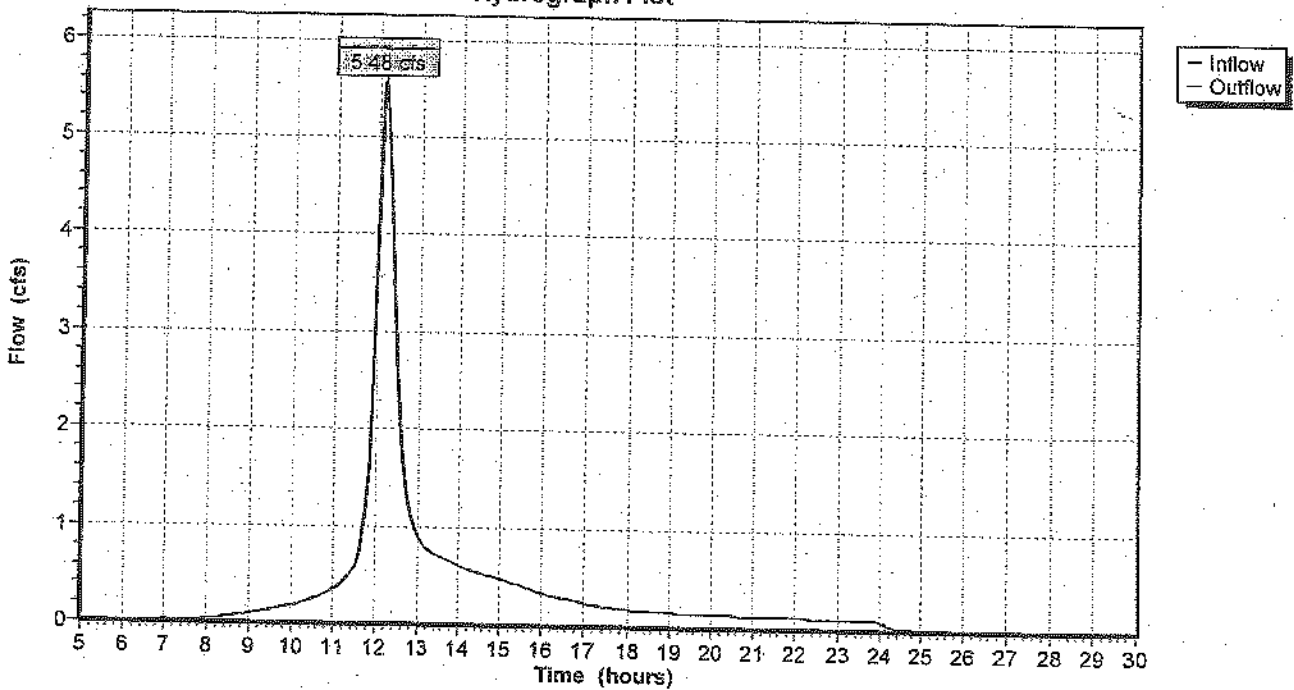
Inflow = 5.59 cfs @ 12.12 hrs, Volume= 0.602 af  
Outflow = 5.48 cfs @ 12.14 hrs, Volume= 0.602 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.7 fps, Min. Travel Time= 0.8 min  
Avg. Velocity = 0.5 fps, Avg. Travel Time= 2.6 min

Peak Depth= 0.54'  
Capacity at bank full= 144.69 cfs  
Inlet Invert= 30.80', Outlet Invert= 30.00'  
5.00' x 3.00' deep channel, n= 0.050 Length= 80.0' Slope= 0.0100 1/  
Side Slope Z-value= 2.0 1'

**Reach 2R: Existing Swale**

Hydrograph Plot



### Reach 3R: Existing Swale

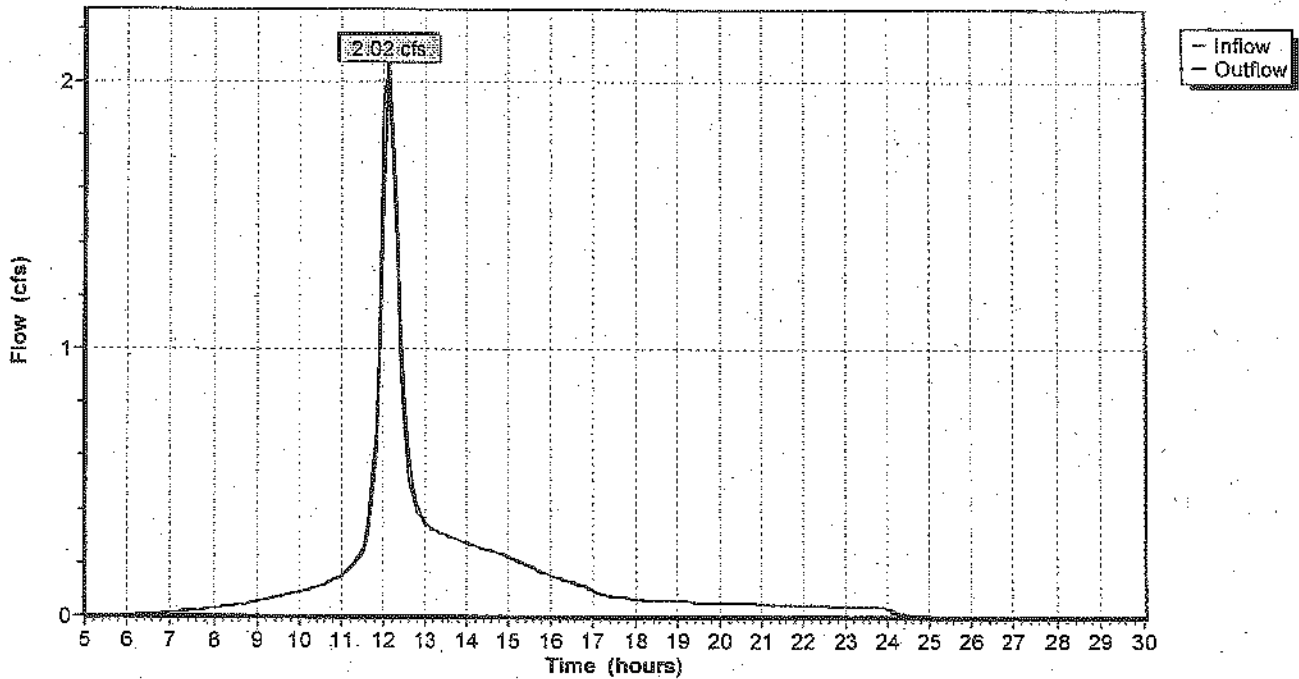
Inflow = 2.03 cfs @ 12.07 hrs, Volume= 0.242 af  
Outflow = 2.02 cfs @ 12.13 hrs, Volume= 0.242 af, Atten= 0%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.2 fps, Min. Travel Time= 1.6 min  
Avg. Velocity= 0.4 fps, Avg. Travel Time= 5.4 min

Peak Depth= 0.30'  
Capacity at bank full= 63.42 cfs  
Inlet Invert= 32.00', Outlet Invert= 30.80'  
5.00' x 2.00' deep channel, n= 0.050 Length= 120.0' Slope= 0.0100 1/1  
Side Slope Z-value= 2.0 1/1

### Reach 3R: Existing Swale

Hydrograph Plot



Reach R11: From P11 to Swale

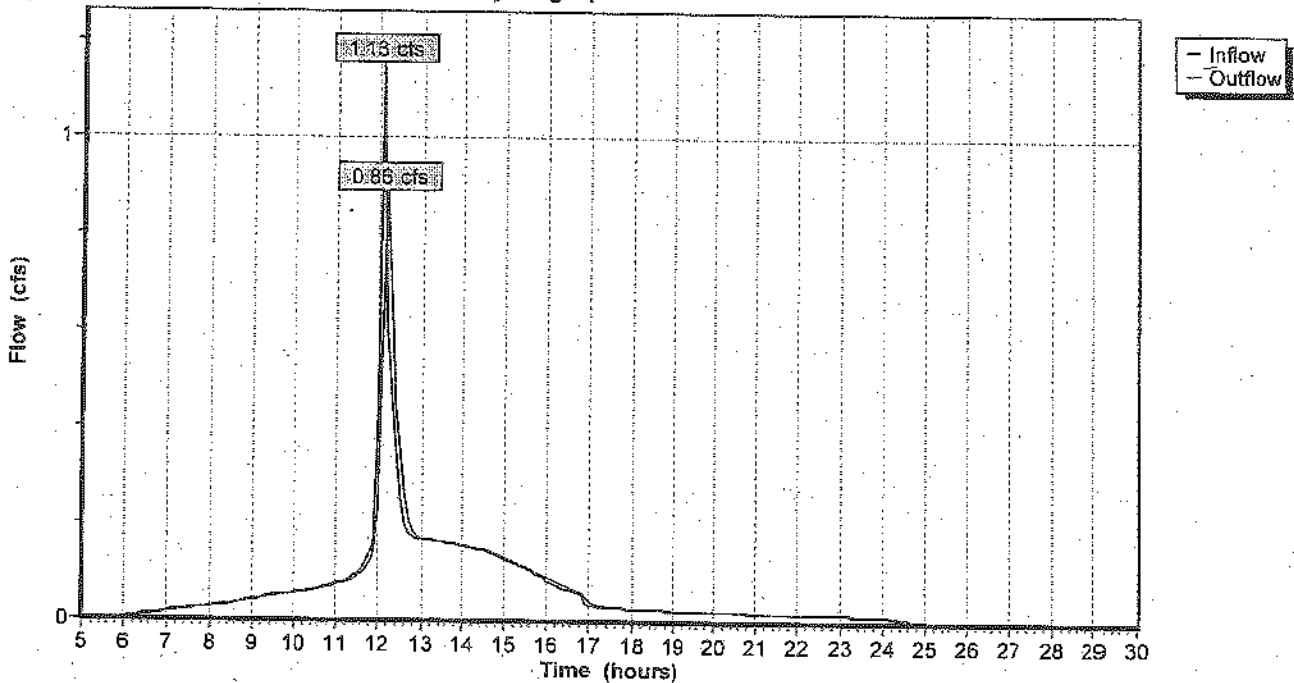
Inflow = 1.13 cfs @ 12.11 hrs, Volume= 0.108 af  
Outflow = 0.86 cfs @ 12.21 hrs, Volume= 0.108 af, Atten= 23%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 2.9 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 9.4 min

Peak Depth= 0.14'  
Capacity at bank full= 33.01 cfs  
Inlet Invert= 45.90', Outlet Invert= 32.00'  
15.00' x 1.00' deep channel, n= 0.400 Length= 70.0' Slope= 0.1986 1/  
Side Slope Z-value= 10.0 1'

Reach R11: From P11 to Swale

Hydrograph Plot



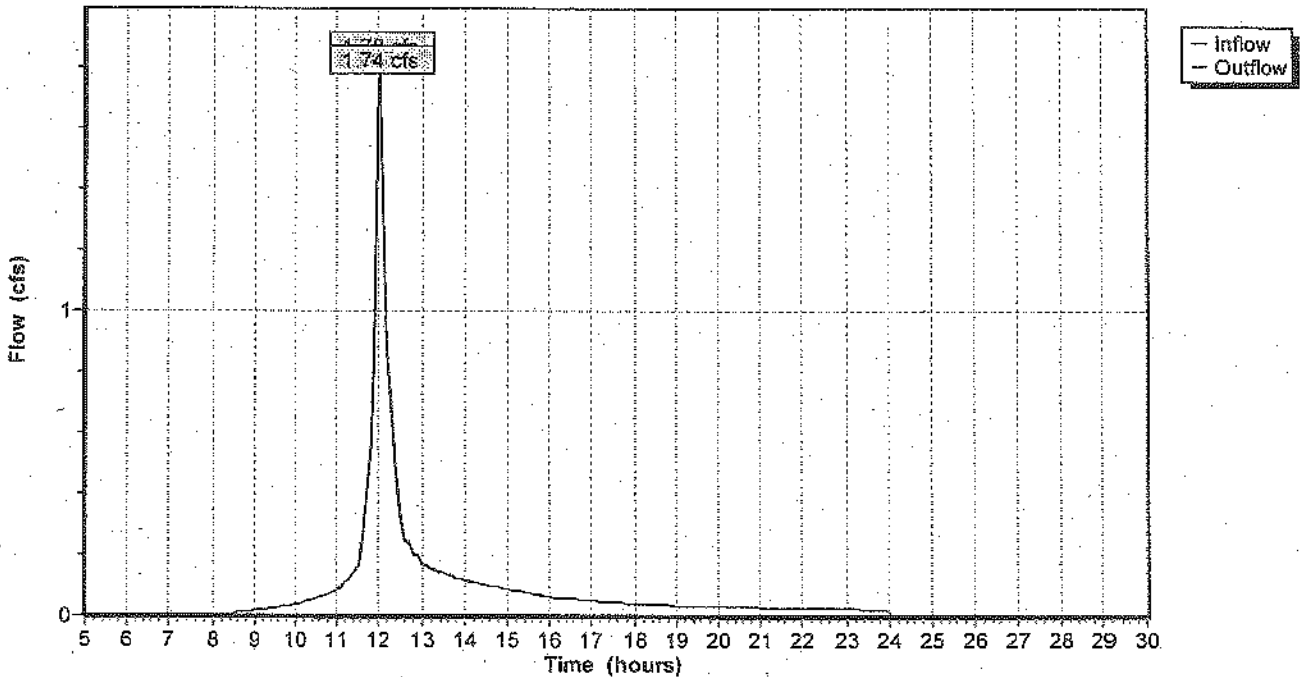
Reach R12: 48" RCP

Inflow = 1.78 cfs @ 12.02 hrs, Volume= 0.134 af  
Outflow = 1.74 cfs @ 12.02 hrs, Volume= 0.134 af, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 8.8 fps, Min. Travel Time= 0.2 min  
Avg. Velocity= 3.7 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.18'  
Capacity at bank full= 463.95 cfs  
Inlet invert= 40.00', Outlet Invert= 32.00'  
48.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0889 %

Reach R12: 48" RCP  
Hydrograph Plot





### Reach R22: From 22 to Swale

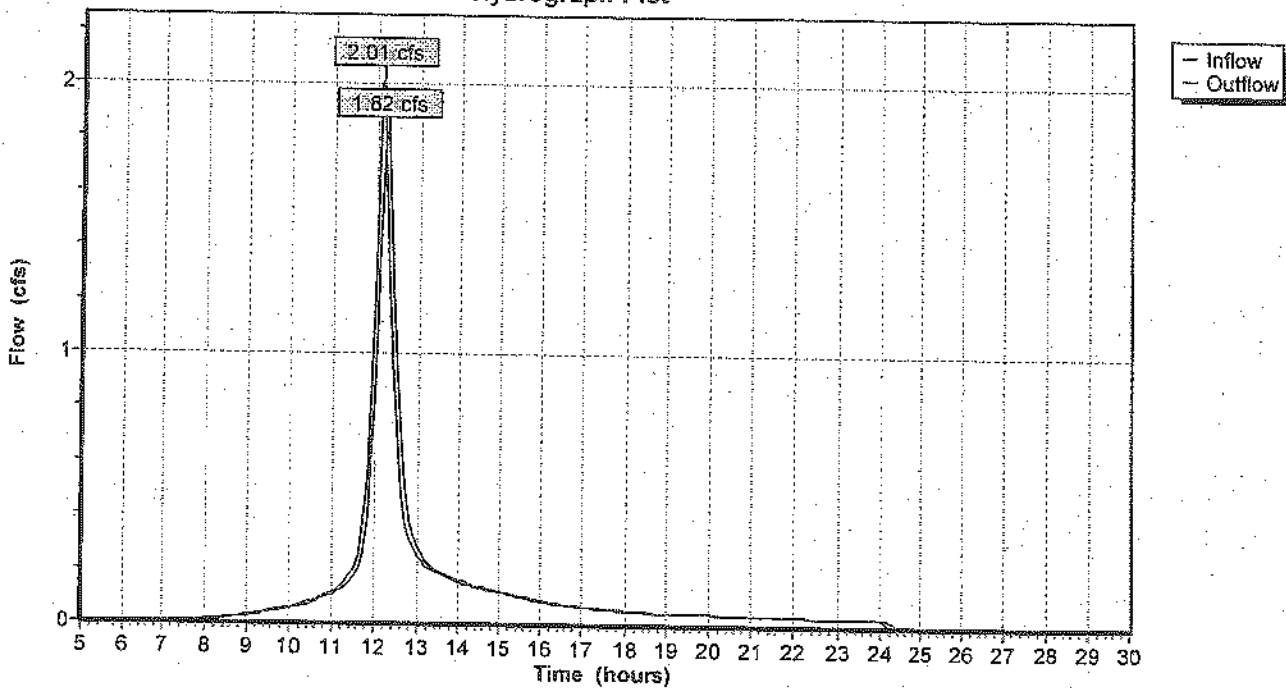
Inflow = 2.01 cfs @ 12.12 hrs, Volume= 0.180 af  
Outflow = 1.82 cfs @ 12.22 hrs, Volume= 0.180 af, Atten= 9%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.5 fps, Min. Travel Time= 3.0 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 11.0 min

Peak Depth= 0.23'  
Capacity at bank full= 27.37 cfs  
Inlet Invert= 44.00', Outlet Invert= 30.50'  
15.00' x 1.00' deep channel, n= 0.400 Length= 90.0' Slope= 0.1500 1/  
Side Slope Z-value= 15.0 2.0 1'

### Reach R22: From 22 to Swale

Hydrograph Plot



### Reach R23: From Pond23 to Swale

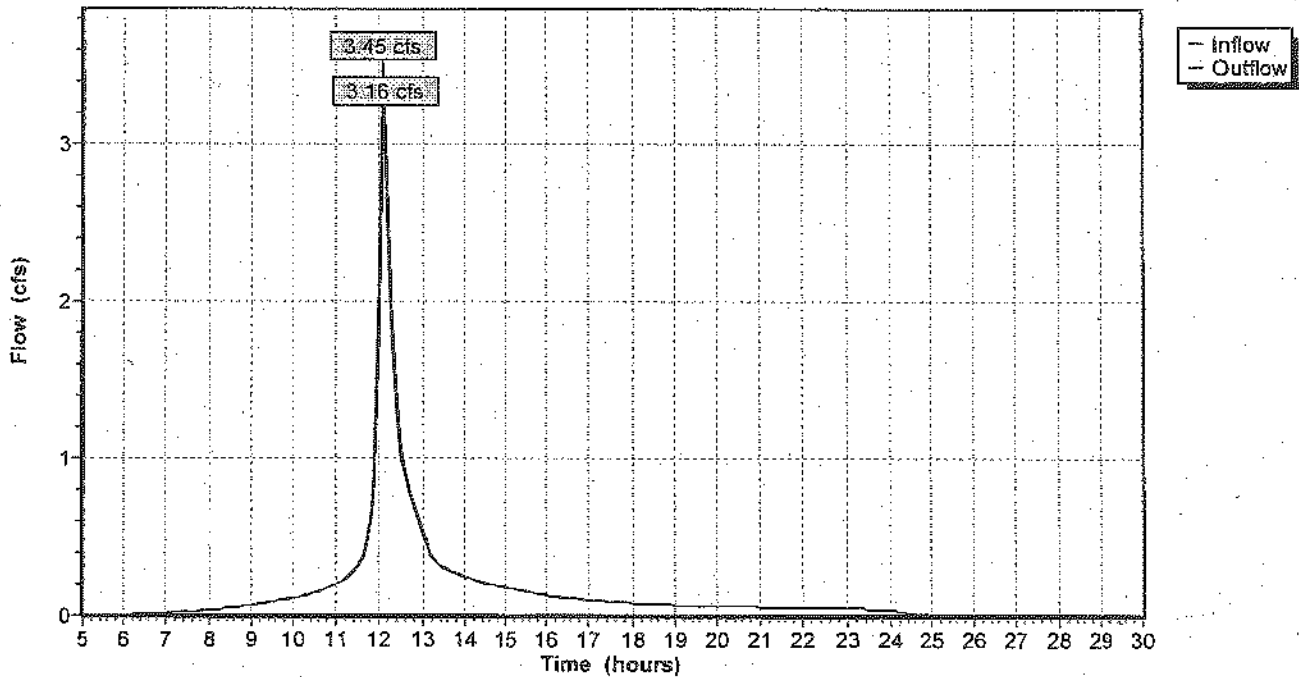
Inflow = 3.45 cfs @ 12.11 hrs, Volume= 0.290 af  
Outflow = 3.16 cfs @ 12.14 hrs, Volume= 0.290 af, Atten= 8%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.7 fps, Min. Travel Time= 1.0 min  
Avg. Velocity = 0.2 fps, Avg. Travel Time= 3.4 min

Peak Depth= 0.44'  
Capacity at bank full= 21.38 cfs  
Inlet Invert= 37.00', Outlet Invert= 30.00'  
5.00' x 1.00' deep channel, n= 0.400 Length= 40.0' Slope= 0.1750 '  
Side Slope Z-value= 15.0 '.

### Reach R23: From Pond23 to Swale

Hydrograph Plot



Reach SP: Study Point

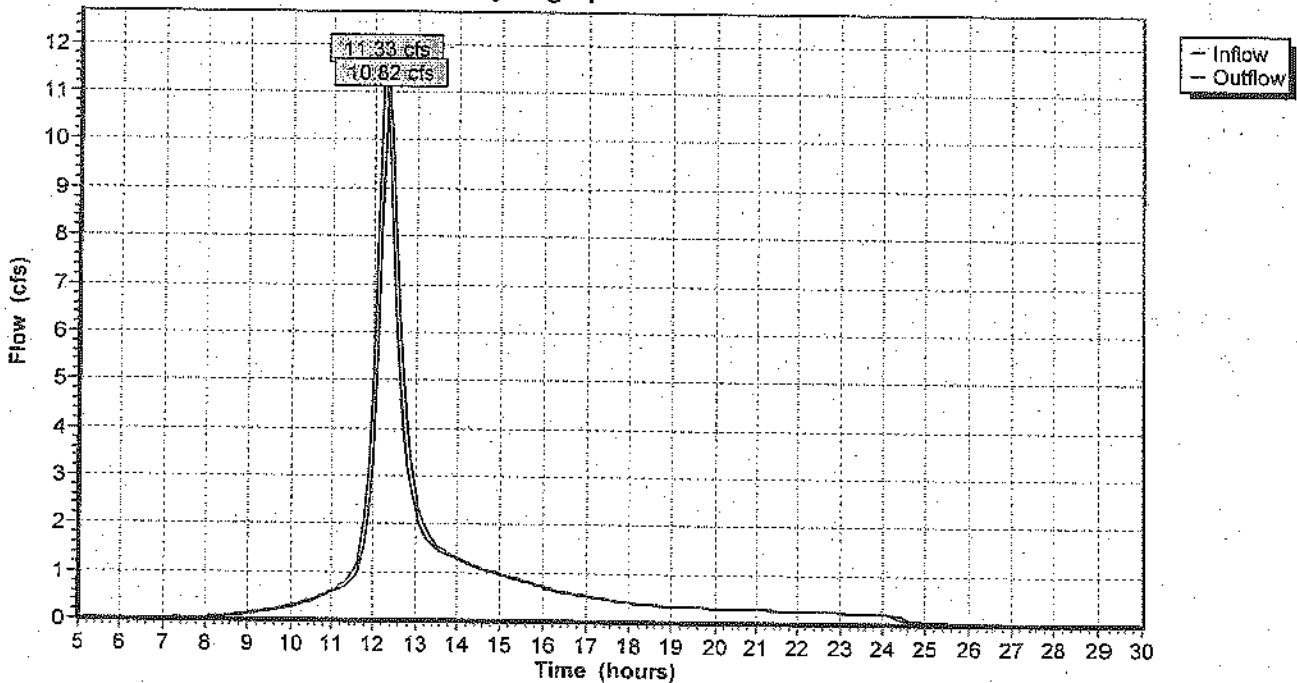
Inflow = 11.33 cfs @ 12.24 hrs, Volume= 1.244 af  
Outflow = 10.82 cfs @ 12.33 hrs, Volume= 1.244 af, Atten= 4%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.6 fps, Min. Travel Time= 2.9 min  
Avg. Velocity = 0.2 fps, Avg. Travel Time= 10.8 min

Peak Depth= 0.52'  
Capacity at bank full= 239.77 cfs  
Inlet Invert= 29.50', Outlet invert= 29.40'  
35.00' x 3.00' deep channel, n= 0.050 Length= 100.0' Slope= 0.0010 1/  
Side Slope Z-value= 5.0 4.0 1'

Reach SP: Study Point

Hydrograph Plot



**Pond 11P: Existing Satellite Lot Detention Pond**

Inflow = 1.44 cfs @ 11.99 hrs, Volume= 0.109 af  
 Outflow = 1.13 cfs @ 12.11 hrs, Volume= 0.108 af, Atten= 22%, Lag= 6.9 min  
 Primary = 0.18 cfs @ 12.11 hrs, Volume= 0.090 af  
 Secondary = 0.95 cfs @ 12.11 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 48.70' Storage= 1,141 cf

Plug-Flow detention time= 47.6 min calculated for 0.108 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	10	0	0
47.00	117	64	64
48.00	674	396	459
49.00	1,276	975	1,434

**Primary OutFlow (Free Discharge)**

- ↑ 1=Orifice/Grate
- └ 2=Orifice/Grate

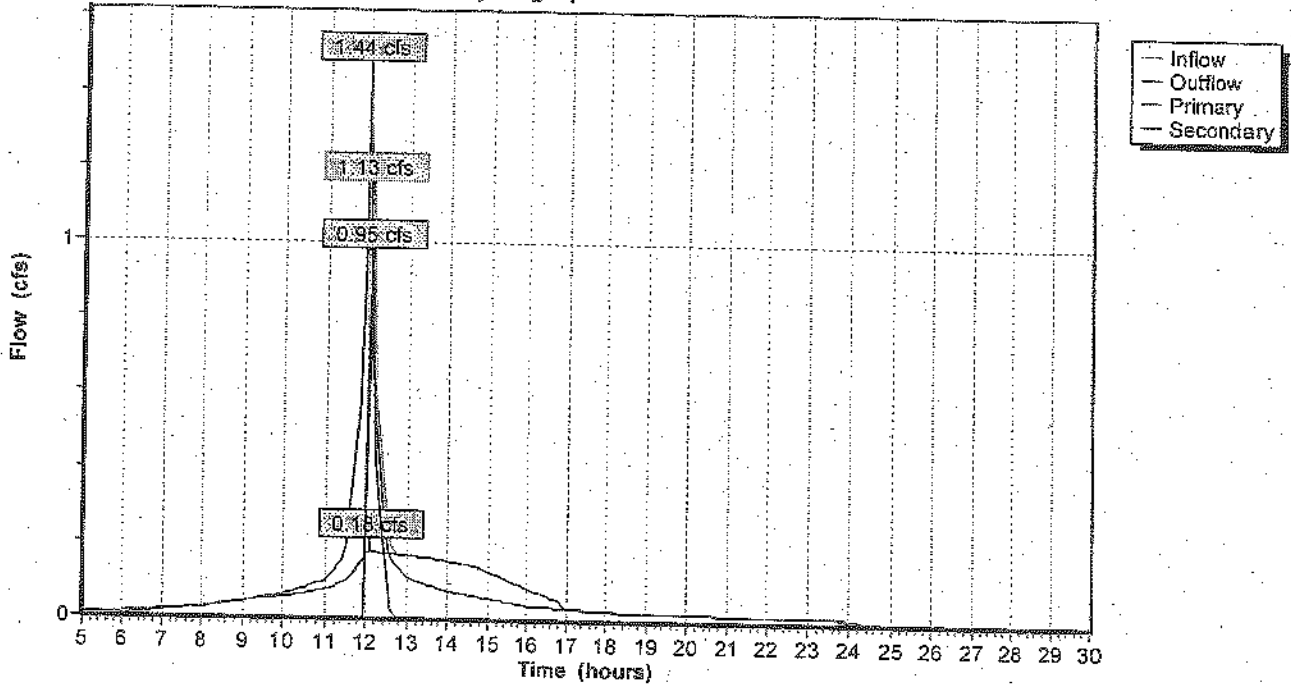
**Secondary OutFlow (Free Discharge)**

- ↑ 3=Sharp-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	46.50'	1.0" Vert. Orifice/Grate C= 0.600
2	Primary	46.80'	2.0" Vert. Orifice/Grate C= 0.600
3	Secondary	48.50'	3.1' long x 0.5' high Sharp-Crested Rectangular Weir 0 End Contraction(s)

### Pond 11P: Existing Satellite Lot Detention Pond

Hydrograph Plot



**Pond 23P: Pond 23**

Inflow = 2.87 cfs @ 12.08 hrs, Volume= 0.249 af  
 Outflow = 3.00 cfs @ 12.11 hrs, Volume= 0.249 af, Atten= 0%, Lag= 1.7 min  
 Primary = 0.92 cfs @ 12.11 hrs, Volume= 0.207 af  
 Secondary = 2.08 cfs @ 12.11 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 41.19' Storage= 1,015 cf  
 Plug-Flow detention time= 18.6 min calculated for 0.249 af (100% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	608	0	0
41.00	996	802	802
41.50	1,265	565	1,367

**Primary OutFlow (Free Discharge)**

↑-1=Culvert

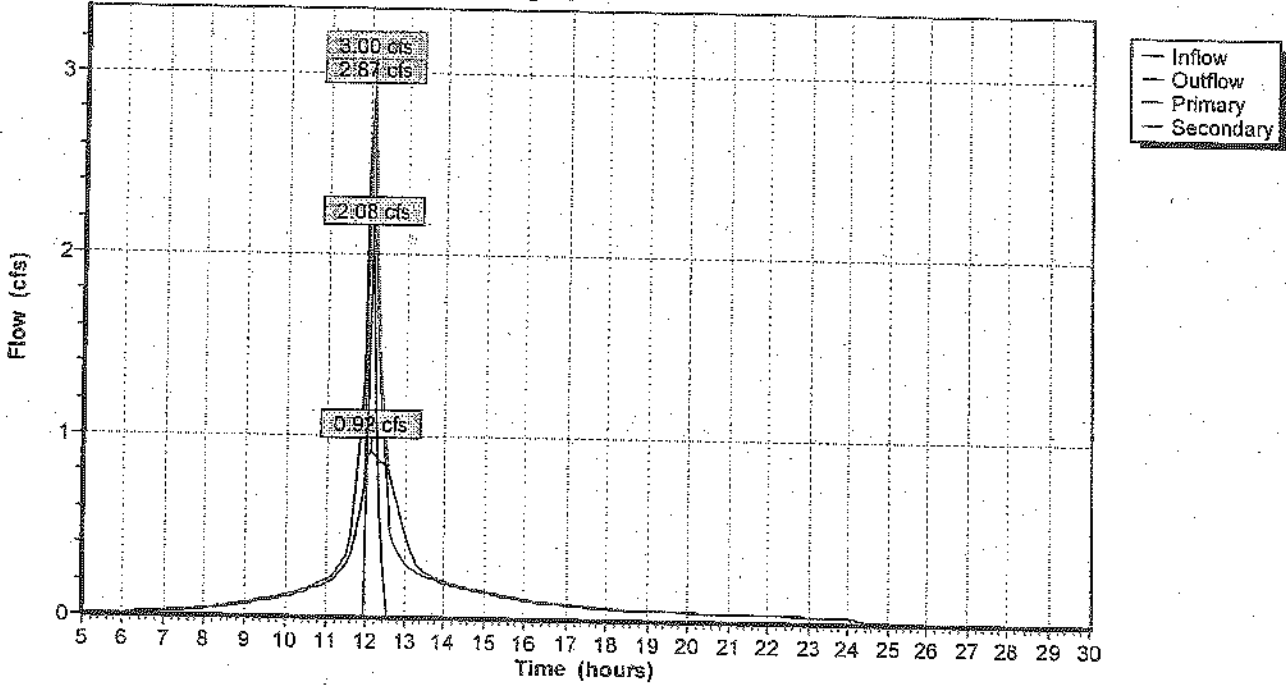
**Secondary OutFlow (Free Discharge)**

↑-2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	40.00'	6.0" x 17.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 37.00' S= 0.1765 ' n= 0.011 Cc= 0.900
2	Secondary	41.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.3

### Pond 23P: Pond 23

Hydrograph Plot



**CadCam Existing**

Type III 24-hr Rainfall=5.50" (25-Year Storm)

Prepared by {enter your company name here}

Page 1

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12/2/2005

Time span=5.00-30.00 hrs, dt=0.10 hrs, 251 points  
Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=5.50"  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 11X: Satellite Parking**

Tc=2.1 min CN=95 Area=0.320 ac Runoff= 1.70 cfs 0.130 af

**Subcatchment 12X: North/West of Satellite**

Tc=4.8 min CN=81 Area=0.590 ac Runoff= 2.24 cfs 0.169 af

**Subcatchment 13X: Existing NORTH-CENTRAL**

Tc=15.4 min CN=75 Area=0.910 ac Runoff= 2.20 cfs 0.217 af

**Subcatchment 14X: Existing Northeast**

Tc=20.4 min CN=74 Area=1.040 ac Runoff= 2.23 cfs 0.240 af

**Subcatchment 21X: Existing Central**

Tc=7.3 min CN=79 Area=0.850 ac Runoff= 2.75 cfs 0.229 af

**Subcatchment 22X: Existing Parking and Entrance Circle**

Tc=12.0 min CN=84 Area=0.720 ac Runoff= 2.49 cfs 0.224 af

**Subcatchment 23X: Existing Buildings and surrounding**

Tc=8.3 min CN=91 Area=0.810 ac Runoff= 3.43 cfs 0.301 af

**Subcatchment 24X: Behind Existing Pond**

Tc=11.6 min CN=73 Area=0.240 ac Runoff= 0.61 cfs 0.054 af

**Reach 1R: Existing Swale**

Inflow= 13.26 cfs 1.322 af  
Length= 200.0' Max Vel= 1.3 fps Capacity= 43.53 cfs Outflow= 12.40 cfs 1.322 af

**Reach 2R: Existing Swale**

Inflow= 7.39 cfs 0.751 af  
Length= 80.0' Max Vel= 1.9 fps Capacity= 144.69 cfs Outflow= 7.24 cfs 0.751 af

**Reach 3R: Existing Swale**

Inflow= 2.92 cfs 0.297 af  
Length= 120.0' Max Vel= 1.4 fps Capacity= 63.42 cfs Outflow= 2.86 cfs 0.297 af

**Reach R11: From P11 to Swale**

Inflow= 1.34 cfs 0.129 af  
Length= 70.0' Max Vel= 0.5 fps Capacity= 33.01 cfs Outflow= 1.19 cfs 0.129 af

**Reach R12: 48" RCP**

Inflow= 2.24 cfs 0.169 af  
Length= 90.0' Max Vel= 9.4 fps Capacity= 463.95 cfs Outflow= 2.19 cfs 0.169 af

**Reach R22: From 22 to Swale**

Inflow= 2.49 cfs 0.224 af  
Length= 90.0' Max Vel= 0.5 fps Capacity= 27.37 cfs Outflow= 2.27 cfs 0.224 af

**Reach R23: From Pond23 to Swale**

Inflow= 3.97 cfs 0.354 af  
Length= 40.0' Max Vel= 0.7 fps Capacity= 21.38 cfs Outflow= 3.87 cfs 0.354 af



**CadCam Existing**

Type III 24-hr Rainfall=5.50" (25-Year Storm)

Prepared by {enter your company name here}

Page 2

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12/2/2005

**Reach SP: Study Point**

Inflow= 14.63 cfs 1.562 af  
Length= 100.0' Max Vel= 0.6 fps Capacity= 239.77 cfs Outflow= 13.96 cfs 1.562 af

**Pond 11P: Existing Satellite Lot Detention Pond**

Peak Storage= 1,169 cf Inflow= 1.70 cfs 0.130 af  
Primary= 0.18 cfs 0.100 af Secondary= 1.16 cfs 0.029 af Outflow= 1.34 cfs 0.129 af

**Pond 23P: Pond.23**

Peak Storage= 1,039 cf Inflow= 3.43 cfs 0.301 af  
Primary= 0.93 cfs 0.240 af Secondary= 2.44 cfs 0.061 af Outflow= 3.37 cfs 0.301 af

**Runoff Area = 5.480 ac Volume = 1.563 af Average Depth = 3.42"**

**Subcatchment 11X: Satellite Parking**

Runoff = 1.70 cfs @ 11.99 hrs, Volume= 0.130 af

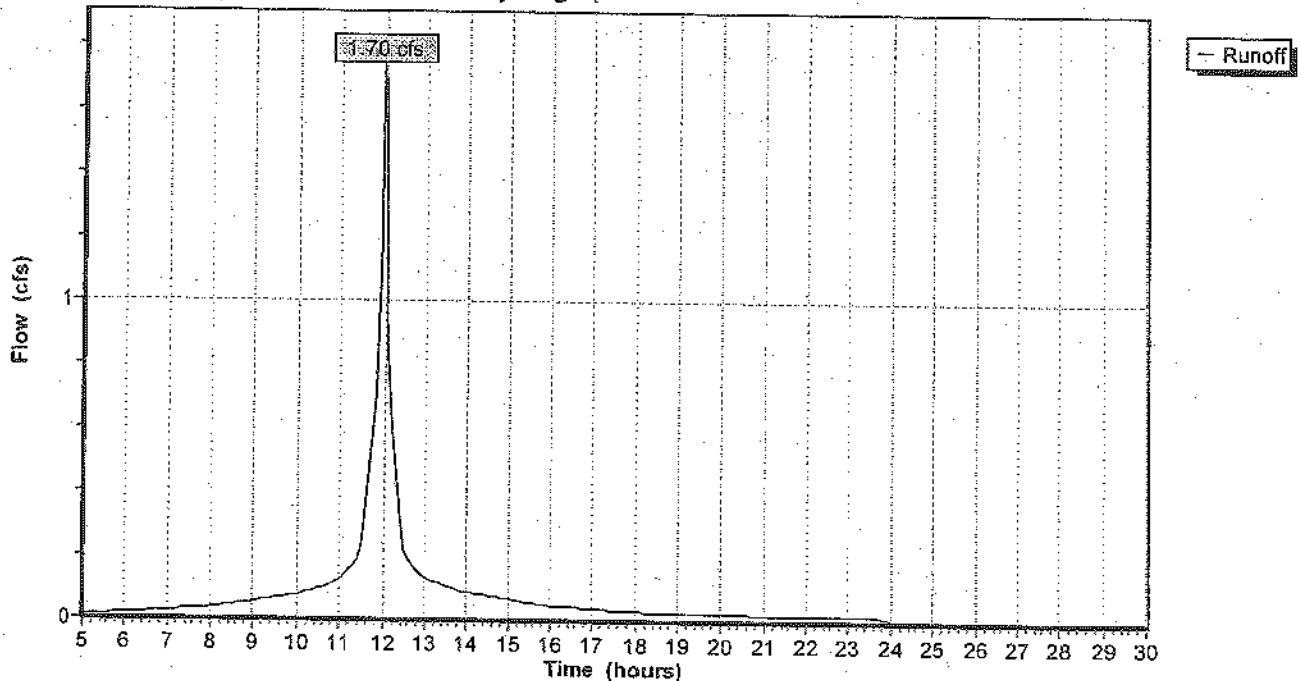
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.270	98	IMPERVIOUS (PARKING LOT)
0.040	74	OPEN SPACE (GOOD)-HSG "C"
0.010	89	RIP RAP-HSG "C"
0.320	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0303	1.6		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
0.1	15	0.3300	4.0		Shallow Concentrated Flow, Segment ID:BC Kv= 7.0 fps
0.9	55	0.0200	1.0		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
2.1	170	Total			

**Subcatchment 11X: Satellite Parking**

Hydrograph Plot



**Subcatchment 12X: North/West of Satellite**

Runoff = 2.24 cfs @ 12.02 hrs, Volume= 0.169 af

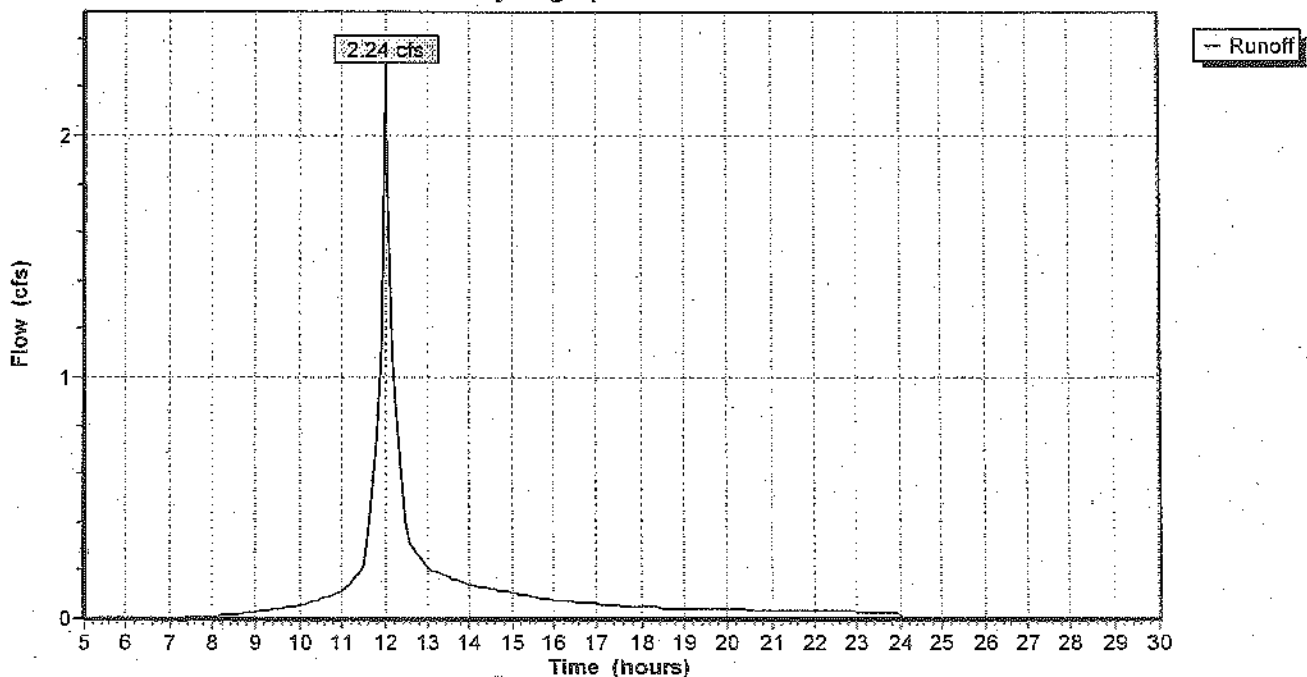
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.020	73	WOODS (FAIR)-HSG "C"
0.400	74	OPEN SPACE (GOOD)-HSG "C"
0.170	98	IMPERVIOUS
0.590	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	16	0.1900	0.2		Sheet Flow, Segment ID:AB Grass: Dense n= 0.240 P2= 3.00"
0.8	13	0.5000	0.3		Sheet Flow, Segment ID:BC Grass: Dense n= 0.240 P2= 3.00"
1.3	185	0.0270	2.5		Shallow Concentrated Flow, Segment ID:CD Grassed Waterway Kv= 15.0 fps
0.2	60	0.0100	5.7	7.00	Circular Channel (pipe), SEGMENT ID:DE Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
1.1	165	0.0300	2.6		Shallow Concentrated Flow, SEGMENT ID:EF Grassed Waterway Kv= 15.0 fps
4.8	439	Total			

**Subcatchment 12X: North/West of Satellite**

Hydrograph Plot



**Subcatchment 13X: Existing NORTH-CENTRAL**

Runoff = 2.20 cfs @ 12.18 hrs, Volume= 0.217 af

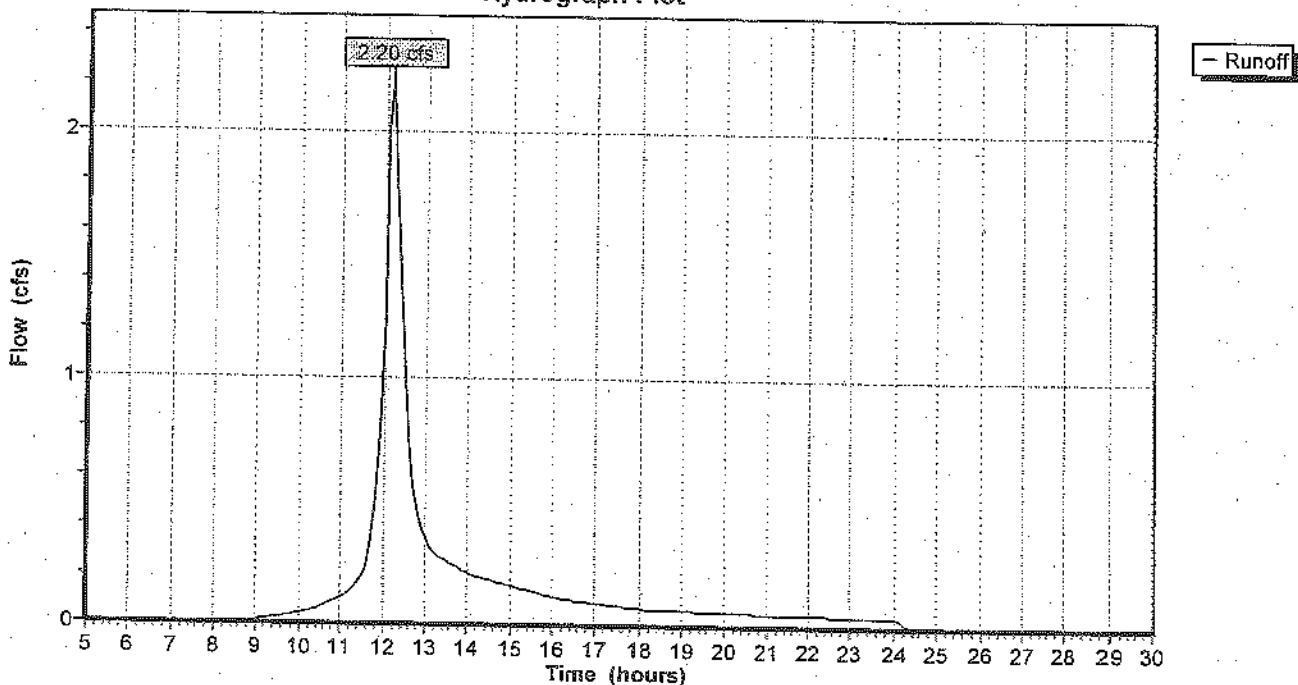
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.000	98	IMPERVIOUS (PAVEMENT)
0.540	73	WOODS (FAIR)-HSG "C"
0.130	74	OPEN SPACE (GOOD)-HSG "C"
0.240	79	WOODS (FAIR)-HSG "D"
0.910	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	35	0.0700	0.1		Sheet Flow, Segment ID:AB Woods: Light underbrush n= 0.400 P2= 3.00"
6.7	65	0.1700	0.2		Sheet Flow, Segment ID:BC Woods: Light underbrush n= 0.400 P2= 3.00"
1.2	130	0.1300	1.8		Shallow Concentrated Flow, Segment C-D Woodland Kv= 5.0 fps
1.7	100	0.0400	1.0		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
15.4	330	Total			

**Subcatchment 13X: Existing NORTH-CENTRAL**

Hydrograph Plot



**Subcatchment 14X: Existing Northeast**

Runoff = 2.23 cfs @ 12.24 hrs, Volume= 0.240 af

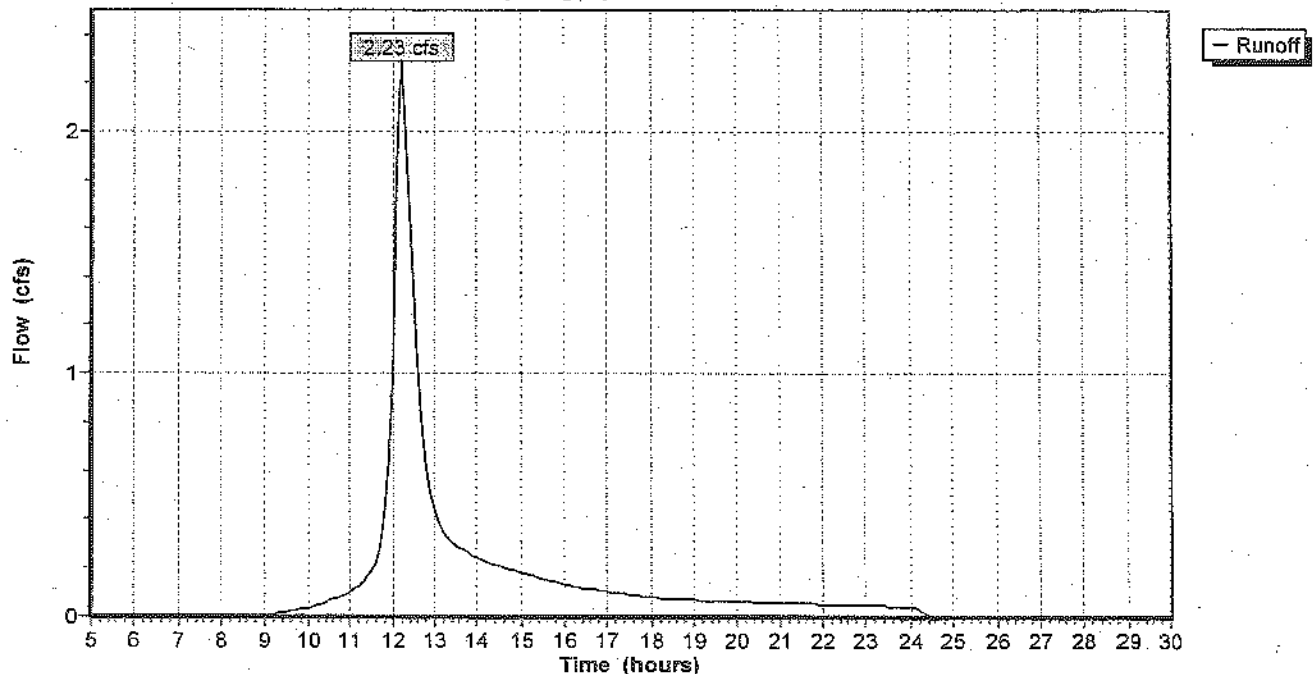
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.810	73	Woods, Fair, HSG C
0.230	79	Woods, Fair, HSG D
1.040	74	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	60	0.0250	0.1		Sheet Flow, Segment AB Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	40	0.2250	0.2		Sheet Flow, Segment BC Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	90	0.1444	1.9		Shallow Concentrated Flow, Segment CD Woodland Kv= 5.0 fps
0.1	25	0.4400	3.3		Shallow Concentrated Flow, Segment DE Woodland Kv= 5.0 fps
2.0	70	0.0140	0.6		Shallow Concentrated Flow, Segment EF Woodland Kv= 5.0 fps
20.4	285	Total			

**Subcatchment 14X: Existing Northeast**

Hydrograph Plot



**Subcatchment 21X: Existing Central**

Runoff = 2.75 cfs @ 12.07 hrs, Volume= 0.229 af

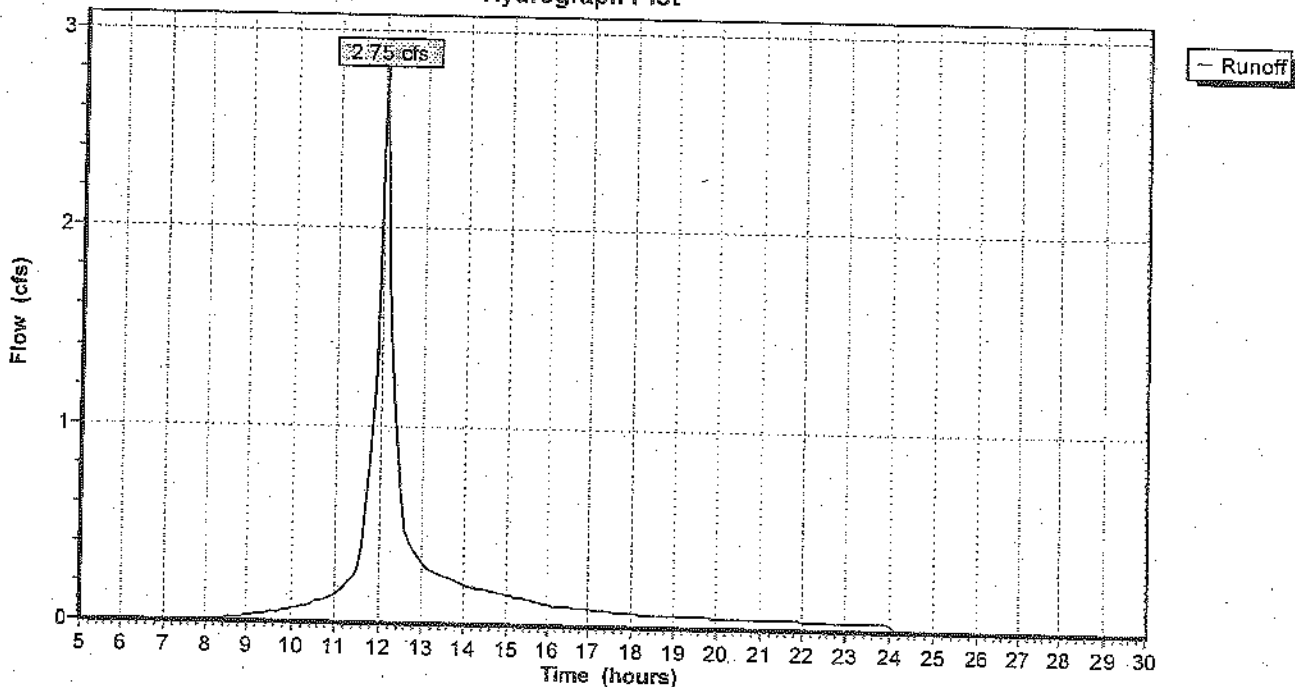
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.260	73	WOODS (FAIR)-HSG "C"
0.250	74	OPEN SPACE (GOODG "C"
0.200	79	WOODS (FAIR)-HSD "D"
0.140	98	IMPERVIOUS (BLDG, PAVEMENT)
0.850	79	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	75	0.0600	0.2		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.7	15	0.4000	0.4		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
0.2	30	0.2700	2.6		Shallow Concentrated Flow, Segment ID:CD Woodland Kv= 5.0 fps
1.2	80	0.0500	1.1		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
7.3	200	Total			

**Subcatchment 21X: Existing Central**

Hydrograph Plot



**Subcatchment 22X: Existing Parking and Entrance Circle**

Runoff = 2.49 cfs @ 12.12 hrs, Volume= 0.224 af

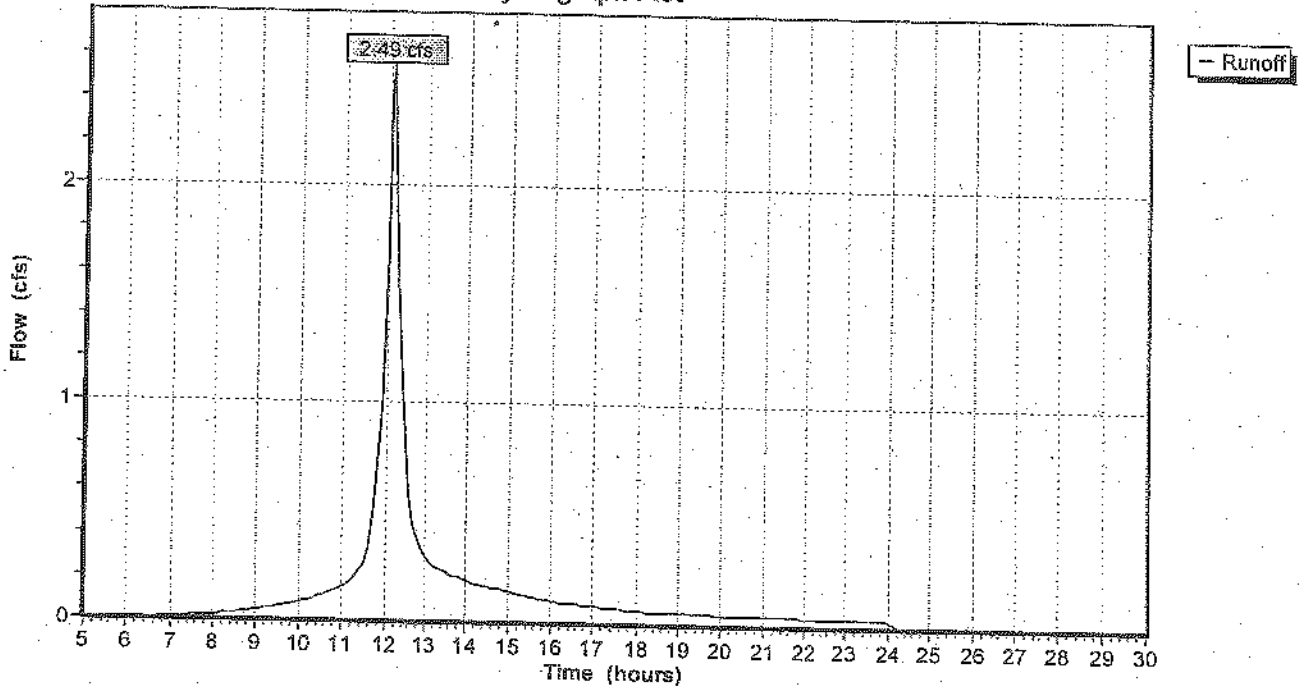
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.130	73	WOODS (FAIR)-HSG "C"
0.280	74	OPEN SPACE (GOODG "C"
0.310	98	IMPERVIOUS (BLDG, PAVEMENT)
0.720	84	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	15	0.0167	0.1		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.4	20	0.0125	0.8		Sheet Flow, SegmentBC Smooth surfaces n= 0.011 P2= 3.00"
7.9	65	0.1100	0.1		Sheet Flow, SegmentCD Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	70	0.0860	1.5		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
0.4	90	0.0333	3.7		Shallow Concentrated Flow, Segment ID:EF Paved Kv= 20.3 fps
0.1	65	0.0500	12.0	9.42	Circular Channel (pipe), SegmentFG Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
12.0	325	Total			

### Subcatchment 22X: Existing Parking and Entrance Circle

Hydrograph Plot





**Subcatchment 23X: Existing Buildings and surrounding**

Runoff = 3.43 cfs @ 12.08 hrs, Volume= 0.301 af

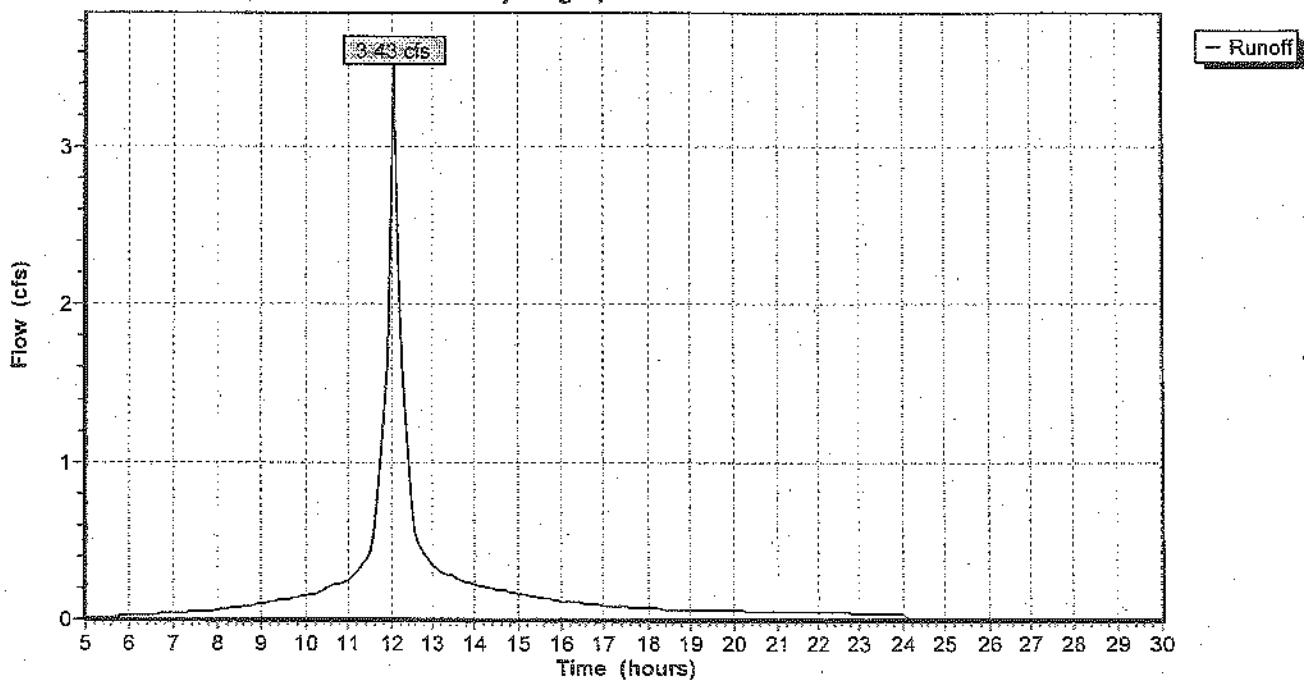
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.310	79	OPEN SPACE (FAIR)-HSG "C"
0.200	98	Paved parking & roofs
0.300	98	Paved parking & roofs
0.810	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2000	0.3		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
6.4	90	0.0500	0.2		Sheet Flow, Segment ID:BC Grass: Short n= 0.150 P2= 3.00"
0.4	60	0.1100	2.3		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
0.0	10	0.3000	3.8		Shallow Concentrated Flow, Segment ID:DE Short Grass Pasture Kv= 7.0 fps
0.9	95	0.0630	1.8		Shallow Concentrated Flow, Segment EF Short Grass Pasture Kv= 7.0 fps
8.3	265	Total			

**Subcatchment 23X: Existing Buildings and surrounding**

Hydrograph Plot



**CadCam Existing**

Type III 24-hr Rainfall=5.50" (25-Year Storm)

Prepared by {enter your company name here}

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12/2/2005

**Subcatchment 24X: Behind Existing Pond**

Runoff = 0.61 cfs @ 12.12 hrs, Volume= 0.054 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

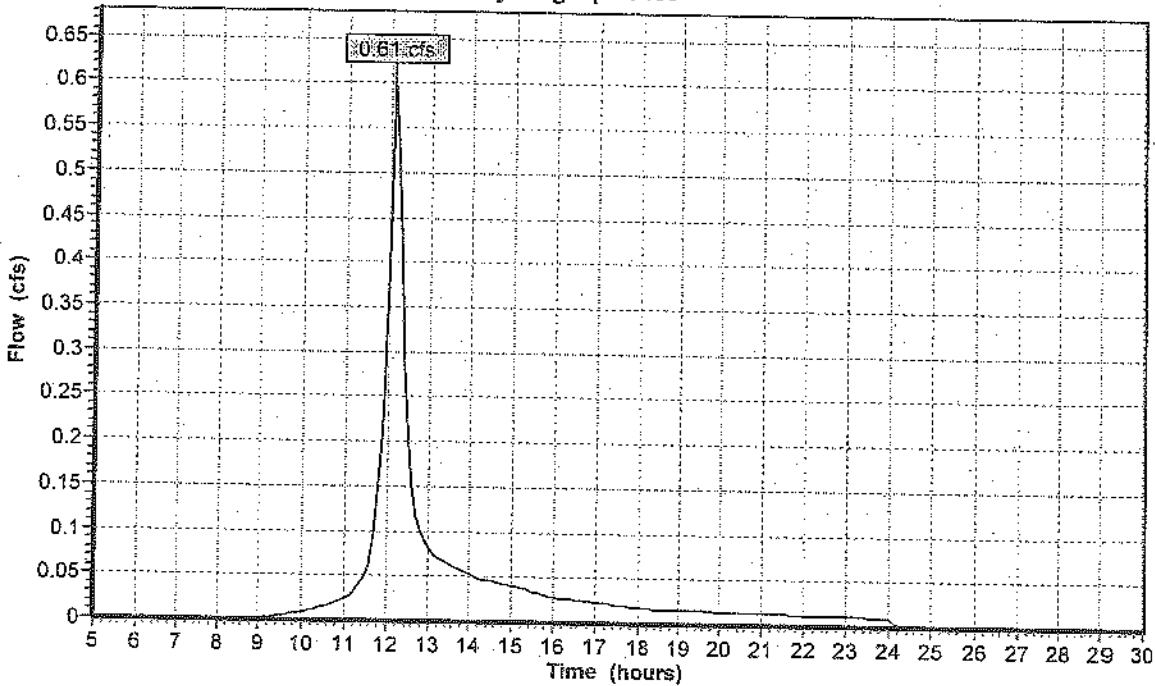
Area (ac)	CN	Description
0.240	73	Woods, Fair, HSG C

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	45	0.1111	0.1		Sheet Flow, AB
4.2	55	0.0545	0.2		Woods: Light underbrush n= 0.400 P2= 3.00"
					Sheet Flow, BC
					Grass: Short n= 0.150 P2= 3.00"
1.5	125	0.0800	1.4		Shallow Concentrated Flow, CD
					Woodland Kv= 5.0 fps
11.6	225	Total			

**Subcatchment 24X: Behind Existing Pond**

Hydrograph Plot



### Reach 1R: Existing Swale

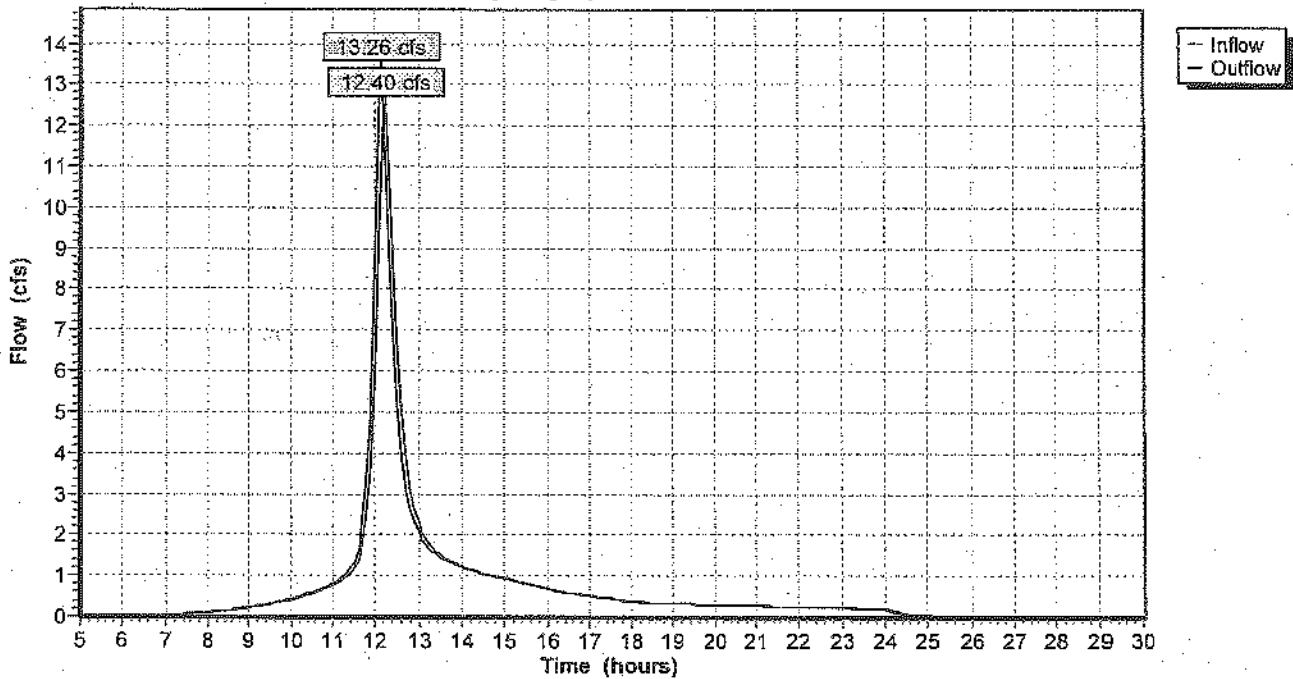
Inflow = 13.26 cfs @ 12.14 hrs, Volume= 1.322 af  
Outflow = 12.40 cfs @ 12.23 hrs, Volume= 1.322 af, Atten= 6%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.3 fps, Min. Travel Time= 2.6 min  
Avg. Velocity = 0.3 fps, Avg. Travel Time= 9.8 min

Peak Depth= 1.05'  
Capacity at bank full= 43.53 cfs  
Inlet Invert= 30.00', Outlet Invert= 29.50'  
7.00' x 2.00' deep channel, n= 0.050 Length= 200.0' Slope= 0.0025 '/  
Side Slope Z-value= 3.0 2.0 '/

### Reach 1R: Existing Swale

Hydrograph Plot



### Reach 2R: Existing Swale

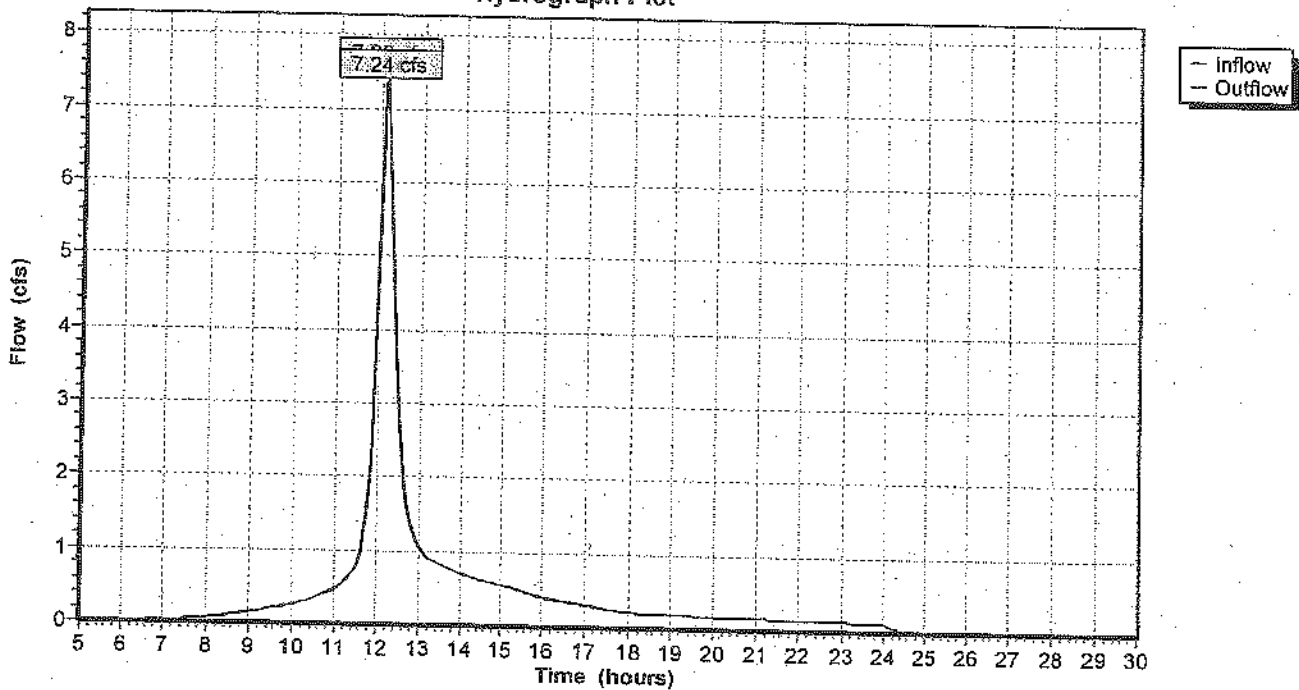
Inflow = 7.39 cfs @ 12.12 hrs, Volume= 0.751 af  
Outflow = 7.24 cfs @ 12.13 hrs, Volume= 0.751 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.9 fps, Min. Travel Time= 0.7 min  
Avg. Velocity = 0.5 fps, Avg. Travel Time= 2.4 min

Peak Depth= 0.63'  
Capacity at bank full= 144.69 cfs  
Inlet Invert= 30.80', Outlet invert= 30.00'  
5.00' x 3.00' deep channel, n= 0.050 Length= 80.0' Slope= 0.0100 '/  
Side Slope Z-value= 2.0 '/

### Reach 2R: Existing Swale

Hydrograph Plot



### Reach 3R: Existing Swale

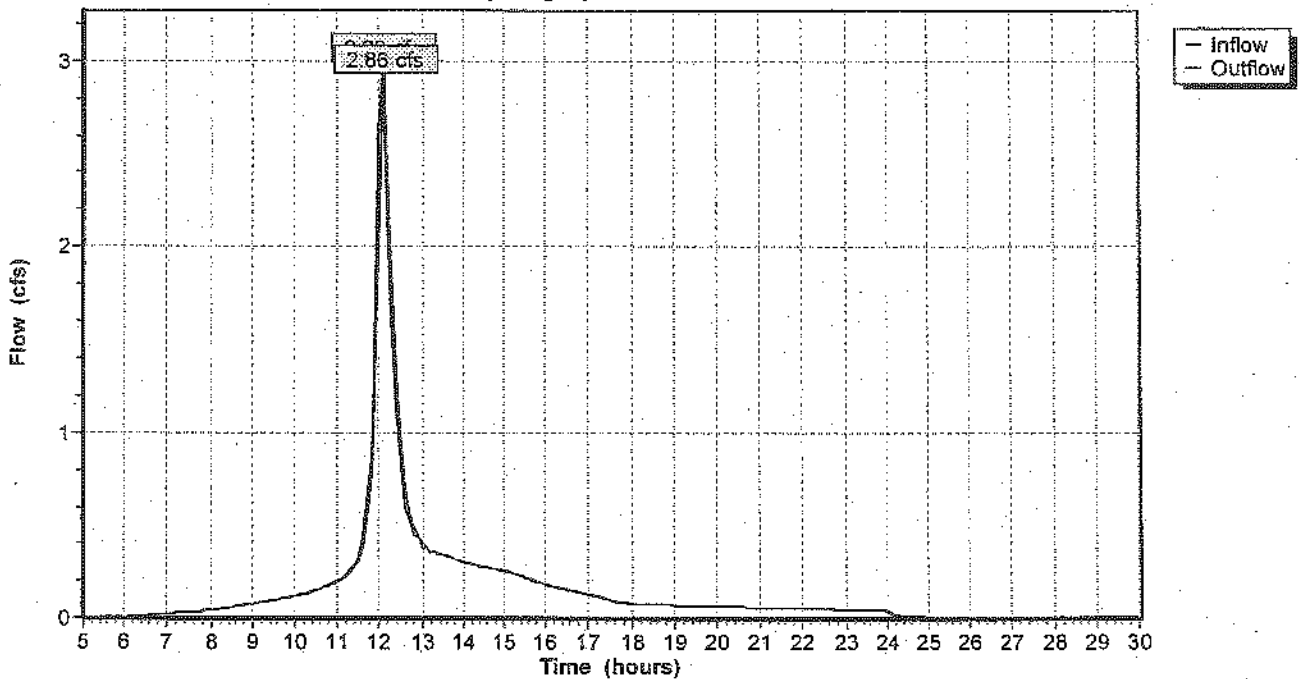
Inflow = 2.92 cfs @ 12.07 hrs, Volume= 0.297 af  
 Outflow = 2.86 cfs @ 12.12 hrs, Volume= 0.297 af, Atten= 2%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Max. Velocity= 1.4 fps, Min. Travel Time= 1.4 min  
 Avg. Velocity= 0.4 fps, Avg. Travel Time= 5.1 min

Peak Depth= 0.37'  
 Capacity at bank full= 63.42 cfs  
 Inlet Invert= 32.00', Outlet Invert= 30.80'  
 5.00' x 2.00' deep channel, n= 0.050 Length= 120.0' Slope= 0.0100 1/1  
 Side Slope Z-value= 2.0 1/1

### Reach 3R: Existing Swale

Hydrograph Plot



### Reach R11: From P11 to Swale

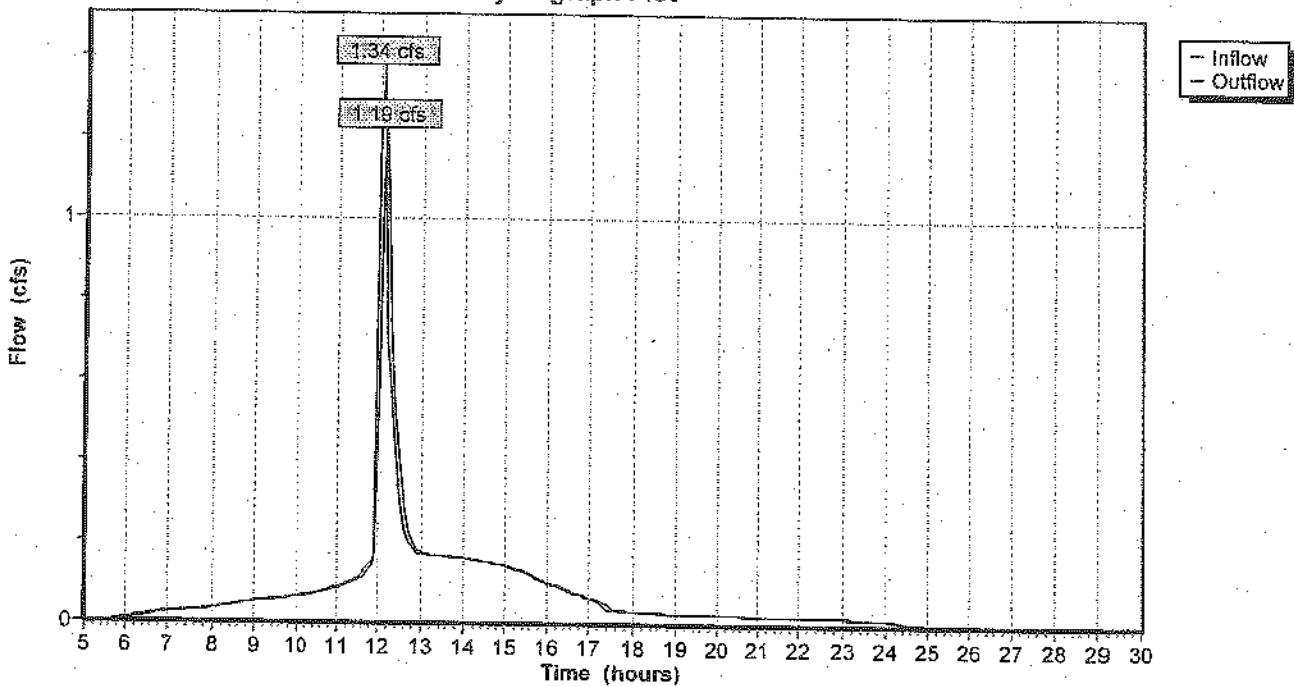
Inflow = 1.34 cfs @ 12.06 hrs, Volume= 0.129 af  
 Outflow = 1.19 cfs @ 12.14 hrs, Volume= 0.129 af, Atten= 12%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Max. Velocity= 0.5 fps, Min. Travel Time= 2.4 min  
 Avg. Velocity = 0.1 fps, Avg. Travel Time= 9.0 min

Peak Depth= 0.17'  
 Capacity at bank full= 33.01 cfs  
 Inlet Invert= 45.90', Outlet Invert= 32.00'  
 15.00' x 1.00' deep channel, n= 0.400 Length= 70.0' Slope= 0.1986 %  
 Side Slope Z-value= 10.0 /'

### Reach R11: From P11 to Swale

Hydrograph Plot



Reach R12: 48" RCP

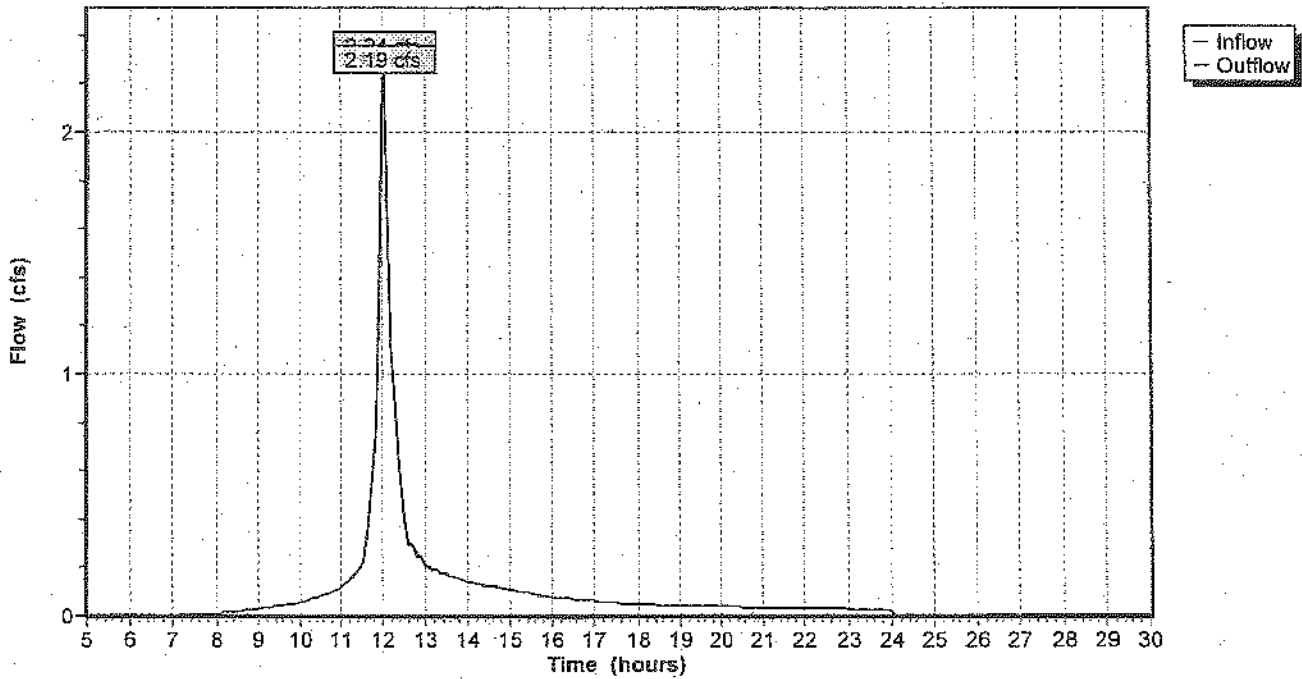
Inflow = 2.24 cfs @ 12.02 hrs, Volume= 0.169 af  
Outflow = 2.19 cfs @ 12.02 hrs, Volume= 0.169 af, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 9.4 fps, Min. Travel Time= 0.2 min  
Avg. Velocity = 3.8 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.20'  
Capacity at bank full= 463.95 cfs  
Inlet Invert= 40.00', Outlet Invert= 32.00'  
48.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0889 1'

Reach R12: 48" RCP

Hydrograph Plot



Reach R22: From 22 to Swale

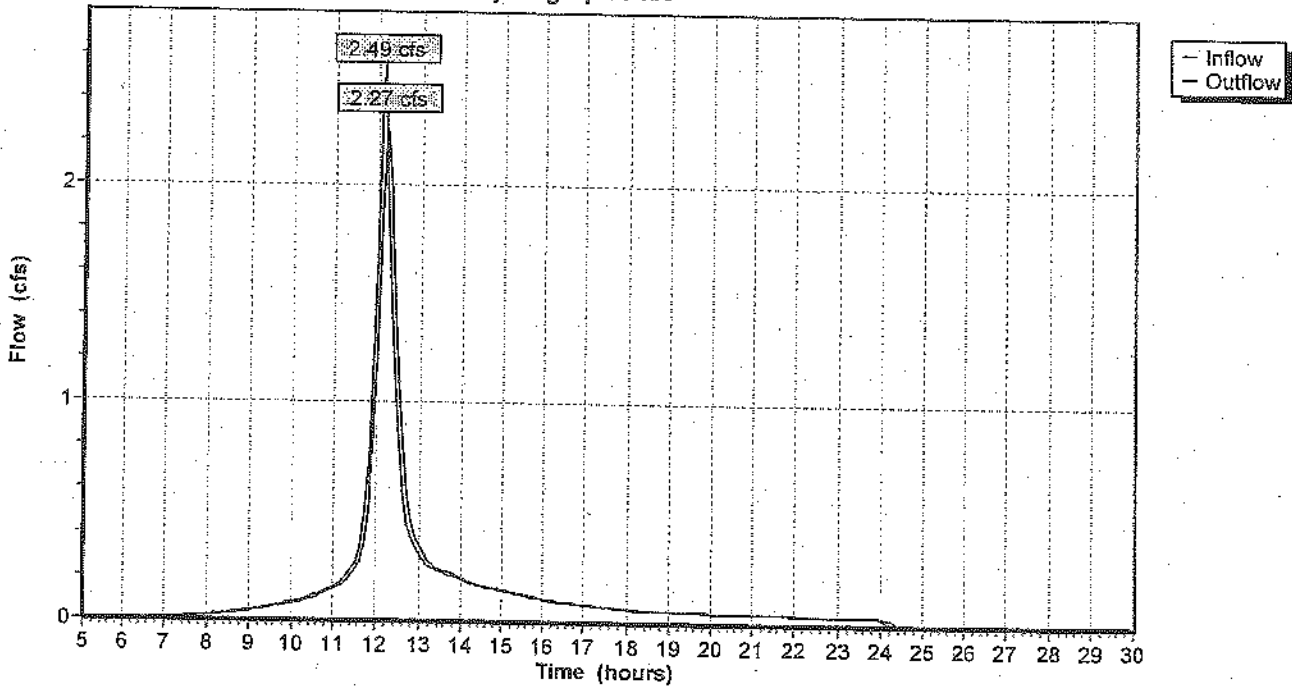
Inflow = 2.49 cfs @ 12.12 hrs, Volume= 0.224 af  
Outflow = 2.27 cfs @ 12.21 hrs, Volume= 0.224 af, Atten= 9%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.5 fps, Min. Travel Time= 2.8 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 10.4 min

Peak Depth= 0.26'  
Capacity at bank full= 27.37 cfs  
Inlet Invert= 44.00', Outlet Invert= 30.50'  
15.00' x 1.00' deep channel, n= 0.400 Length= 90.0' Slope= 0.1500 '  
Side Slope Z-value= 15.0 2.0 '

Reach R22: From 22 to Swale

Hydrograph Plot





Reach R23: From Pond23 to Swale

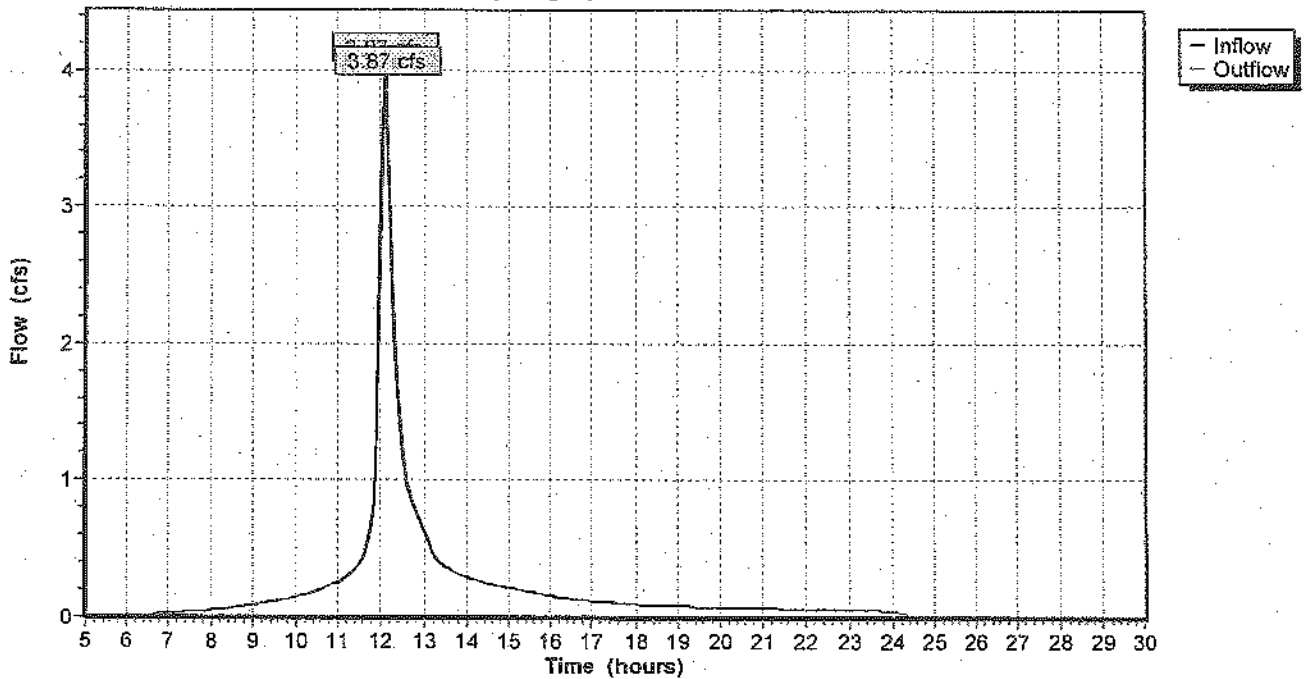
Inflow = 3.97 cfs @ 12.10 hrs, Volume= 0.354 af  
Outflow = 3.87 cfs @ 12.12 hrs, Volume= 0.354 af, Atten= 2%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.7 fps, Min. Travel Time= 1.0 min  
Avg. Velocity = 0.2 fps, Avg. Travel Time= 3.2 min

Peak Depth= 0.48'  
Capacity at bank full= 21.38 cfs  
Inlet Invert= 37.00', Outlet Invert= 30.00'  
5.00' x 1.00' deep channel, n= 0.400 Length= 40.0' Slope= 0.1750 1'  
Side Slope Z-value= 15.0 1'

Reach R23: From Pond23 to Swale

Hydrograph Plot



**CadCam Existing**

Type III 24-hr Rainfall=5.50" (25-Year Storm)

Prepared by {enter your company name here}

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**Reach SP: Study Point**

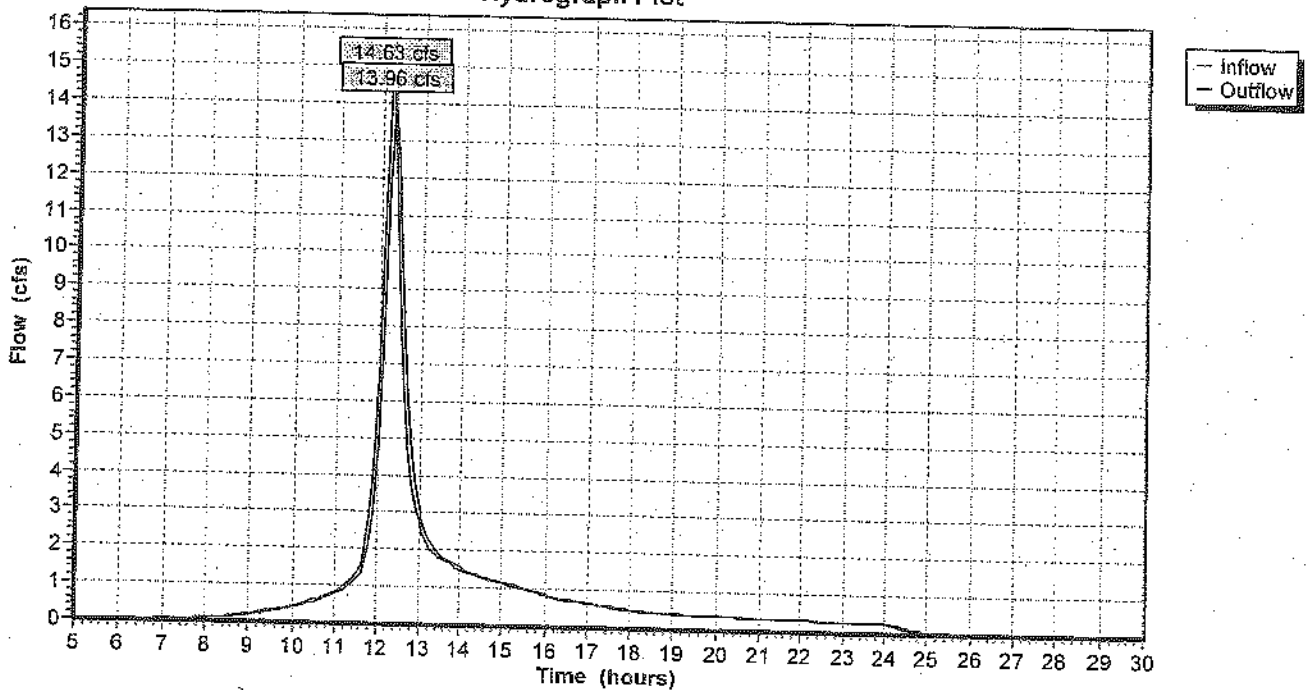
Inflow = 14.63 cfs @ 12.23 hrs, Volume= 1.562 af  
Outflow = 13.96 cfs @ 12.31 hrs, Volume= 1.562 af, Atten= 5%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.6 fps, Min. Travel Time= 2.6 min  
Avg. Velocity= 0.2 fps, Avg. Travel Time= 10.1 min

Peak Depth= 0.60'  
Capacity at bank full= 239.77 cfs  
Inlet Invert= 29.50', Outlet Invert= 29.40'  
35.00' x 3.00' deep channel, n= 0.050 Length= 100.0' Slope= 0.0010 '/  
Side Slope Z-value= 5.0 4.0 '/

**Reach SP: Study Point**

Hydrograph Plot



**Pond 11P: Existing Satellie Lot Detention Pond**

Inflow = 1.70 cfs @ 11.99 hrs, Volume= 0.130 af  
 Outflow = 1.34 cfs @ 12.06 hrs, Volume= 0.129 af, Atten= 21%, Lag= 4.4 min  
 Primary = 0.18 cfs @ 12.06 hrs, Volume= 0.100 af  
 Secondary = 1.16 cfs @ 12.06 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 48.73' Storage= 1,169 cf

Plug-Flow detention time= 44.2 min calculated for 0.128 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	10	0	0
47.00	117	64	64
48.00	674	396	459
49.00	1,276	975	1,434

**Primary OutFlow (Free Discharge)**

- ↑ 1=Orifice/Grate
- └ 2=Orifice/Grate

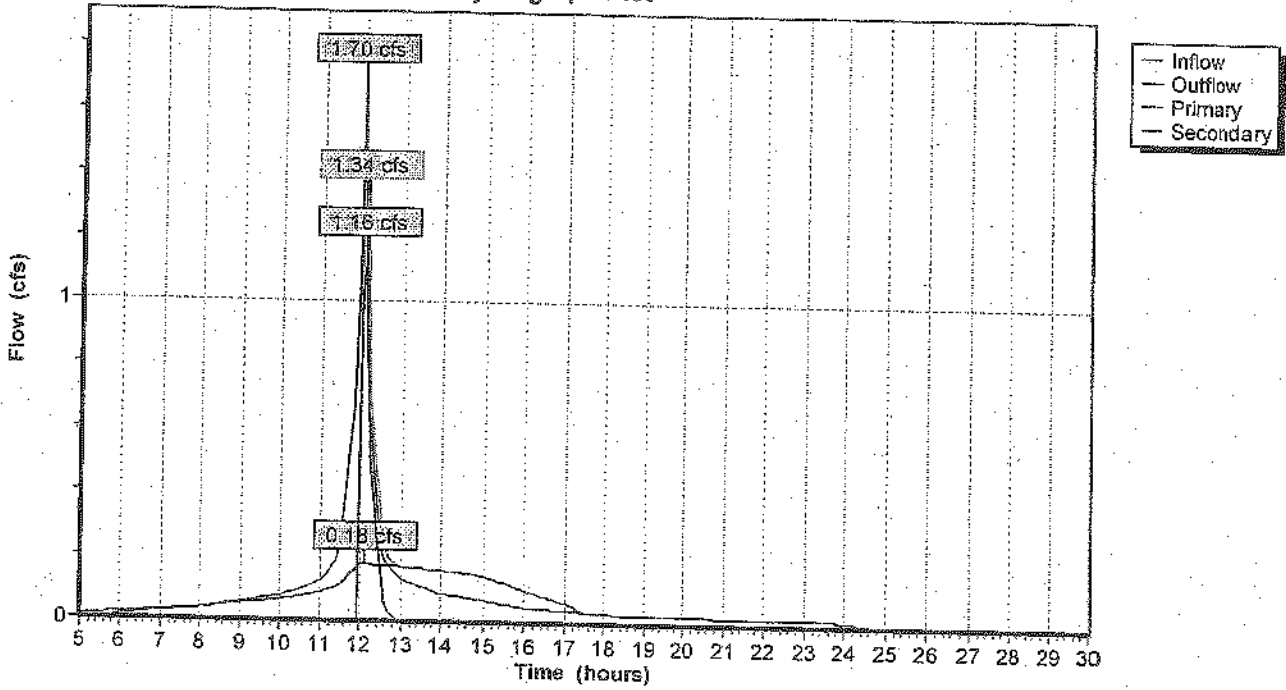
**Secondary OutFlow (Free Discharge)**

- ↑ 3=Sharp-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	46.50'	1.0" Vert. Orifice/Grate C= 0.600
2	Primary	46.80'	2.0" Vert. Orifice/Grate C= 0.600
3	Secondary	48.50'	3.1' long x 0.5' high Sharp-Crested Rectangular Weir 0 End Contraction(s)

### Pond 11P: Existing Satellite Lot Detention Pond

Hydrograph Plot



**Pond 23P: Pond 23**

Inflow = 3.43 cfs @ 12.08 hrs, Volume= 0.301 af  
 Outflow = 3.37 cfs @ 12.09 hrs, Volume= 0.301 af, Atten= 2%, Lag= 1.0 min  
 Primary = 0.93 cfs @ 12.09 hrs, Volume= 0.240 af  
 Secondary = 2.44 cfs @ 12.09 hrs, Volume= 0.061 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 41.21' Storage= 1,039 cf  
 Plug-Flow detention time= 16.5 min calculated for 0.300 af (100% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	608	0	0
41.00	996	802	802
41.50	1,265	565	1,367

**Primary OutFlow (Free Discharge)**

↑1=Culvert

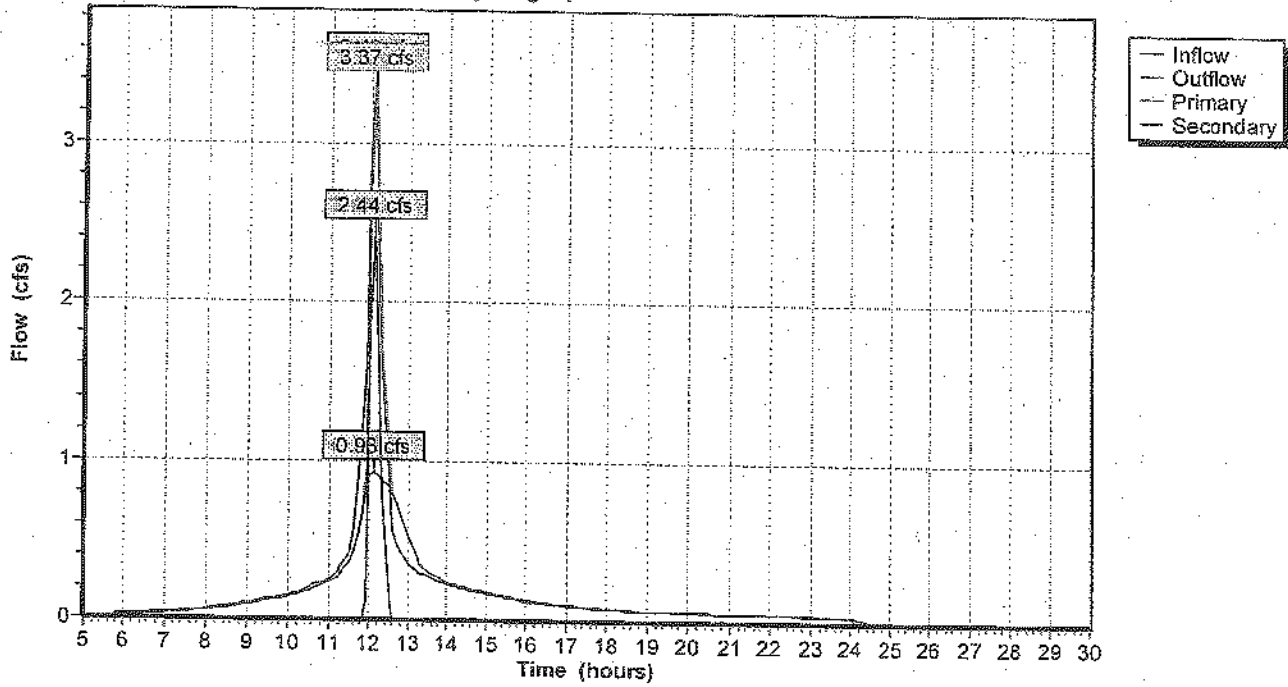
**Secondary OutFlow (Free Discharge)**

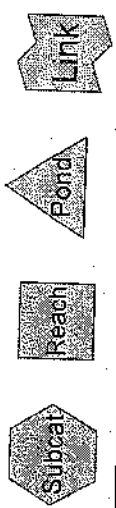
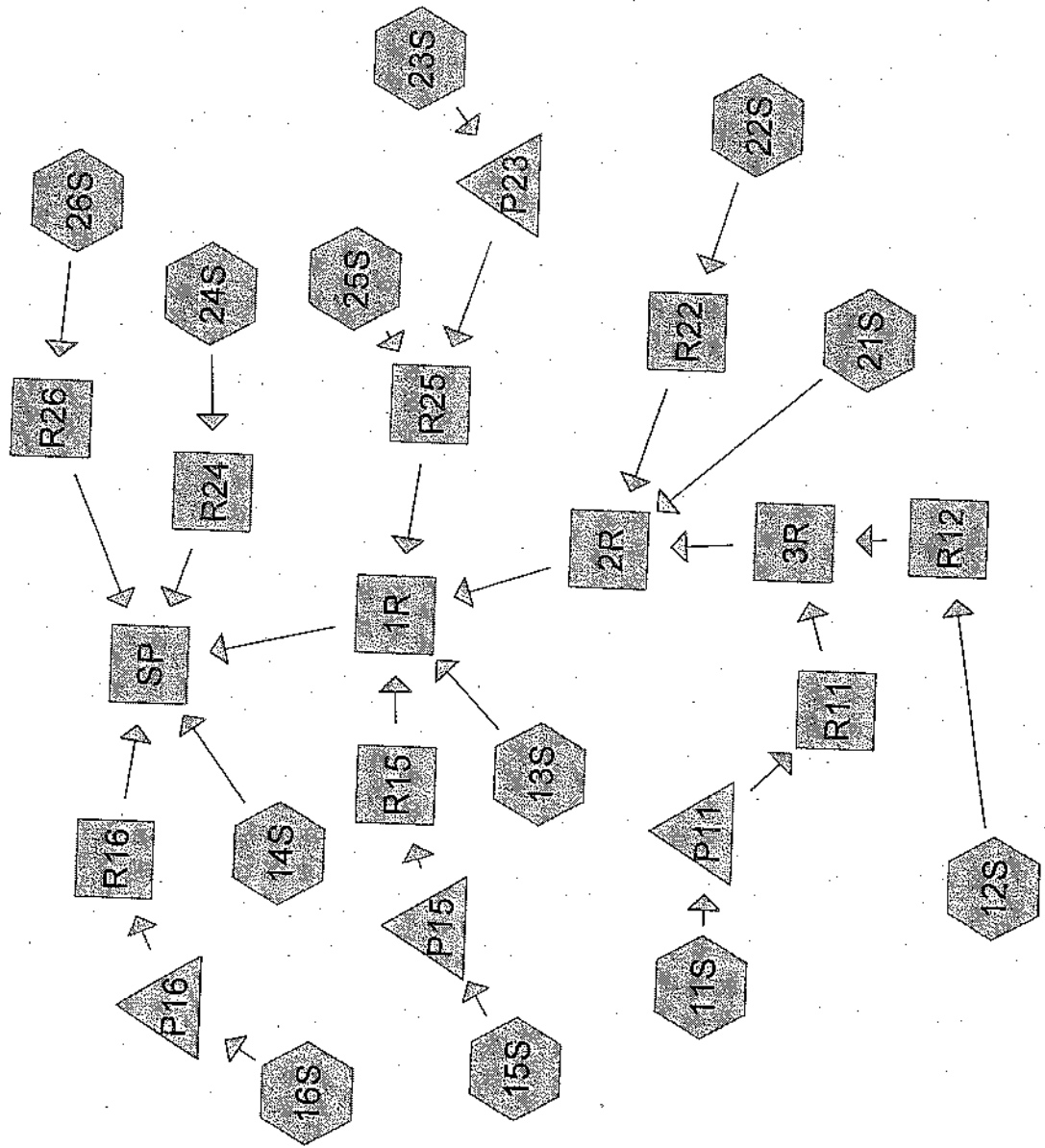
↑2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	40.00'	6.0" x 17.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 37.00' S=0.1765 1/ n= 0.011 Cc= 0.900
2	Secondary	41.00'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.3

### Pond 23P: Pond 23

Hydrograph Plot





Drainage Diagram for CadCam Proposed  
 Prepared by {enter your company name here} 1/16/2006  
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**CadCam Proposed**

Type III 24-hr Rainfall=3.00" (2-Year Storm)

Prepared by {enter your company name here}

Page 1

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1/16/2006

Time span=5.00-30.00 hrs, dt=0.10 hrs, 251 points

Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=3.00"

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 11S: Satellite Parking**

Tc=2.1 min CN=95 Area=0.320 ac Runoff= 0.89 cfs 0.065 af

**Subcatchment 12S: North/West of Satellite**

Tc=4.8 min CN=81 Area=0.590 ac Runoff= 0.85 cfs 0.065 af

**Subcatchment 13S: Proposed NORTH-CENTRAL**

Tc=9.7 min CN=75 Area=0.670 ac Runoff= 0.61 cfs 0.054 af

**Subcatchment 14S: Proposed Northeast**

Tc=14.2 min CN=76 Area=0.590 ac Runoff= 0.49 cfs 0.050 af

**Subcatchment 15S: Proposed Parking**

Tc=1.4 min CN=91 Area=0.480 ac Runoff= 1.15 cfs 0.083 af

**Subcatchment 16S: Proposed Parking**

Tc=1.5 min CN=85 Area=0.220 ac Runoff= 0.42 cfs 0.029 af

**Subcatchment 21S: Proposed Central**

Tc=8.3 min CN=76 Area=0.540 ac Runoff= 0.53 cfs 0.046 af

**Subcatchment 22S: Existing Parking and Entrance Circle**

Tc=12.0 min CN=83 Area=0.870 ac Runoff= 1.17 cfs 0.105 af

**Subcatchment 23S: Proposed Buildings**

Tc=5.0 min CN=98 Area=0.480 ac Runoff= 1.32 cfs 0.109 af

**Subcatchment 24S: Expanded Parking**

Tc=3.8 min CN=93 Area=0.330 ac Runoff= 0.84 cfs 0.062 af

**Subcatchment 25S: Access & Rear Parking**

Tc=8.0 min CN=93 Area=0.280 ac Runoff= 0.61 cfs 0.053 af

**Subcatchment 26S: Rear of Building**

Tc=7.8 min CN=74 Area=0.120 ac Runoff= 0.10 cfs 0.009 af

**Reach 1R: Existing Swale**Length= 200.0' Max Vel= 0.8 fps Capacity= 43.53 cfs Inflow= 3.47 cfs 0.551 af  
Outflow= 3.37 cfs 0.550 af**Reach 2R: Existing Swale**Length= 80.0' Max Vel= 1.3 fps Capacity= 144.69 cfs Inflow= 2.17 cfs 0.280 af  
Outflow= 2.16 cfs 0.280 af**Reach 3R: Existing Swale**Length= 120.0' Max Vel= 0.9 fps Capacity= 63.42 cfs Inflow= 0.95 cfs 0.129 af  
Outflow= 0.87 cfs 0.129 af



**CadCam Proposed**

Type III 24-hr Rainfall=3.00" (2-Year Storm)

Prepared by {enter your company name here}

Page 2

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1/16/2006

**Reach R11: From P11 to Swale** Inflow= 0.17 cfs 0.064 af  
Length= 70.0' Max Vel= 0.2 fps Capacity= 33.01 cfs Outflow= 0.17 cfs 0.064 af

**Reach R12: 48" RCP** Inflow= 0.85 cfs 0.065 af  
Length= 90.0' Max Vel= 7.0 fps Capacity= 463.95 cfs Outflow= 0.82 cfs 0.065 af

**Reach R15: From P15 to Swale** Inflow= 0.45 cfs 0.059 af  
Length= 100.0' Max Vel= 0.2 fps Capacity= 45.62 cfs Outflow= 0.32 cfs 0.058 af

**Reach R16: From P16 to Swale** Inflow= 0.11 cfs 0.023 af  
Length= 120.0' Max Vel= 0.1 fps Capacity= 28.43 cfs Outflow= 0.07 cfs 0.023 af

**Reach R22: From 22 to Swale** Inflow= 1.17 cfs 0.105 af  
Length= 90.0' Max Vel= 0.4 fps Capacity= 27.37 cfs Outflow= 1.05 cfs 0.105 af

**Reach R24: 24S to Swale** Inflow= 0.84 cfs 0.062 af  
Length= 100.0' Max Vel= 0.3 fps Capacity= 13.86 cfs Outflow= 0.68 cfs 0.062 af

**Reach R25: From 25 to Swale** Inflow= 0.88 cfs 0.160 af  
Length= 50.0' Max Vel= 0.4 fps Capacity= 28.77 cfs Outflow= 0.83 cfs 0.160 af

**Reach R26: From 26 to SP** Inflow= 0.10 cfs 0.009 af  
Length= 180.0' Max Vel= 0.2 fps Capacity= 10.11 cfs Outflow= 0.06 cfs 0.009 af

**Reach SP: Study Point** Inflow= 4.30 cfs 0.694 af  
Length= 100.0' Max Vel= 0.4 fps Capacity= 239.77 cfs Outflow= 4.19 cfs 0.693 af

**Pond P11: Existing Satellite Lot Detention Pond** Peak Storage= 917 cf Inflow= 0.89 cfs 0.065 af  
Primary= 0.17 cfs 0.064 af Secondary= 0.00 cfs 0.000 af Outflow= 0.17 cfs 0.064 af

**Pond P15: Pond 15** Peak Storage= 1,744 cf Inflow= 1.15 cfs 0.083 af  
Primary= 0.03 cfs 0.034 af Secondary= 0.42 cfs 0.025 af Outflow= 0.45 cfs 0.059 af

**Pond P16: Pond 16** Peak Storage= 595 cf Inflow= 0.42 cfs 0.029 af  
Primary= 0.01 cfs 0.017 af Secondary= 0.10 cfs 0.006 af Outflow= 0.11 cfs 0.023 af

**Pond P23: Pond 23** Peak Storage= 1,842 cf Inflow= 1.32 cfs 0.109 af  
Primary= 0.31 cfs 0.107 af Secondary= 0.00 cfs 0.000 af Outflow= 0.31 cfs 0.107 af

**Runoff Area = 6.490 ac Volume = 0.728 af Average Depth = 1.59"**

**Subcatchment 11S: Satellite Parking**

Runoff = 0.89 cfs @ 11.99 hrs, Volume= 0.065 af

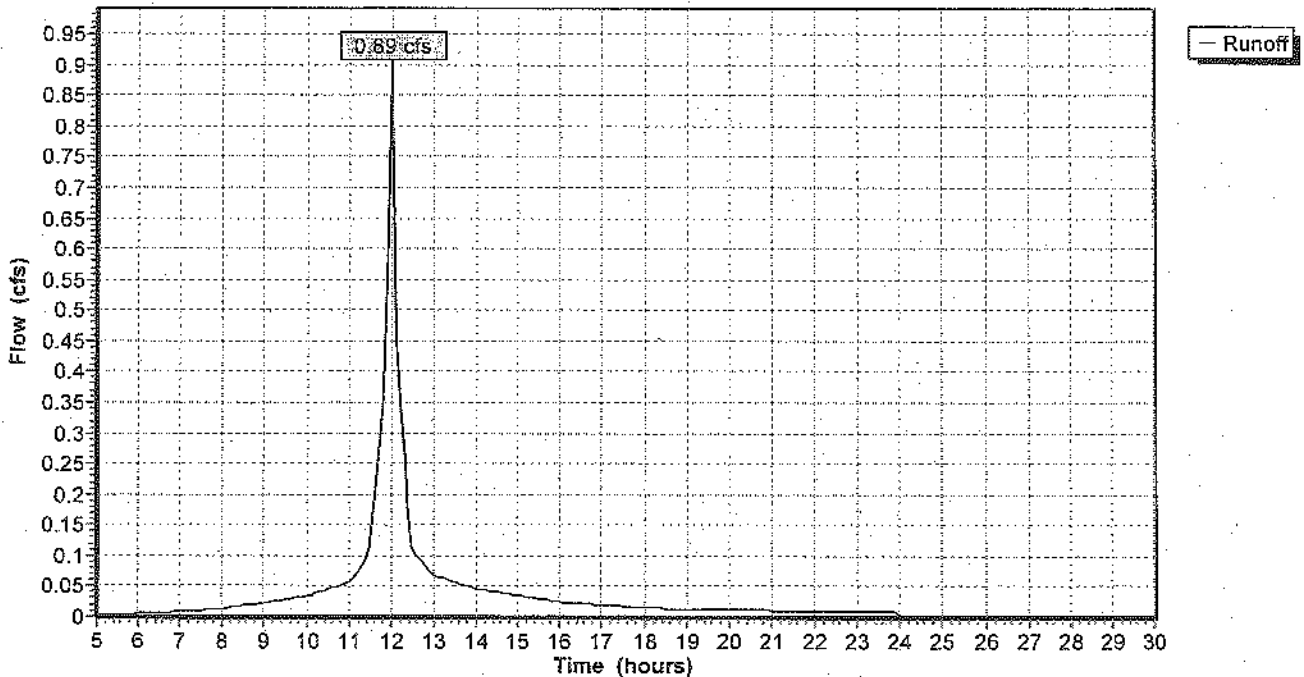
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.270	98	IMPERVIOUS (PARKING LOT)
0.040	74	OPEN SPACE (GOOD)-HSG "C"
0.010	89	RIP RAP-HSG "C"
0.320	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0303	1.6		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
0.1	15	0.3300	4.0		Shallow Concentrated Flow, Segment ID:BC Kv= 7.0 fps
0.9	55	0.0200	1.0		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
2.1	170	Total			

**Subcatchment 11S: Satellite Parking**

Hydrograph Plot



**Subcatchment 12S: North/West of Satellite**

Runoff = 0.85 cfs @ 12.02 hrs, Volume= 0.065 af

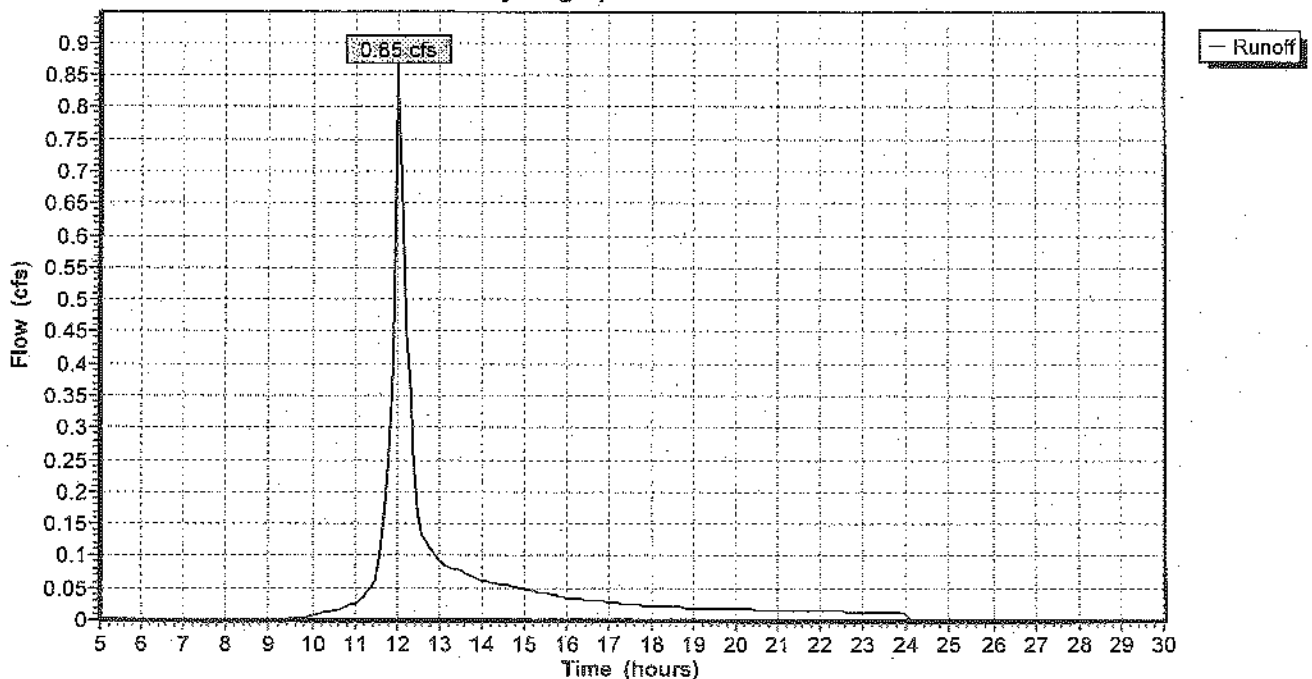
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.020	73	WOODS (FAIR)-HSG "C"
0.400	74	OPEN SPACE (GOOD)-HSG "C"
0.170	98	IMPERVIOUS
0.590	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	16	0.1900	0.2		Sheet Flow, Segment ID:AB Grass: Dense n= 0.240 P2= 3.00"
0.8	13	0.5000	0.3		Sheet Flow, Segment ID:BC Grass: Dense n= 0.240 P2= 3.00"
1.3	185	0.0270	2.5		Shallow Concentrated Flow, Segment ID:CD Grassed Waterway Kv= 15.0 fps
0.2	60	0.0100	5.7	7.00	Circular Channel (pipe), SEGMENT ID:DE Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
1.1	165	0.0300	2.6		Shallow Concentrated Flow, SEGMENT ID:EF Grassed Waterway Kv= 15.0 fps
4.8	439	Total			

**Subcatchment 12S: North/West of Satellite**

Hydrograph Plot



**Subcatchment 13S: Proposed NORTH-CENTRAL**

Runoff = 0.61 cfs @ 12.11 hrs, Volume= 0.054 af

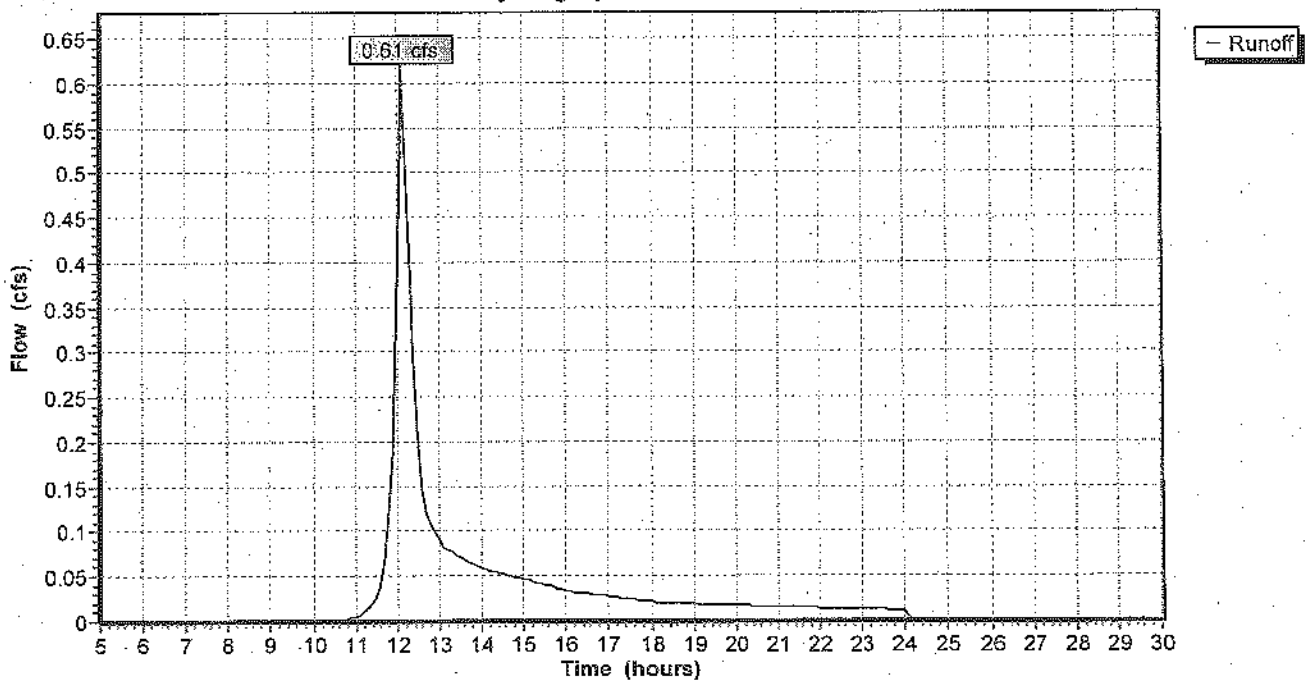
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.300	73	WOODS (FAIR)-HSG "C"
0.130	74	OPEN SPACE (GOOD)-HSG "C"
0.240	79	WOODS (FAIR)-HSG "D"
0.670	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	5	0.5000	0.3		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
7.2	65	0.1400	0.2		Sheet Flow, Segment ID:BC Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	45	0.1000	1.6		Shallow Concentrated Flow, Segment C-D Woodland Kv= 5.0 fps
1.7	100	0.0400	1.0		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
9.7	215	Total			

**Subcatchment 13S: Proposed NORTH-CENTRAL**

Hydrograph Plot



**Subcatchment 14S: Proposed Northeast**

Runoff = 0.49 cfs @ 12.18 hrs, Volume= 0.050 af

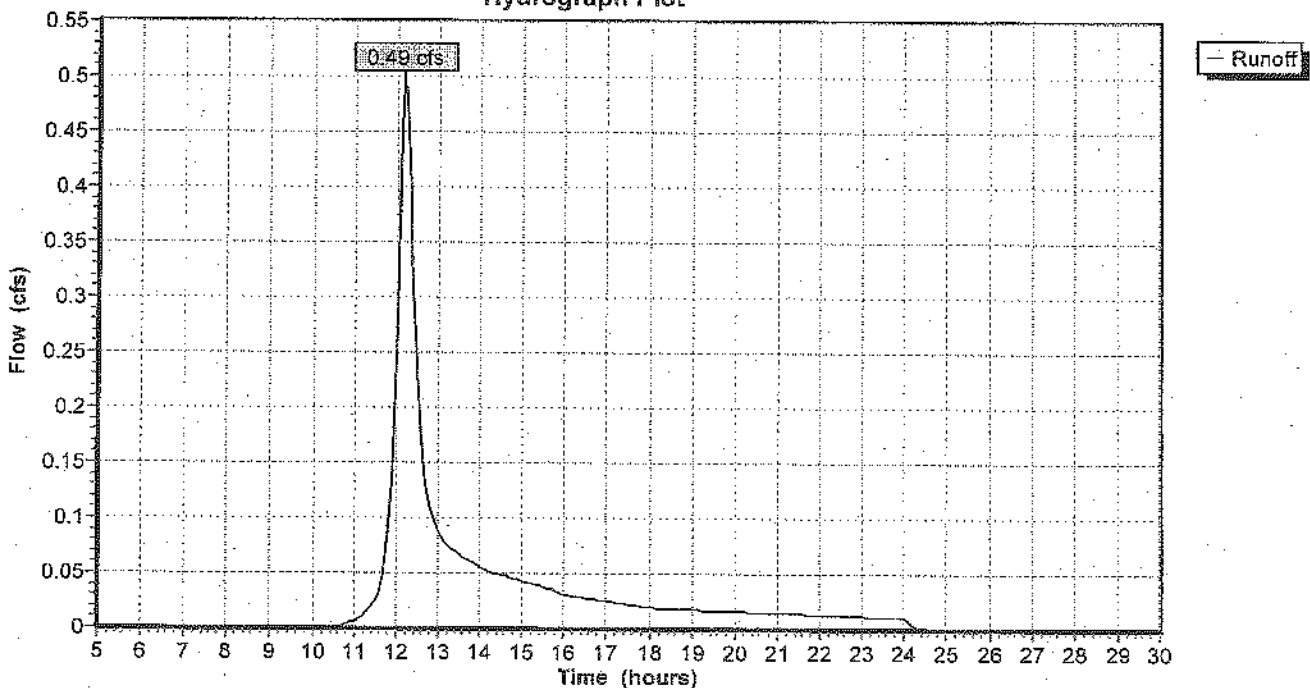
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.240	73	Woods, Fair, HSG C
0.230	79	Woods, Fair, HSG D
0.120	74	>75% Grass cover, Good, HSG C
0.590	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	15	0.1333	0.2		Sheet Flow, Segment AB Grass: Short n= 0.150 P2= 3.00"
0.4	10	0.5000	0.4		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
3.9	45	0.3100	0.2		Sheet Flow, Segment CD Woods: Light underbrush n= 0.400 P2= 3.00"
6.9	30	0.0333	0.1		Sheet Flow, DE Woods: Light underbrush n= 0.400 P2= 3.00"
2.0	70	0.0140	0.6		Shallow Concentrated Flow, Segment DE Woodland Kv= 5.0 fps
14.2	170	Total			

**Subcatchment 14S: Proposed Northeast**

Hydrograph Plot



**Subcatchment 15S: Proposed Parking**

Runoff = 1.15 cfs @ 11.99 hrs, Volume= 0.083 af

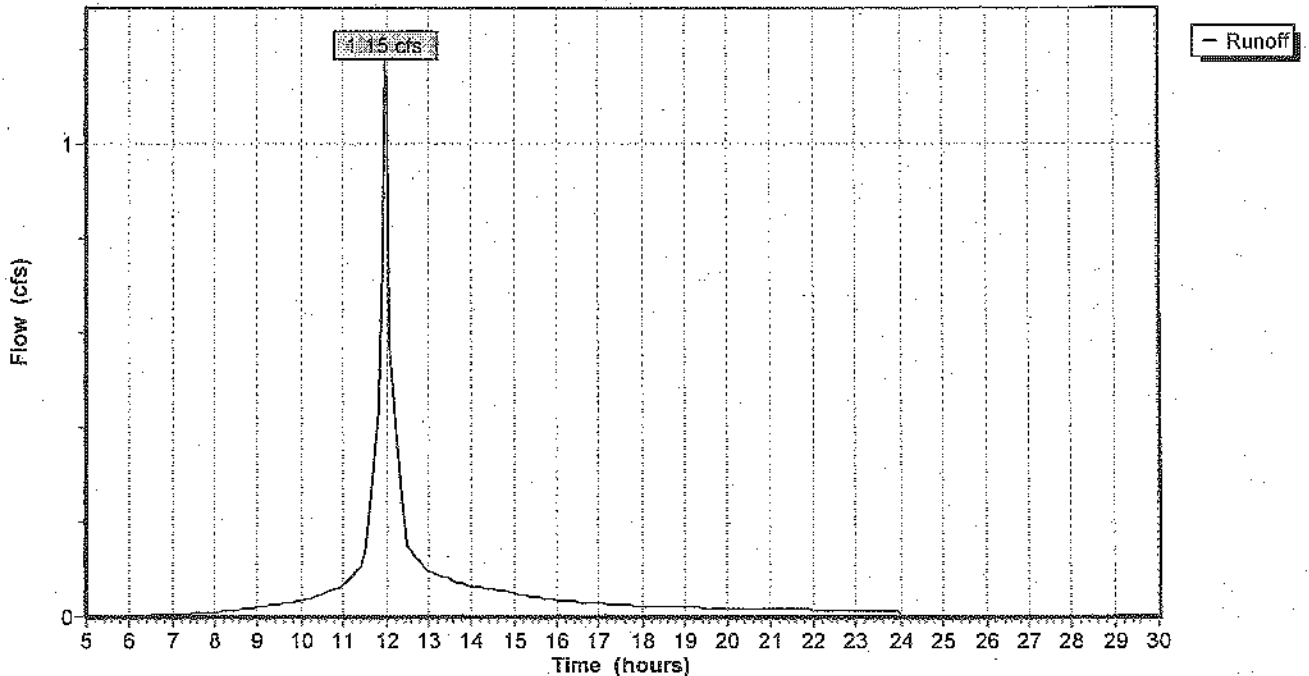
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.340	98	Paved parking & roofs
0.140	74	>75% Grass cover, Good, HSG C
0.480	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0333	1.6		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
0.4	100	0.0333	3.7		Shallow Concentrated Flow, BD Paved Kv= 20.3 fps
1.4	200	Total			

**Subcatchment 15S: Proposed Parking**

Hydrograph Plot



**Subcatchment 21S: Proposed Central**

Runoff = 0.53 cfs @ 12.10 hrs, Volume= 0.046 af

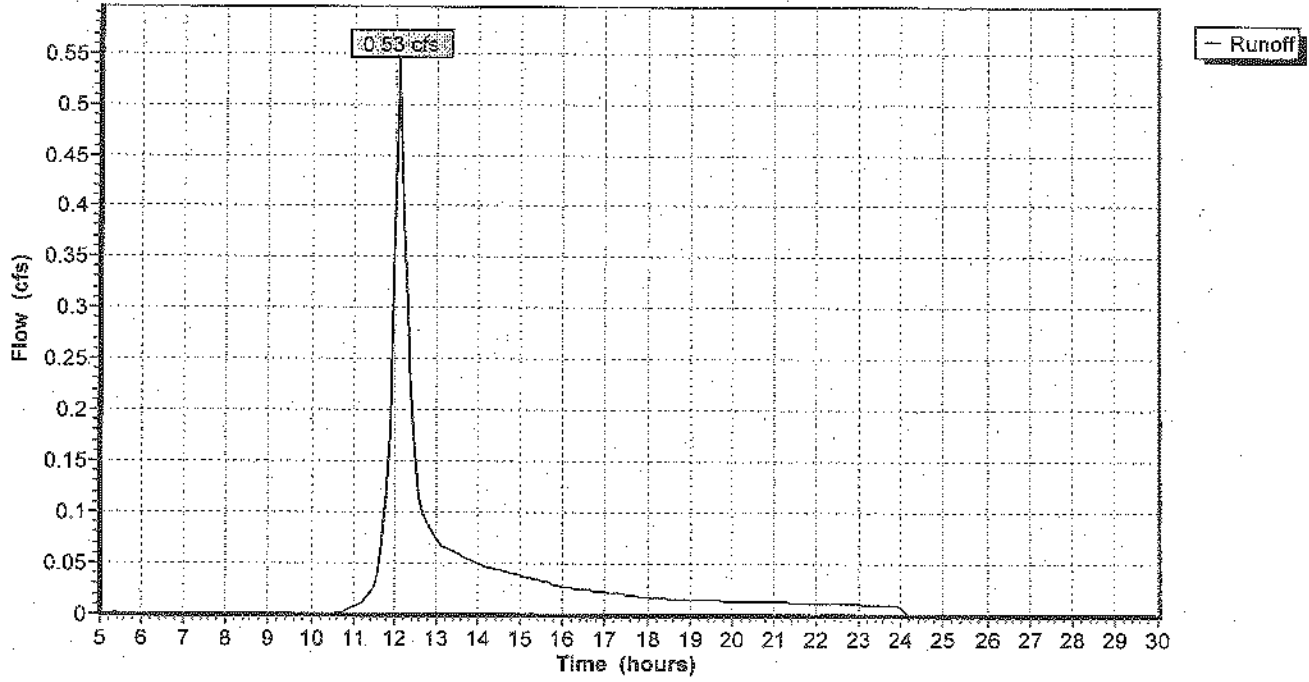
Runoff by SCS TR-20 method, UH=SCS; Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.180	73	WOODS (FAIR)-HSG "C"
0.150	74	OPEN SPACE (GOODG "C"
0.200	79	WOODS (FAIR)-HSD "D"
0.010	98	IMPERVIOUS (BLDG, PAVEMENT)
0.540	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	10	0.0500	1.2		<b>Sheet Flow, Segment ID:AB</b> Smooth surfaces n= 0.011 P2= 3.00"
5.0	60	0.0417	0.2		<b>Sheet Flow, SegmentBC</b> Grass: Short n= 0.150 P2= 3.00"
1.7	30	0.1500	0.3		<b>Sheet Flow, CD</b> Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.2700	2.6		<b>Shallow Concentrated Flow, Segment ID:DE</b> Woodland Kv= 5.0 fps
1.2	80	0.0500	1.1		<b>Shallow Concentrated Flow, Segment ID:EF</b> Woodland Kv= 5.0 fps
8.3	220	Total			

### Subcatchment 21S: Proposed Central

Hydrograph Plot





**Subcatchment 22S: Existing Parking and Entrance Circle**

Runoff = 1.17 cfs @ 12.13 hrs, Volume= 0.105 af

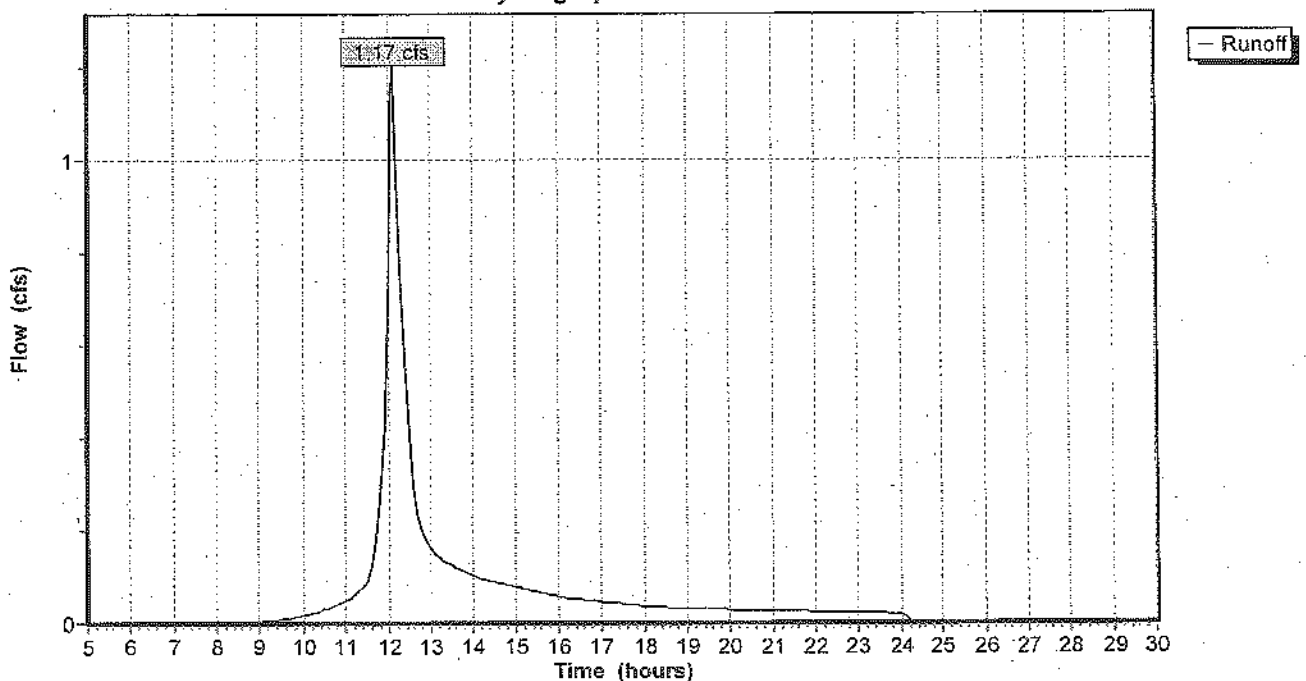
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.110	73	WOODS (FAIR)-HSG "C"
0.420	74	OPEN SPACE (GOODG "C"
0.340	98	IMPERVIOUS (BLDG, PAVEMENT)
0.870	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	15	0.0167	0.1		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.4	20	0.0125	0.8		Sheet Flow, SegmentBC Smooth surfaces n= 0.011 P2= 3.00"
7.9	65	0.1100	0.1		Sheet Flow, SegmentCD Woods: Light underbrush n= 0.400 P2= 3.00"
1.0	85	0.0882	1.5		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
0.3	180	0.0330	9.7	7.65	Circular Channel (pipe), SegmentEF Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
12.0	365	Total			

**Subcatchment 22S: Existing Parking and Entrance Circle**

Hydrograph Plot



**Subcatchment 23S: Proposed Buildings**

Runoff = 1.32 cfs @ 12.02 hrs, Volume= 0.109 af

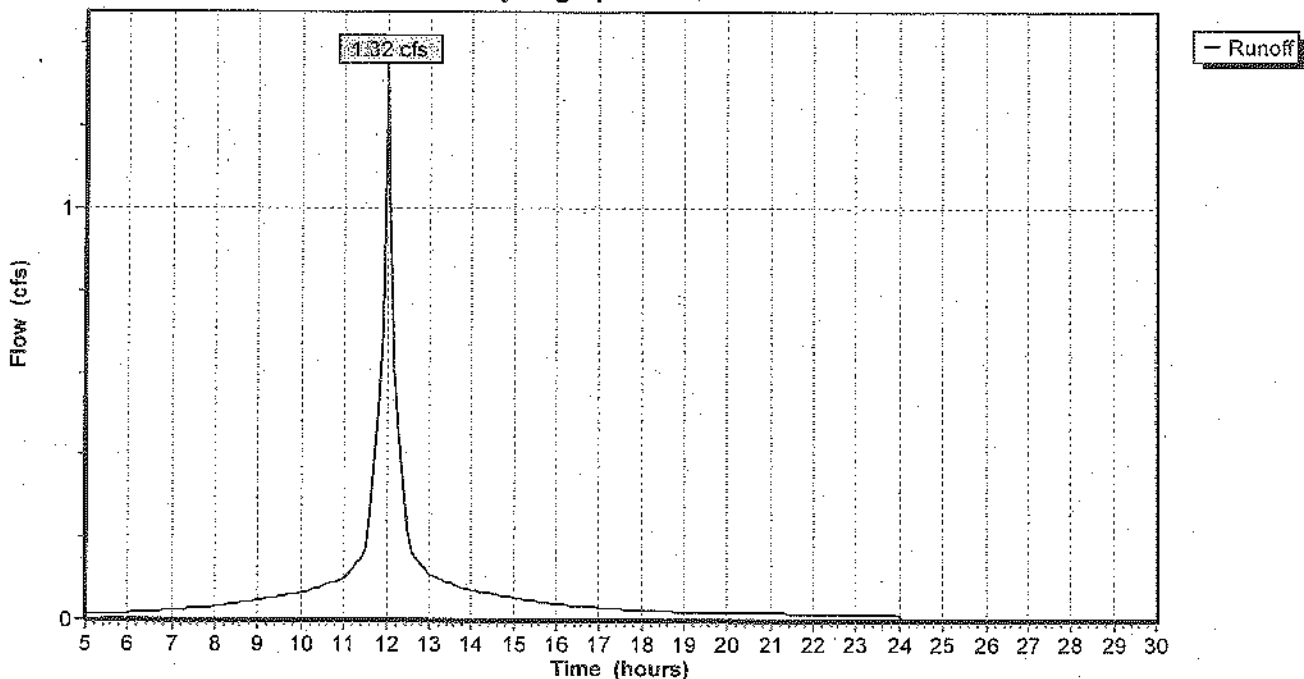
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.480	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct Entry

**Subcatchment 23S: Proposed Buildings**

Hydrograph Plot



**CadCam Proposed**

Type III 24-hr Rainfall=3.00" (2-Year Storm)

Prepared by {enter your company name here}

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1/16/2006

**Subcatchment 24S: Expanded Parking**

Runoff = 0.84 cfs @ 12.01 hrs, Volume= 0.062 af

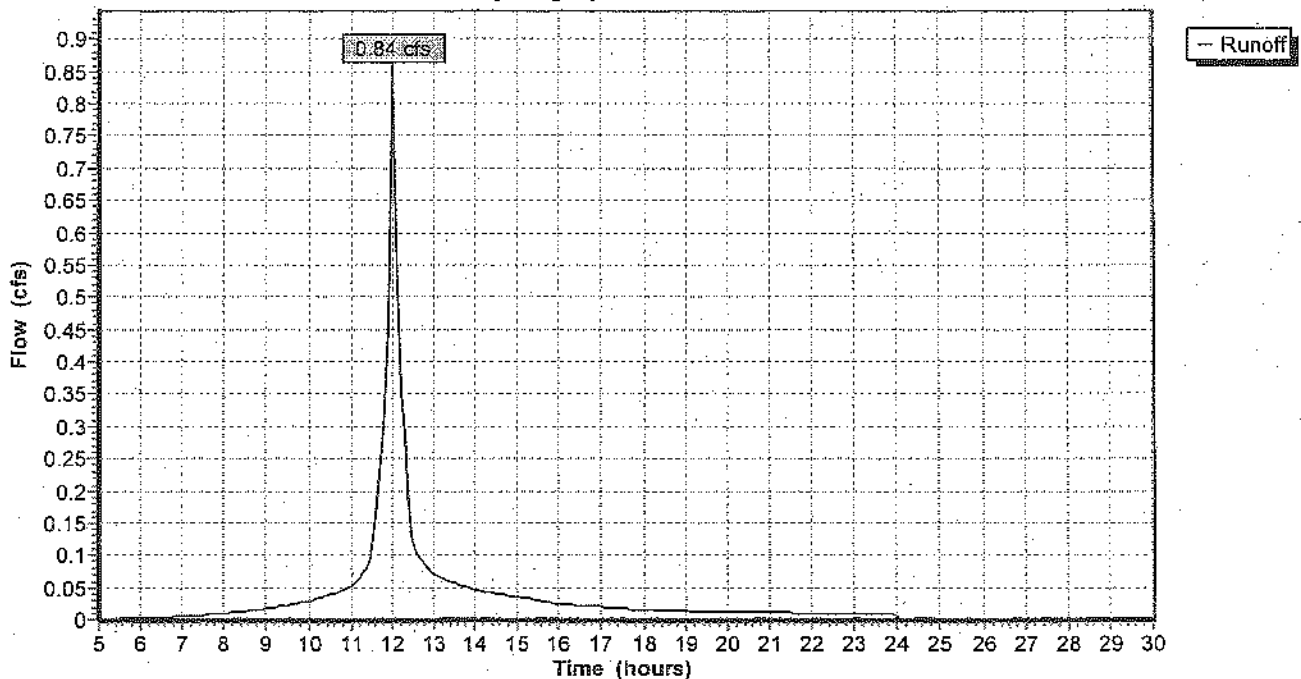
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.260	98	Paved parking & roofs
0.070	74	>75% Grass cover, Good, HSG C
0.330	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	10	0.0100	0.1		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.00"
0.6	10	0.2000	0.3		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0600	2.0		Sheet Flow, CD Smooth surfaces n= 0.011 P2= 3.00"
0.4	100	0.0400	4.1		Shallow Concentrated Flow, DE Paved Kv= 20.3 fps
3.8	200	Total			

**Subcatchment 24S: Expanded Parking**

Hydrograph Plot



**Subcatchment 25S: Access & Rear Parking**

Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.053 af

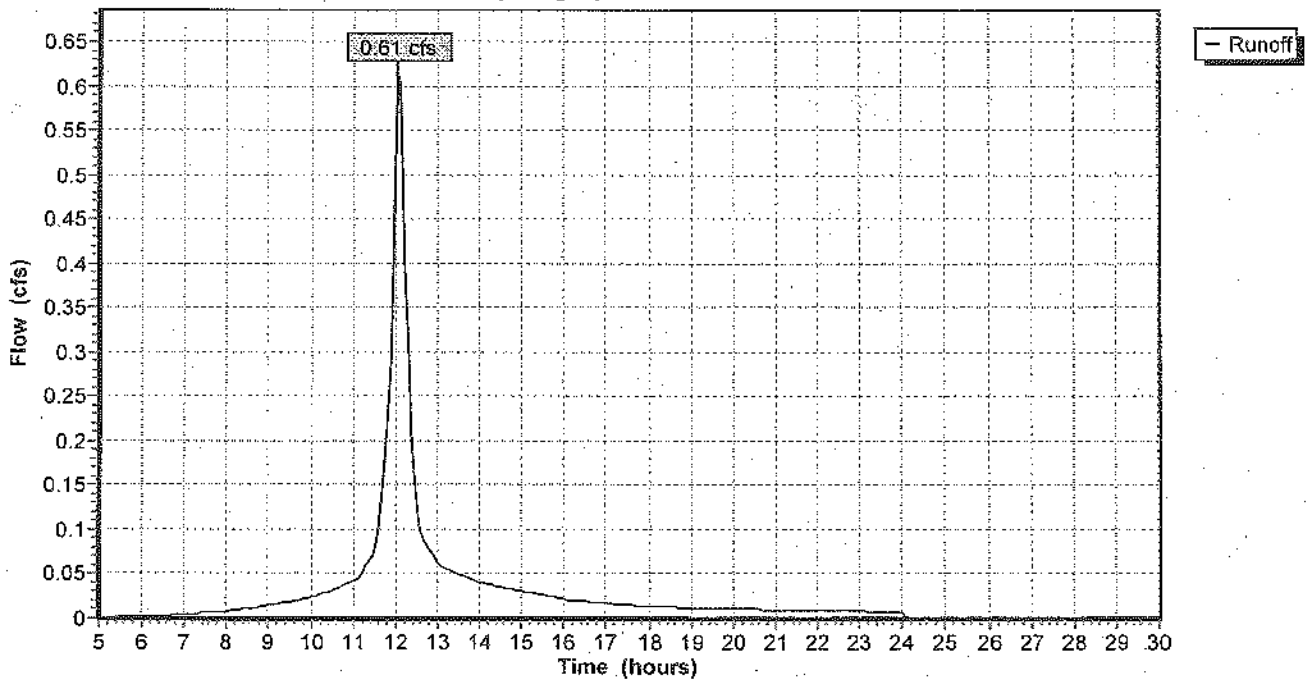
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.220	98	Paved parking & roofs
0.060	74	>75% Grass cover, Good, HSG C
0.280	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0400	1.3		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
6.1	75	0.0400	0.2		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
1.6	120	0.0300	1.2		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
8.0	220	Total			

**Subcatchment 25S: Access & Rear Parking**

Hydrograph Plot



**Subcatchment 26S: Rear of Building**

Runoff = 0.10 cfs @ 12.10 hrs, Volume= 0.009 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=3.00"

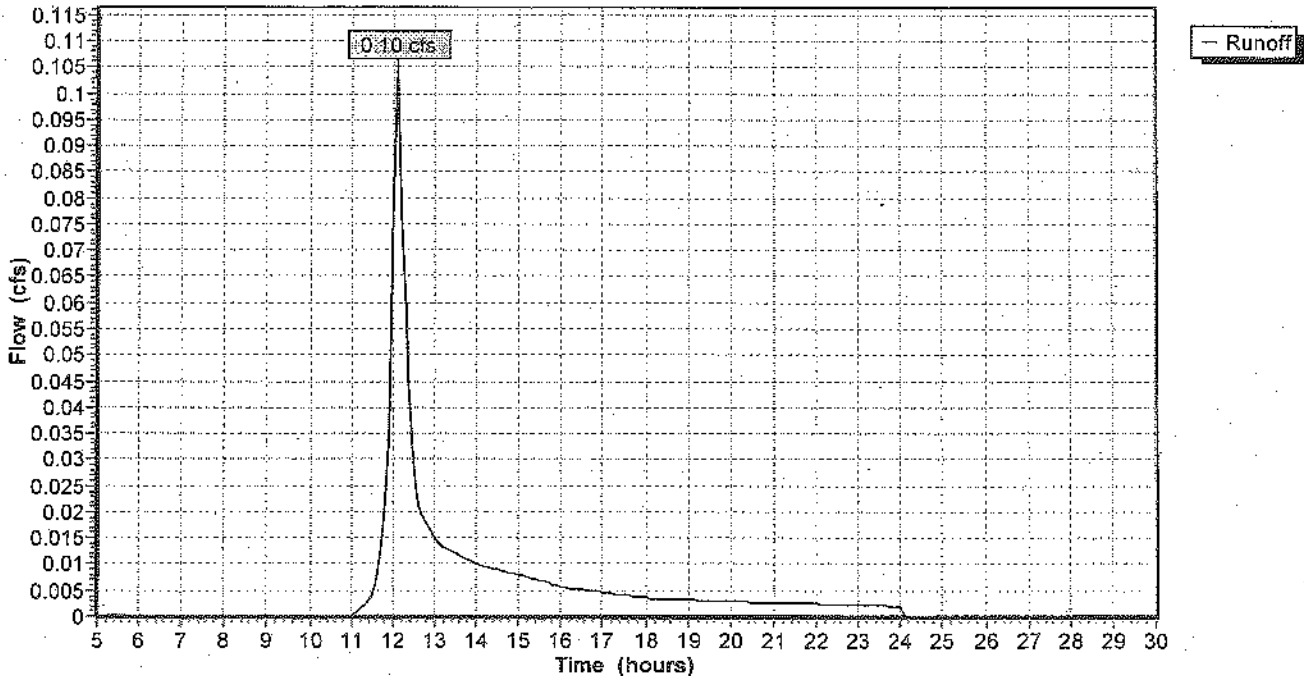
Area (ac)	CN	Description
0.120	74	>75% Grass cover, Good, HSG C

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2000	0.3		Sheet Flow, Segment AB Grass: Short n= 0.150 P2= 3.00"
6.4	90	0.0500	0.2		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
0.8	100	0.0900	2.1		Shallow Concentrated Flow, Segment CD Short Grass Pasture Kv= 7.0 fps
7.8	200	Total			

**Subcatchment 26S: Rear of Building**

Hydrograph Plot



### Reach 1R: Existing Swale

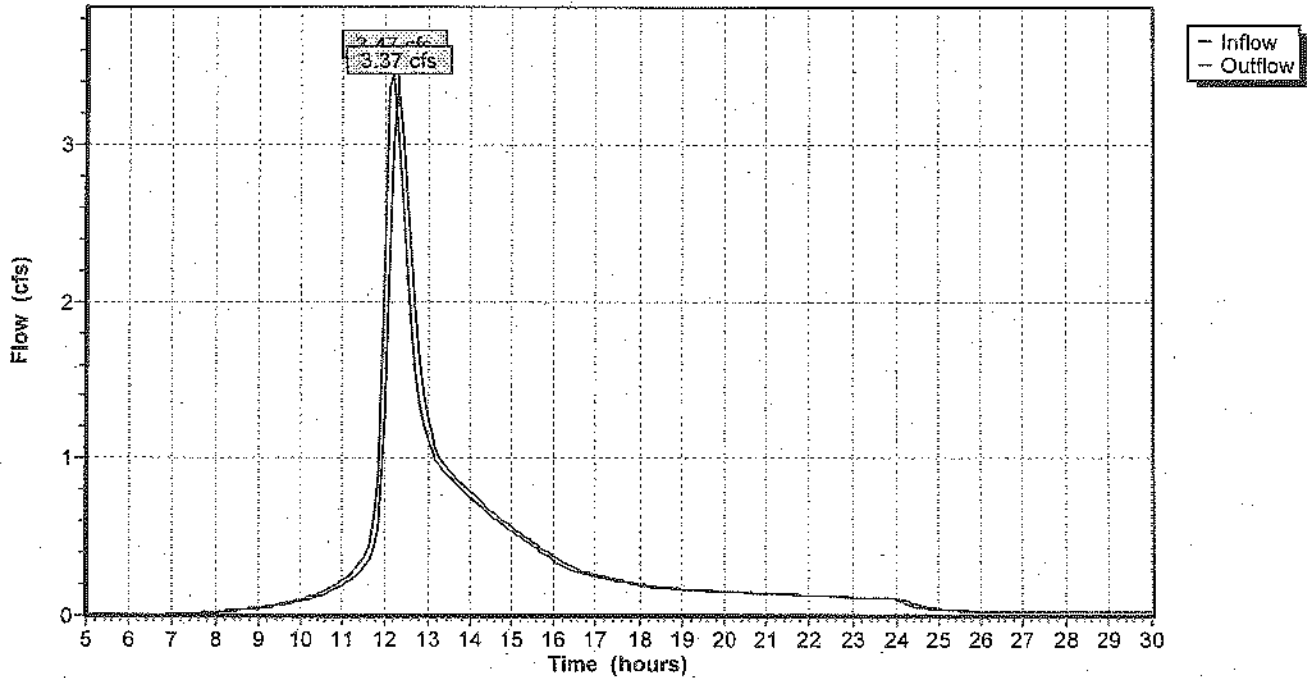
Inflow = 3.47 cfs @ 12.17 hrs, Volume= 0.551 af  
Outflow = 3.37 cfs @ 12.31 hrs, Volume= 0.550 af, Atten= 3%, Lag= 8.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.8 fps, Min. Travel Time= 4.0 min  
Avg. Velocity = 0.3 fps, Avg. Travel Time= 12.7 min

Peak Depth= 0.50'  
Capacity at bank full= 43.53 cfs  
Inlet Invert= 30.00', Outlet Invert= 29.50'  
7.00' x 2.00' deep channel, n= 0.050 Length= 200.0' Slope= 0.0025 1/  
Side Slope Z-value= 3.0 2.0 1'

### Reach 1R: Existing Swale

Hydrograph Plot



### Reach 2R: Existing Swale

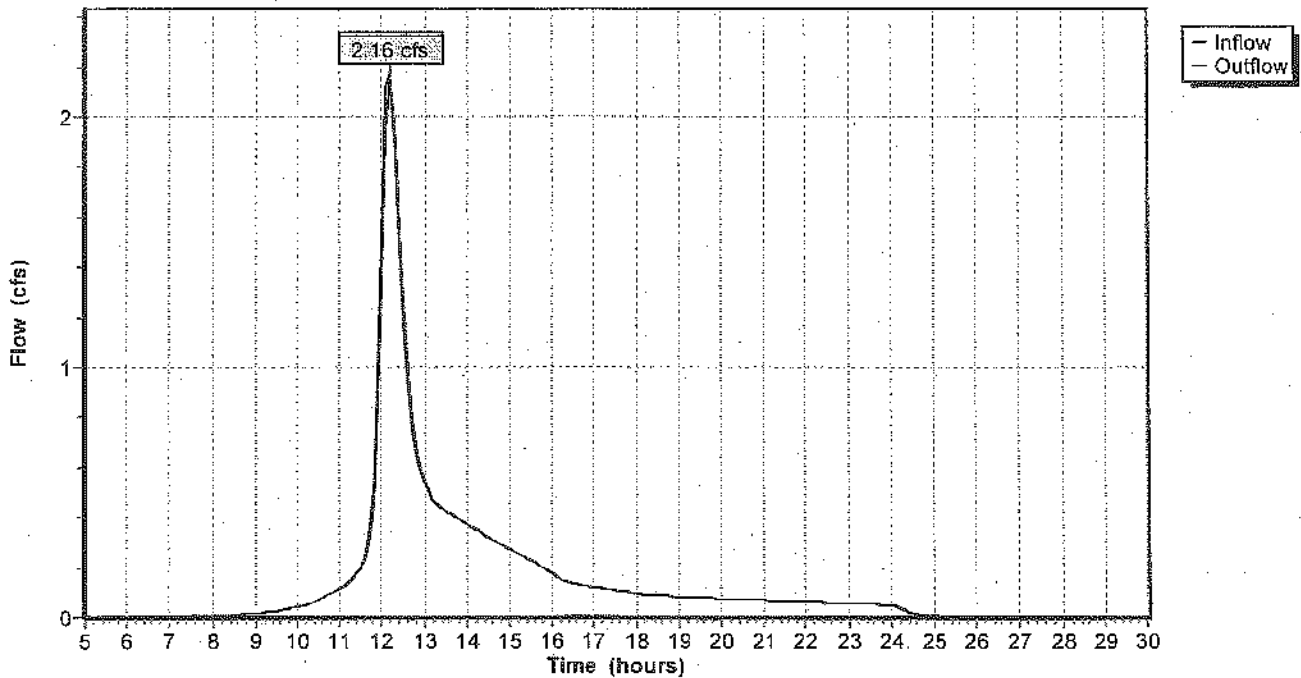
Inflow = 2.17 cfs @ 12.16 hrs, Volume= 0.280 af  
Outflow = 2.16 cfs @ 12.20 hrs, Volume= 0.280 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.3 fps, Min. Travel Time= 1.1 min  
Avg. Velocity= 0.4 fps, Avg. Travel Time= 3.2 min

Peak Depth= 0.31'  
Capacity at bank full= 144.69 cfs  
Inlet Invert= 30.80', Outlet Invert= 30.00'  
5.00' x 3.00' deep channel, n= 0.050 Length= 80.0' Slope= 0.0100 '/'  
Side Slope Z-value= 2.0 '/

### Reach 2R: Existing Swale

Hydrograph Plot



### Reach 3R: Existing Swale

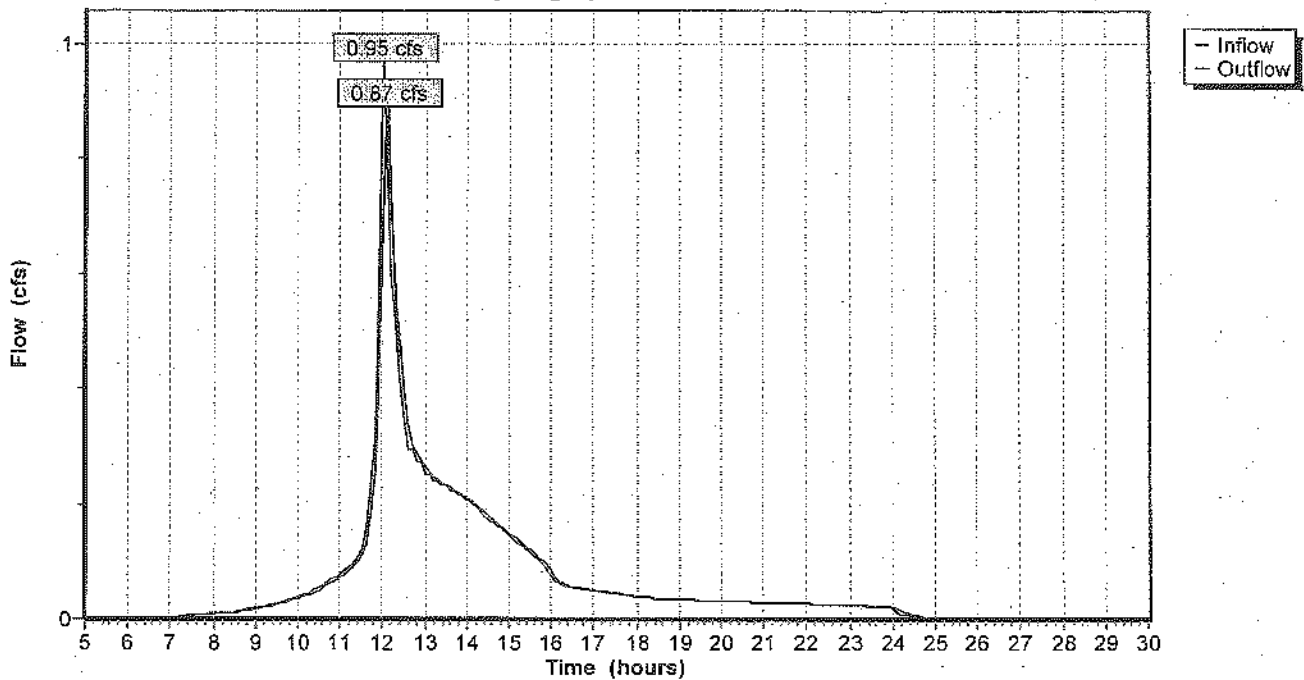
Inflow = 0.95 cfs @ 12.04 hrs, Volume= 0.129 af  
Outflow = 0.87 cfs @ 12.12 hrs, Volume= 0.129 af, Atten= 8%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.9 fps, Min. Travel Time= 2.2 min  
Avg. Velocity = 0.3 fps, Avg. Travel Time= 6.4 min

Peak Depth= 0.19'  
Capacity at bank full= 63.42 cfs  
Inlet Invert= 32.00', Outlet Invert= 30.80'  
5.00' x 2.00' deep channel, n= 0.050 Length= 120.0' Slope= 0.0100 1/  
Side Slope Z-value= 2.0 1'

### Reach 3R: Existing Swale

Hydrograph Plot





Reach R11: From P11 to Swale

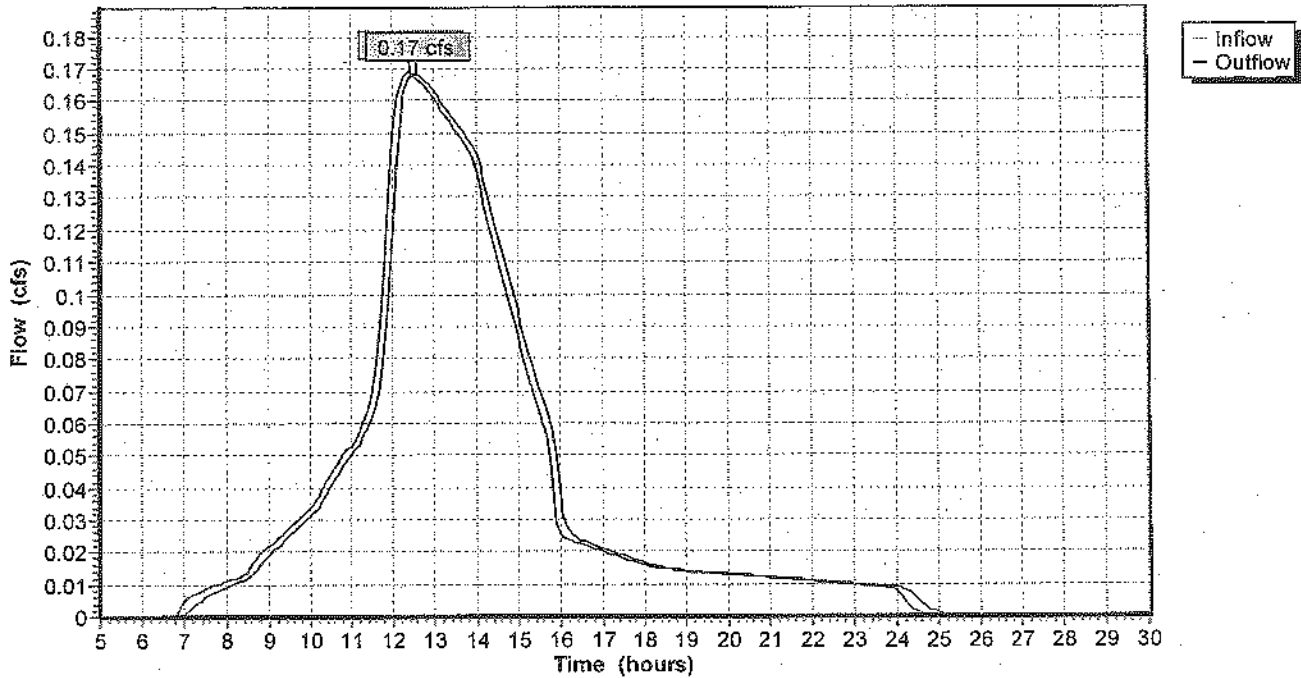
Inflow = 0.17 cfs @ 12.42 hrs, Volume= 0.064 af  
Outflow = 0.17 cfs @ 12.57 hrs, Volume= 0.064 af, Atten= 0%, Lag= 9.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.2 fps, Min. Travel Time= 5.3 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 10.8 min

Peak Depth= 0.05'  
Capacity at bank full= 33.01 cfs  
Inlet Invert= 45.90', Outlet Invert= 32.00'  
15.00' x 1.00' deep channel, n= 0.400 Length= 70.0' Slope= 0.1986 1/  
Side Slope Z-value= 10.0 1'

Reach R11: From P11 to Swale

Hydrograph Plot



**Reach R12: 48" RCP**

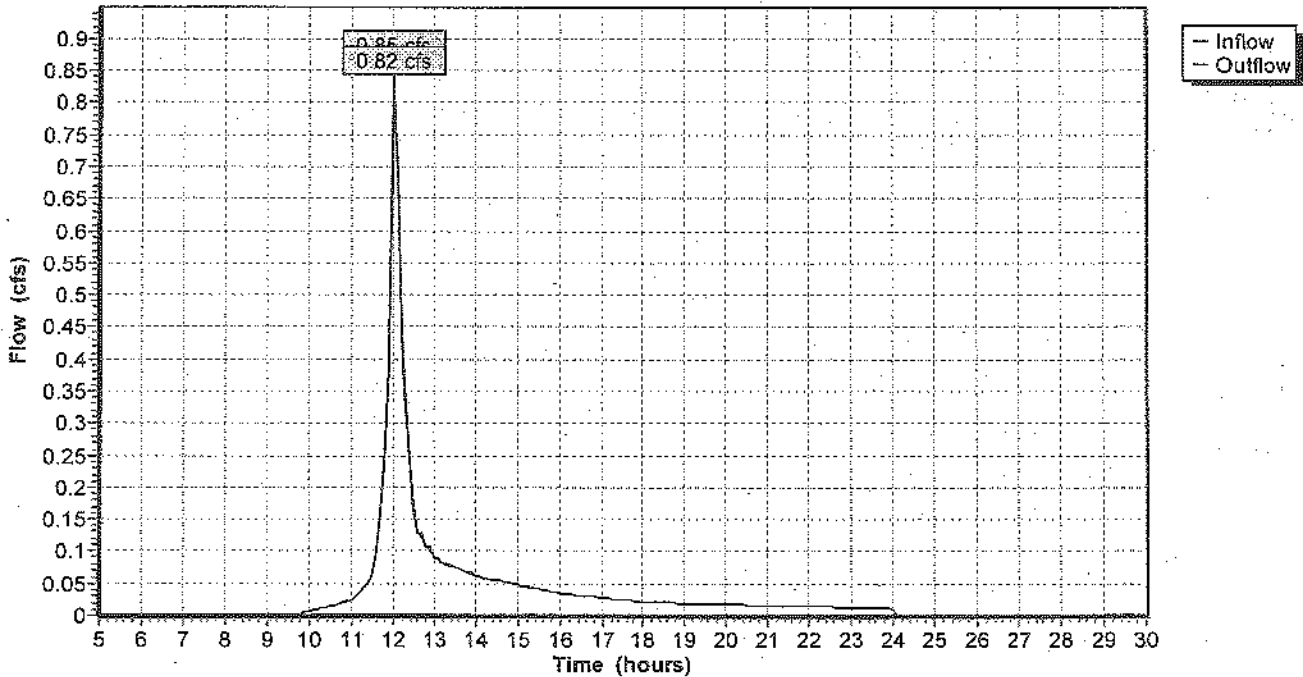
Inflow = 0.85 cfs @ 12.02 hrs, Volume= 0.065 af  
Outflow = 0.82 cfs @ 12.03 hrs, Volume= 0.065 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 7.0 fps, Min. Travel Time= 0.2 min  
Avg. Velocity = 3.5 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.13'  
Capacity at bank full= 463.95 cfs  
Inlet Invert= 40.00', Outlet Invert= 32.00'  
48.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0889 1'

**Reach R12: 48" RCP**

Hydrograph Plot



### Reach R15: From P15 to Swale

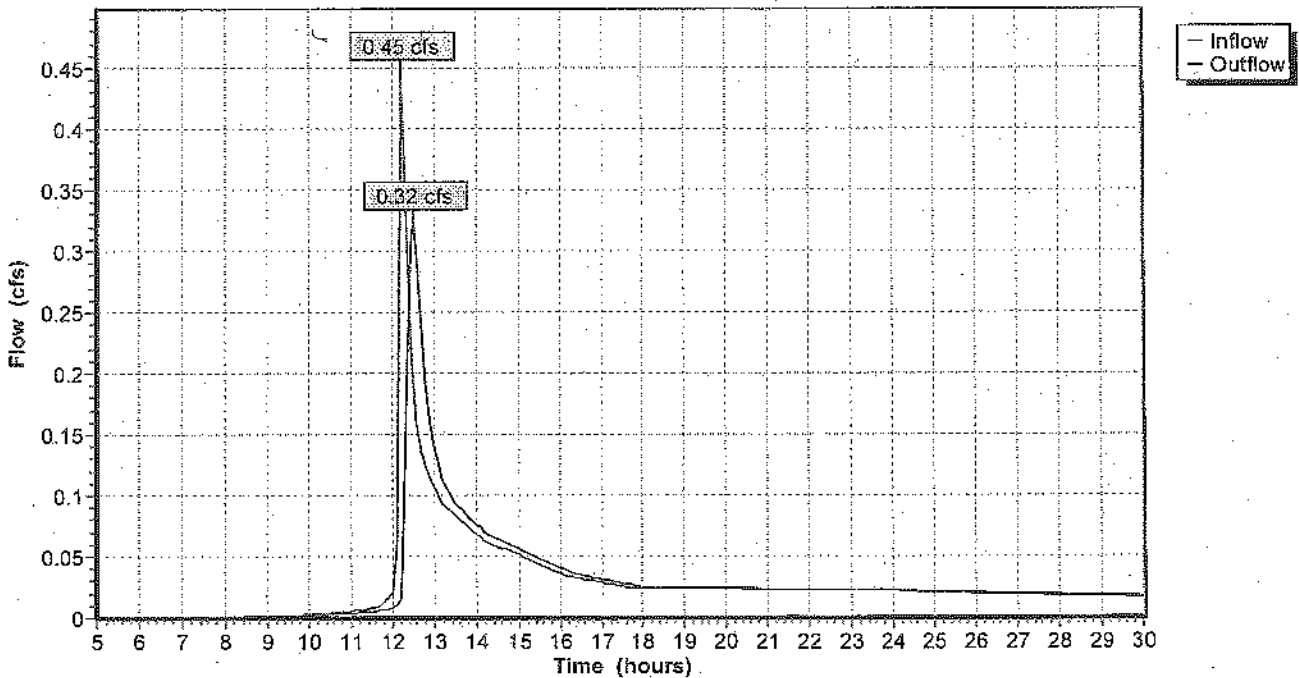
Inflow = 0.45 cfs @ 12.25 hrs, Volume= 0.059 af  
Outflow = 0.32 cfs @ 12.54 hrs, Volume= 0.058 af, Atten= 28%, Lag= 17.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.2 fps, Min. Travel Time= 8.5 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 21.8 min

Peak Depth= 0.15'  
Capacity at bank full= 45.62 cfs  
Inlet Invert= 34.00', Outlet Invert= 30.00'  
10.00' x 2.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0400 '/  
Side Slope Z-value= 2.0 15.0 '/

### Reach R15: From P15 to Swale

Hydrograph Plot



### Reach R16: From P16 to Swale

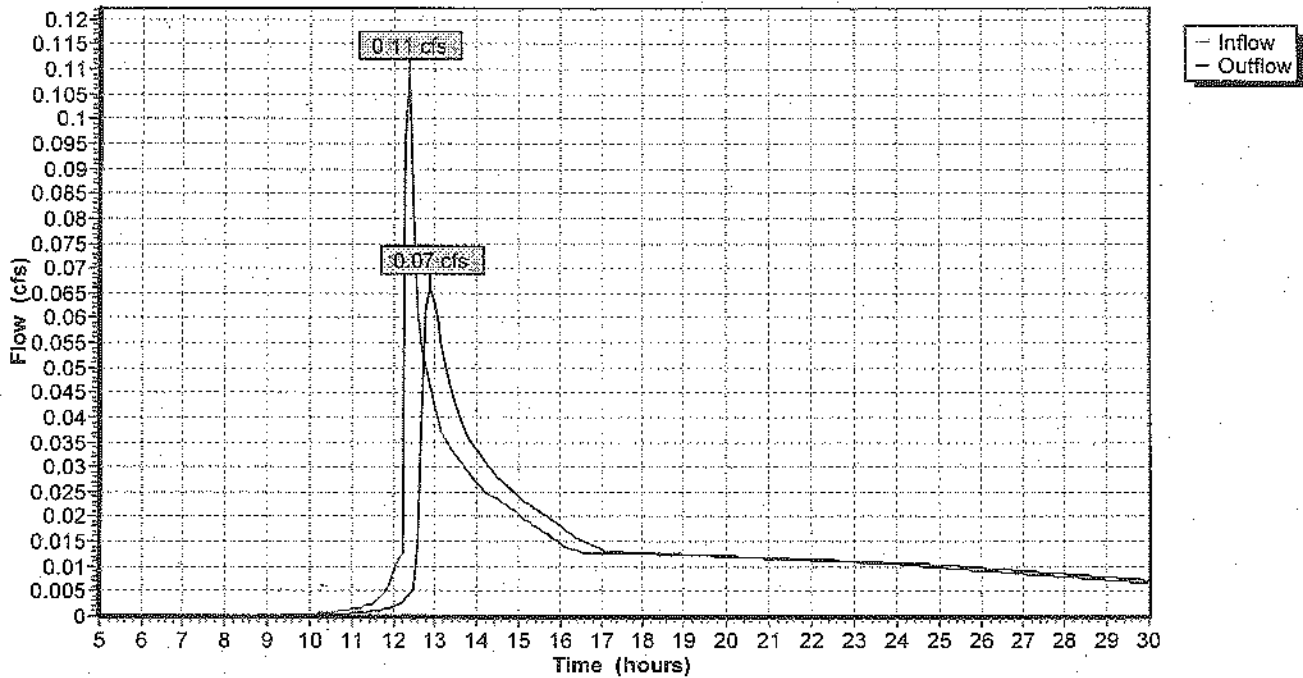
Inflow = 0.11 cfs @ 12.38 hrs, Volume= 0.023 af  
Outflow = 0.07 cfs @ 12.91 hrs, Volume= 0.023 af, Atten= 39%, Lag= 31.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.1 fps, Min. Travel Time= 18.2 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 33.5 min

Peak Depth= 0.03'  
Capacity at bank full= 28.43 cfs  
Inlet Invert= 41.00', Outlet Invert= 29.50'  
20.00' x 1.00' deep channel, n= 0.400 Length= 120.0' Slope= 0.0958 1'  
Side Slope Z-value= 10.0 1'

### Reach R16: From P16 to Swale

Hydrograph Plot



### Reach R22: From 22 to Swale

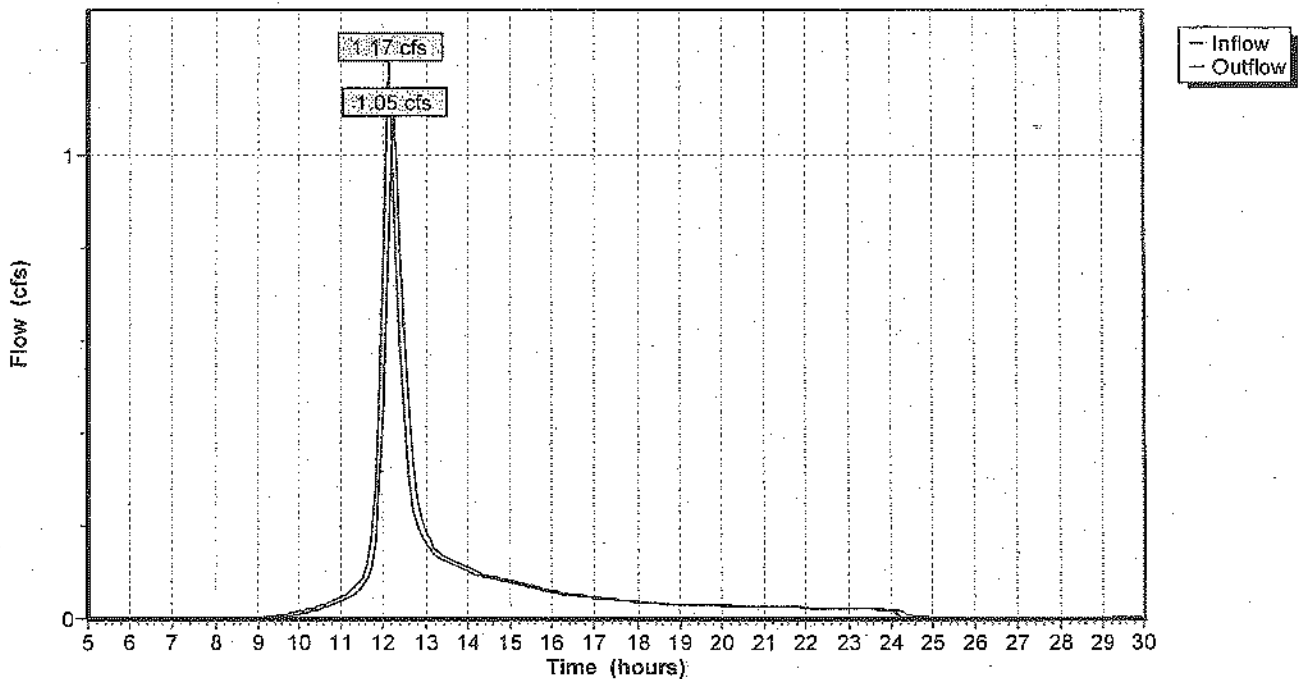
Inflow = 1.17 cfs @ 12.13 hrs, Volume= 0.105 af  
Outflow = 1.05 cfs @ 12.25 hrs, Volume= 0.105 af, Atten= 10%, Lag= 7.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 3.7 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 12.5 min

Peak Depth= 0.16'  
Capacity at bank full= 27.37 cfs  
Inlet Invert= 44.00', Outlet Invert= 30.50'  
15.00' x 1.00' deep channel, n= 0.400 Length= 90.0' Slope= 0.1500 '/'  
Side Slope Z-value= 15.0 2.0 '/'

### Reach R22: From 22 to Swale

Hydrograph Plot



Reach R24: 24S to Swale

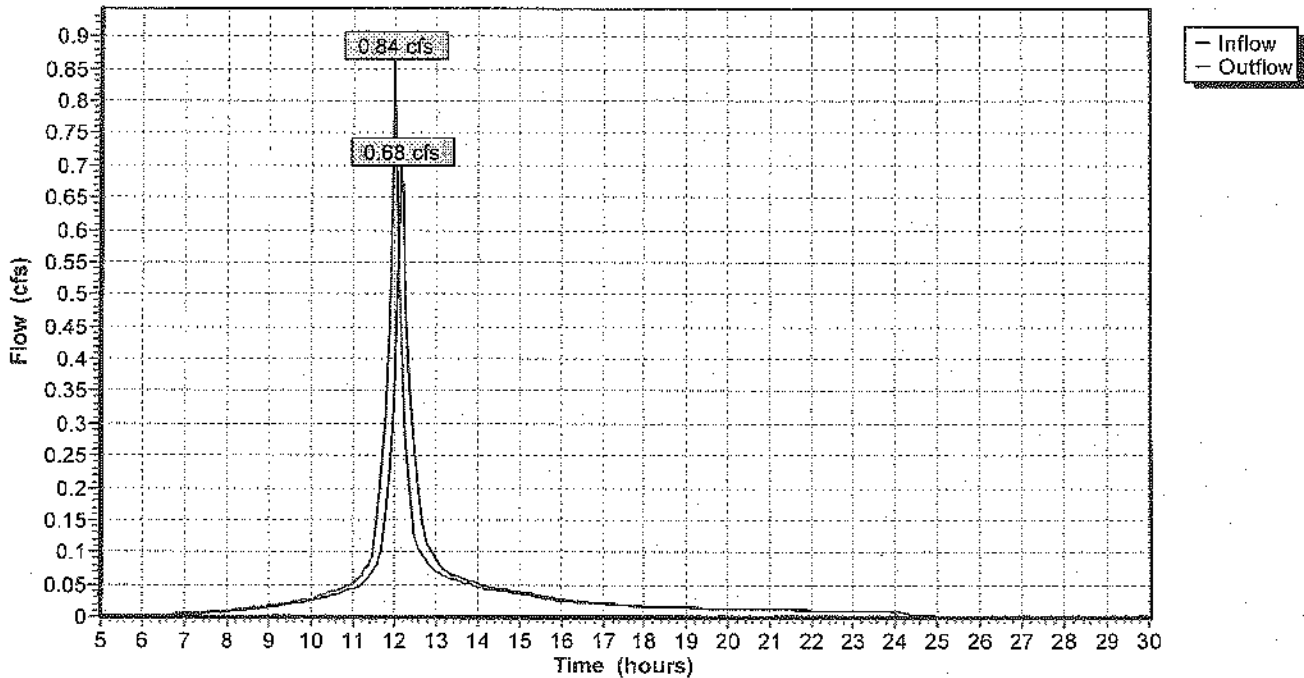
Inflow = 0.84 cfs @ 12.01 hrs, Volume= 0.062 af  
Outflow = 0.68 cfs @ 12.18 hrs, Volume= 0.062 af, Atten= 20%, Lag= 10.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.3 fps, Min. Travel Time= 5.9 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 22.3 min

Peak Depth= 0.20'  
Capacity at bank full= 13.86 cfs  
Inlet Invert= 35.00', Outlet Invert= 29.00'  
10.00' x 1.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0600 '/'  
Side Slope Z-value= 10.0 '/

Reach R24: 24S to Swale

Hydrograph Plot



Reach R25: From 25 to Swale

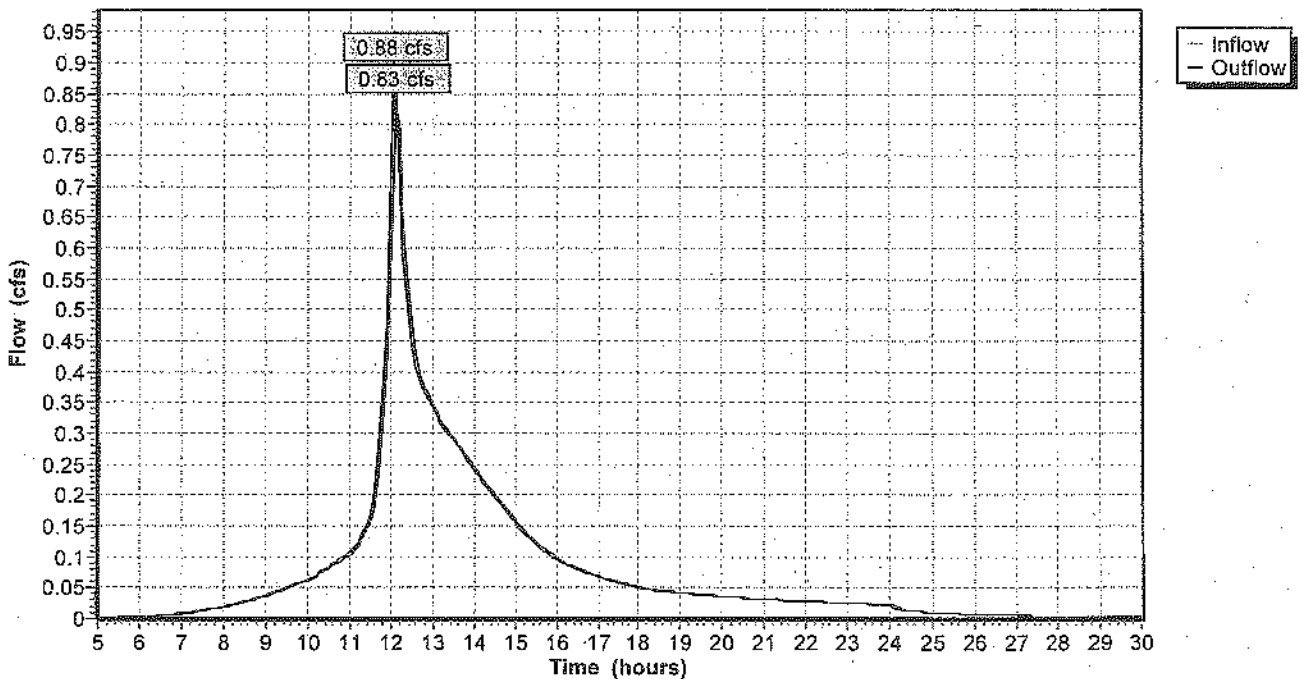
Inflow = 0.88 cfs @ 12.09 hrs, Volume= 0.160 af  
Outflow = 0.83 cfs @ 12.14 hrs, Volume= 0.160 af, Atten= 6%, Lag= 3.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 2.0 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 5.7 min

Peak Depth= 0.17'  
Capacity at bank full= 28.77 cfs  
Inlet Invert= 39.00', Outlet Invert= 30.00'  
10.00' x 1.00' deep channel, n= 0.400 Length= 50.0' Slope= 0.1800 1'  
Side Slope Z-value= 15.0 1'

Reach R25: From 25 to Swale

Hydrograph Plot



**Reach R26: From 26 to SP**

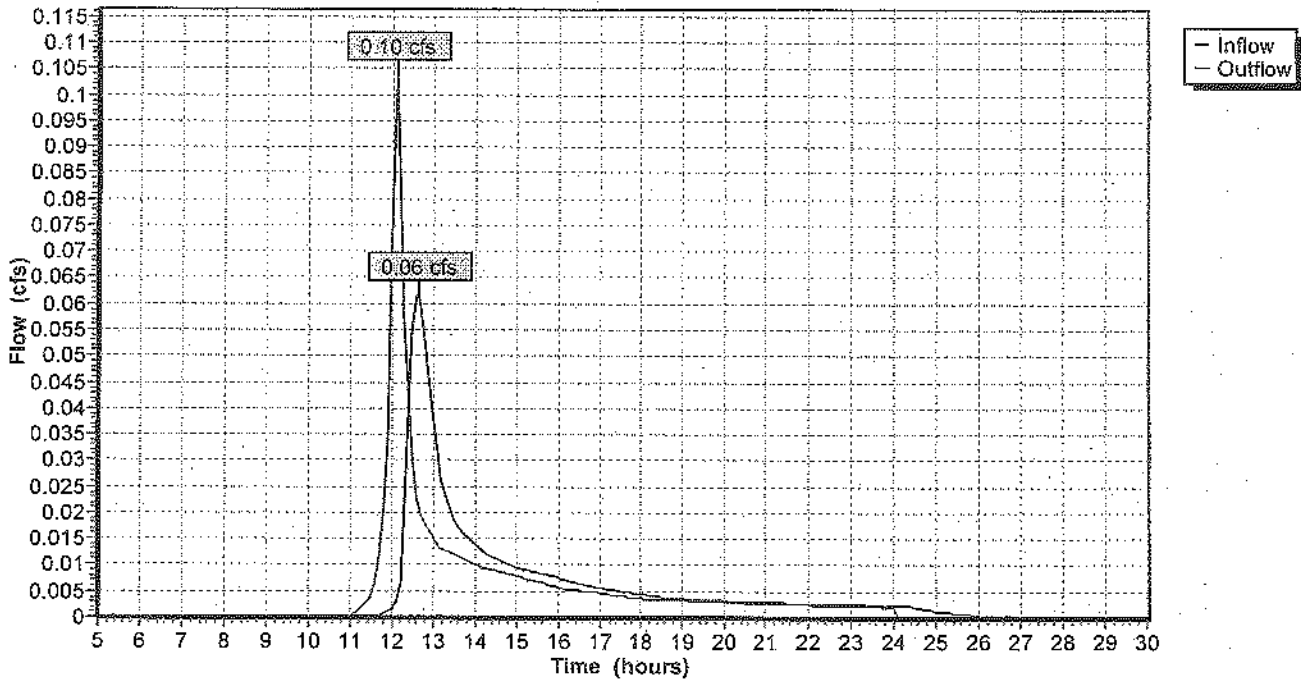
Inflow = 0.10 cfs @ 12.10 hrs, Volume= 0.009 af  
Outflow = 0.06 cfs @ 12.63 hrs, Volume= 0.009 af, Atten= 41%, Lag= 31.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.2 fps, Min. Travel Time= 19.6 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 50.6 min

Peak Depth= 0.12'  
Capacity at bank full= 10.11 cfs  
Inlet Invert= 35.00', Outlet Invert= 29.50'  
3.00' x 2.00' deep channel, n= 0.400 Length= 180.0' Slope= 0.0306 1/1  
Side Slope Z-value= 2.0 1/1

**Reach R26: From 26 to SP**

Hydrograph Plot





### Reach SP: Study Point

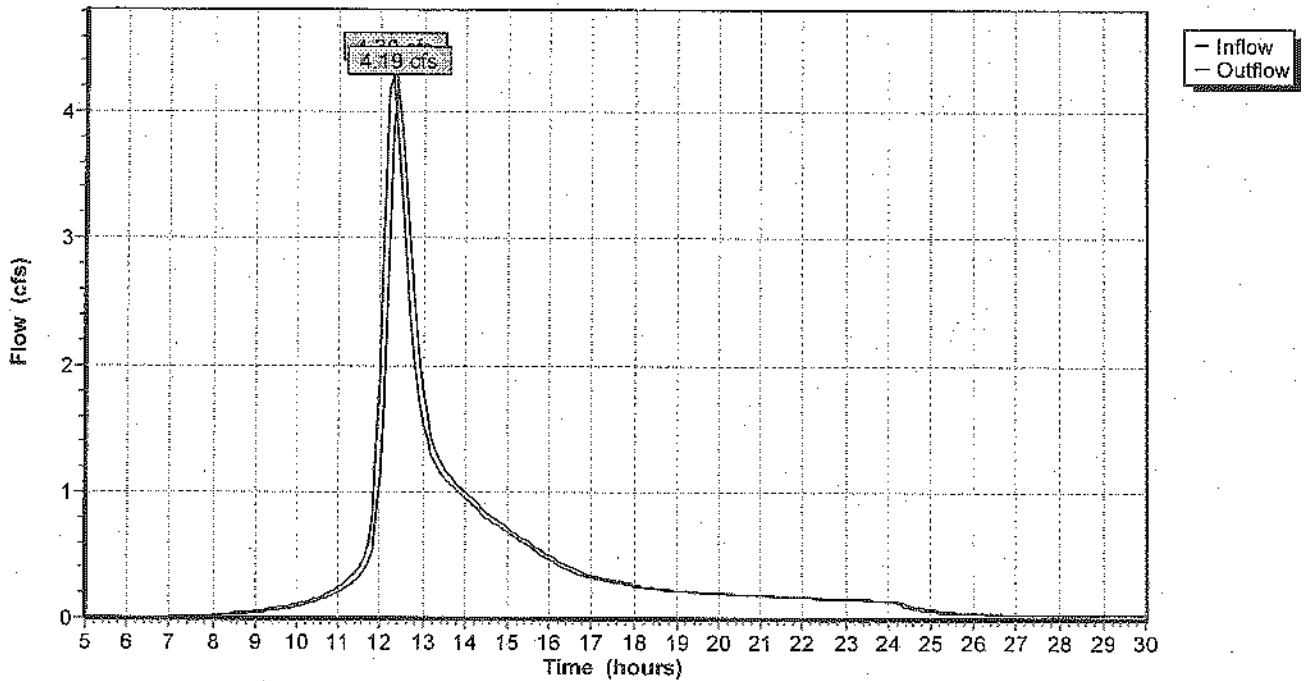
Inflow = 4.30 cfs @ 12.27 hrs, Volume= 0.694 af  
Outflow = 4.19 cfs @ 12.40 hrs, Volume= 0.693 af, Atten= 2%, Lag= 8.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 4.1 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 12.6 min

Peak Depth= 0.29'  
Capacity at bank full= 239.77 cfs  
Inlet Invert= 29.50', Outlet Invert= 29.40'  
35.00' x 3.00' deep channel, n= 0.050 Length= 100.0' Slope= 0.0010 '/  
Side Slope Z-value= 5.0 4.0 '/

### Reach SP: Study Point

Hydrograph Plot



**Pond P11: Existing Satellite Lot Detention Pond**

Inflow = 0.89 cfs @ 11.99 hrs, Volume= 0.065 af  
 Outflow = 0.17 cfs @ 12.42 hrs, Volume= 0.064 af, Atten= 81%, Lag= 25.5 min  
 Primary = 0.17 cfs @ 12.42 hrs, Volume= 0.064 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 48.47' Storage= 917 cf

Plug-Flow detention time= 55.7 min calculated for 0.064 af (98% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	10	0	0
47.00	117	64	64
48.00	674	396	459
49.00	1,276	975	1,434

**Primary OutFlow (Free Discharge)**

- ↑ 1=Orifice/Grate
- └ 2=Orifice/Grate

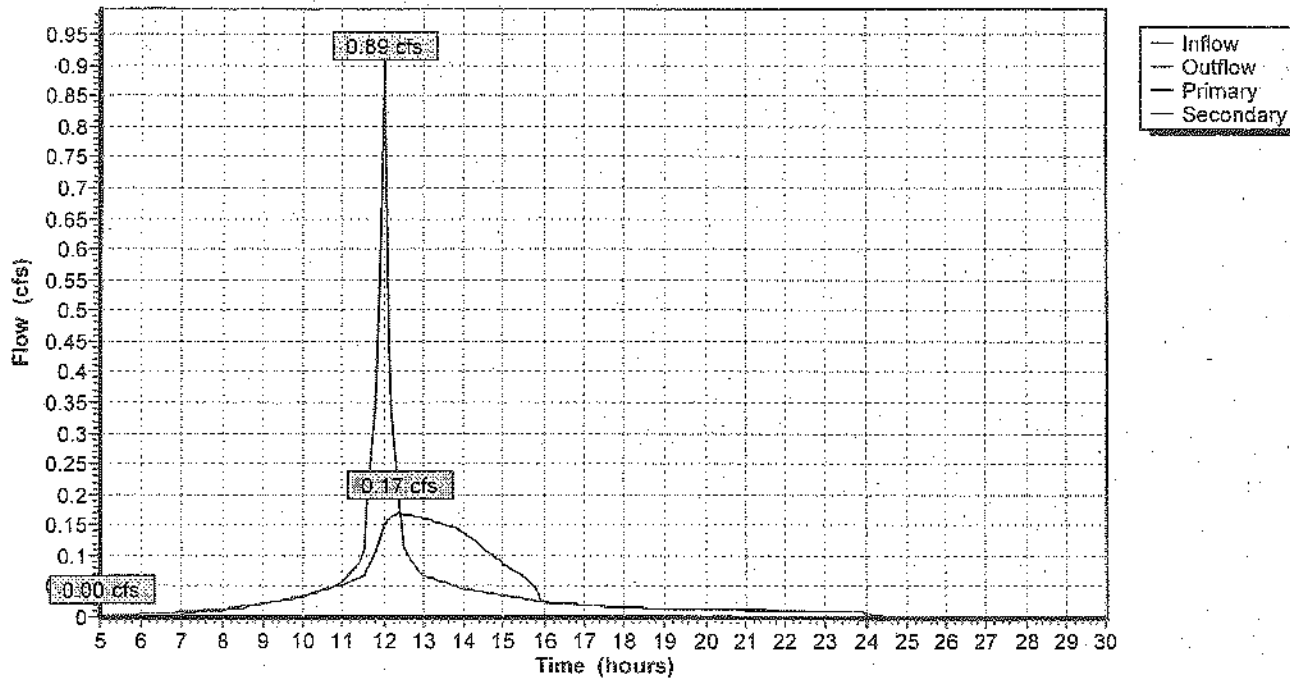
**Secondary OutFlow (Free Discharge)**

- ↑ 3=Sharp-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	46.50'	1.0" Vert. Orifice/Grate C= 0.600
2	Primary	46.80'	2.0" Vert. Orifice/Grate C= 0.600
3	Secondary	48.50'	3.1' long x 0.5' high Sharp-Crested Rectangular Weir 0 End Contraction(s)

### Pond P11: Existing Satellite Lot Detention Pond

Hydrograph Plot



**Pond P15: Pond 15**

Inflow = 1.15 cfs @ 11.99 hrs, Volume= 0.083 af  
 Outflow = 0.45 cfs @ 12.25 hrs, Volume= 0.059 af, Atten= 61%, Lag= 15.6 min  
 Primary = 0.03 cfs @ 12.25 hrs, Volume= 0.034 af  
 Secondary = 0.42 cfs @ 12.25 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 40.58' Storage= 1,744 cf

Plug-Flow detention time= 326.5 min calculated for 0.059 af (71% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	724	0	0
40.00	1,189	957	957
40.50	1,443	658	1,615
41.00	1,711	789	2,403
42.00	2,290	2,001	4,404

**Primary OutFlow (Free Discharge)**

- ↑ 2=Culvert
- ↑ 1=Exfiltration

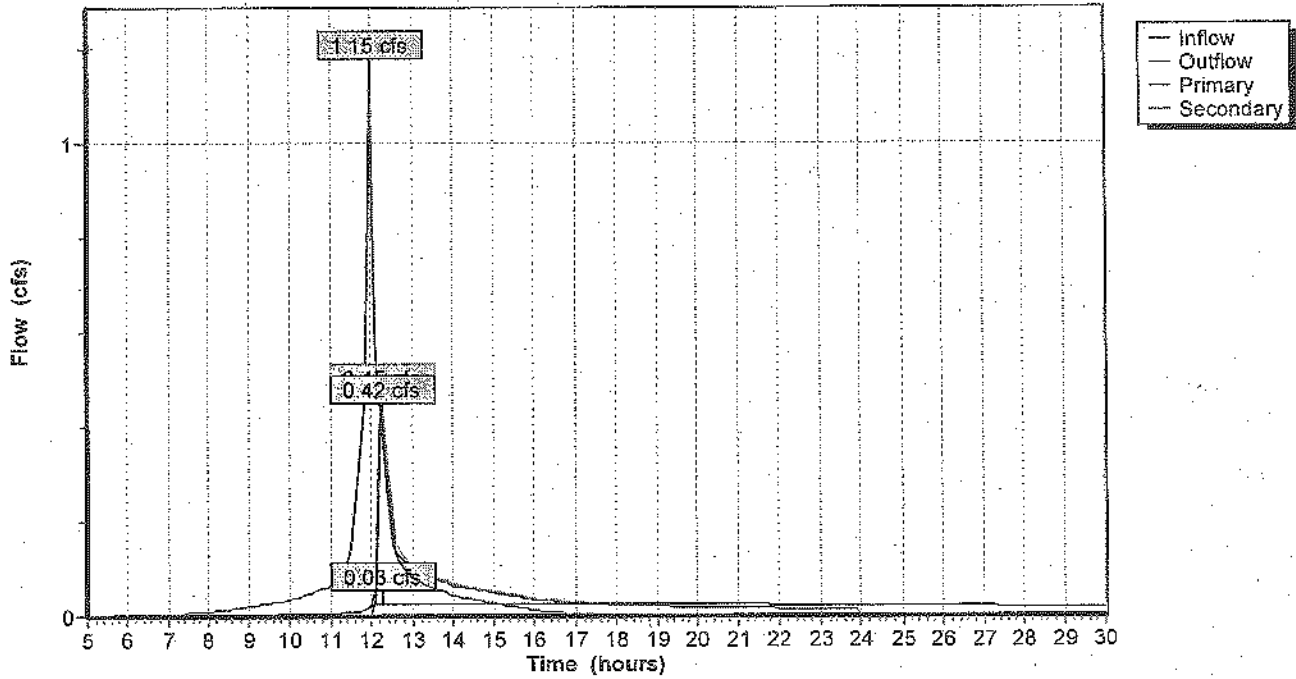
**Secondary OutFlow (Free Discharge)**

- ↑ 3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	39.00'	0.002000 fpm Exfiltration over Surface area above invert
2	Primary	36.50'	6.0" x 80.0' long Culvert RCP, groove end projecting, Ke= 0.200 Outlet Invert= 35.00' S= 0.0187 ' n= 0.011 Cc= 0.900
3	Secondary	40.50'	7.0' long x 13.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

### Pond P15: Pond 15

Hydrograph Plot



**Pond P16: Pond 16**

Inflow = 0.42 cfs @ 11.99 hrs, Volume= 0.029 af  
 Outflow = 0.11 cfs @ 12.38 hrs, Volume= 0.023 af, Atten= 74%, Lag= 23.3 min  
 Primary = 0.01 cfs @ 12.38 hrs, Volume= 0.017 af  
 Secondary = 0.10 cfs @ 12.38 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 45.55' Storage= 595 cf

Plug-Flow detention time= 339.2 min calculated for 0.023 af (80% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	190	0	0
45.00	430	310	310
45.50	573	251	561
46.00	751	331	892
47.00	1,145	948	1,840

**Primary OutFlow (Free Discharge)**

- ↑ 2=Culvert
- ↑ 1=Exfiltration

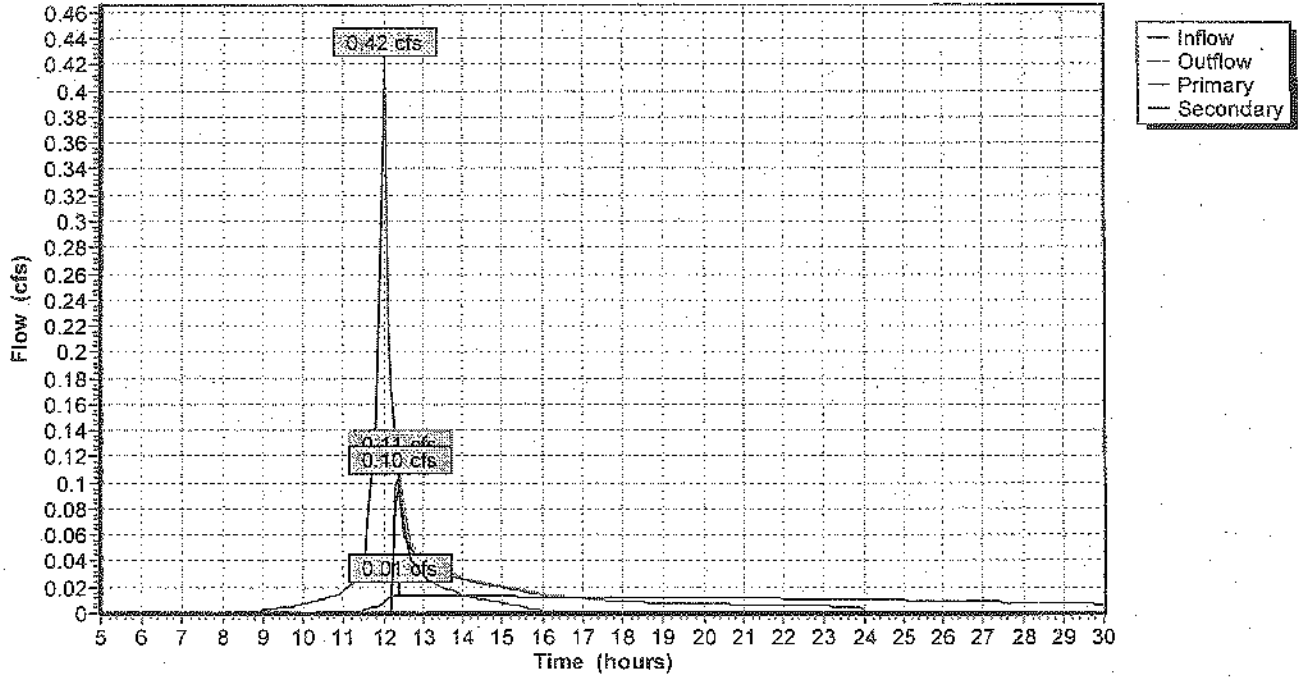
**Secondary OutFlow (Free Discharge)**

- ↑ 3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	44.00'	0.002000 fpm Exfiltration over Surface area above invert
2	Primary	41.50'	6.0" x 50.0' long Culvert RCP, groove end projecting, Ke= 0.200 Outlet Invert= 41.00' S= 0.0100 '/' n= 0.011 Cc= 0.900
3	Secondary	45.50'	3.0' long x 13.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

### Pond P16: Pond 16

#### Hydrograph Plot



**CadCam Proposed**

Type III 24-hr Rainfall=3.00" (2-Year Storm)

Prepared by {enter your company name here}

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**Pond P23: Pond 23**

Inflow = 1.32 cfs @ 12.02 hrs, Volume= 0.109 af  
 Outflow = 0.31 cfs @ 12.42 hrs, Volume= 0.107 af, Atten= 77%, Lag= 24.4 min  
 Primary = 0.31 cfs @ 12.42 hrs, Volume= 0.107 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 40.71' Storage= 1,842 cf

Plug-Flow detention time= 111.5 min calculated for 0.107 af (98% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	2,600	0	0
42.00	2,600	5,200	5,200

**Primary OutFlow (Free Discharge)**

└1=Culvert

**Secondary OutFlow (Free Discharge)**

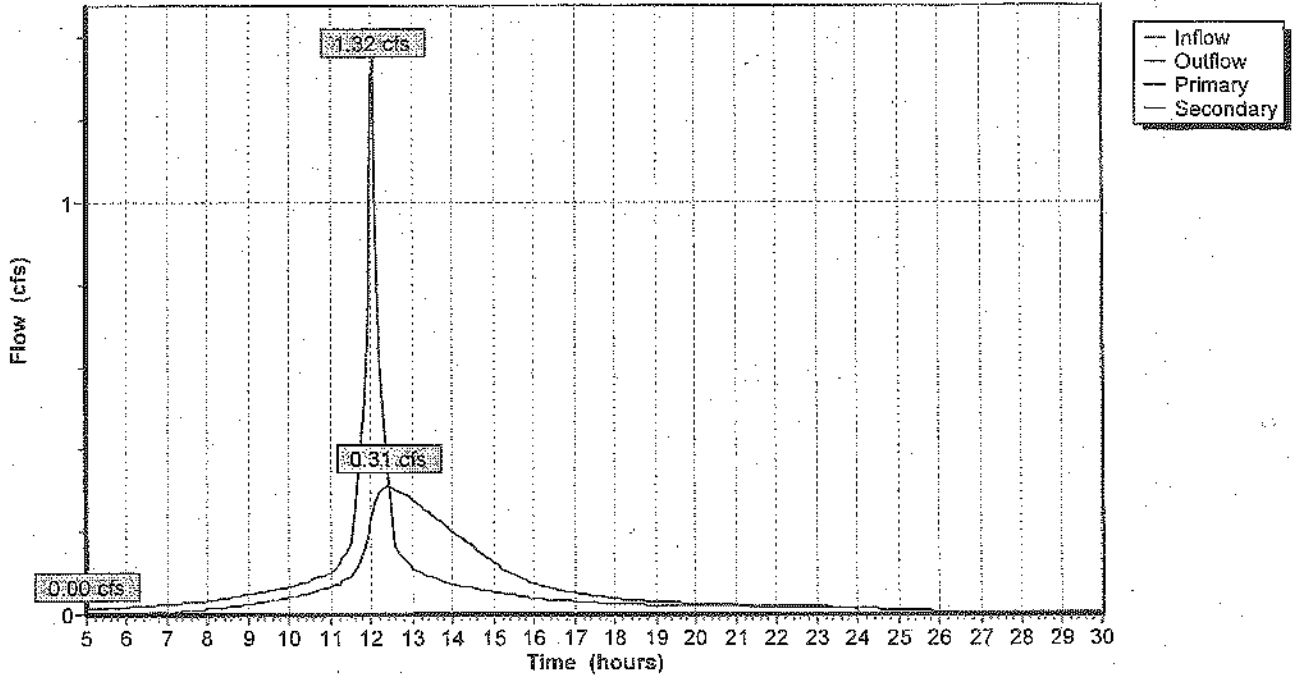
└2=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	40.00'	4.0" x 10.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 39.50' S= 0.0500 '/' n= 0.011 Cc= 0.900
2	Secondary	41.00'	12.0" x 10.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 39.50' S= 0.1500 '/' n= 0.011 Cc= 0.900



### Pond P23: Pond 23

Hydrograph Plot



Time span=5.00-30.00 hrs, dt=0.10 hrs, 251 points  
 Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=4.70"  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 11S: Satellite Parking**

Tc=2.1 min CN=95 Area=0.320 ac Runoff= 1.44 cfs 0.109 af

**Subcatchment 12S: North/West of Satellite**

Tc=4.8 min CN=81 Area=0.590 ac Runoff= 1.78 cfs 0.134 af

**Subcatchment 13S: Proposed NORTH-CENTRAL**

Tc=9.7 min CN=75 Area=0.670 ac Runoff= 1.46 cfs 0.123 af

**Subcatchment 14S: Proposed Northeast**

Tc=14.2 min CN=76 Area=0.590 ac Runoff= 1.16 cfs 0.113 af

**Subcatchment 15S: Proposed Parking**

Tc=1.4 min CN=91 Area=0.480 ac Runoff= 1.99 cfs 0.147 af

**Subcatchment 16S: Proposed Parking**

Tc=1.5 min CN=85 Area=0.220 ac Runoff= 0.80 cfs 0.057 af

**Subcatchment 21S: Proposed Central**

Tc=8.3 min CN=76 Area=0.540 ac Runoff= 1.24 cfs 0.103 af

**Subcatchment 22S: Existing Parking and Entrance Circle**

Tc=12.0 min CN=83 Area=0.870 ac Runoff= 2.36 cfs 0.211 af

**Subcatchment 23S: Proposed Buildings**

Tc=5.0 min CN=98 Area=0.480 ac Runoff= 2.08 cfs 0.174 af

**Subcatchment 24S: Expanded Parking**

Tc=3.8 min CN=93 Area=0.330 ac Runoff= 1.42 cfs 0.107 af

**Subcatchment 25S: Access & Rear Parking**

Tc=8.0 min CN=93 Area=0.280 ac Runoff= 1.03 cfs 0.091 af

**Subcatchment 26S: Rear of Building**

Tc=7.8 min CN=74 Area=0.120 ac Runoff= 0.26 cfs 0.021 af

**Reach 1R: Existing Swale**

Inflow= 8.88 cfs 1.062 af  
 Length= 200.0' Max Vel= 1.1 fps Capacity= 43.53 cfs Outflow= 8.45 cfs 1.061 af

**Reach 2R: Existing Swale**

Inflow= 5.07 cfs 0.556 af  
 Length= 80.0' Max Vel= 1.6 fps Capacity= 144.69 cfs Outflow= 4.93 cfs 0.556 af

**Reach 3R: Existing Swale**

Inflow= 2.03 cfs 0.242 af  
 Length= 120.0' Max Vel= 1.2 fps Capacity= 63.42 cfs Outflow= 2.02 cfs 0.242 af

**CadCam Proposed**

Type III 24-hr Rainfall=4.70" (10-Year Storm)

Prepared by {enter your company name here}

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<b>Reach R11: From P11 to Swale</b>	Inflow= 1.13 cfs 0.108 af
Length= 70.0' Max Vel= 0.4 fps Capacity= 33.01 cfs	Outflow= 0.86 cfs 0.108 af
<b>Reach R12: 48" RCP</b>	Inflow= 1.78 cfs 0.134 af
Length= 90.0' Max Vel= 8.8 fps Capacity= 463.95 cfs	Outflow= 1.74 cfs 0.134 af
<b>Reach R15: From P15 to Swale</b>	Inflow= 1.81 cfs 0.121 af
Length= 100.0' Max Vel= 0.3 fps Capacity= 45.62 cfs	Outflow= 1.50 cfs 0.120 af
<b>Reach R16: From P16 to Swale</b>	Inflow= 0.74 cfs 0.050 af
Length= 120.0' Max Vel= 0.2 fps Capacity= 28.43 cfs	Outflow= 0.48 cfs 0.049 af
<b>Reach R22: From 22 to Swale</b>	Inflow= 2.36 cfs 0.211 af
Length= 90.0' Max Vel= 0.5 fps Capacity= 27.37 cfs	Outflow= 2.15 cfs 0.211 af
<b>Reach R24: 24S to Swale</b>	Inflow= 1.42 cfs 0.107 af
Length= 100.0' Max Vel= 0.3 fps Capacity= 13.86 cfs	Outflow= 1.12 cfs 0.107 af
<b>Reach R25: From 25 to Swale</b>	Inflow= 1.38 cfs 0.263 af
Length= 50.0' Max Vel= 0.5 fps Capacity= 28.77 cfs	Outflow= 1.32 cfs 0.263 af
<b>Reach R26: From 26 to SP</b>	Inflow= 0.26 cfs 0.021 af
Length= 180.0' Max Vel= 0.2 fps Capacity= 10.11 cfs	Outflow= 0.18 cfs 0.021 af
<b>Reach SP: Study Point</b>	Inflow= 11.11 cfs 1.351 af
Length= 100.0' Max Vel= 0.6 fps Capacity= 239.77 cfs	Outflow= 10.64 cfs 1.350 af
<b>Pond P11: Existing Satellite Lot Detention Pond</b>	Peak Storage= 1,141 cf Inflow= 1.44 cfs 0.109 af
Primary= 0.18 cfs 0.090 af Secondary= 0.95 cfs 0.019 af	Outflow= 1.13 cfs 0.108 af
<b>Pond P15: Pond 15</b>	Peak Storage= 1,948 cf Inflow= 1.99 cfs 0.147 af
Primary= 0.03 cfs 0.038 af Secondary= 1.78 cfs 0.084 af	Outflow= 1.81 cfs 0.121 af
<b>Pond P16: Pond 16</b>	Peak Storage= 697 cf Inflow= 0.80 cfs 0.057 af
Primary= 0.02 cfs 0.019 af Secondary= 0.72 cfs 0.031 af	Outflow= 0.74 cfs 0.050 af
<b>Pond P23: Pond 23</b>	Peak Storage= 2,924 cf Inflow= 2.08 cfs 0.174 af
Primary= 0.41 cfs 0.170 af Secondary= 0.07 cfs 0.002 af	Outflow= 0.48 cfs 0.172 af

**Runoff Area = 5.490 ac Volume = 1.389 af Average Depth = 3.04"**

**Subcatchment 11S: Satellite Parking**

Runoff = 1.44 cfs @ 11.99 hrs, Volume= 0.109 af

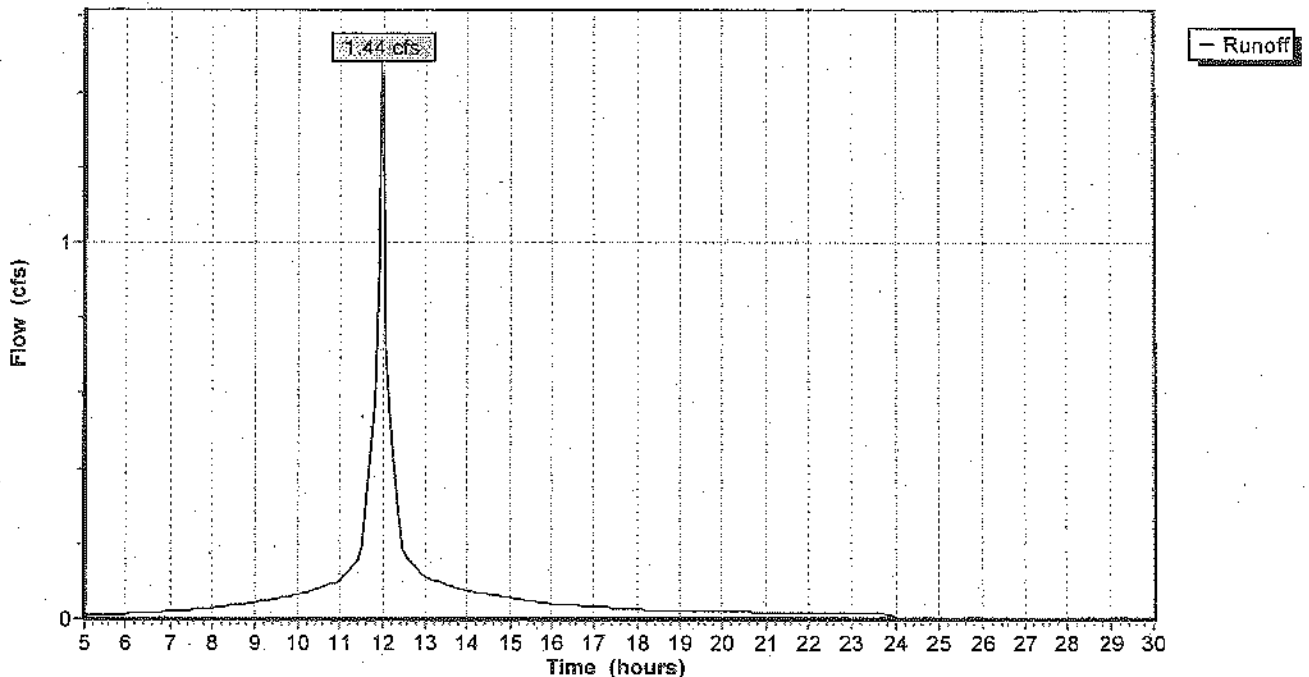
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.270	98	IMPERVIOUS (PARKING LOT)
0.040	74	OPEN SPACE (GOOD)-HSG "C"
0.010	89	RIP RAP-HSG "C"
0.320	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0303	1.6		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
0.1	15	0.3300	4.0		Shallow Concentrated Flow, Segment ID:BC Kv= 7.0 fps
0.9	55	0.0200	1.0		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
2.1	170	Total			

**Subcatchment 11S: Satellite Parking**

Hydrograph Plot



**Subcatchment 12S: North/West of Satellite**

Runoff = 1.78 cfs @ 12.02 hrs, Volume= 0.134 af

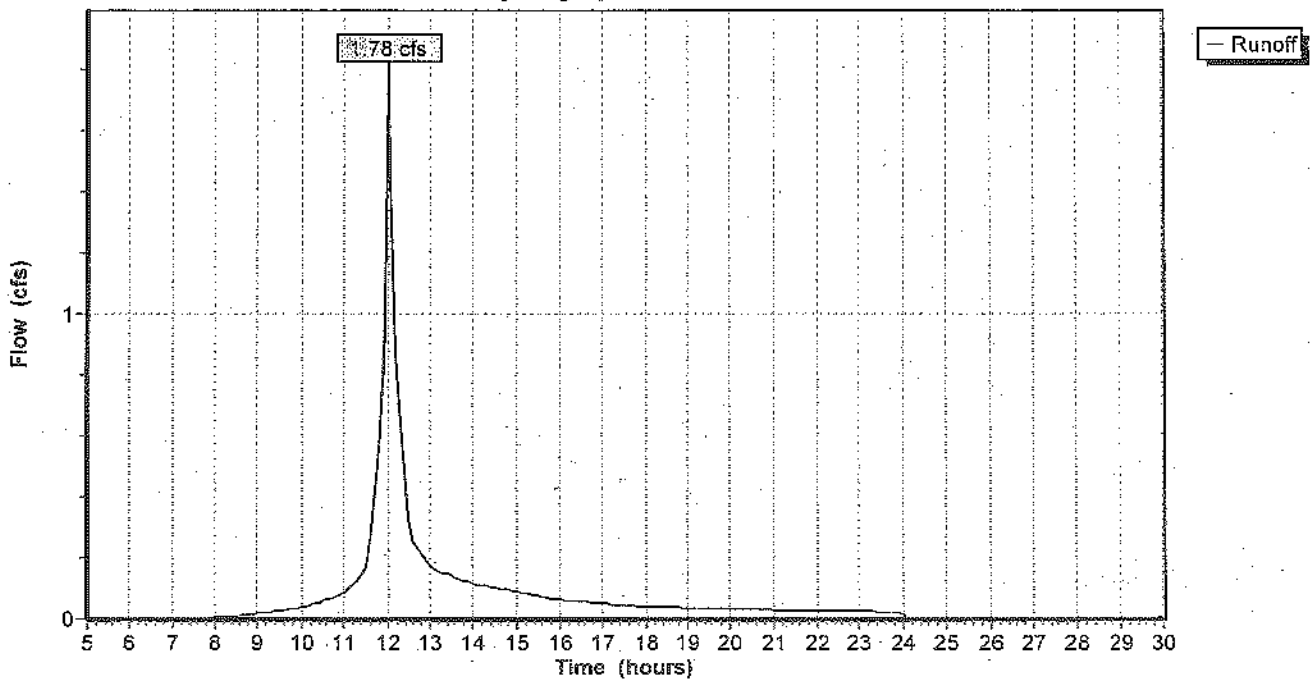
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.020	73	WOODS (FAIR)-HSG "C"
0.400	74	OPEN SPACE (GOOD)-HSG "C"
0.170	98	IMPERVIOUS
0.590	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	16	0.1900	0.2		Sheet Flow, Segment ID:AB Grass: Dense n= 0.240 P2= 3.00"
0.8	13	0.5000	0.3		Sheet Flow, Segment ID:BC Grass: Dense n= 0.240 P2= 3.00"
1.3	185	0.0270	2.5		Shallow Concentrated Flow, Segment ID:CD Grassed Waterway Kv= 15.0 fps
0.2	60	0.0100	5.7	7.00	Circular Channel (pipe), SEGMENT ID:DE Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
1.1	165	0.0300	2.6		Shallow Concentrated Flow, SEGMENT ID:EF Grassed Waterway Kv= 15.0 fps
4.8	439	Total			

**Subcatchment 12S: North/West of Satellite**

Hydrograph Plot



**Subcatchment 13S: Proposed NORTH-CENTRAL**

Runoff = 1.46 cfs @ 12.10 hrs, Volume= 0.123 af

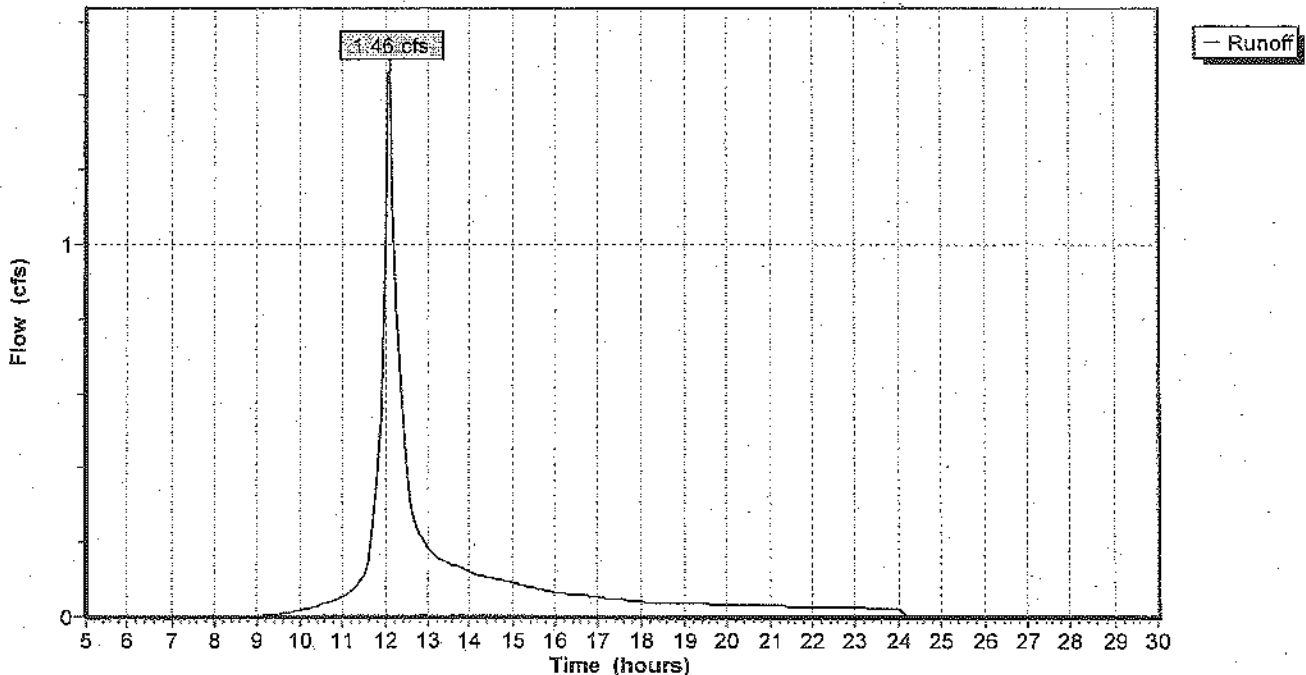
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.300	73	WOODS (FAIR)-HSG "C"
0.130	74	OPEN SPACE (GOOD)-HSG "C"
0.240	79	WOODS (FAIR)-HSG "D"
0.670	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	5	0.5000	0.3		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
7.2	65	0.1400	0.2		Sheet Flow, Segment ID:BC Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	45	0.1000	1.6		Shallow Concentrated Flow, Segment C-D Woodland Kv= 5.0 fps
1.7	100	0.0400	1.0		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
9.7	215	Total			

**Subcatchment 13S: Proposed NORTH-CENTRAL**

Hydrograph Plot



**Subcatchment 14S: Proposed Northeast**

Runoff = 1.16 cfs @ 12.16 hrs, Volume= 0.113 af

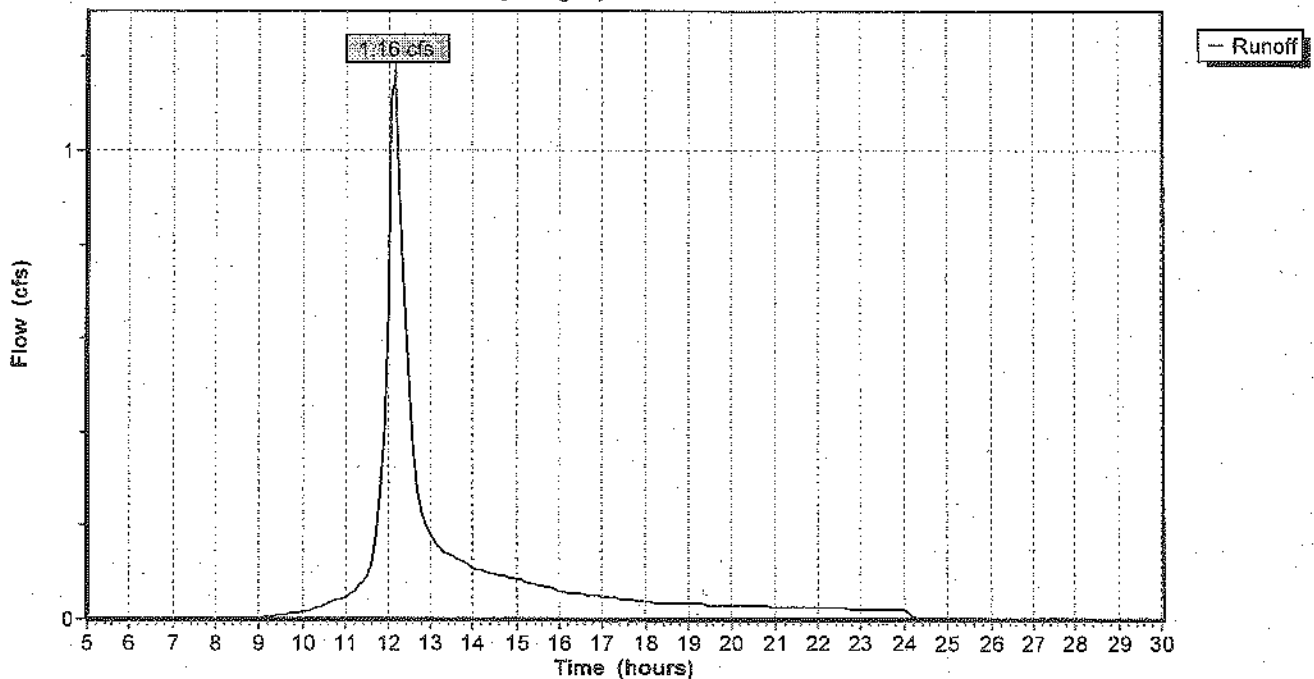
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.240	73	Woods, Fair, HSG C
0.230	79	Woods, Fair, HSG D
0.120	74	>75% Grass cover, Good, HSG C
0.590	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	15	0.1333	0.2		Sheet Flow, Segment AB Grass: Short n= 0.150 P2= 3.00"
0.4	10	0.5000	0.4		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
3.9	45	0.3100	0.2		Sheet Flow, Segment CD Woods: Light underbrush n= 0.400 P2= 3.00"
6.9	30	0.0333	0.1		Sheet Flow, DE Woods: Light underbrush n= 0.400 P2= 3.00"
2.0	70	0.0140	0.6		Shallow Concentrated Flow, Segment DE Woodland Kv= 5.0 fps
14.2	170	Total			

**Subcatchment 14S: Proposed Northeast**

Hydrograph Plot



**Subcatchment 15S: Proposed Parking**

Runoff = 1.99 cfs @ 11.99 hrs, Volume= 0.147 af

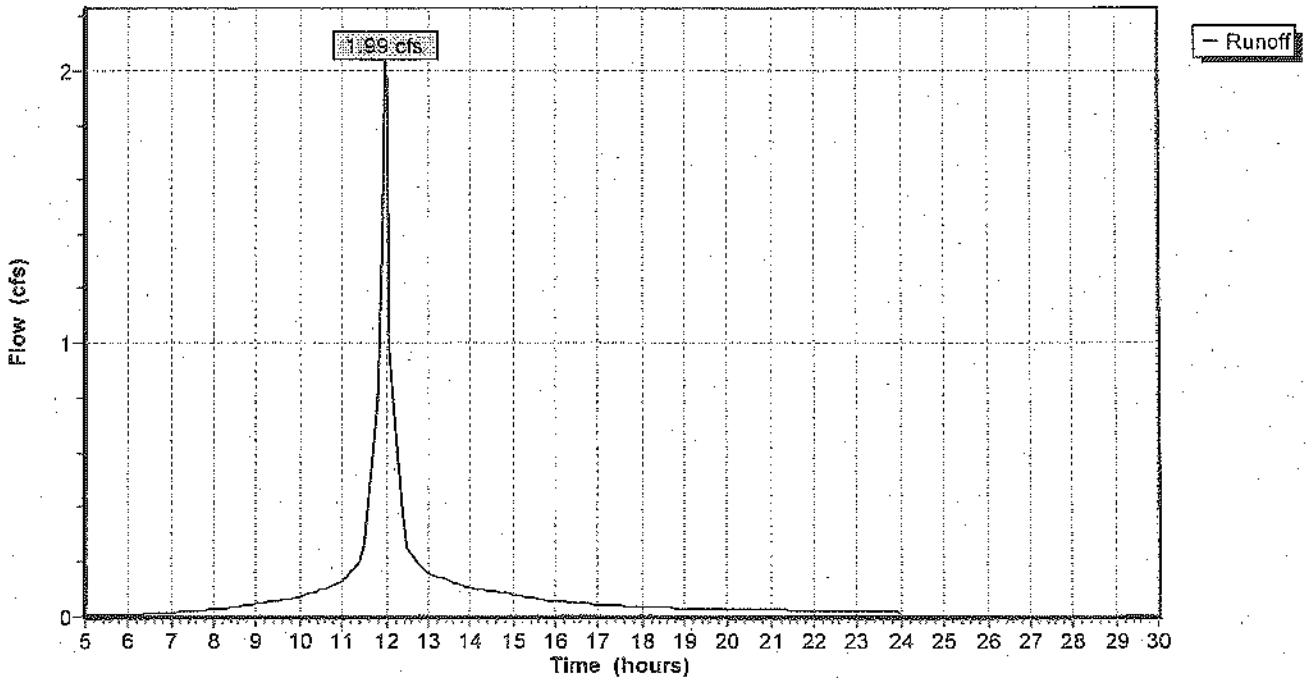
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.340	98	Paved parking & roofs
0.140	74	>75% Grass cover, Good, HSG C
0.480	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0333	1.6		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
0.4	100	0.0333	3.7		Shallow Concentrated Flow, BD Paved Kv= 20.3 fps
1.4	200	Total			

**Subcatchment 15S: Proposed Parking**

Hydrograph Plot





**Subcatchment 16S: Proposed Parking**

Runoff = 0.80 cfs @ 11.99 hrs, Volume= 0.057 af

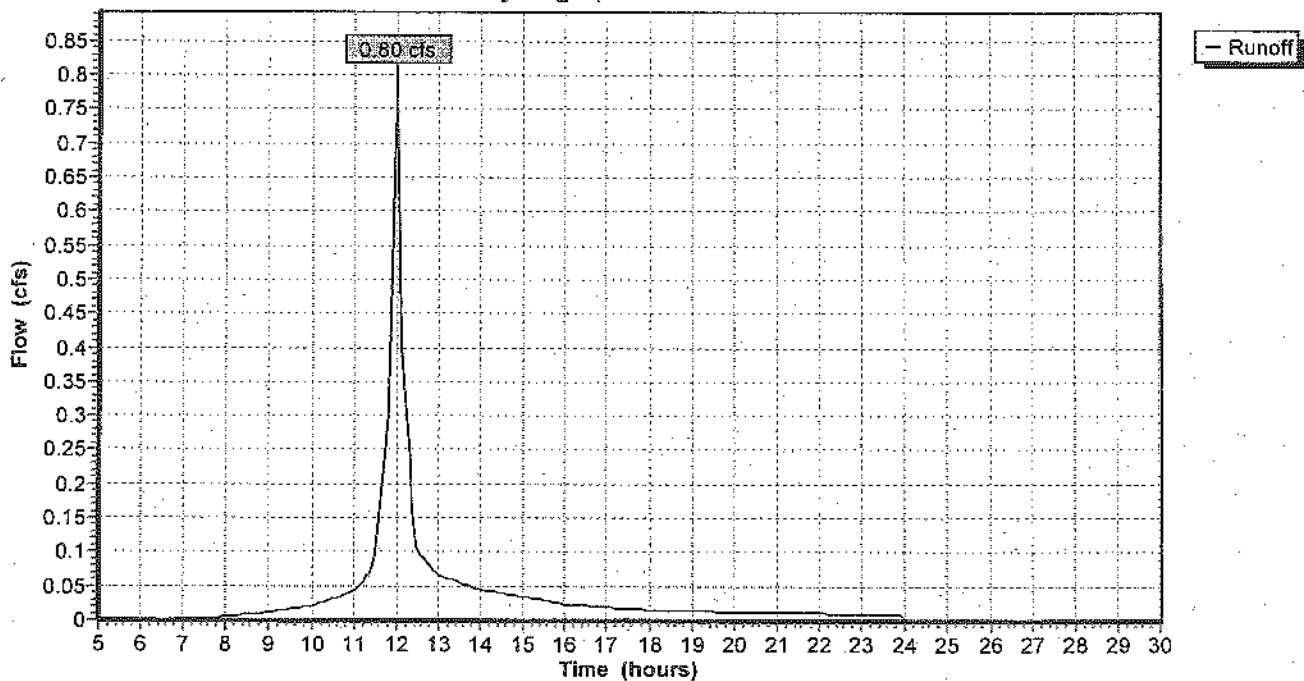
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.120	74	>75% Grass cover, Good, HSG C
0.220	85	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	95	0.0333	1.6		Sheet Flow, Segment AB Smooth surfaces n= 0.011 P2= 3.00"
0.2	35	0.0300	3.5		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.3	50	0.1400	2.6		Shallow Concentrated Flow, Segment CD Short Grass Pasture Kv= 7.0 fps
1.5	180	Total			

**Subcatchment 16S: Proposed Parking**

Hydrograph Plot



**Subcatchment 21S: Proposed Central**

Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.103 af

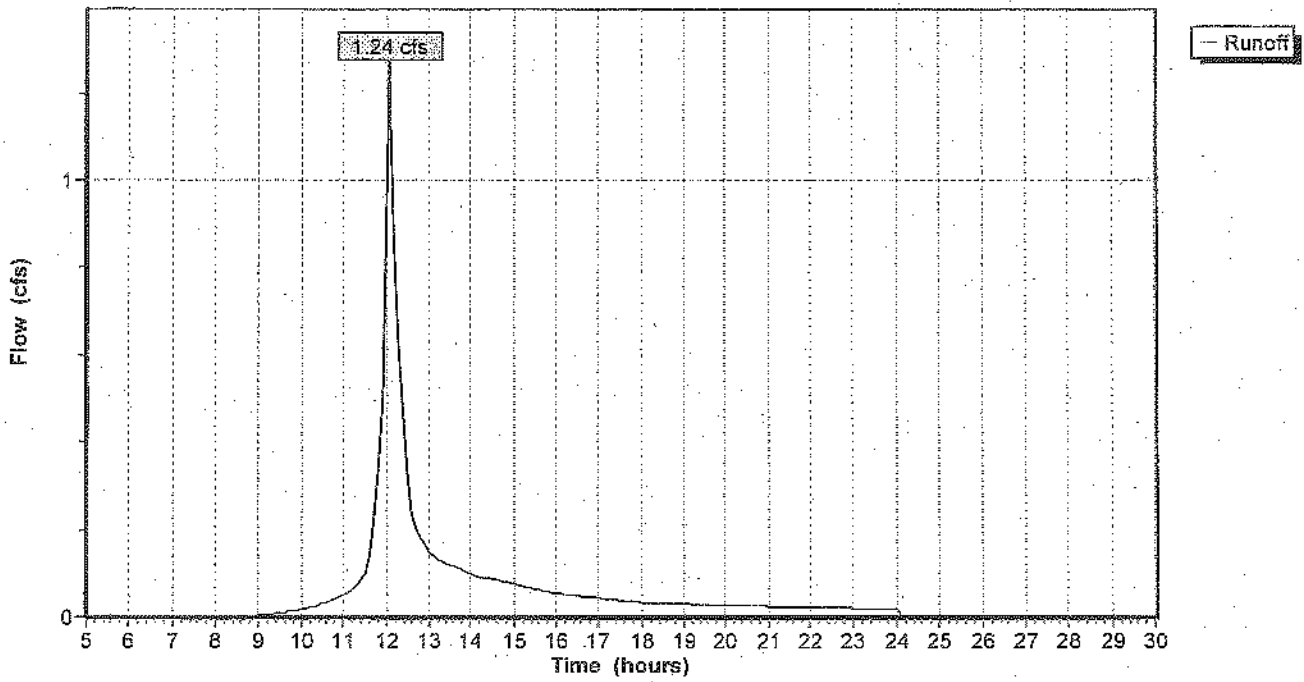
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.180	73	WOODS (FAIR)-HSG "C"
0.150	74	OPEN SPACE (GOODG "C"
0.200	79	WOODS (FAIR)-HSD "D"
0.010	98	IMPERVIOUS (BLDG, PAVEMENT)
0.540	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	10	0.0500	1.2		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
5.0	60	0.0417	0.2		Sheet Flow, SegmentBC Grass: Short n= 0.150 P2= 3.00"
1.7	30	0.1500	0.3		Sheet Flow, CD Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.2700	2.6		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
1.2	80	0.0500	1.1		Shallow Concentrated Flow, Segment ID:EF Woodland Kv= 5.0 fps
8.3	220	Total			

### Subcatchment 21S: Proposed Central

Hydrograph Plot



**Subcatchment 22S: Existing Parking and Entrance Circle**

Runoff = 2.36 cfs @ 12.12 hrs, Volume= 0.211 af.

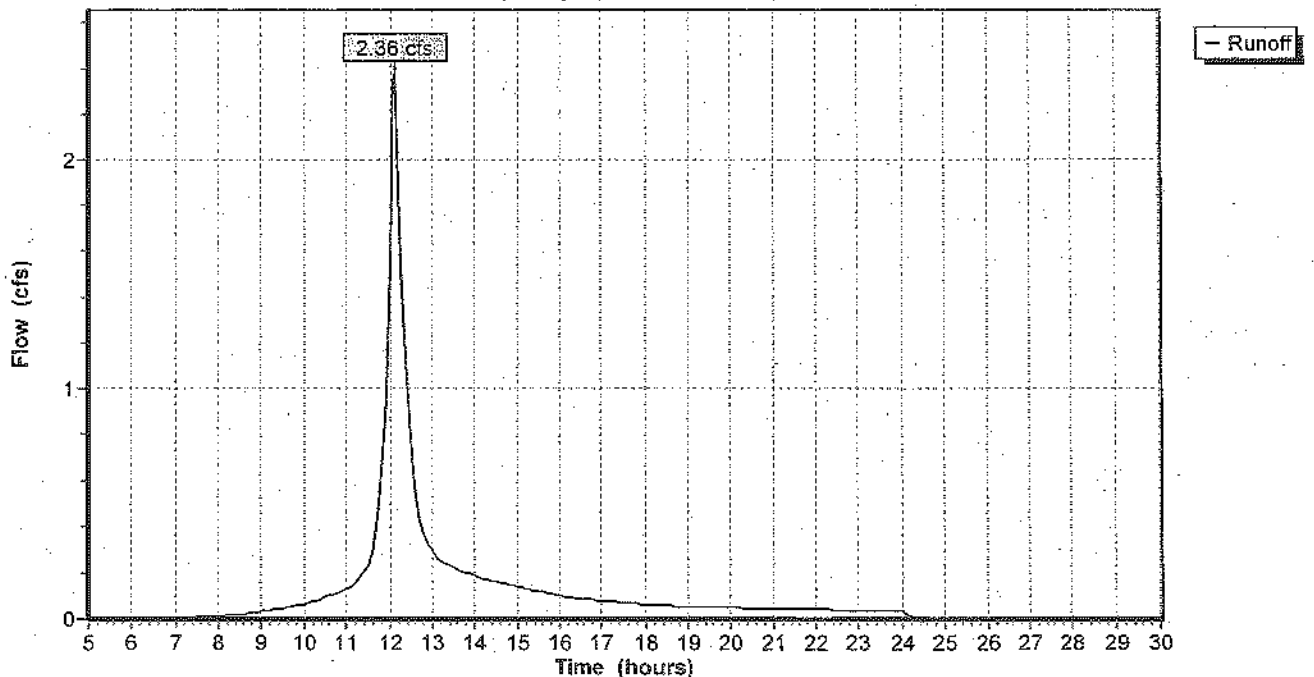
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.110	73	WOODS (FAIR)-HSG "C"
0.420	74	OPEN SPACE (GOODG "C"
0.340	98	IMPERVIOUS (BLDG, PAVEMENT)
0.870	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	15	0.0167	0.1		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.4	20	0.0125	0.8		Sheet Flow, SegmentBC Smooth surfaces n= 0.011 P2= 3.00"
7.9	65	0.1100	0.1		Sheet Flow, SegmentCD Woods: Light underbrush n= 0.400 P2= 3.00"
1.0	85	0.0882	1.5		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
0.3	180	0.0330	9.7	7.65	Circular Channel (pipe), SegmentEF Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
12.0	365	Total			

**Subcatchment 22S: Existing Parking and Entrance Circle**

Hydrograph Plot



**Subcatchment 23S: Proposed Buildings**

Runoff = 2.08 cfs @ 12.02 hrs, Volume= 0.174 af

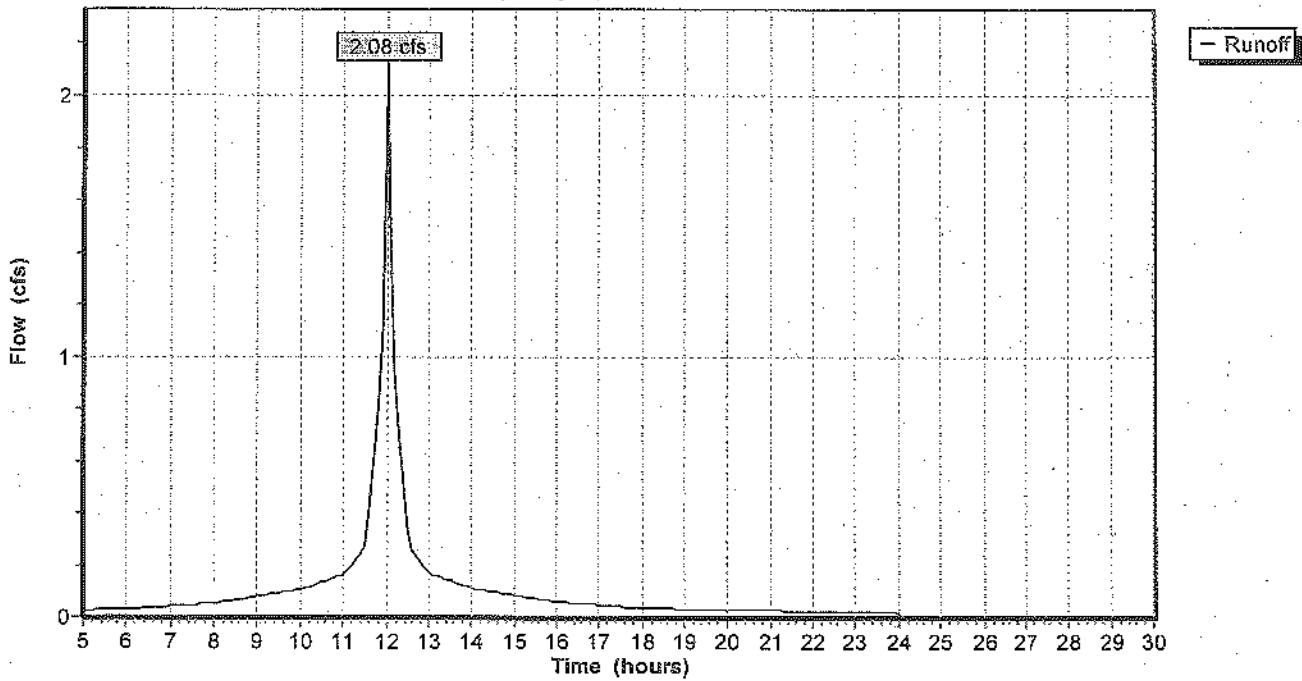
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.480	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct Entry

**Subcatchment 23S: Proposed Buildings**

Hydrograph Plot



**Subcatchment 24S: Expanded Parking**

Runoff = 1.42 cfs @ 12.01 hrs, Volume= 0.107 af

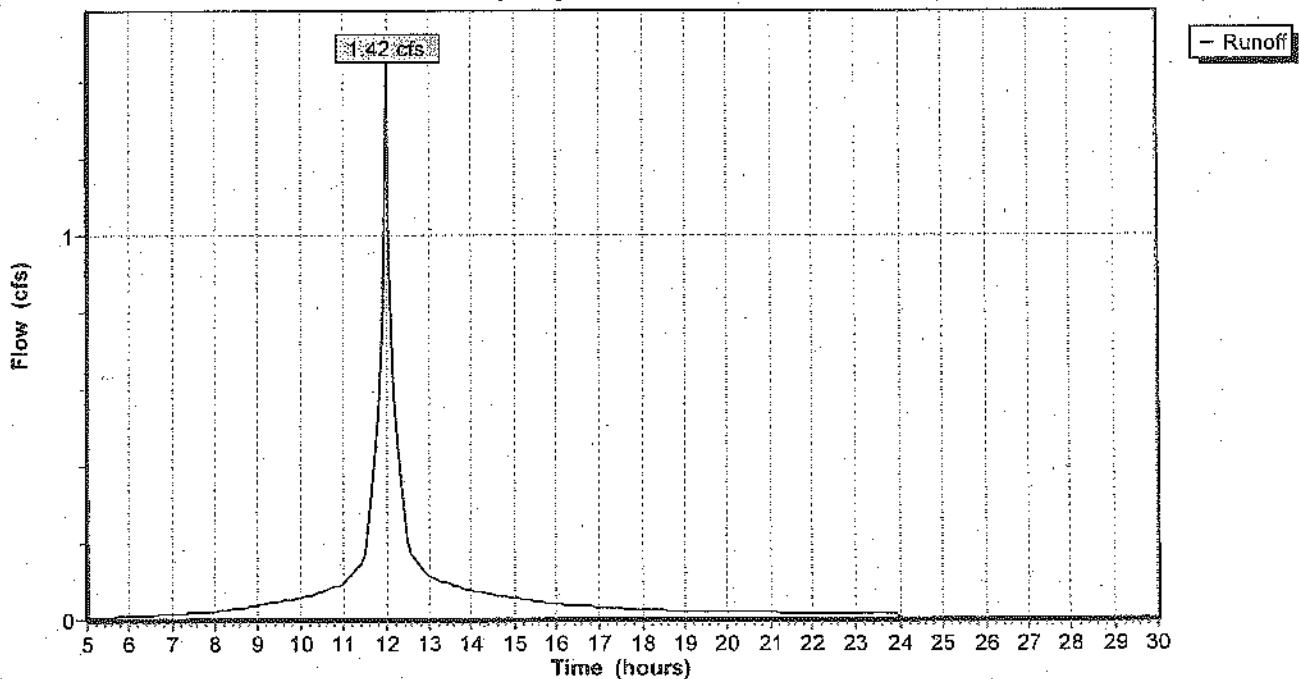
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.260	98	Paved parking & roofs
0.070	74	>75% Grass cover, Good, HSG C
0.330	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	10	0.0100	0.1		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.00"
0.6	10	0.2000	0.3		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0600	2.0		Sheet Flow, CD Smooth surfaces n= 0.011 P2= 3.00"
0.4	100	0.0400	4.1		Shallow Concentrated Flow, DE Paved Kv= 20.3 fps
3.8	200	Total			

**Subcatchment 24S: Expanded Parking**

Hydrograph Plot



**Subcatchment 25S: Access & Rear Parking**

Runoff = 1.03 cfs @ 12.07 hrs, Volume= 0.091 af

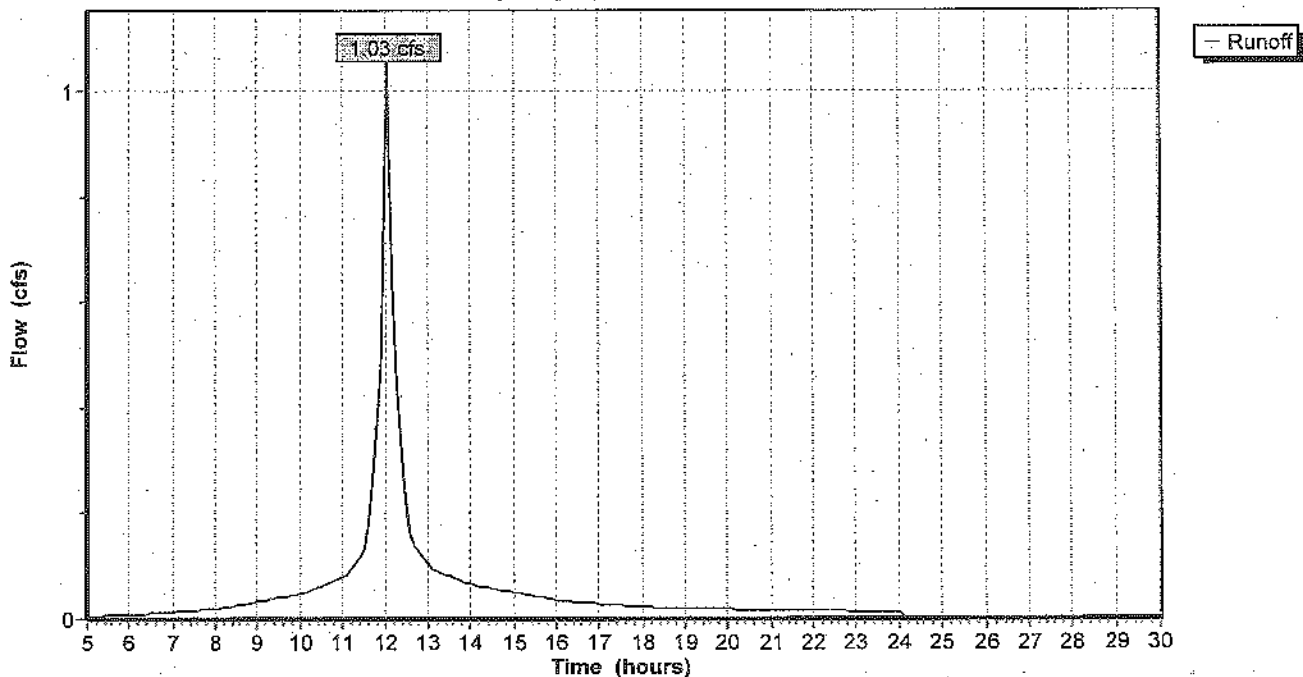
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.220	98	Paved parking & roofs
0.060	74	>75% Grass cover, Good, HSG C
0.280	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0400	1.3		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
6.1	75	0.0400	0.2		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
1.6	120	0.0300	1.2		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
8.0	220	Total			

**Subcatchment 25S: Access & Rear Parking**

Hydrograph Plot



**Subcatchment 26S: Rear of Building**

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.021 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=4.70"

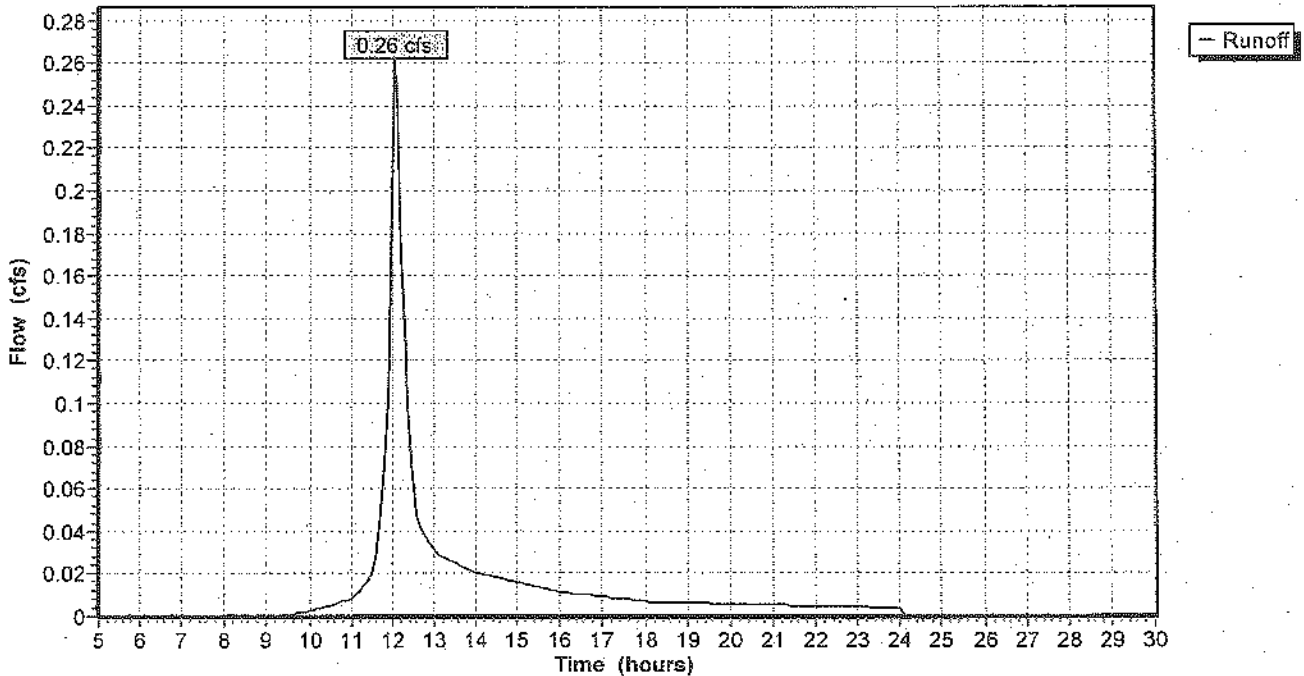
Area (ac)	CN	Description
0.120	74	>75% Grass cover, Good, HSG C

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2000	0.3		Sheet Flow, Segment AB Grass: Short n= 0.150 P2= 3.00"
6.4	90	0.0500	0.2		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
0.8	100	0.0900	2.1		Shallow Concentrated Flow, Segment CD Short Grass Pasture Kv= 7.0 fps
7.8	200	Total			

**Subcatchment 26S: Rear of Building**

Hydrograph Plot





### Reach 1R: Existing Swale

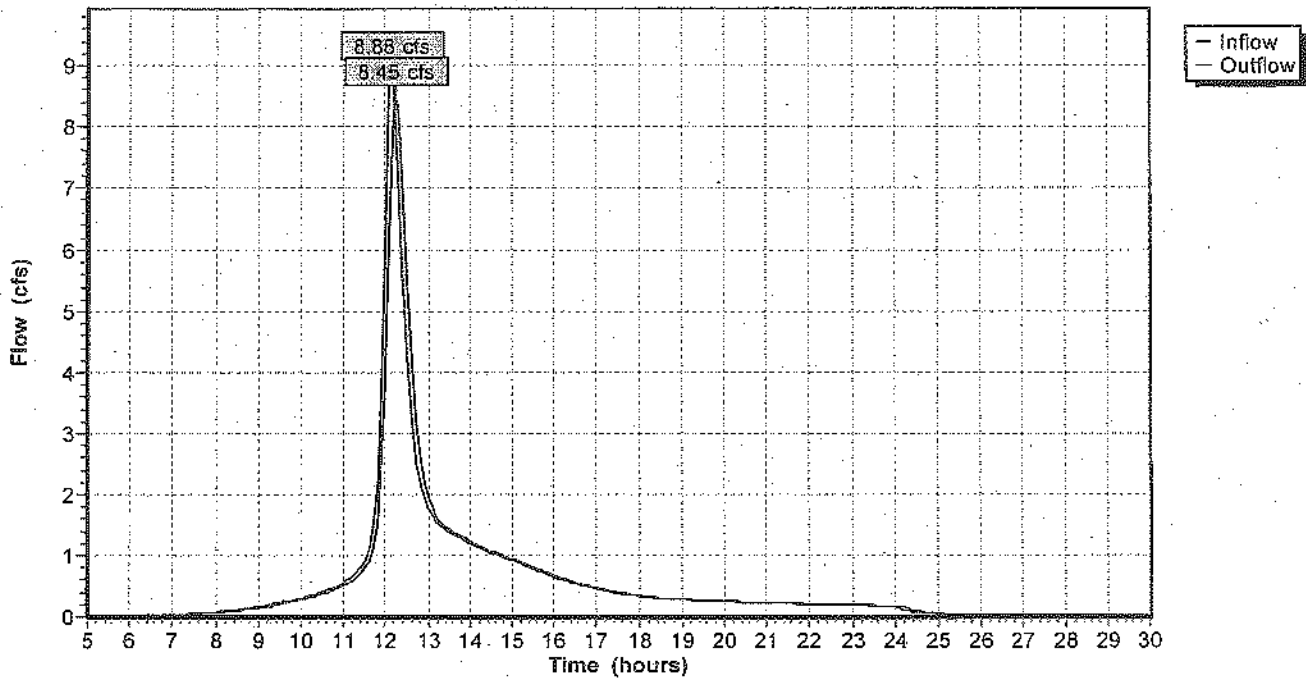
Inflow = 8.88 cfs @ 12.16 hrs, Volume= 1.062 af  
Outflow = 8.45 cfs @ 12.26 hrs, Volume= 1.061 af, Atten= 5%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.1 fps, Min. Travel Time= 2.9 min  
Avg. Velocity = 0.3 fps, Avg. Travel Time= 10.3 min

Peak Depth= 0.85'  
Capacity at bank full= 43.53 cfs  
Inlet Invert= 30.00', Outlet Invert= 29.50'  
7.00' x 2.00' deep channel, n= 0.050 Length= 200.0' Slope= 0.0025 1'  
Side Slope Z-value= 3.0 2.0 1'

### Reach 1R: Existing Swale

Hydrograph Plot



Reach 2R: Existing Swale

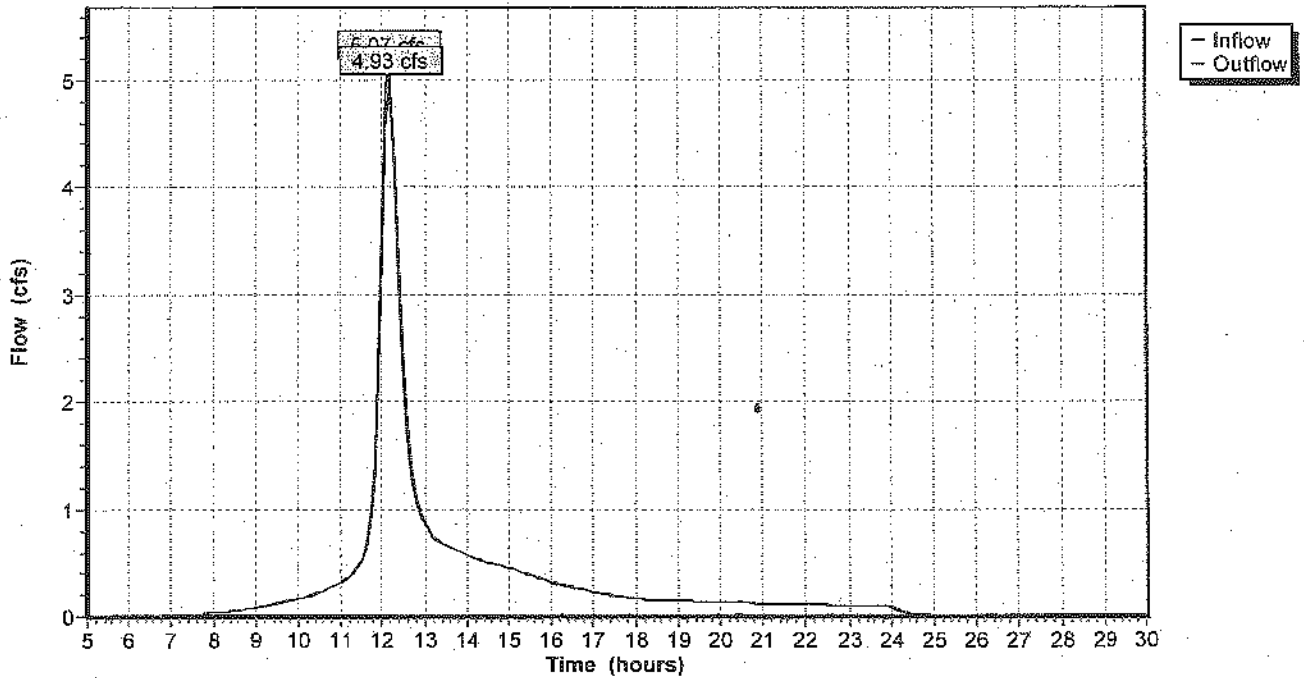
Inflow = 5.07 cfs @ 12.15 hrs, Volume= 0.556 af  
Outflow = 4.93 cfs @ 12.18 hrs, Volume= 0.556 af, Atten= 3%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.6 fps, Min. Travel Time= 0.8 min  
Avg. Velocity= 0.5 fps, Avg. Travel Time= 2.7 min

Peak Depth= 0.50'  
Capacity at bank full= 144.69 cfs  
Inlet Invert= 30.80', Outlet Invert= 30.00'  
5.00' x 3.00' deep channel, n= 0.050' Length= 80.0' Slope= 0.0100 '/  
Side Slope Z-value= 2.0 '/

Reach 2R: Existing Swale

Hydrograph Plot



### Reach 3R: Existing Swale

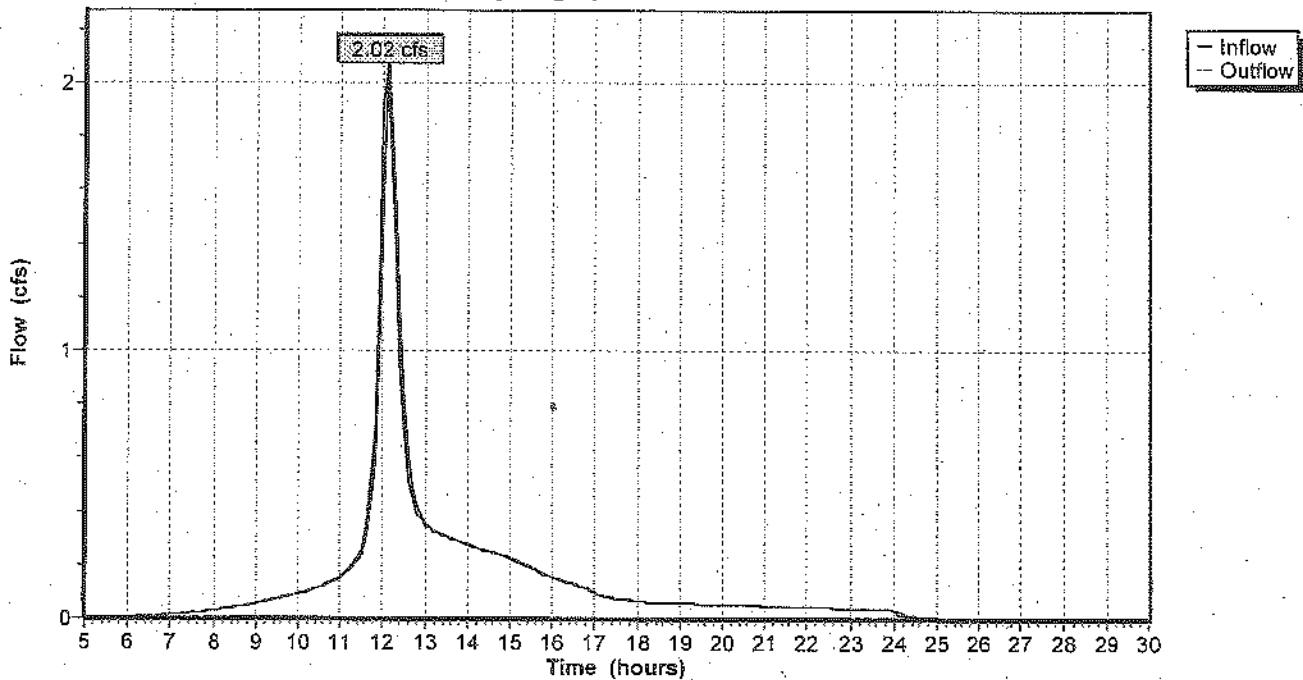
Inflow = 2.03 cfs @ 12.07 hrs, Volume= 0.242 af  
Outflow = 2.02 cfs @ 12.13 hrs, Volume= 0.242 af, Atten= 0%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.2 fps, Min. Travel Time= 1.6 min  
Avg. Velocity = 0.4 fps, Avg. Travel Time= 5.4 min

Peak Depth= 0.30'  
Capacity at bank full= 63.42 cfs  
Inlet Invert= 32.00', Outlet Invert= 30.80'  
5.00' x 2.00' deep channel, n= 0.050 Length= 120.0' Slope= 0.0100 '/  
Side Slope Z-value= 2.0 '/

### Reach 3R: Existing Swale

Hydrograph Plot



Reach R11: From P11 to Swale

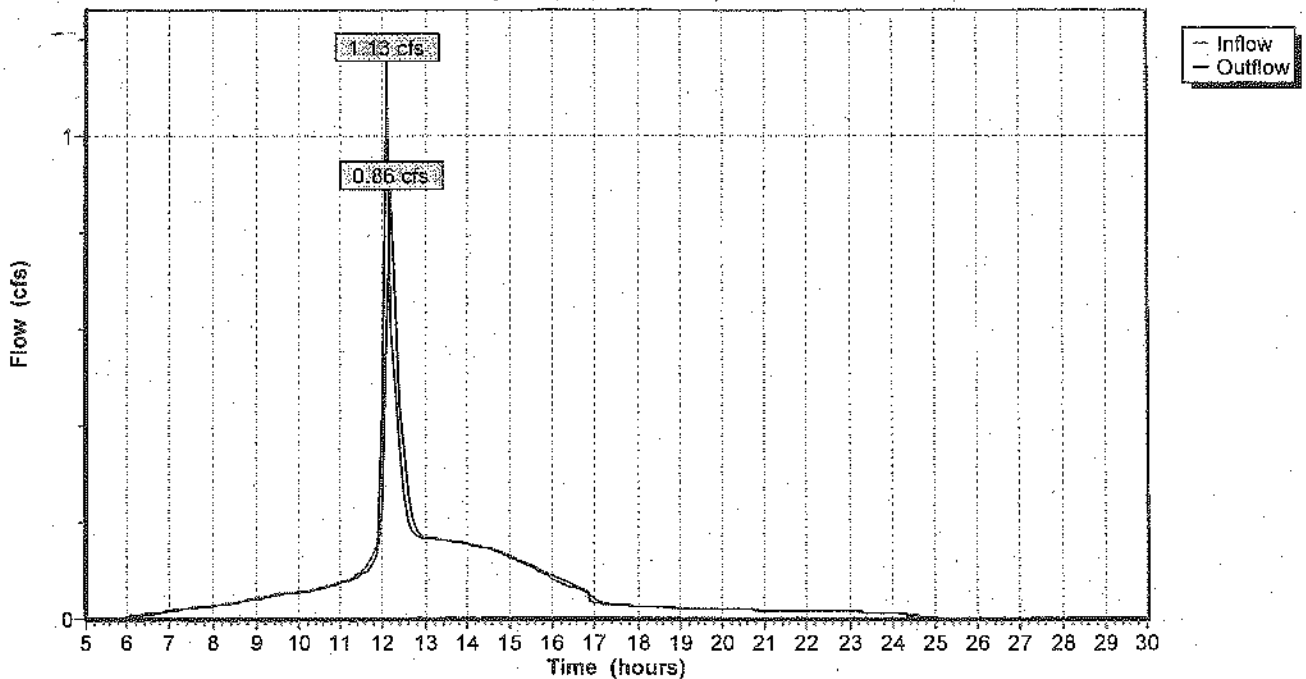
Inflow = 1.13 cfs @ 12.11 hrs, Volume= 0.108 af  
Outflow = 0.86 cfs @ 12.21 hrs, Volume= 0.108 af, Atten= 23%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 2.9 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 9.4 min

Peak Depth= 0.14'  
Capacity at bank full= 33.01 cfs  
Inlet Invert= 45.90', Outlet Invert= 32.00'  
15.00' x 1.00' deep channel, n= 0.400 Length= 70.0' Slope= 0.1986 '/'  
Side Slope Z-value= 10.0 '/'

Reach R11: From P11 to Swale

Hydrograph Plot



Reach R12: 48" RCP

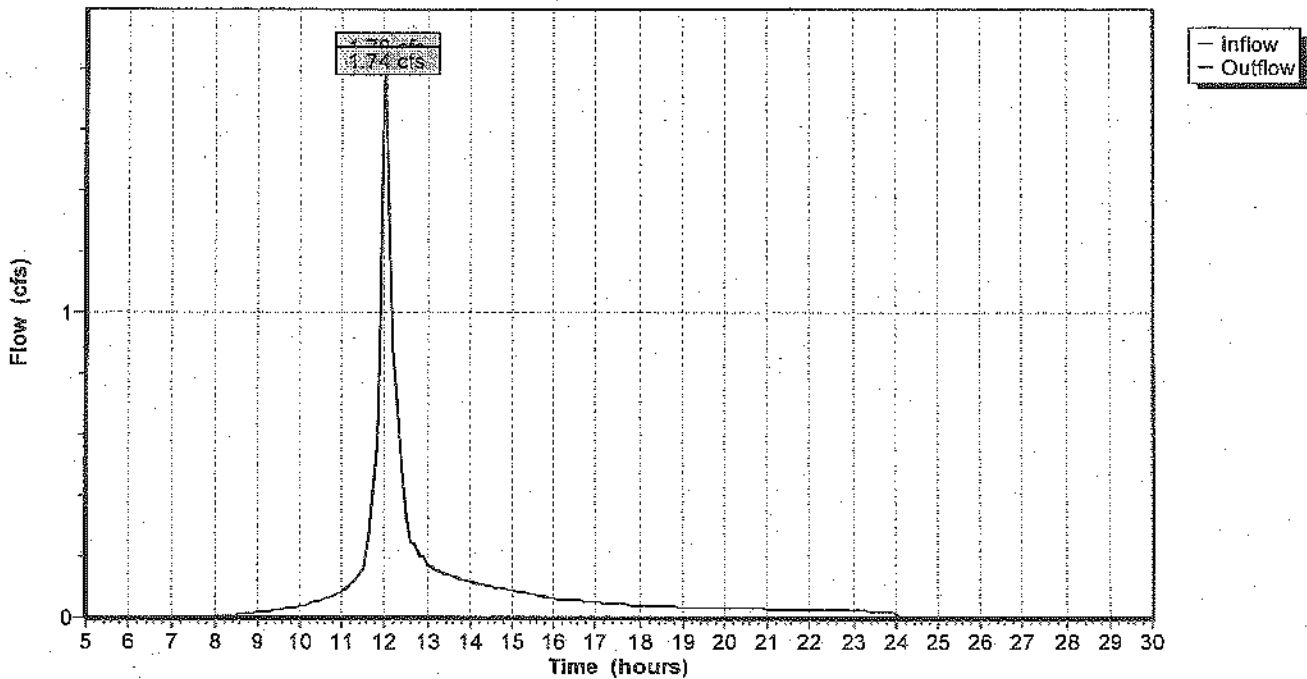
Inflow = 1.78 cfs @ 12.02 hrs, Volume= 0.134 af  
Outflow = 1.74 cfs @ 12.02 hrs, Volume= 0.134 af, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 8.8 fps, Min. Travel Time= 0.2 min  
Avg. Velocity = 3.7 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.18'  
Capacity at bank full= 463.95 cfs  
Inlet Invert= 40.00', Outlet Invert= 32.00'  
48.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0889 1'

Reach R12: 48" RCP

Hydrograph Plot



### Reach R15: From P15 to Swale

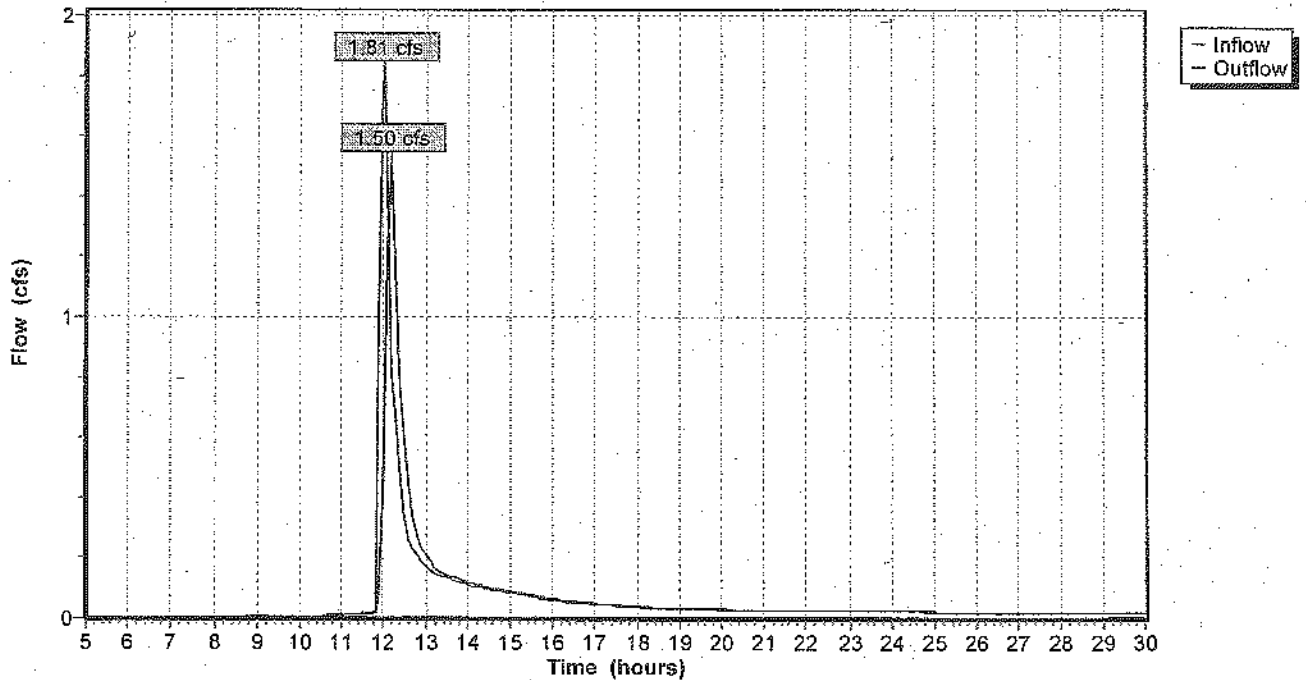
Inflow = 1.81 cfs @ 12.02 hrs, Volume= 0.121 af  
Outflow = 1.50 cfs @ 12.19 hrs, Volume= 0.120 af, Atten= 17%, Lag= 10.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.3 fps, Min. Travel Time= 5.1 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 19.5 min

Peak Depth= 0.36'  
Capacity at bank full= 45.62 cfs  
Inlet Invert= 34.00', Outlet Invert= 30.00'  
10.00' x 2.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0400 '/'  
Side Slope Z-value= 2.0 15.0 '/

### Reach R15: From P15 to Swale

Hydrograph Plot



Reach R16: From P16 to Swale

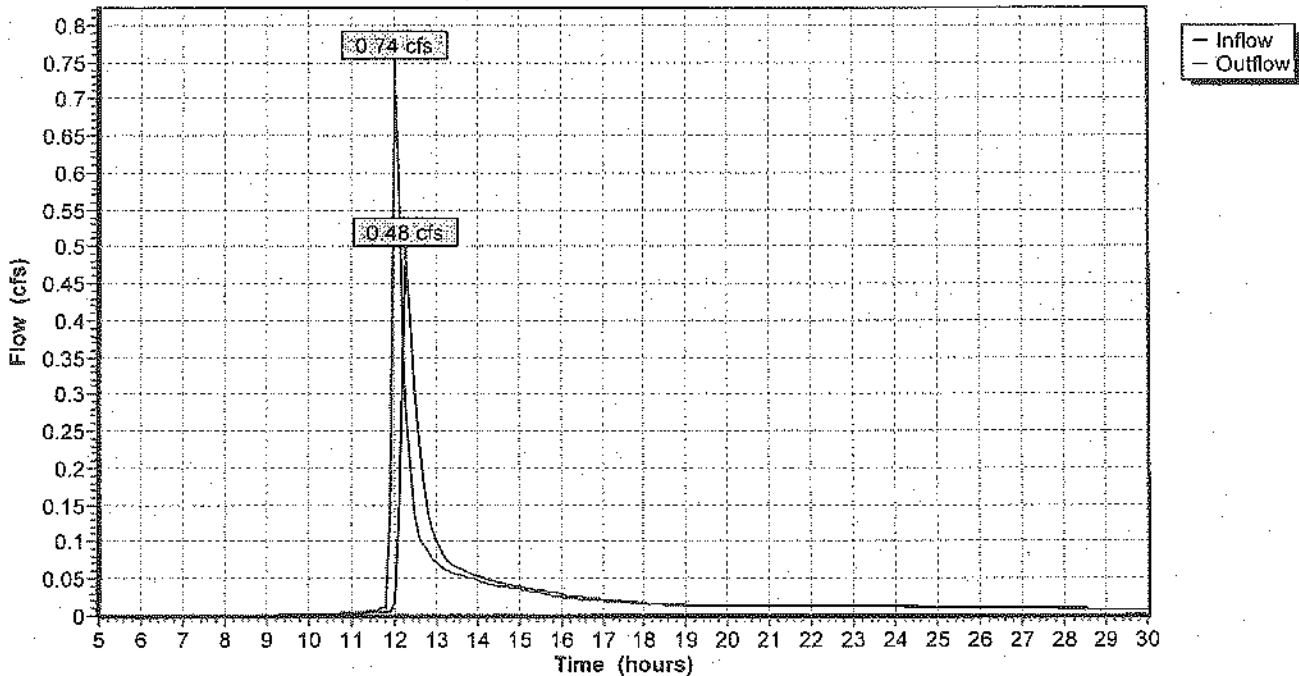
Inflow = 0.74 cfs @ 12.03 hrs, Volume= 0.050 af  
Outflow = 0.48 cfs @ 12.30 hrs, Volume= 0.049 af, Atten= 34%, Lag= 16.3 min.

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.2 fps, Min. Travel Time= 8.4 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 29.6 min

Peak Depth= 0.10'  
Capacity at bank full= 28.43 cfs  
Inlet Invert= 41.00', Outlet Invert= 29.50'  
20.00' x 1.00' deep channel, n= 0.400 Length= 120.0' Slope= 0.0958 '/'  
Side Slope Z-value= 10.0 '/'

Reach R16: From P16 to Swale

Hydrograph Plot



### Reach R22: From 22 to Swale

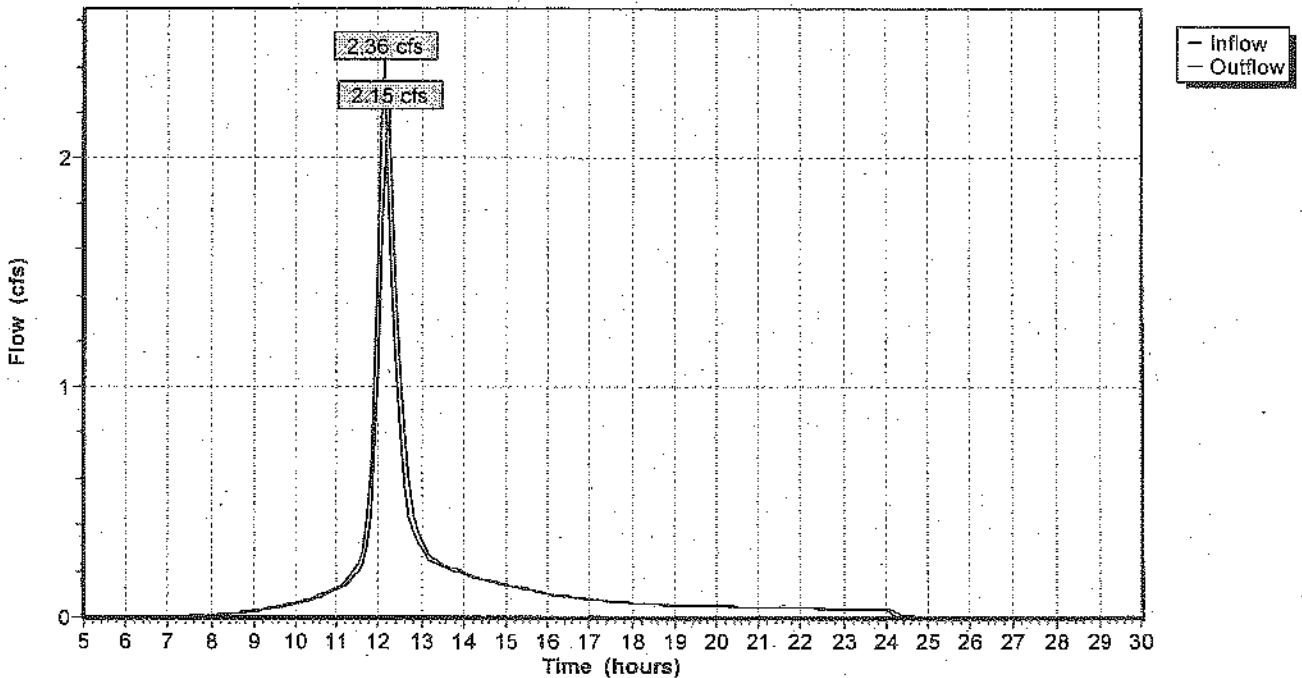
Inflow = 2.36 cfs @ 12.12 hrs, Volume= 0.211 af  
 Outflow = 2.15 cfs @ 12.22 hrs, Volume= 0.211 af, Atten= 9%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Max. Velocity= 0.5 fps, Min. Travel Time= 2.9 min  
 Avg. Velocity= 0.1 fps, Avg. Travel Time= 10.4 min

Peak Depth= 0.25'  
 Capacity at bank full= 27.37 cfs  
 Inlet Invert= 44.00', Outlet Invert= 30.50'  
 15.00' x 1.00' deep channel, n= 0.400 Length= 90.0' Slope= 0.1500 7'  
 Side Slope Z-value= 15.0 2.0 7'

### Reach R22: From 22 to Swale

Hydrograph Plot





### Reach R24: 24S to Swale

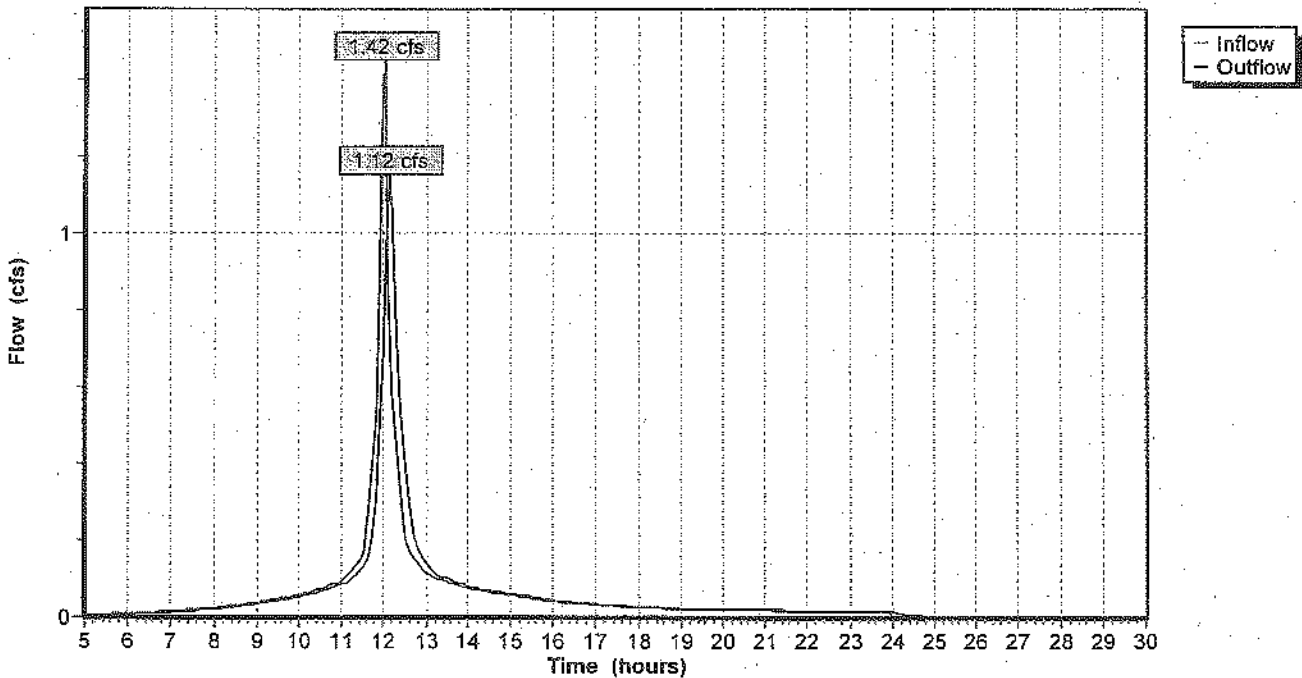
Inflow = 1.42 cfs @ 12.01 hrs, Volume= 0.107 af  
Outflow = 1.12 cfs @ 12.16 hrs, Volume= 0.107 af, Atten= 21%, Lag= 9.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.3 fps, Min. Travel Time= 5.0 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 18.6 min

Peak Depth= 0.27'  
Capacity at bank full= 13.86 cfs  
Inlet Invert= 35.00', Outlet Invert= 29.00'  
10.00' x 1.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0600 1/  
Side Slope Z-value= 10.0 1'

### Reach R24: 24S to Swale

Hydrograph Plot



Reach R25: From 25 to Swale

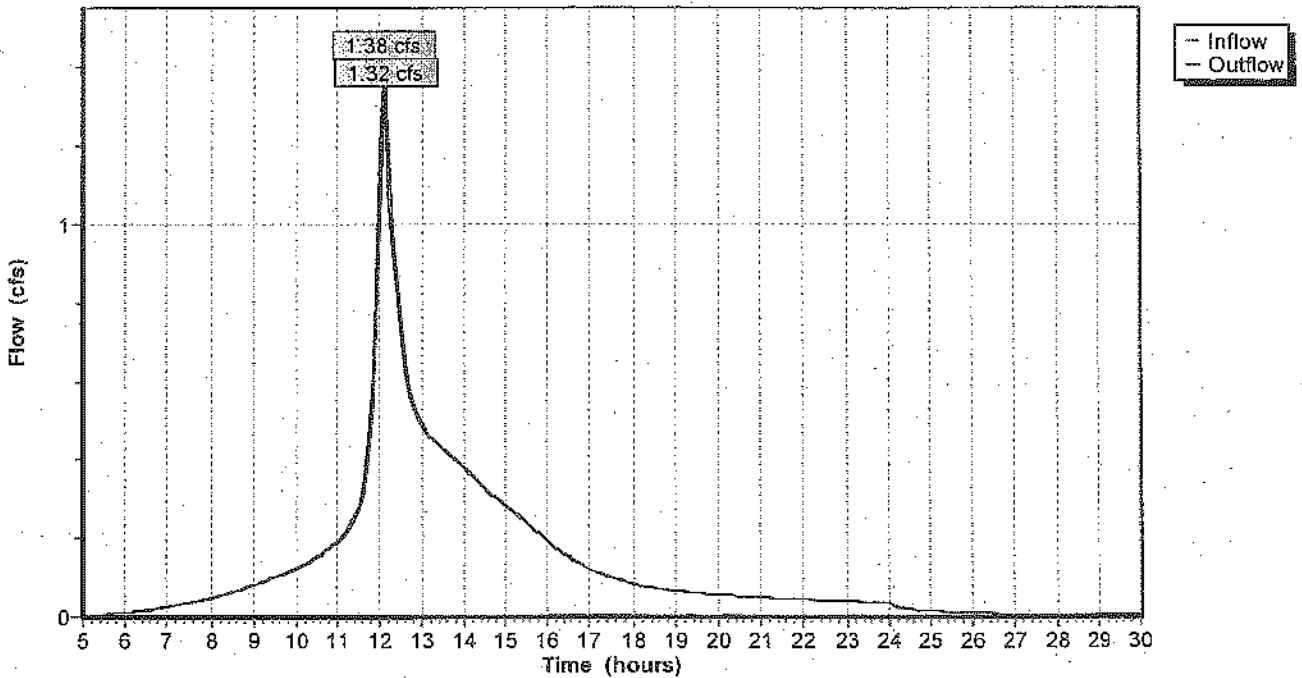
Inflow = 1.38 cfs @ 12.08 hrs, Volume= 0.263 af  
Outflow = 1.32 cfs @ 12.13 hrs, Volume= 0.263 af, Atten= 5%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.5 fps, Min. Travel Time= 1.7 min  
Avg. Velocity= 0.2 fps, Avg. Travel Time= 4.8 min

Peak Depth= 0.21'  
Capacity at bank full= 28.77 cfs  
Inlet Invert= 39.00', Outlet Invert= 30.00'  
10.00' x 1.00' deep channel, n= 0.400 Length= 50.0' Slope= 0.1800 1/100'  
Side Slope Z-value= 15.0 1/100'

Reach R25: From 25 to Swale

Hydrograph Plot



Reach R26: From 26 to SP

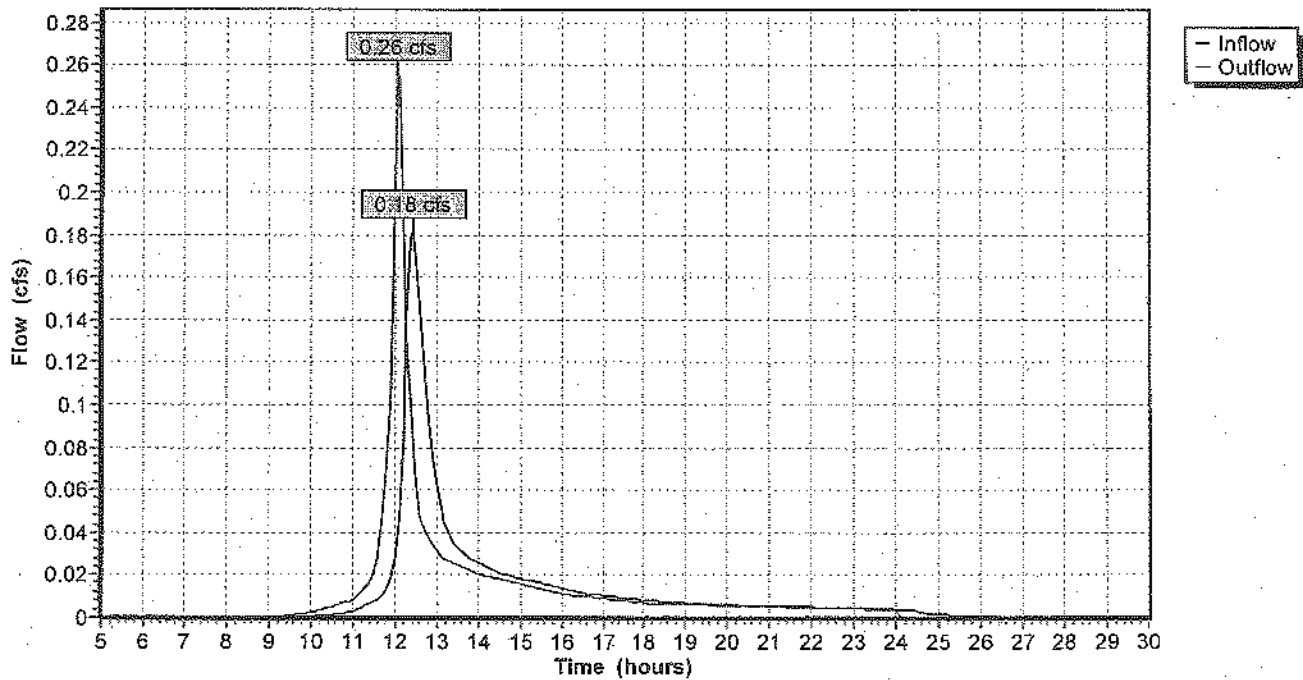
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 0.021 af  
Outflow = 0.18 cfs @ 12.43 hrs, Volume= 0.021 af, Atten= 29%, Lag= 21.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.2 fps, Min. Travel Time= 13.4 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 41.9 min

Peak Depth= 0.24'  
Capacity at bank full= 10.11 cfs  
Inlet Invert= 35.00', Outlet Invert= 29.50'  
3.00' x 2.00' deep channel, n= 0.400 Length= 180.0' Slope= 0.0306 1'  
Side Slope Z-value= 2.0 1'

Reach R26: From 26 to SP

Hydrograph Plot



### Reach SP: Study Point

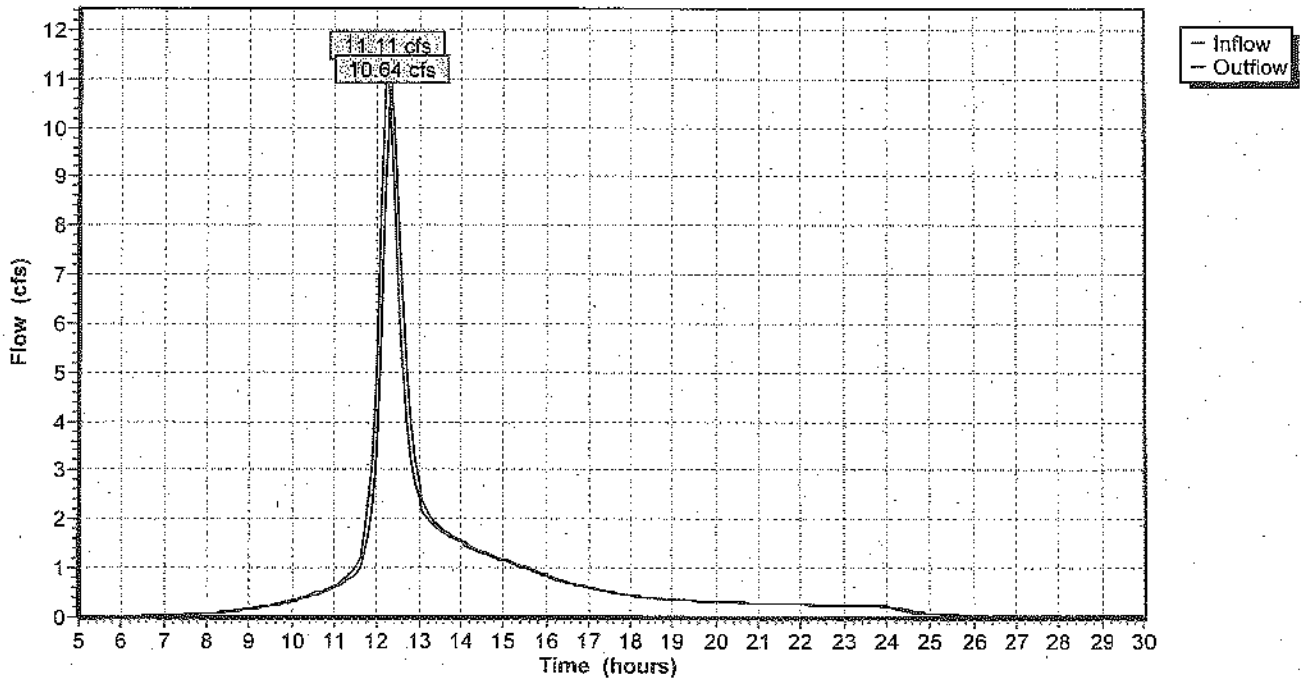
Inflow = 11.11 cfs @ 12.24 hrs, Volume= 1.351 af  
Outflow = 10.64 cfs @ 12.33 hrs, Volume= 1.350 af, Atten= 4%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.6 fps, Min. Travel Time= 2.9 min  
Avg. Velocity= 0.2 fps, Avg. Travel Time= 10.5 min

Peak Depth= 0.51'  
Capacity at bank full= 239.77 cfs  
Inlet Invert= 29.50', Outlet Invert= 29.40'  
35.00' x 3.00' deep channel, n= 0.050 Length= 100.0' Slope= 0.0010 1/  
Side Slope Z-value= 5.0 4.0 1'

### Reach SP: Study Point

Hydrograph Plot



**Pond P11: Existing Satellite Lot Detention Pond**

Inflow = 1.44 cfs @ 11.99 hrs, Volume= 0.109 af  
 Outflow = 1.13 cfs @ 12.11 hrs, Volume= 0.108 af, Atten= 22%, Lag= 6.9 min  
 Primary = 0.18 cfs @ 12.11 hrs, Volume= 0.090 af  
 Secondary = 0.95 cfs @ 12.11 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 48.70' Storage= 1,141 cf

Plug-Flow detention time= 47.6 min calculated for 0.108 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	10	0	0
47.00	117	64	64
48.00	674	396	459
49.00	1,276	975	1,434

**Primary OutFlow (Free Discharge)**

↑1=Orifice/Grate

└2=Orifice/Grate

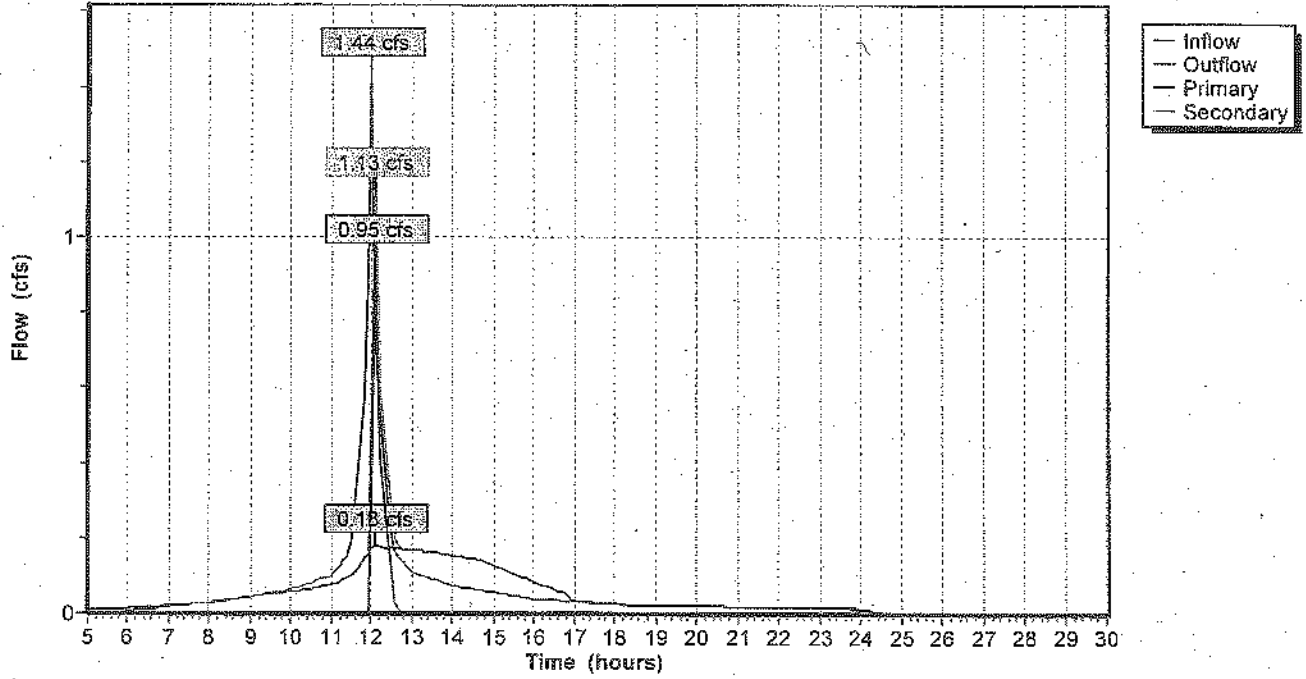
**Secondary OutFlow (Free Discharge)**

↑3=Sharp-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	46.50'	1.0" Vert. Orifice/Grate C= 0.600
2	Primary	46.80'	2.0" Vert. Orifice/Grate C= 0.600
3	Secondary	48.50'	3.1' long x 0.5' high Sharp-Crested Rectangular Weir 0 End Contraction(s)

### Pond P11: Existing Satellite Lot Detention Pond

Hydrograph Plot



**Pond P15: Pond 15**

Inflow = 1.99 cfs @ 11.99 hrs, Volume= 0.147 af  
 Outflow = 1.81 cfs @ 12.02 hrs, Volume= 0.121 af, Atten= 9%, Lag= 2.0 min  
 Primary = 0.03 cfs @ 12.02 hrs, Volume= 0.038 af  
 Secondary = 1.78 cfs @ 12.02 hrs, Volume= 0.084 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 40.71' Storage= 1,948 cf

Plug-Flow detention time= 191.5 min calculated for 0.121 af (82% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	724	0	0
40.00	1,189	957	957
40.50	1,443	658	1,615
41.00	1,711	789	2,403
42.00	2,290	2,001	4,404

**Primary OutFlow (Free Discharge)**

- └─2=Culvert
- └─1=Exfiltration

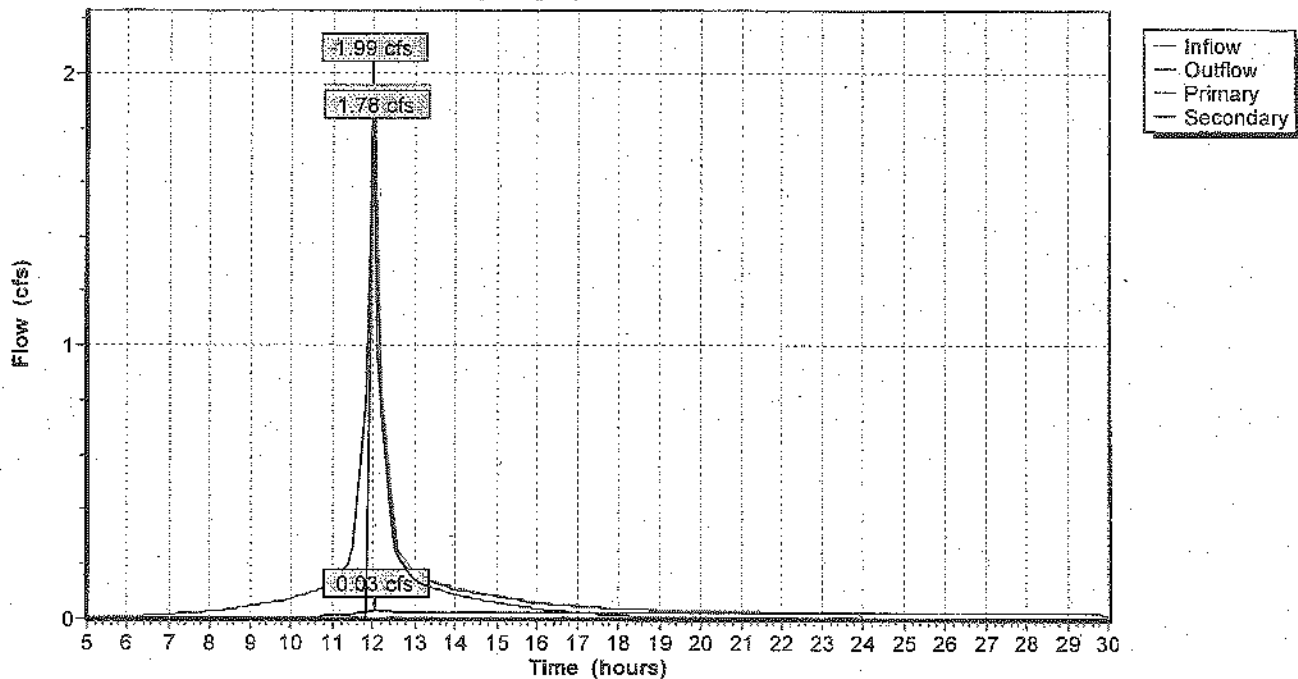
**Secondary OutFlow (Free Discharge)**

- └─3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	39.00'	0.002000 fpm Exfiltration over Surface area above invert
2	Primary	36.50'	6.0" x 80.0' long Culvert RCP, groove end projecting, Ke= 0.200 Outlet Invert= 35.00' S= 0.0187 ' n= 0.011 Cc= 0.900
3	Secondary	40.50'	7.0' long x 13.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

### Pond P15: Pond 15

Hydrograph Plot





**Pond P16: Pond 16**

Inflow = 0.80 cfs @ 11.99 hrs, Volume= 0.057 af  
 Outflow = 0.74 cfs @ 12.03 hrs, Volume= 0.050 af, Atten= 8%, Lag= 2.5 min  
 Primary = 0.02 cfs @ 12.03 hrs, Volume= 0.019 af  
 Secondary = 0.72 cfs @ 12.03 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 45.71' Storage= 697 cf

Plug-Flow detention time= 184.7 min calculated for 0.049 af (87% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	190	0	0
45.00	430	310	310
45.50	573	251	561
46.00	751	331	892
47.00	1,145	948	1,840

**Primary OutFlow (Free Discharge)**

- ↑2=Culvert
- ↑1=Exfiltration

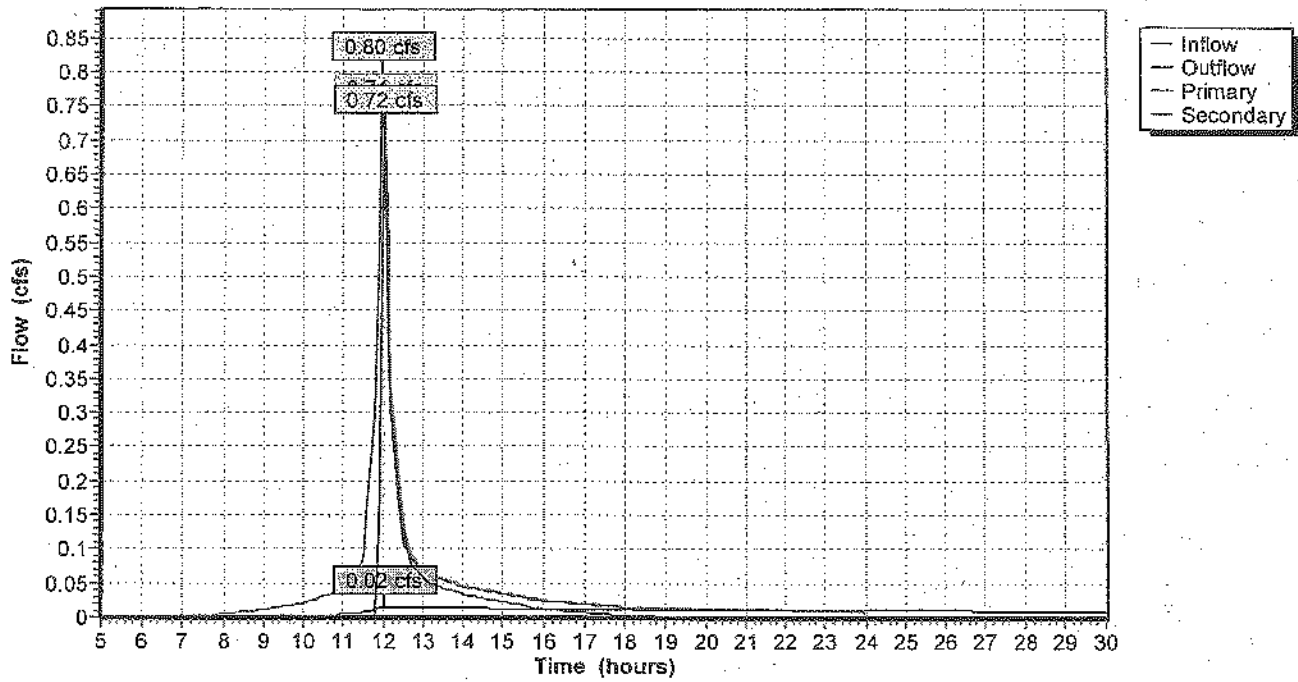
**Secondary OutFlow (Free Discharge)**

- ↑3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	44.00'	0.002000 fpm Exfiltration over Surface area above invert
2	Primary	41.50'	6.0" x 50.0' long Culvert RCP, groove end projecting, Ke= 0.200 Outlet Invert= 41.00' S= 0.0100 '/ n= 0.011 Cc= 0.900
3	Secondary	45.50'	3.0' long x 13.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

### Pond P16: Pond 16

Hydrograph Plot



**Pond P23: Pond 23**

Inflow = 2.08 cfs @ 12.02 hrs, Volume= 0.174 af  
 Outflow = 0.48 cfs @ 12.43 hrs, Volume= 0.172 af, Atten= 77%, Lag= 24.8 min  
 Primary = 0.41 cfs @ 12.43 hrs, Volume= 0.170 af  
 Secondary = 0.07 cfs @ 12.43 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 41.12' Storage= 2,924 cf

Plug-Flow detention time= 108.3 min calculated for 0.172 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	2,600	0	0
42.00	2,600	5,200	5,200

**Primary OutFlow (Free Discharge)**

└1=Culvert

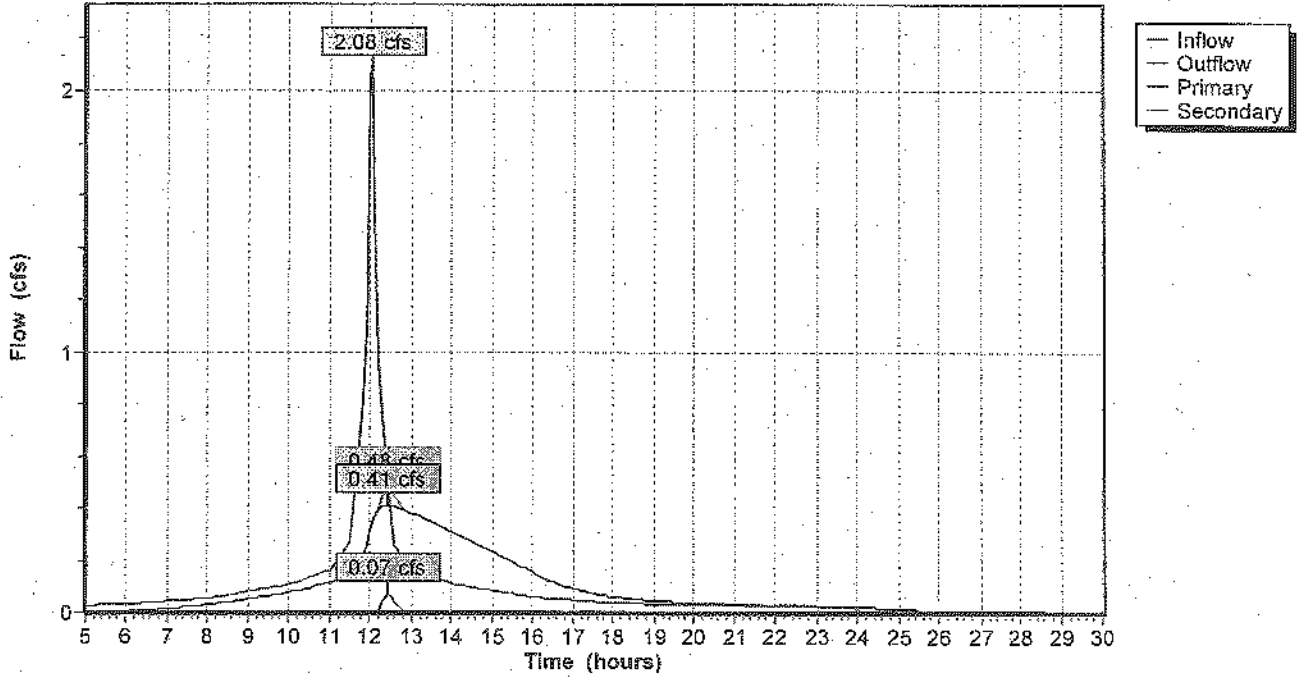
**Secondary OutFlow (Free Discharge)**

└2=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	40.00'	4.0" x 10.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 39.50' S= 0.0500 '/' n= 0.011 Cc= 0.900
2	Secondary	41.00'	12.0" x 10.0' long Culvert RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 39.50' S= 0.1500 '/' n= 0.011 Cc= 0.900

### Pond P23: Pond 23

Hydrograph Plot



Time span=5.00-30.00 hrs, dt=0.10 hrs, 251 points  
 Runoff by SCS TR-20 method, UH=SCS, Type III 24-hr Rainfall=5.50"  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 11S: Satellite Parking**

Tc=2.1 min CN=95 Area=0.320 ac Runoff= 1.70 cfs 0.130 af

**Subcatchment 12S: North/West of Satellite**

Tc=4.8 min CN=81 Area=0.590 ac Runoff= 2.24 cfs 0.169 af

**Subcatchment 13S: Proposed NORTH-CENTRAL**

Tc=9.7 min CN=75 Area=0.670 ac Runoff= 1.90 cfs 0.160 af

**Subcatchment 14S: Proposed Northeast**

Tc=14.2 min CN=76 Area=0.590 ac Runoff= 1.50 cfs 0.145 af

**Subcatchment 15S: Proposed Parking**

Tc=1.4 min CN=91 Area=0.480 ac Runoff= 2.38 cfs 0.178 af

**Subcatchment 16S: Proposed Parking**

Tc=1.5 min CN=85 Area=0.220 ac Runoff= 0.98 cfs 0.070 af

**Subcatchment 21S: Proposed Central**

Tc=8.3 min CN=76 Area=0.540 ac Runoff= 1.60 cfs 0.133 af

**Subcatchment 22S: Existing Parking and Entrance Circle**

Tc=12.0 min CN=83 Area=0.870 ac Runoff= 2.94 cfs 0.263 af

**Subcatchment 23S: Proposed Buildings**

Tc=5.0 min CN=98 Area=0.480 ac Runoff= 2.44 cfs 0.205 af

**Subcatchment 24S: Expanded Parking**

Tc=3.8 min CN=93 Area=0.330 ac Runoff= 1.69 cfs 0.128 af

**Subcatchment 25S: Access & Rear Parking**

Tc=8.0 min CN=93 Area=0.280 ac Runoff= 1.22 cfs 0.109 af

**Subcatchment 26S: Rear of Building**

Tc=7.8 min CN=74 Area=0.120 ac Runoff= 0.33 cfs 0.028 af

**Reach 1R: Existing Swale**

Inflow= 11.76 cfs 1.315 af  
 Length= 200.0' Max Vel= 1.2 fps Capacity= 43.53 cfs Outflow= 11.08 cfs 1.315 af

**Reach 2R: Existing Swale**

Inflow= 6.74 cfs 0.694 af  
 Length= 80.0' Max Vel= 1.8 fps Capacity= 144.69 cfs Outflow= 6.48 cfs 0.694 af

**Reach 3R: Existing Swale**

Inflow= 2.92 cfs 0.297 af  
 Length= 120.0' Max Vel= 1.4 fps Capacity= 63.42 cfs Outflow= 2.86 cfs 0.297 af

**CadCam Proposed**

Type III 24-hr Rainfall=5.50" (25-Year Storm)

Prepared by {enter your company name here}

Page 2

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1/16/2006

**Reach R11: From P11 to Swale** Inflow= 1.34 cfs 0.129 af  
Length= 70.0' Max Vel= 0.5 fps Capacity= 33.01 cfs Outflow= 1.19 cfs 0.129 af

**Reach R12: 48" RCP** Inflow= 2.24 cfs 0.169 af  
Length= 90.0' Max Vel= 9.4 fps Capacity= 463.95 cfs Outflow= 2.19 cfs 0.169 af

**Reach R15: From P15 to Swale** Inflow= 2.15 cfs 0.152 af  
Length= 100.0' Max Vel= 0.3 fps Capacity= 45.62 cfs Outflow= 1.83 cfs 0.151 af

**Reach R16: From P16 to Swale** Inflow= 0.88 cfs 0.063 af  
Length= 120.0' Max Vel= 0.3 fps Capacity= 28.43 cfs Outflow= 0.70 cfs 0.062 af

**Reach R22: From 22 to Swale** Inflow= 2.94 cfs 0.263 af  
Length= 90.0' Max Vel= 0.6 fps Capacity= 27.37 cfs Outflow= 2.68 cfs 0.263 af

**Reach R24: 24S to Swale** Inflow= 1.69 cfs 0.128 af  
Length= 100.0' Max Vel= 0.4 fps Capacity= 13.86 cfs Outflow= 1.33 cfs 0.128 af

**Reach R25: From 25 to Swale** Inflow= 1.63 cfs 0.311 af  
Length= 50.0' Max Vel= 0.5 fps Capacity= 28.77 cfs Outflow= 1.57 cfs 0.311 af

**Reach R26: From 26 to SP** Inflow= 0.33 cfs 0.028 af  
Length= 180.0' Max Vel= 0.2 fps Capacity= 10.11 cfs Outflow= 0.25 cfs 0.028 af

**Reach SP: Study Point** Inflow= 14.55 cfs 1.678 af  
Length= 100.0' Max Vel= 0.6 fps Capacity= 239.77 cfs Outflow= 13.90 cfs 1.677 af

**Pond P11: Existing Satellite Lot Detention Pond** Peak Storage= 1,169 cf Inflow= 1.70 cfs 0.130 af  
Primary= 0.18 cfs 0.100 af Secondary= 1.16 cfs 0.029 af Outflow= 1.34 cfs 0.129 af

**Pond P15: Pond 15** Peak Storage= 1,988 cf Inflow= 2.38 cfs 0.178 af  
Primary= 0.03 cfs 0.039 af Secondary= 2.12 cfs 0.113 af Outflow= 2.15 cfs 0.152 af

**Pond P16: Pond 16** Peak Storage= 712 cf Inflow= 0.98 cfs 0.070 af  
Primary= 0.02 cfs 0.020 af Secondary= 0.86 cfs 0.043 af Outflow= 0.88 cfs 0.063 af

**Pond P23: Pond 23** Peak Storage= 3,277 cf Inflow= 2.44 cfs 0.205 af  
Primary= 0.44 cfs 0.191 af Secondary= 0.28 cfs 0.012 af Outflow= 0.72 cfs 0.202 af

Runoff Area = 5.490 ac Volume = 1.717 af Average Depth = 3.75"

**Subcatchment 11S: Satellite Parking**

Runoff = 1.70 cfs @ 11.99 hrs, Volume= 0.130 af

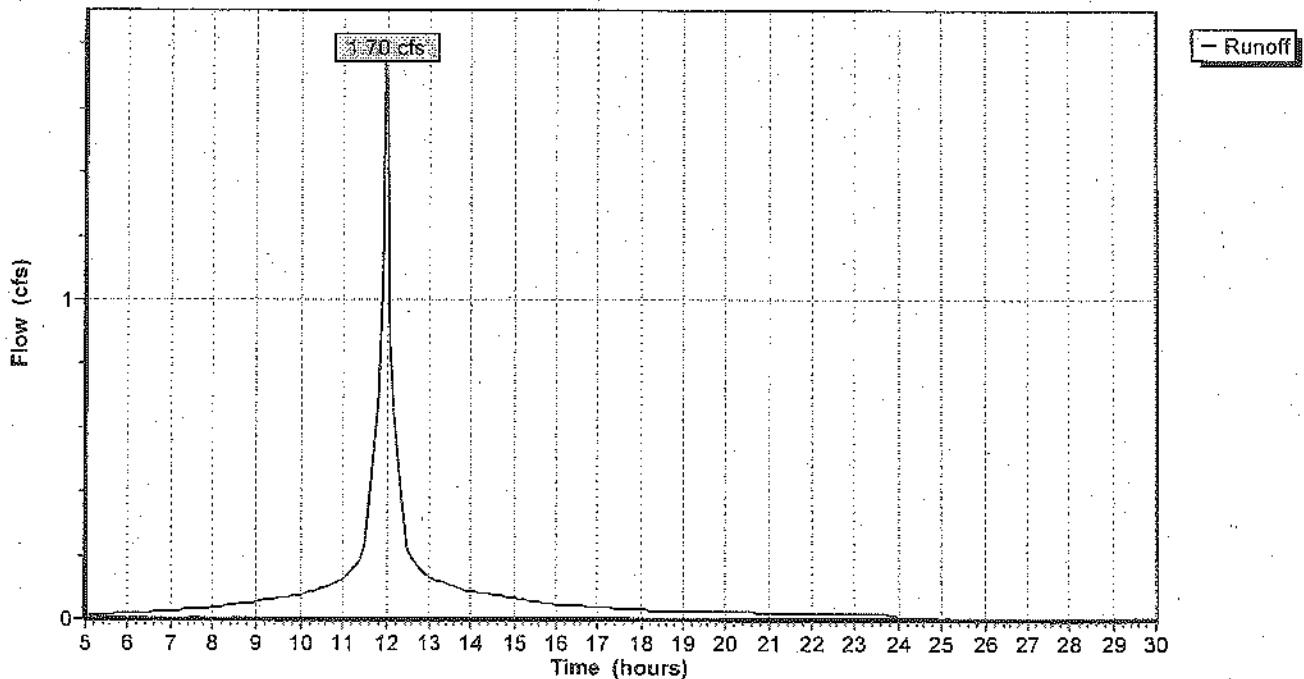
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.270	98	IMPERVIOUS (PARKING LOT)
0.040	74	OPEN SPACE (GOOD)-HSG "C"
0.010	89	RIP RAP-HSG "C"
0.320	95	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0303	1.6		Sheet Flow, Segment ID:AB Smooth surfaces n= 0.011 P2= 3.00"
0.1	15	0.3300	4.0		Shallow Concentrated Flow, Segment ID:BC Kv= 7.0 fps
0.9	55	0.0200	1.0		Shallow Concentrated Flow, Segment ID:CD Short Grass Pasture Kv= 7.0 fps
2.1	170	Total			

**Subcatchment 11S: Satellite Parking**

Hydrograph Plot



**Subcatchment 12S: North/West of Satellite**

Runoff = 2.24 cfs @ 12.02 hrs, Volume= 0.169 af

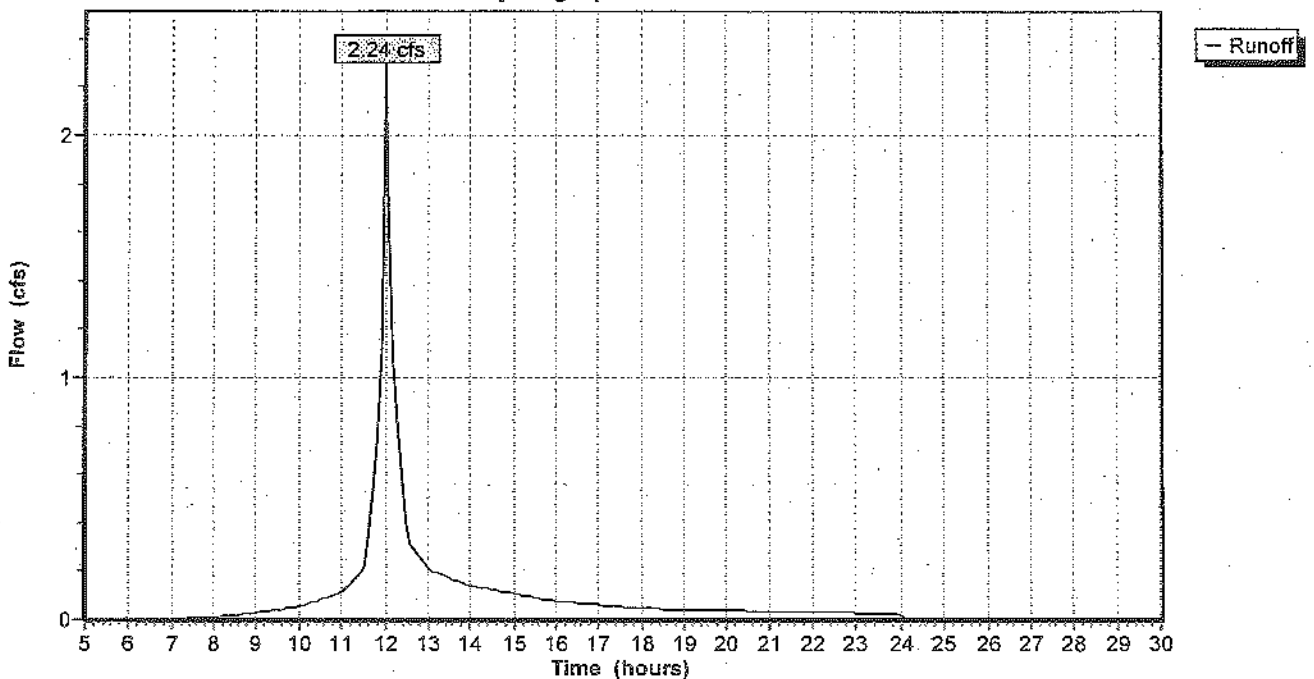
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.020	73	WOODS (FAIR)-HSG "C"
0.400	74	OPEN SPACE (GOOD)-HSG "C"
0.170	98	IMPERVIOUS
0.590	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	16	0.1900	0.2		Sheet Flow, Segment ID:AB Grass: Dense n= 0.240 P2= 3.00"
0.8	13	0.5000	0.3		Sheet Flow, Segment ID:BC Grass: Dense n= 0.240 P2= 3.00"
1.3	185	0.0270	2.5		Shallow Concentrated Flow, Segment ID:CD Grassed Waterway Kv= 15.0 fps
0.2	60	0.0100	5.7	7.00	Circular Channel (pipe), SEGMENT ID:DE Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
1.1	165	0.0300	2.6		Shallow Concentrated Flow, SEGMENT ID:EF Grassed Waterway Kv= 15.0 fps
4.8	439	Total			

**Subcatchment 12S: North/West of Satellite**

Hydrograph Plot





**Subcatchment 13S: Proposed NORTH-CENTRAL**

Runoff = 1.90 cfs @ 12.10 hrs, Volume= 0.160 af

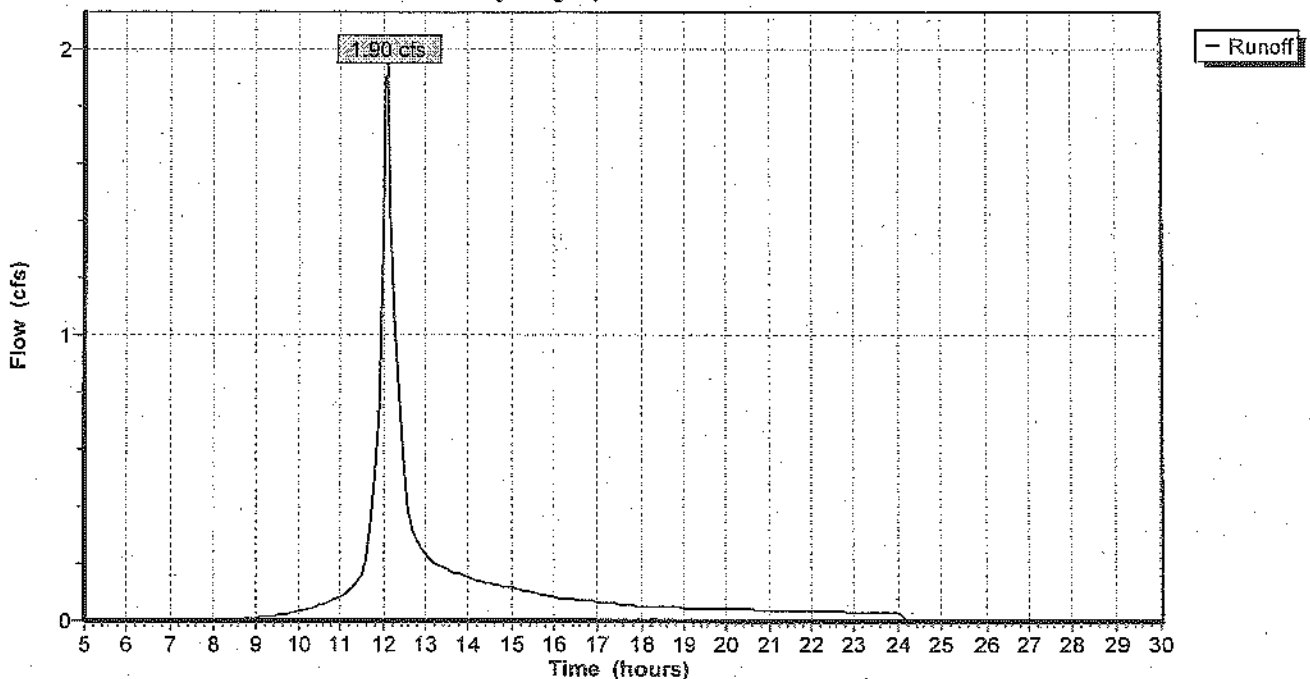
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.300	73	WOODS (FAIR)-HSG "C"
0.130	74	OPEN SPACE (GOOD)-HSG "C"
0.240	79	WOODS (FAIR)-HSG "D"
0.670	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	5	0.5000	0.3		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
7.2	65	0.1400	0.2		Sheet Flow, Segment ID:BC Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	45	0.1000	1.6		Shallow Concentrated Flow, Segment C-D Woodland Kv= 5.0 fps
1.7	100	0.0400	1.0		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
9.7	215	Total			

**Subcatchment 13S: Proposed NORTH-CENTRAL**

Hydrograph Plot



**Subcatchment 14S: Proposed Northeast**

Runoff = 1.50 cfs @ 12.16 hrs, Volume= 0.145 af

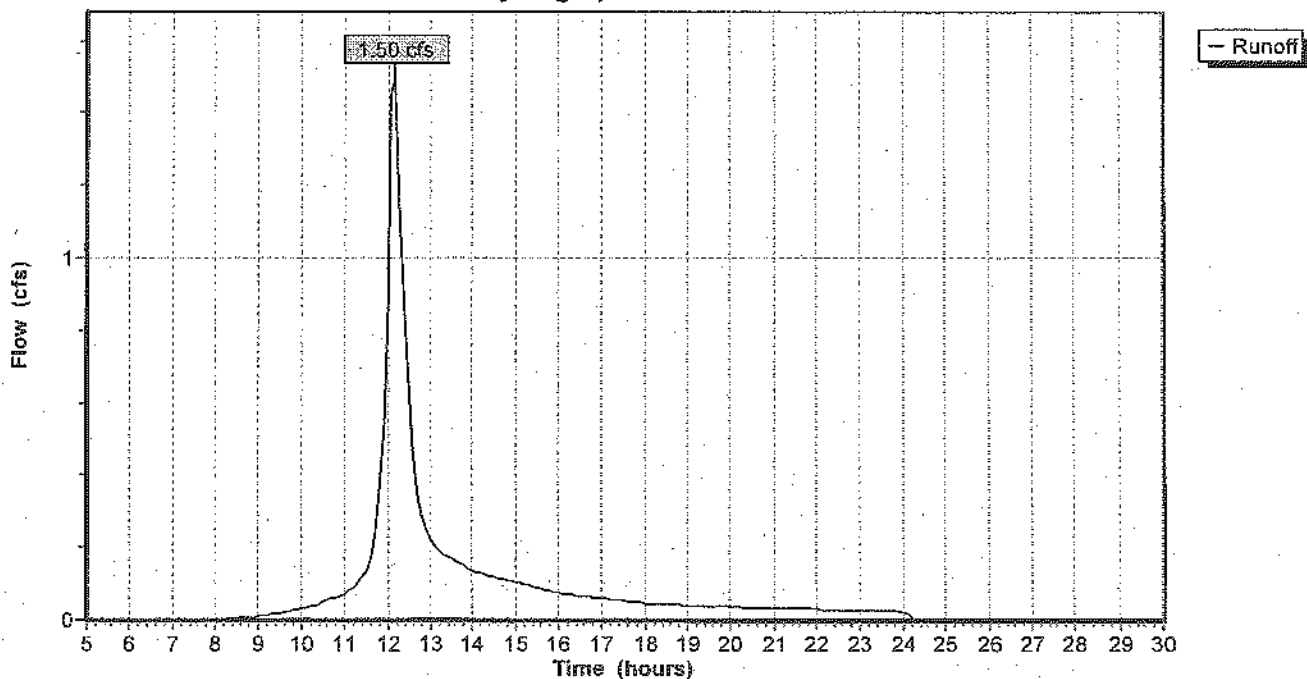
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.240	73	Woods, Fair, HSG C
0.230	79	Woods, Fair, HSG D
0.120	74	>75% Grass cover, Good, HSG C
0.590	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	15	0.1333	0.2		Sheet Flow, Segment AB Grass: Short n= 0.150 P2= 3.00"
0.4	10	0.5000	0.4		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
3.9	45	0.3100	0.2		Sheet Flow, Segment CD Woods: Light underbrush n= 0.400 P2= 3.00"
6.9	30	0.0333	0.1		Sheet Flow, DE Woods: Light underbrush n= 0.400 P2= 3.00"
2.0	70	0.0140	0.6		Shallow Concentrated Flow, Segment DE Woodland Kv= 5.0 fps
14.2	170	Total			

**Subcatchment 14S: Proposed Northeast**

Hydrograph Plot



### Subcatchment 15S: Proposed Parking

Runoff = 2.38 cfs @ 11.99 hrs, Volume= 0.178 af

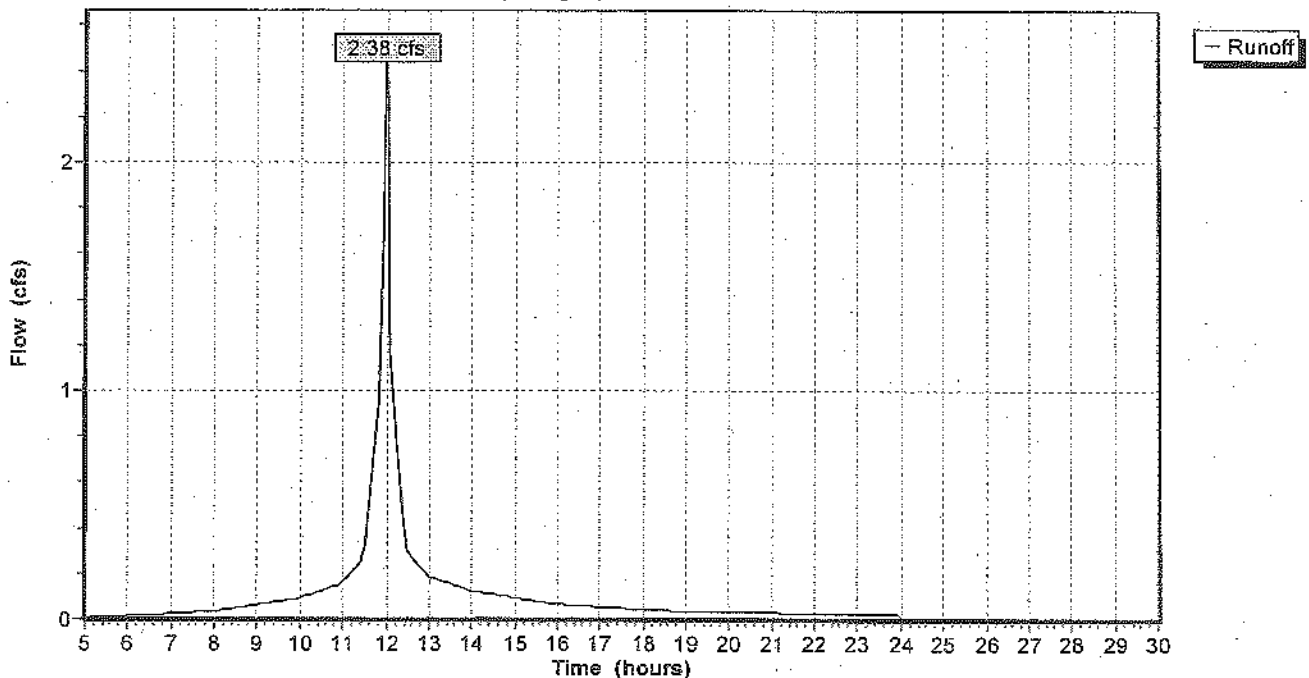
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.340	98	Paved parking & roofs
0.140	74	>75% Grass cover, Good, HSG C
0.480	91	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0333	1.6		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
0.4	100	0.0333	3.7		Shallow Concentrated Flow, BD Paved Kv= 20.3 fps
1.4	200	Total			

### Subcatchment 15S: Proposed Parking

Hydrograph Plot



**Subcatchment 16S: Proposed Parking**

Runoff = 0.98 cfs @ 11.99 hrs, Volume= 0.070 af

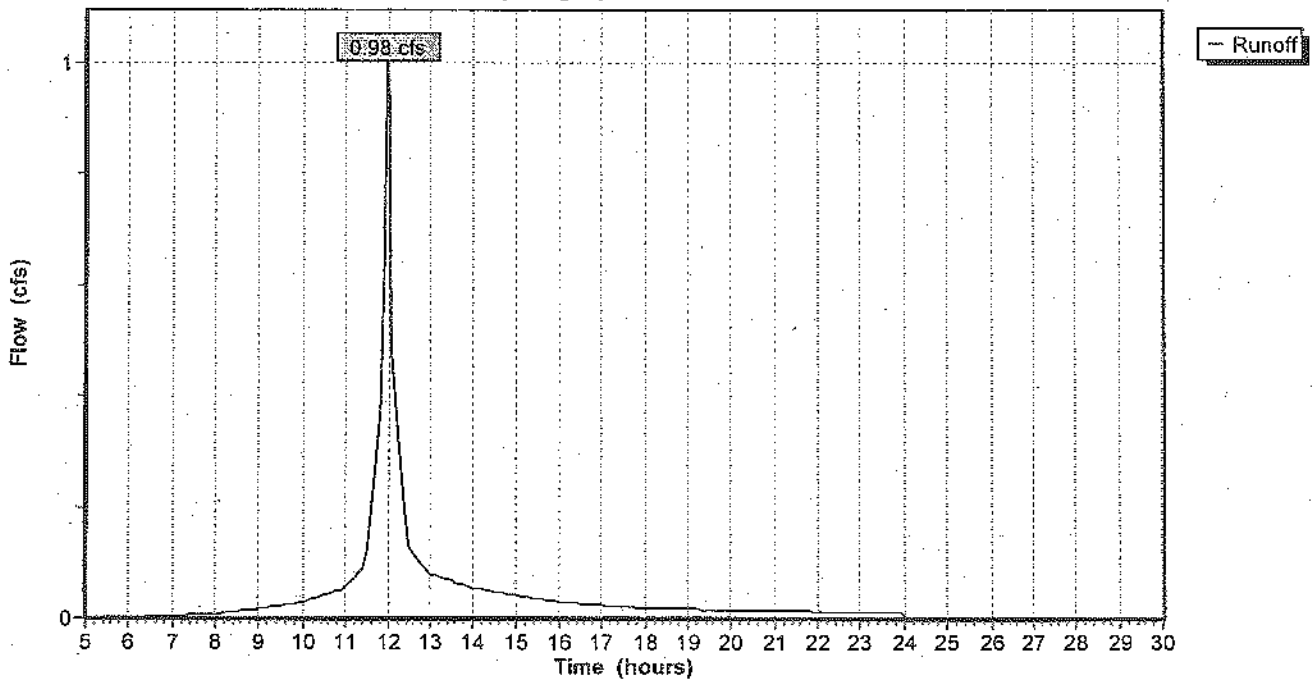
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.100	98	Paved parking & roofs
0.120	74	>75% Grass cover, Good, HSG C
0.220	85	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	95	0.0333	1.6		Sheet Flow, Segment AB Smooth surfaces n= 0.011 P2= 3.00"
0.2	35	0.0300	3.5		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.3	50	0.1400	2.6		Shallow Concentrated Flow, Segment CD Short Grass Pasture Kv= 7.0 fps
1.5	180	Total			

**Subcatchment 16S: Proposed Parking**

Hydrograph Plot



**Subcatchment 21S: Proposed Central**

Runoff = 1.60 cfs @ 12.09 hrs, Volume= 0.133 af

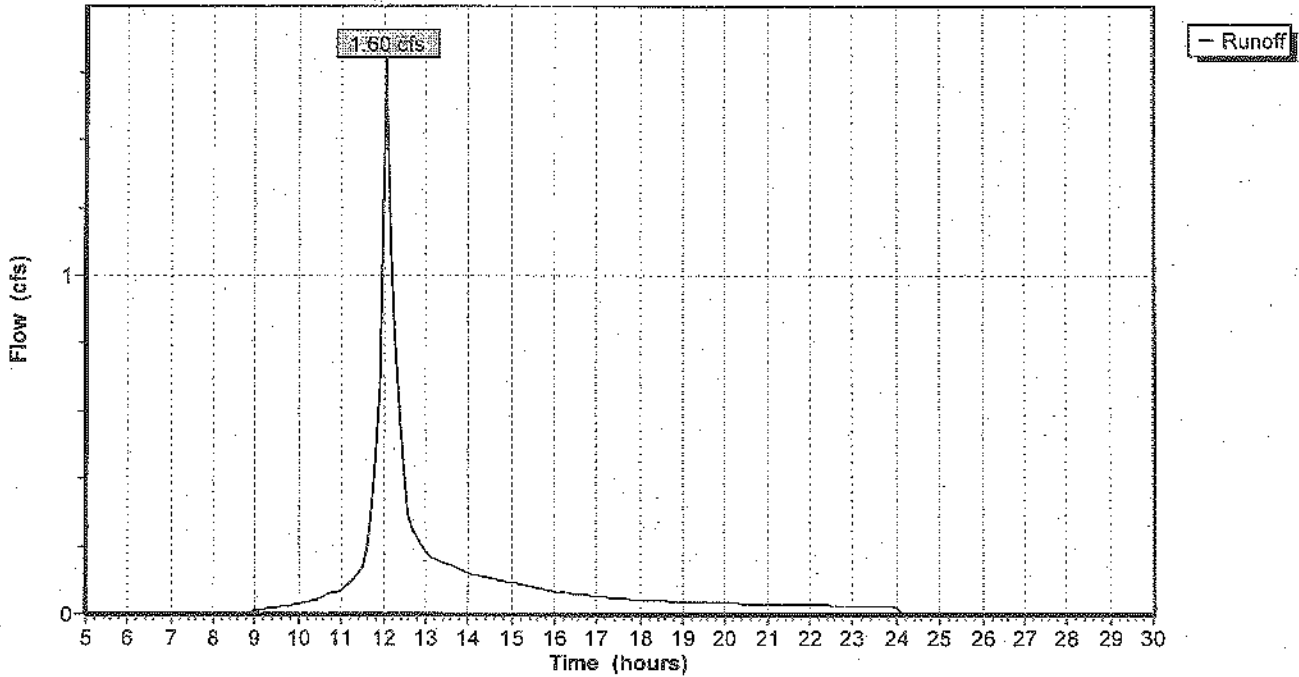
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.180	73	WOODS (FAIR)-HSG "C"
0.150	74	OPEN SPACE (GOODG "C"
0.200	79	WOODS (FAIR)-HSD "D"
0.010	98	IMPERVIOUS (BLDG, PAVEMENT)
0.540	76	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	10	0.0500	1.2		<b>Sheet Flow, Segment ID:AB</b> Smooth surfaces n= 0.011 P2= 3.00"
5.0	60	0.0417	0.2		<b>Sheet Flow, SegmentBC</b> Grass: Short n= 0.150 P2= 3.00"
1.7	30	0.1500	0.3		<b>Sheet Flow, CD</b> Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.2700	2.6		<b>Shallow Concentrated Flow, Segment ID:DE</b> Woodland Kv= 5.0 fps
1.2	80	0.0500	1.1		<b>Shallow Concentrated Flow, Segment ID:EF</b> Woodland Kv= 5.0 fps
8.3	220	Total			

### Subcatchment 21S: Proposed Central

Hydrograph Plot



**Subcatchment 22S: Existing Parking and Entrance Circle**

Runoff = 2.94 cfs @ 12.12 hrs, Volume= 0.263 af

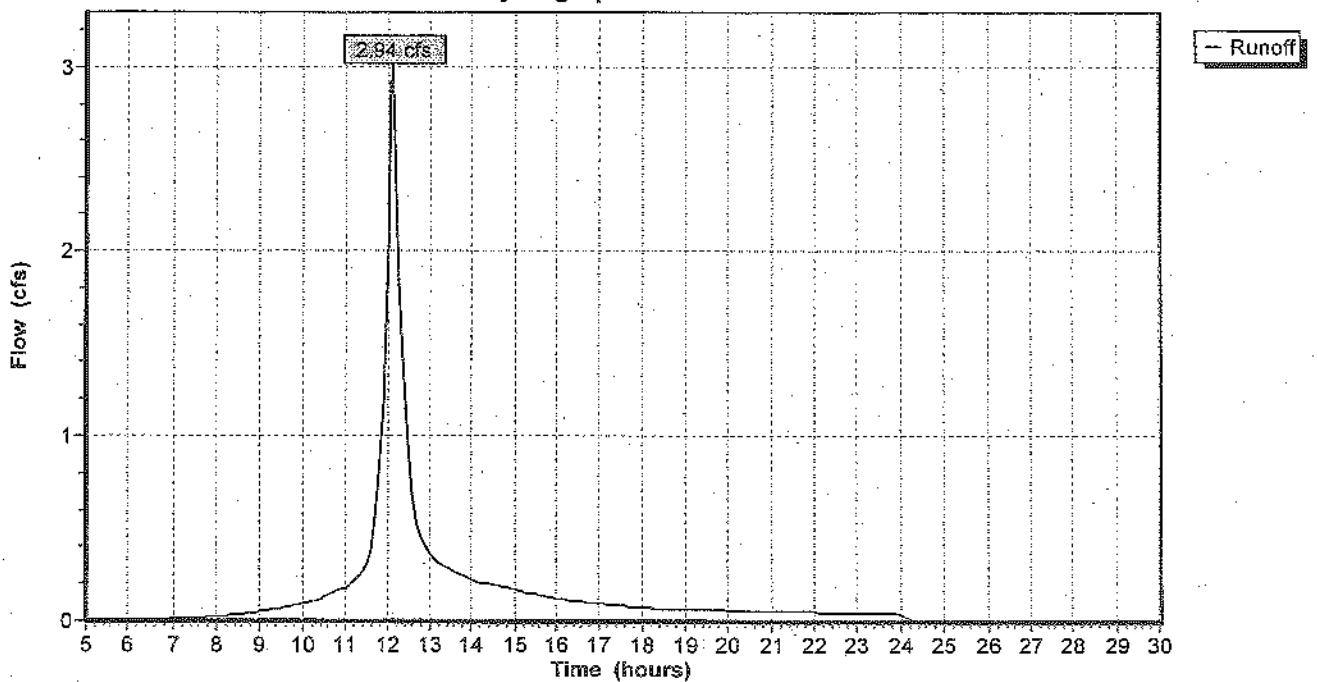
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.110	73	WOODS (FAIR)-HSG "C"
0.420	74	OPEN SPACE (GOODG "C"
0.340	98	IMPERVIOUS (BLDG, PAVEMENT)
0.870	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	15	0.0167	0.1		Sheet Flow, Segment ID:AB Grass: Short n= 0.150 P2= 3.00"
0.4	20	0.0125	0.8		Sheet Flow, SegmentBC Smooth surfaces n= 0.011 P2= 3.00"
7.9	65	0.1100	0.1		Sheet Flow, SegmentCD Woods: Light underbrush n= 0.400 P2= 3.00"
1.0	85	0.0882	1.5		Shallow Concentrated Flow, Segment ID:DE Woodland Kv= 5.0 fps
0.3	180	0.0330	9.7	7.65	Circular Channel (pipe), SegmentEF Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
12.0	365	Total			

**Subcatchment 22S: Existing Parking and Entrance Circle**

Hydrograph Plot



**Subcatchment 23S: Proposed Buildings**

Runoff = 2.44 cfs @ 12.02 hrs, Volume= 0.205 af

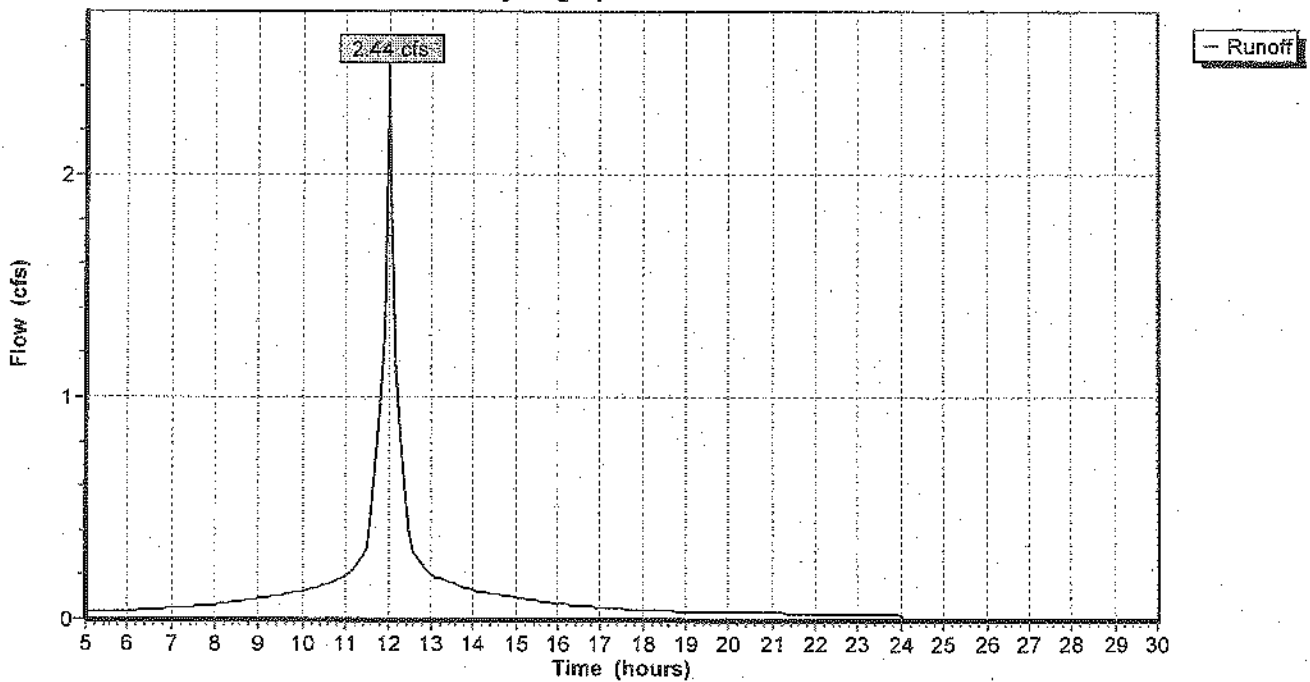
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.480	98	Paved parking & roofs

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Direct Entry

**Subcatchment 23S: Proposed Buildings**

Hydrograph Plot





**Subcatchment 24S: Expanded Parking**

Runoff = 1.69 cfs @ 12.01 hrs, Volume= 0.128 af

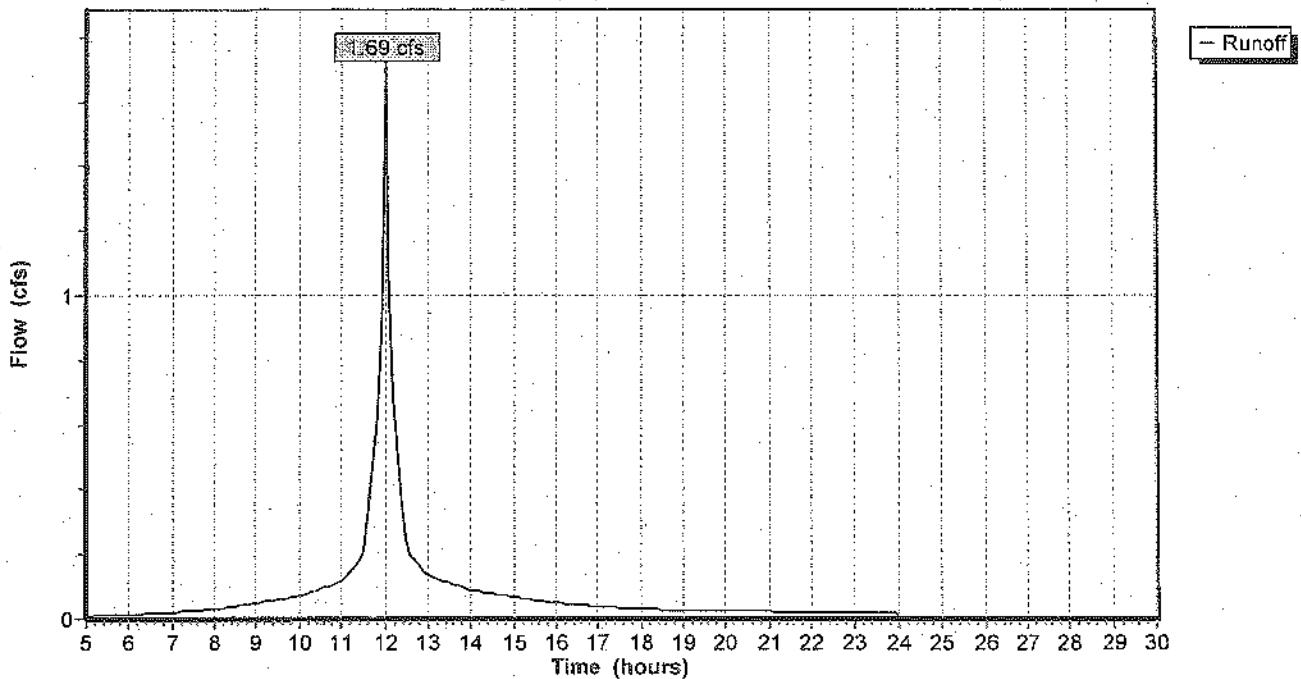
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
 Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.260	98	Paved parking & roofs
0.070	74	>75% Grass cover, Good, HSG C
0.330	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	10	0.0100	0.1		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.00"
0.6	10	0.2000	0.3		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0600	2.0		Sheet Flow, CD Smooth surfaces n= 0.011 P2= 3.00"
0.4	100	0.0400	4.1		Shallow Concentrated Flow, DE Paved Kv= 20.3 fps
3.8	200	Total			

**Subcatchment 24S: Expanded Parking**

Hydrograph Plot



**Subcatchment 25S: Access & Rear Parking**

Runoff = 1.22 cfs @ 12.07 hrs, Volume= 0.109 af

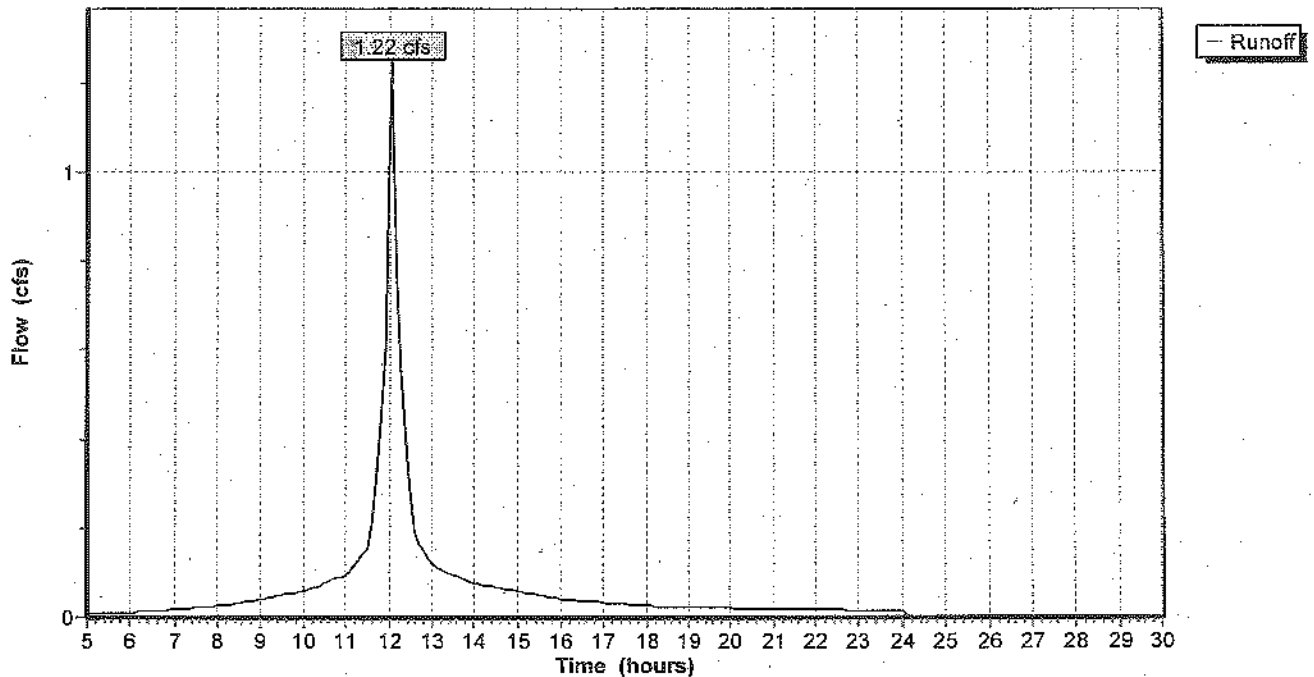
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.220	98	Paved parking & roofs
0.060	74	>75% Grass cover, Good, HSG C
0.280	93	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0400	1.3		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.00"
6.1	75	0.0400	0.2		Sheet Flow, BC Grass: Short n= 0.150 P2= 3.00"
1.6	120	0.0300	1.2		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
8.0	220	Total			

**Subcatchment 25S: Access & Rear Parking**

Hydrograph Plot



**Subcatchment 26S: Rear of Building**

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.028 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Type III 24-hr Rainfall=5.50"

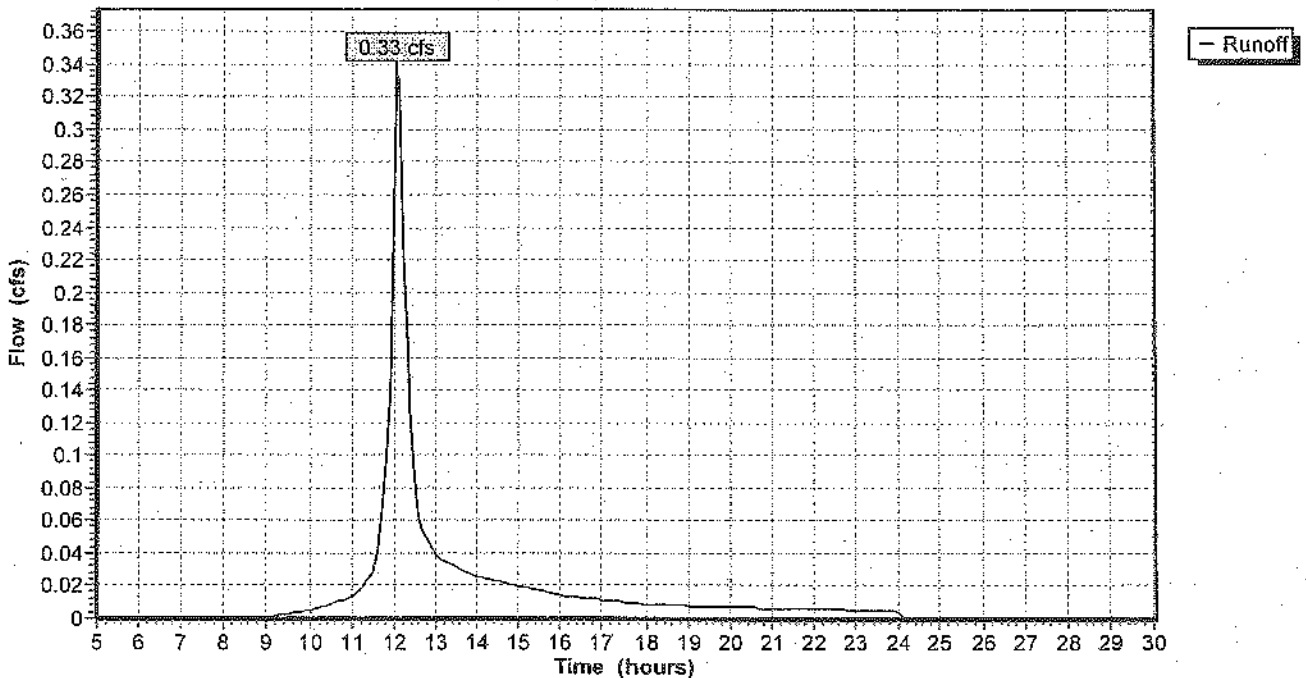
Area (ac)	CN	Description
0.120	74	>75% Grass cover, Good, HSG C

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2000	0.3		Sheet Flow, Segment AB Grass: Short n= 0.150 P2= 3.00"
6.4	90	0.0500	0.2		Sheet Flow, Segment BC Grass: Short n= 0.150 P2= 3.00"
0.8	100	0.0900	2.1		Shallow Concentrated Flow, Segment CD Short Grass Pasture Kv= 7.0 fps
7.8	200	Total			

**Subcatchment 26S: Rear of Building**

Hydrograph Plot



### Reach 1R: Existing Swale

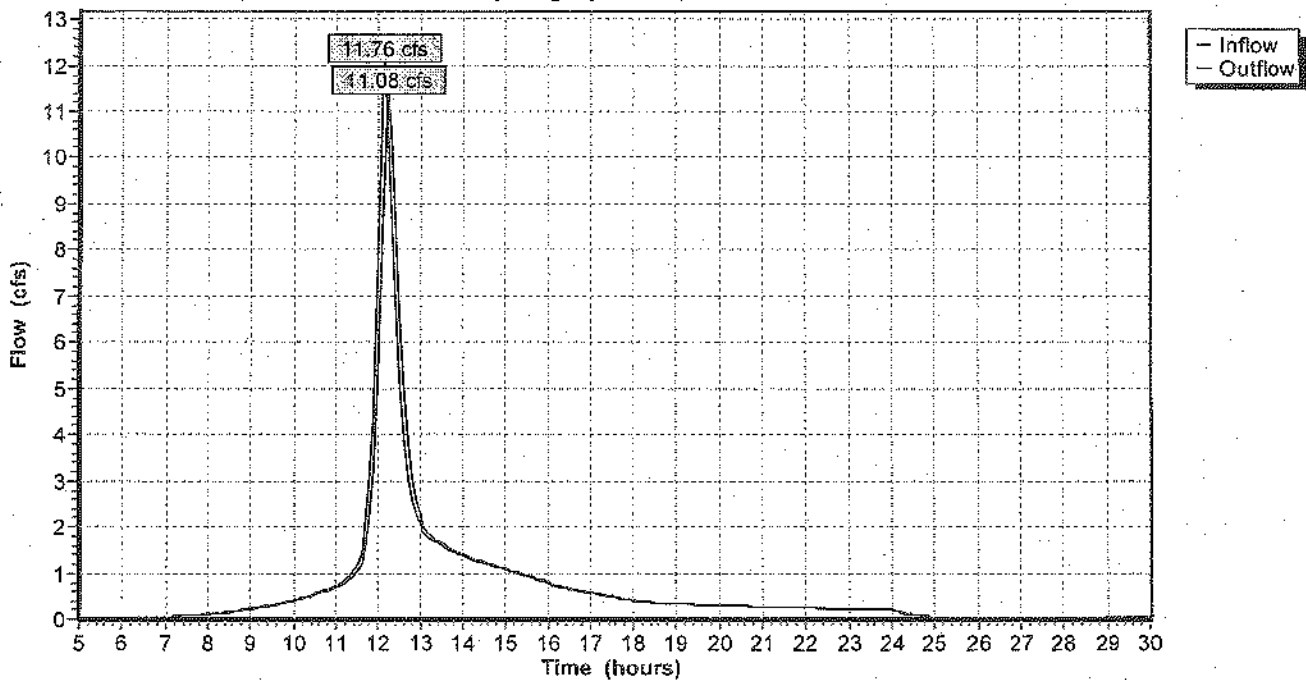
Inflow = 11.76 cfs @ 12.14 hrs, Volume= 1.315 af  
Outflow = 11.08 cfs @ 12.23 hrs, Volume= 1.315 af, Atten= 6%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.2 fps, Min. Travel Time= 2.7 min  
Avg. Velocity = 0.3 fps, Avg. Travel Time= 9.6 min

Peak Depth= 0.98'  
Capacity at bank full= 43.53 cfs  
Inlet Invert= 30.00', Outlet Invert= 29.50'  
7.00' x 2.00' deep channel, n= 0.050 Length= 200.0' Slope= 0.0025 1'  
Side Slope Z-value= 3.0 2.0 1'

### Reach 1R: Existing Swale

Hydrograph Plot



### Reach 2R: Existing Swale

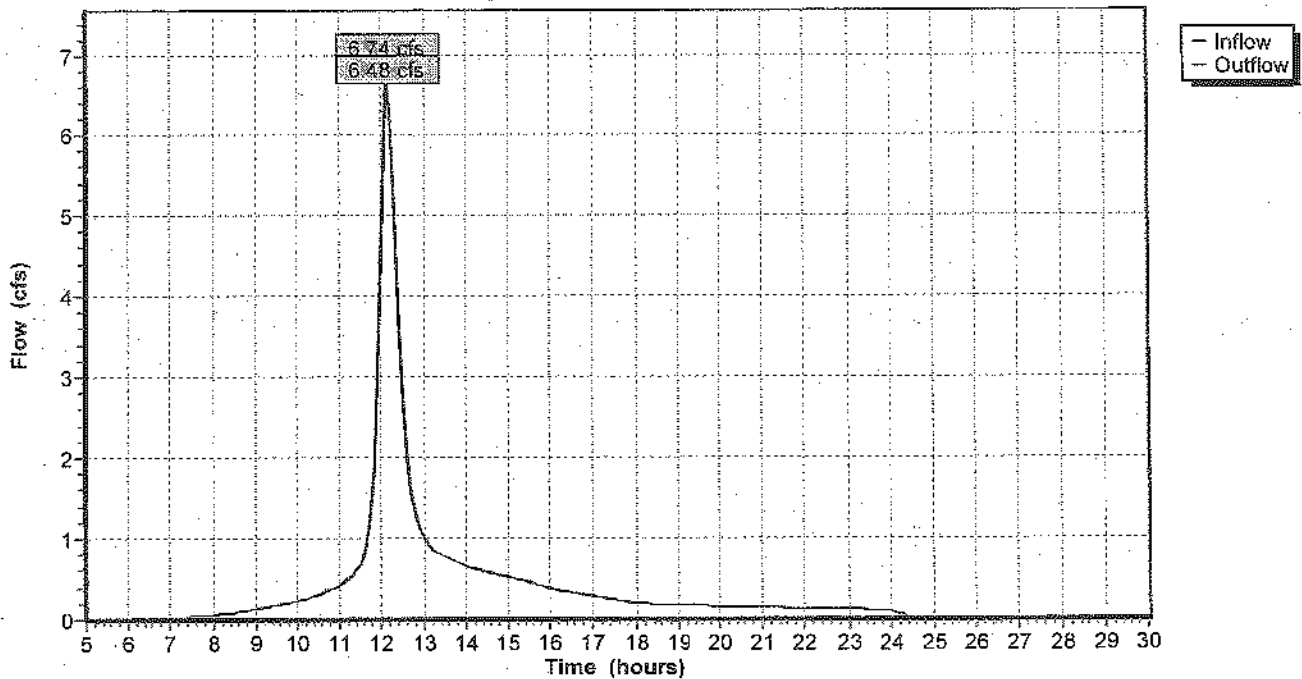
Inflow = 6.74 cfs @ 12.13 hrs, Volume= 0.694 af  
Outflow = 6.48 cfs @ 12.16 hrs, Volume= 0.694 af, Atten= 4%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.8 fps, Min. Travel Time= 0.7 min  
Avg. Velocity= 0.5 fps, Avg. Travel Time= 2.5 min

Peak Depth= 0.60'  
Capacity at bank full= 144.69 cfs  
Inlet Invert= 30.80', Outlet Invert= 30.00'  
5.00' x 3.00' deep channel, n= 0.050 Length= 80.0' Slope= 0.0100 '/'  
Side Slope Z-value= 2.0 '/'

### Reach 2R: Existing Swale

Hydrograph Plot



**Reach 3R: Existing Swale**

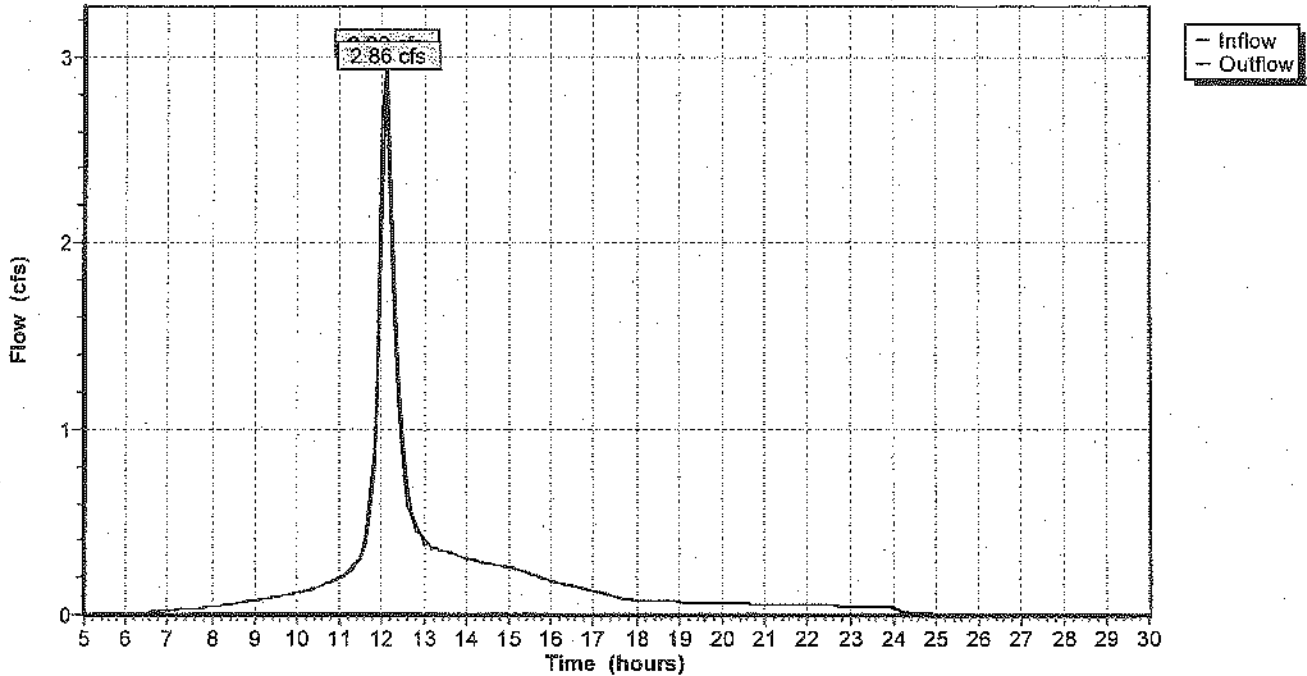
Inflow = 2.92 cfs @ 12.07 hrs, Volume= 0.297 af  
Outflow = 2.86 cfs @ 12.12 hrs, Volume= 0.297 af, Atten= 2%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 1.4 fps, Min. Travel Time= 1.4 min  
Avg. Velocity = 0.4 fps, Avg. Travel Time= 5.1 min

Peak Depth= 0.37'  
Capacity at bank full= 63.42 cfs  
Inlet Invert= 32.00', Outlet Invert= 30.80'  
5.00' x 2.00' deep channel, n= 0.050 Length= 120.0' Slope= 0.0100 1/  
Side Slope Z-value= 2.0 1'

**Reach 3R: Existing Swale**

Hydrograph Plot



### Reach R11: From P11 to Swale

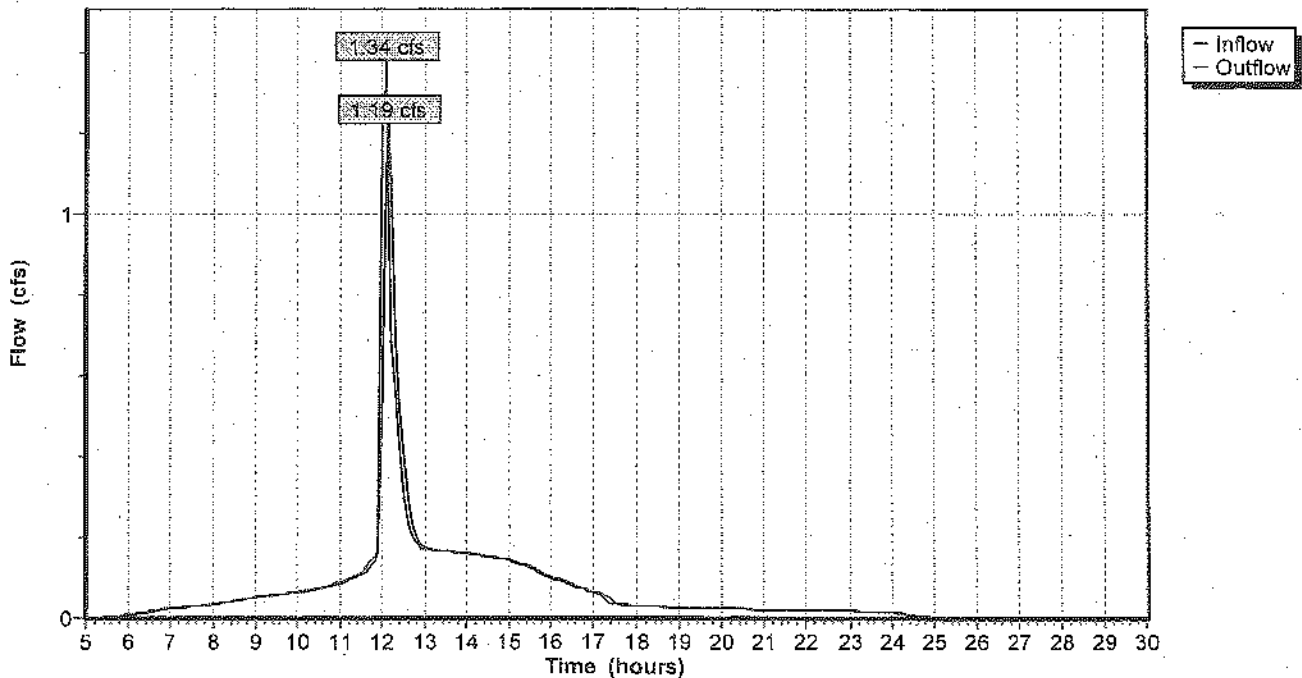
Inflow = 1.34 cfs @ 12.06 hrs, Volume= 0.129 af  
Outflow = 1.19 cfs @ 12.14 hrs, Volume= 0.129 af, Atten= 12%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.5 fps, Min. Travel Time= 2.4 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 9.0 min

Peak Depth= 0.17'  
Capacity at bank full= 33.01 cfs  
Inlet Invert= 45.90', Outlet Invert= 32.00'  
15.00' x 1.00' deep channel, n= 0.400 Length= 70.0' Slope= 0.1986 '/  
Side Slope Z-value= 10.0 '/

### Reach R11: From P11 to Swale

Hydrograph Plot



**Reach R12: 48" RCP**

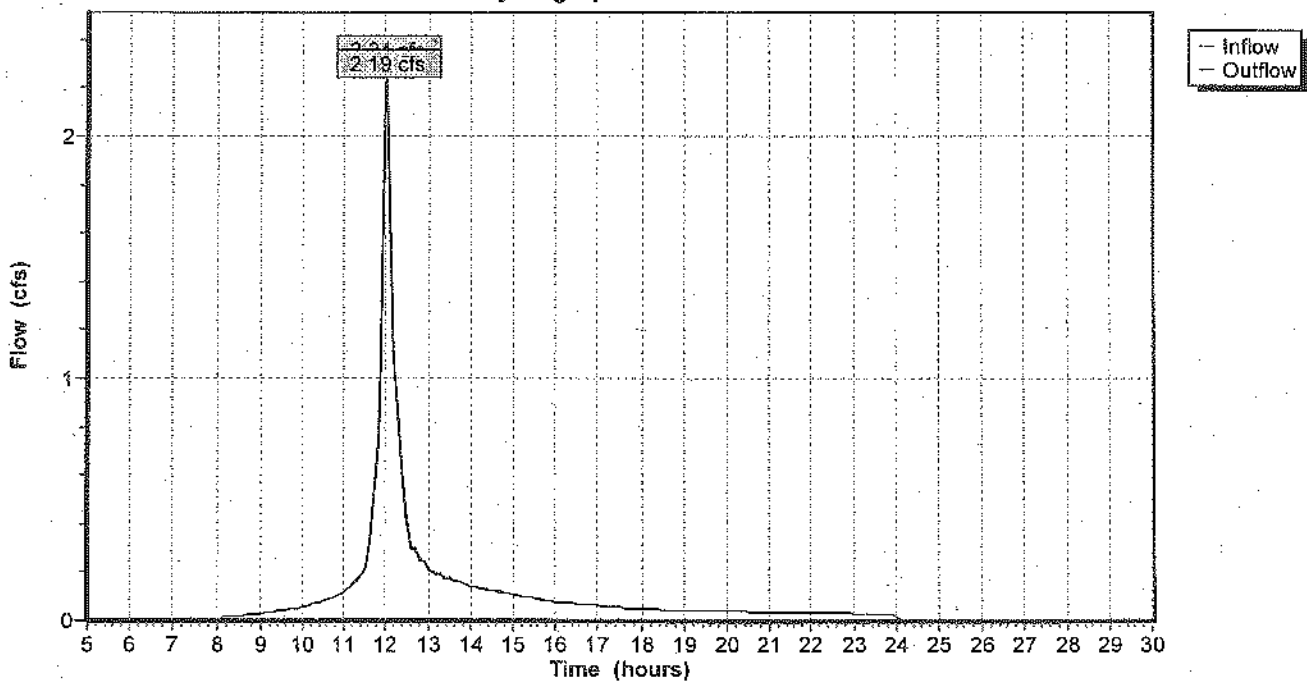
Inflow = 2.24 cfs @ 12.02 hrs, Volume= 0.169 af  
Outflow = 2.19 cfs @ 12.02 hrs, Volume= 0.169 af, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 9.4 fps, Min. Travel Time= 0.2 min  
Avg. Velocity = 3.8 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.20'  
Capacity at bank full= 463.95 cfs  
Inlet Invert= 40.00', Outlet Invert= 32.00'  
48.0" Diameter Pipe n= 0.012 Length= 90.0' Slope= 0.0889 1'

**Reach R12: 48" RCP**

Hydrograph Plot





### Reach R15: From P15 to Swale

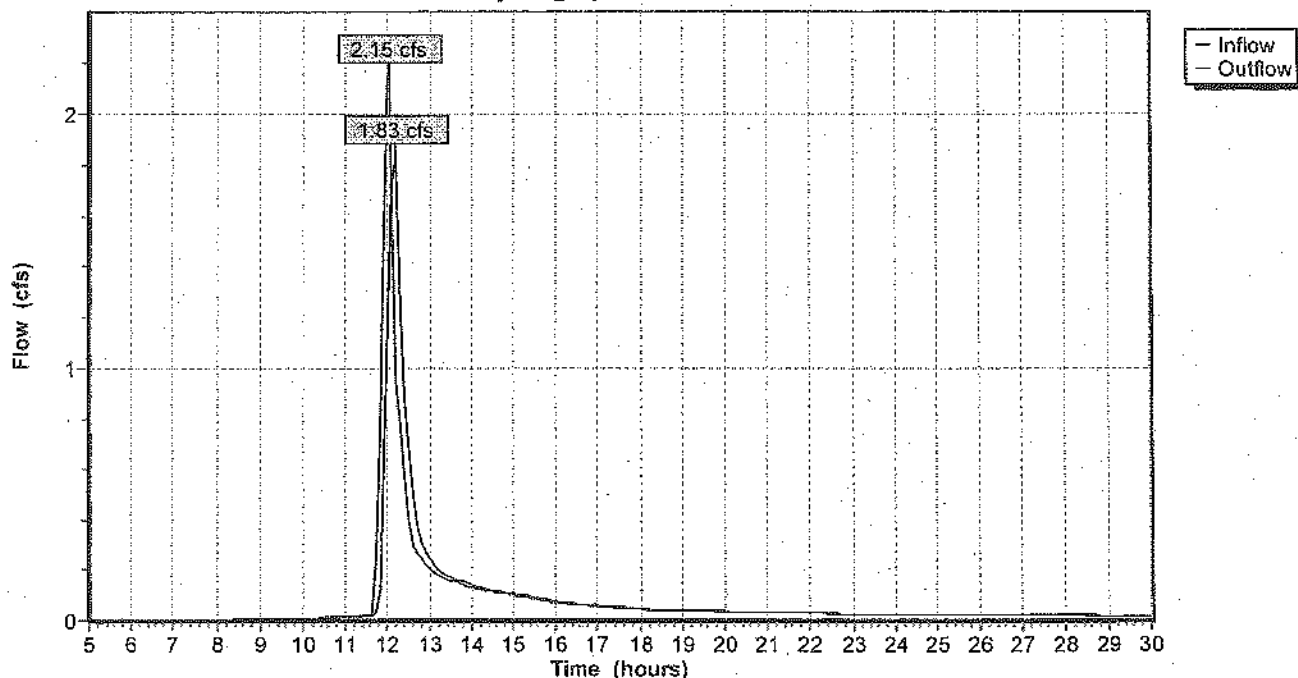
Inflow = 2.15 cfs @ 12.01 hrs, Volume= 0.152 af  
Outflow = 1.83 cfs @ 12.16 hrs, Volume= 0.151 af, Atten= 15%, Lag= 9.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.3 fps, Min. Travel Time= 4.8 min  
Avg. Velocity= 0.1 fps, Avg. Travel Time= 18.6 min

Peak Depth= 0.41'  
Capacity at bank full= 45.62 cfs  
Inlet Invert= 34.00', Outlet Invert= 30.00'  
10.00' x 2.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0400 '/'  
Side Slope Z-value= 2.0 15.0 '/'

### Reach R15: From P15 to Swale

Hydrograph Plot



**Reach R16: From P16 to Swale**

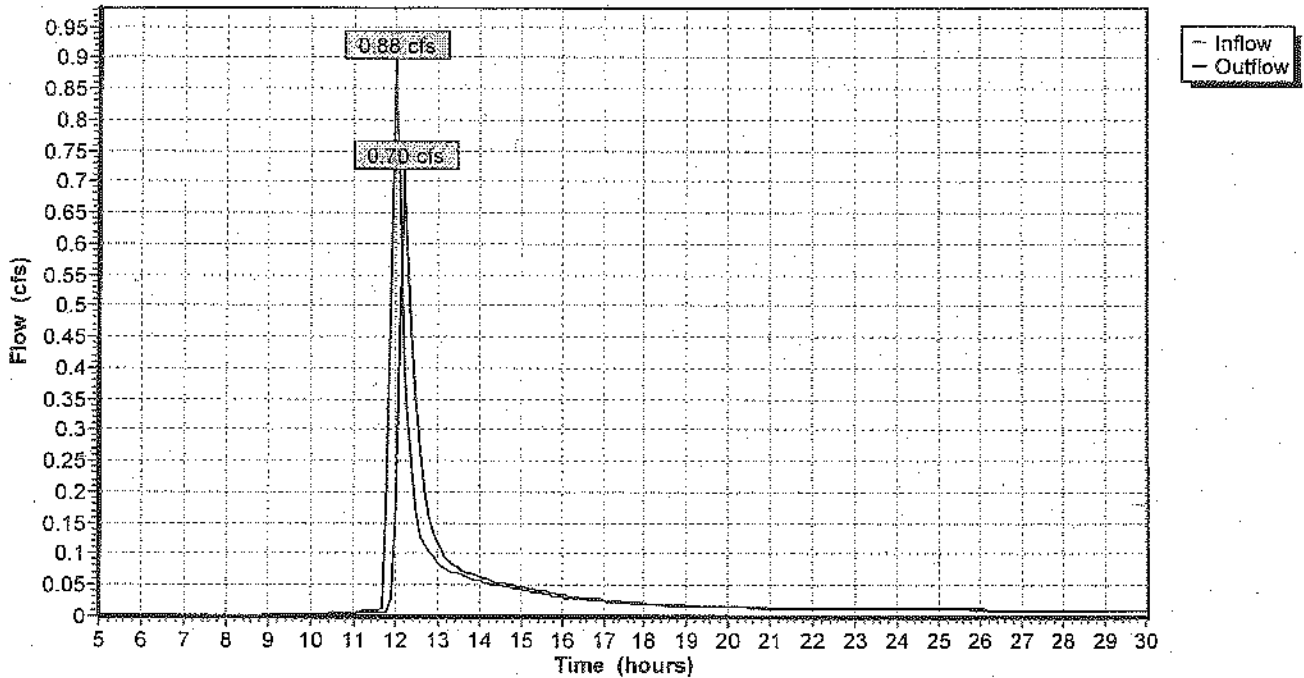
Inflow = 0.88 cfs @ 12.02 hrs, Volume= 0.063 af  
Outflow = 0.70 cfs @ 12.23 hrs, Volume= 0.062 af, Atten= 20%, Lag= 12.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.3 fps, Min. Travel Time= 7.3 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 28.3 min

Peak Depth= 0.12'  
Capacity at bank full= 28.43 cfs  
Inlet Invert= 41.00', Outlet Invert= 29.50'  
20.00' x 1.00' deep channel, n= 0.400 Length= 120.0' Slope= 0.0958 '/'  
Side Slope Z-value= 10.0 '/

**Reach R16: From P16 to Swale**

Hydrograph Plot



**Reach R22: From 22 to Swale**

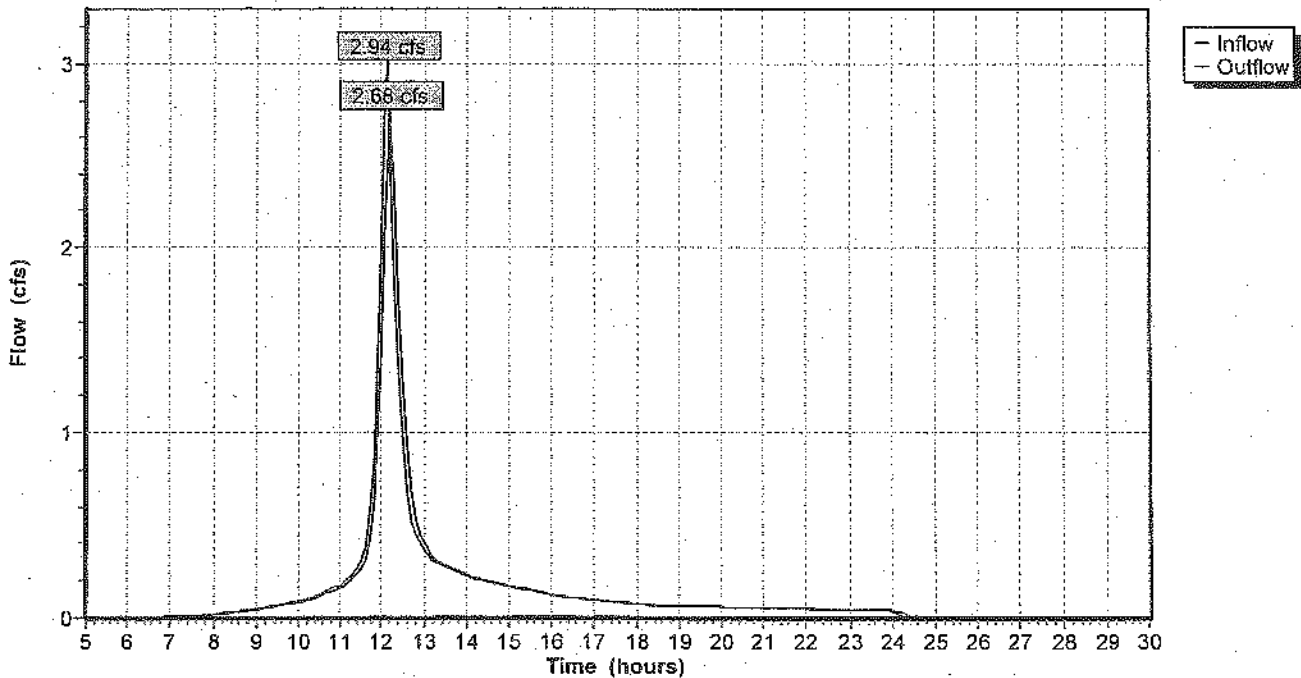
Inflow = 2.94 cfs @ 12.12 hrs, Volume= 0.263 af  
Outflow = 2.68 cfs @ 12.21 hrs, Volume= 0.263 af, Atten= 9%, Lag= 5.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.6 fps, Min. Travel Time= 2.7 min  
Avg. Velocity= 0.2 fps, Avg. Travel Time= 9.8 min

Peak Depth= 0.28'  
Capacity at bank full= 27.37 cfs  
Inlet Invert= 44.00', Outlet Invert= 30.50'  
15.00' x 1.00' deep channel, n= 0.400 Length= 90.0' Slope= 0.1500 '/'  
Side Slope Z-value= 15.0 2.0 '/

**Reach R22: From 22 to Swale**

Hydrograph Plot



Reach R24: 24S to Swale

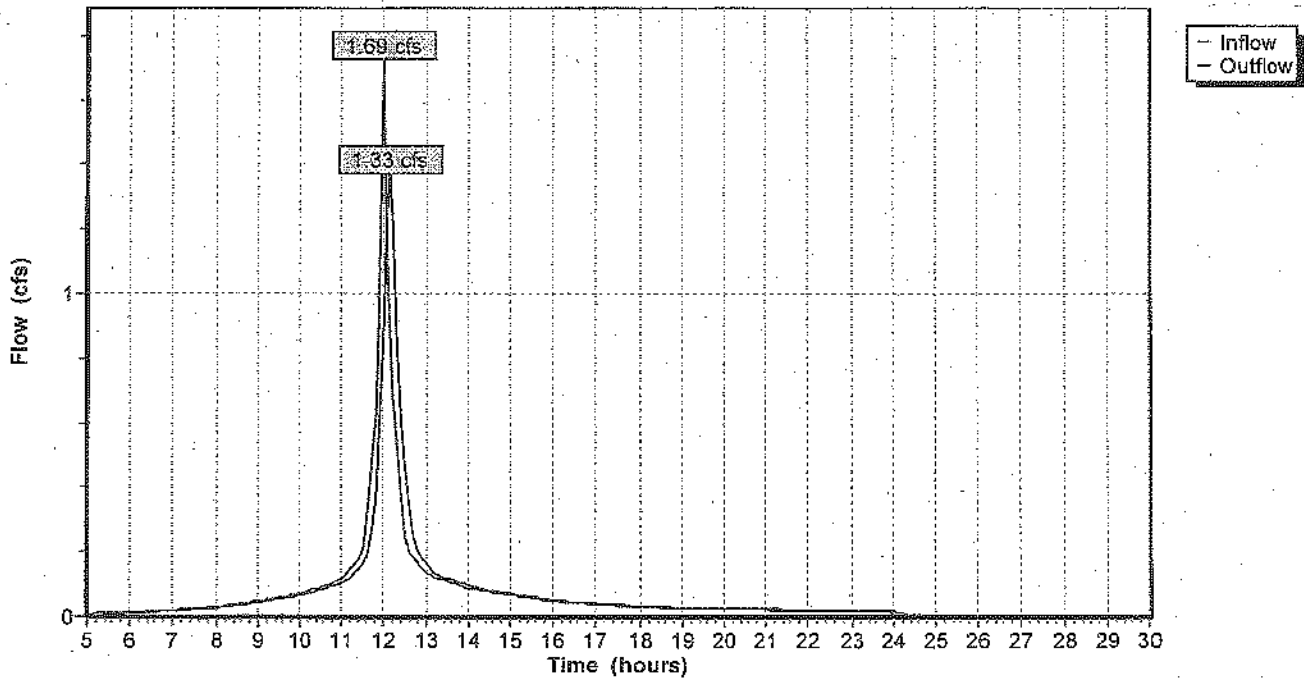
Inflow = 1.69 cfs @ 12.01 hrs, Volume= 0.128 af  
Outflow = 1.33 cfs @ 12.15 hrs, Volume= 0.128 af, Atten= 21%, Lag= 8.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.4 fps, Min. Travel Time= 4.7 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 17.4 min

Peak Depth= 0.30'  
Capacity at bank full= 13.86 cfs  
Inlet Invert= 35.00', Outlet Invert= 29.00'  
10.00' x 1.00' deep channel, n= 0.400 Length= 100.0' Slope= 0.0600 1'  
Side Slope Z-value= 10.0 1'

Reach R24: 24S to Swale

Hydrograph Plot



Reach R25: From 25 to Swale

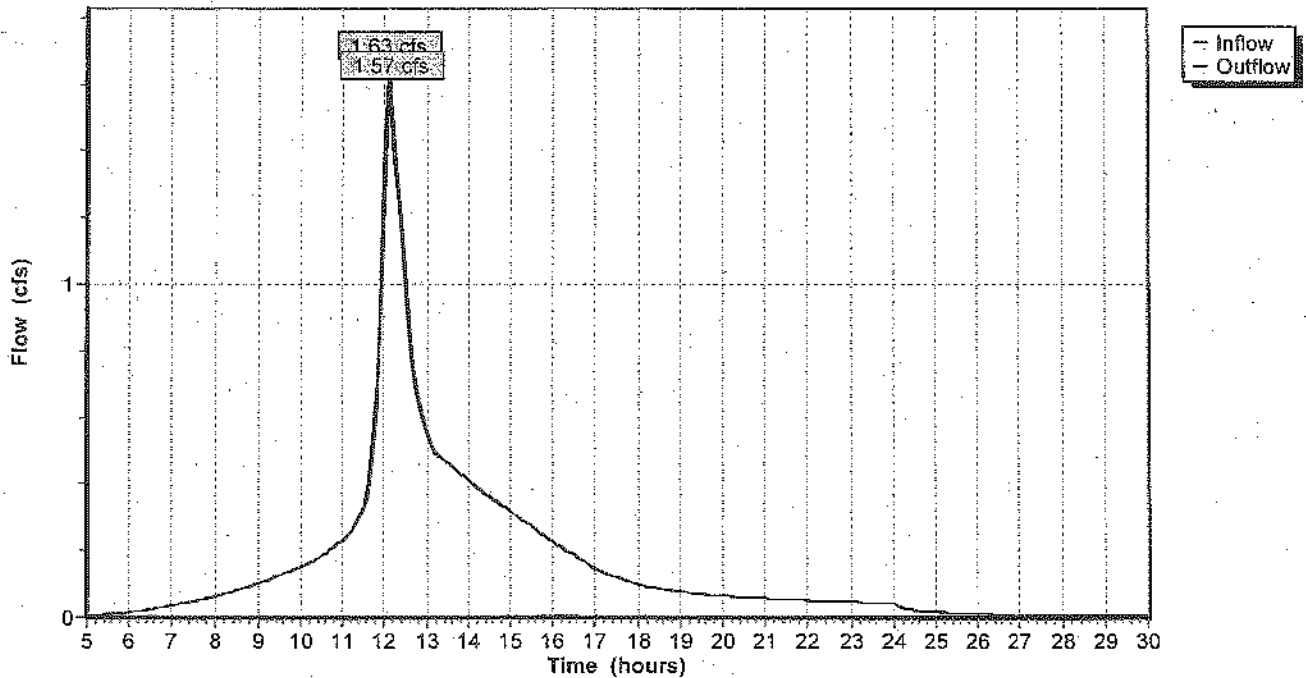
Inflow = 1.63 cfs @ 12.10 hrs, Volume= 0.311 af  
Outflow = 1.57 cfs @ 12.14 hrs, Volume= 0.311 af, Atten= 4%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.5 fps, Min. Travel Time= 1.6 min  
Avg. Velocity= 0.2 fps, Avg. Travel Time= 4.5 min

Peak Depth= 0.24'  
Capacity at bank full= 28.77 cfs  
Inlet Invert= 39.00', Outlet Invert= 30.00'  
10.00' x 1.00' deep channel, n= 0.400 Length= 50.0' Slope= 0.1800 1/  
Side Slope Z-value= 15.0 1'

Reach R25: From 25 to Swale

Hydrograph Plot



Reach R26: From 26 to SP

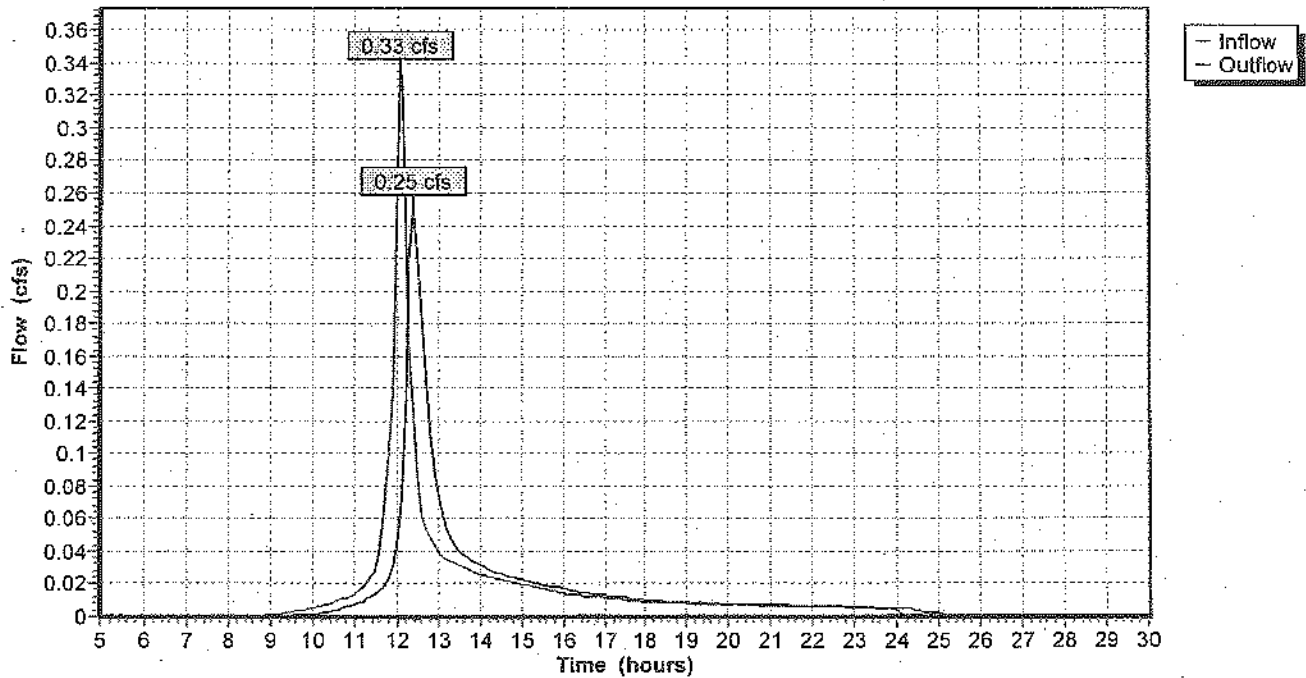
Inflow = 0.33 cfs @ 12.08 hrs, Volume= 0.028 af  
Outflow = 0.25 cfs @ 12.40 hrs, Volume= 0.028 af, Atten= 25%, Lag= 19.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.2 fps, Min. Travel Time= 12.1 min  
Avg. Velocity = 0.1 fps, Avg. Travel Time= 39.3 min

Peak Depth= 0.28'  
Capacity at bank full= 10.11 cfs  
Inlet Invert= 35.00', Outlet Invert= 29.50'  
3.00' x 2.00' deep channel, n= 0.400 Length= 180.0' Slope= 0.0306 1'  
Side Slope Z-value= 2.0 1'

Reach R26: From 26 to SP

Hydrograph Plot



Reach SP: Study Point

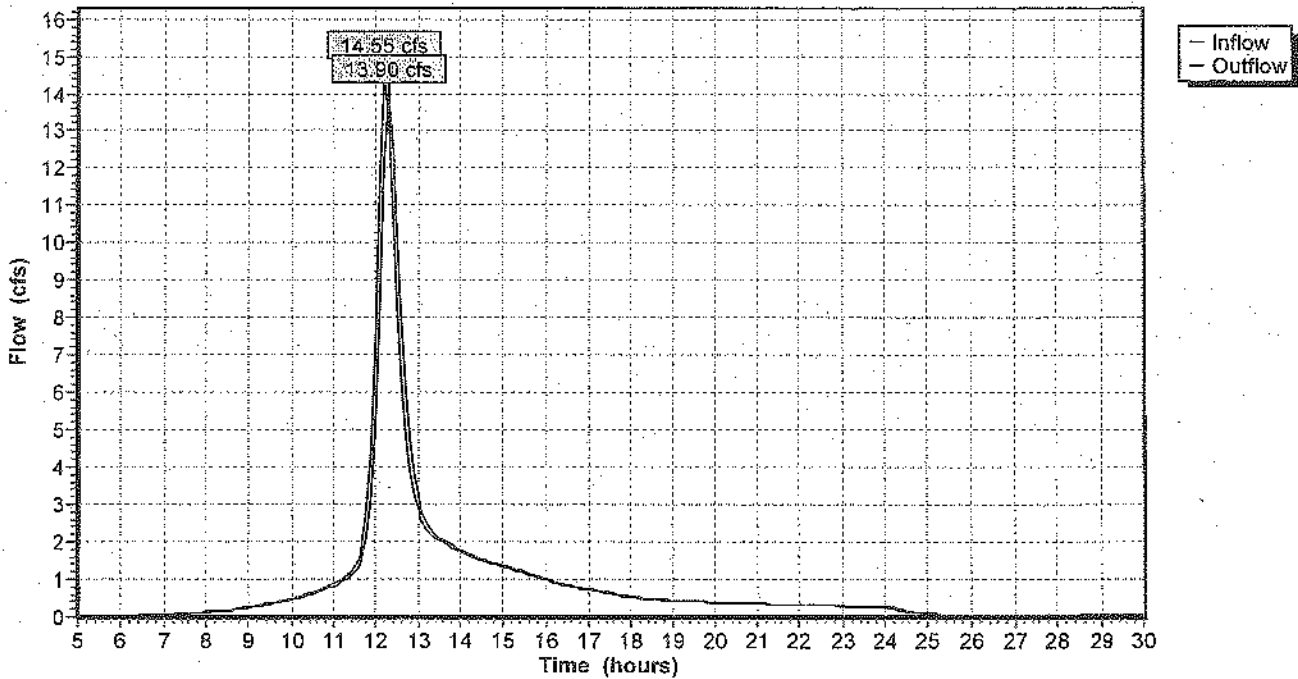
Inflow = 14.55 cfs @ 12.22 hrs, Volume= 1.678 af  
Outflow = 13.90 cfs @ 12.31 hrs, Volume= 1.677 af, Atten= 4%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs  
Max. Velocity= 0.6 fps, Min. Travel Time= 2.7 min  
Avg. Velocity = 0.2 fps, Avg. Travel Time= 9.8 min

Peak Depth= 0.60'  
Capacity at bank full= 239.77 cfs  
Inlet Invert= 29.50', Outlet Invert= 29.40'  
35.00' x 3.00' deep channel, n= 0.050 Length= 100.0' Slope= 0.0010 '/'  
Side Slope Z-value= 5.0 4.0 '/'

Reach SP: Study Point

Hydrograph Plot



**Pond P11: Existing Satellite Lot Detention Pond**

Inflow = 1.70 cfs @ 11.99 hrs, Volume= 0.130 af  
 Outflow = 1.34 cfs @ 12.06 hrs, Volume= 0.129 af, Atten= 21%, Lag= 4.4 min  
 Primary = 0.18 cfs @ 12.06 hrs, Volume= 0.100 af  
 Secondary = 1.16 cfs @ 12.06 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 48.73' Storage= 1,169 cf

Plug-Flow detention time= 44.2 min calculated for 0.128 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	10	0	0
47.00	117	64	64
48.00	674	396	459
49.00	1,276	975	1,434

**Primary OutFlow (Free Discharge)**

↑ 1=Orifice/Grate

└ 2=Orifice/Grate

**Secondary OutFlow (Free Discharge)**

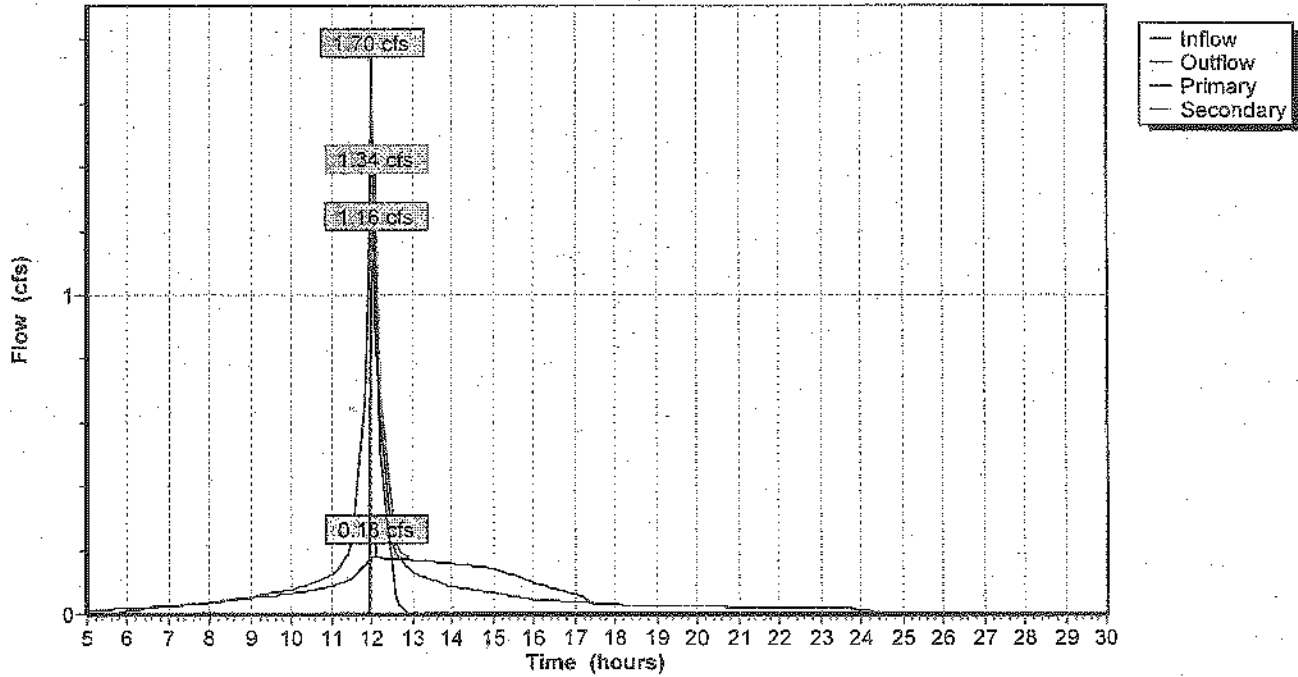
↑ 3=Sharp-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	46.50'	1.0" Vert. Orifice/Grate C= 0.600
2	Primary	46.80'	2.0" Vert. Orifice/Grate C= 0.600
3	Secondary	48.50'	3.1' long x 0.5' high Sharp-Crested Rectangular Weir 0 End Contraction(s)



### Pond P11: Existing Satellite Lot Detention Pond

Hydrograph Plot



**Pond P15: Pond 15**

Inflow = 2.38 cfs @ 11.99 hrs, Volume= 0.178 af  
 Outflow = 2.15 cfs @ 12.01 hrs, Volume= 0.152 af, Atten= 10%, Lag= 1.6 min  
 Primary = 0.03 cfs @ 12.01 hrs, Volume= 0.039 af  
 Secondary = 2.12 cfs @ 12.01 hrs, Volume= 0.113 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 40.74' Storage= 1,988 cf

Plug-Flow detention time= 167.3 min calculated for 0.152 af (85% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	724	0	0
40.00	1,189	957	957
40.50	1,443	658	1,615
41.00	1,711	789	2,403
42.00	2,290	2,001	4,404

**Primary OutFlow (Free Discharge)**

- ↑2=Culvert
- ↑1=Exfiltration

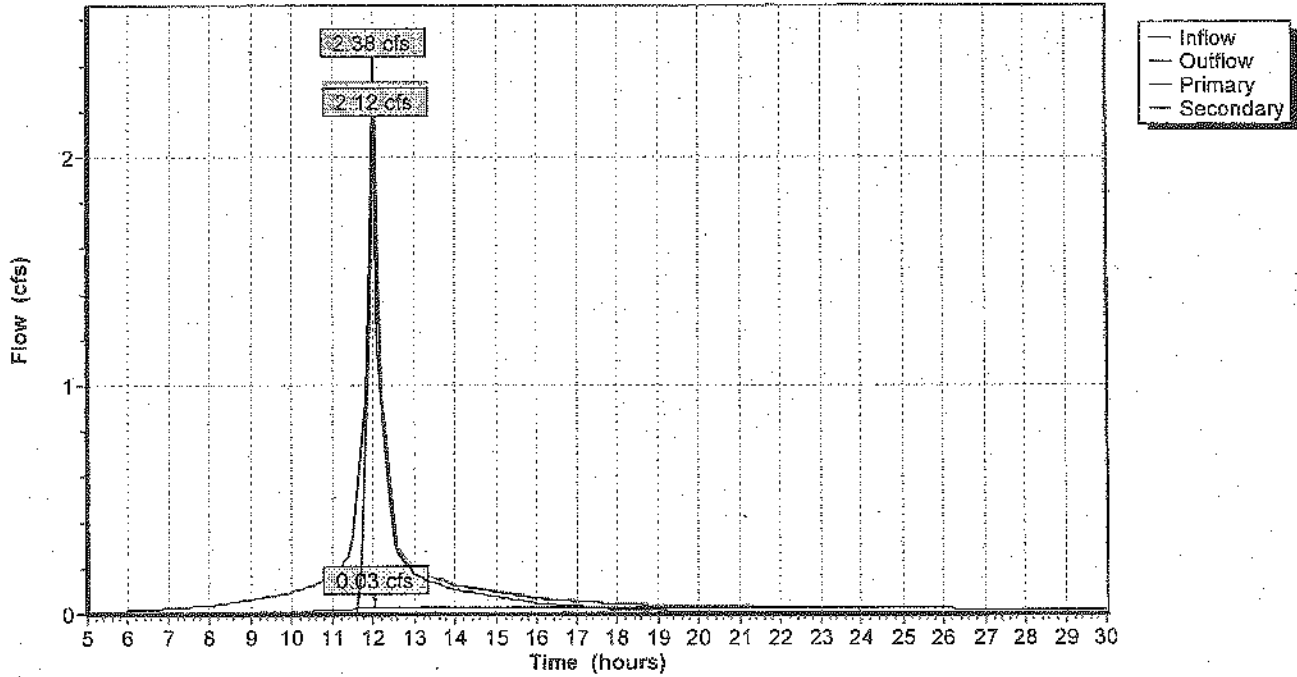
**Secondary OutFlow (Free Discharge)**

- ↑3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	39.00'	0.002000 fpm Exfiltration over Surface area above invert
2	Primary	36.50'	6.0" x 80.0' long Culvert RCP, groove end projecting, Ke= 0.200 Outlet Invert= 35.00' S= 0.0187 ' / n= 0.011 Cc= 0.900
3	Secondary	40.50'	7.0' long x 13.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

### Pond P15: Pond 15

Hydrograph Plot



**Pond P16: Pond 16**

Inflow = 0.98 cfs @ 11.99 hrs, Volume= 0.070 af  
 Outflow = 0.88 cfs @ 12.02 hrs, Volume= 0.063 af, Atten= 11%, Lag= 1.7 min  
 Primary = 0.02 cfs @ 12.02 hrs, Volume= 0.020 af  
 Secondary = 0.86 cfs @ 12.02 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 45.73' Storage= 712 cf

Plug-Flow detention time= 156.0 min calculated for 0.063 af (89% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	190	0	0
45.00	430	310	310
45.50	573	251	561
46.00	751	331	892
47.00	1,145	948	1,840

**Primary OutFlow (Free Discharge)**

- ↑ 2=Culvert
- ↑ 1=Exfiltration

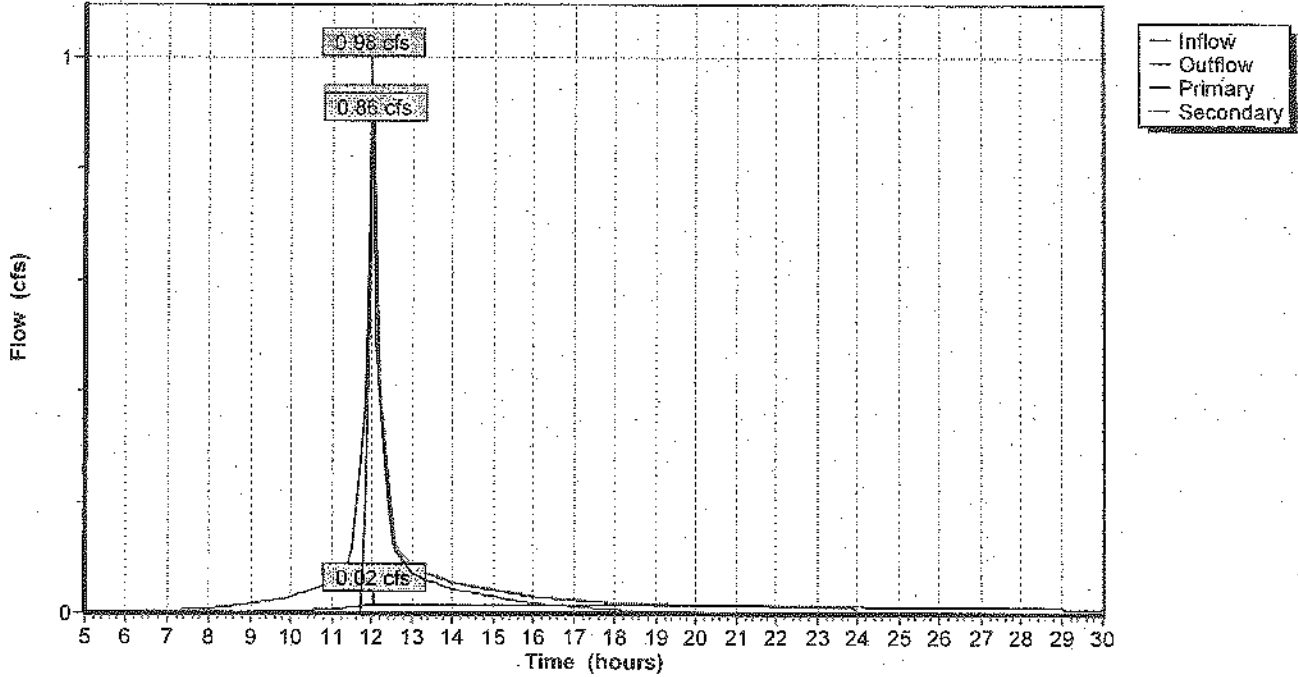
**Secondary OutFlow (Free Discharge)**

- ↑ 3=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	44.00'	0.002000 fpm Exfiltration over Surface area above invert
2	Primary	41.50'	6.0" x 50.0' long Culvert RCP, groove end projecting, Ke= 0.200 Outlet Invert= 41.00' S= 0.0100 1' n= 0.011 Cc= 0.900
3	Secondary	45.50'	3.0' long x 13.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

### Pond P16: Pond 16

Hydrograph Plot



**CadCam Proposed**

Type III 24-hr Rainfall=5.50" (25-Year Storm)

Prepared by {enter your company name here}

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HydroCAD® 6.00 s/n 001204 © 1986-2001 Applied Microcomputer Systems

1/16/2006

**Pond P23: Pond 23**

Inflow = 2.44 cfs @ 12.02 hrs, Volume= 0.205 af  
 Outflow = 0.72 cfs @ 12.36 hrs, Volume= 0.202 af, Atten= 70%, Lag= 20.6 min  
 Primary = 0.44 cfs @ 12.36 hrs, Volume= 0.191 af  
 Secondary = 0.28 cfs @ 12.36 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.10 hrs

Peak Elev= 41.26' Storage= 3,277 cf

Plug-Flow detention time= 103.0 min calculated for 0.202 af (99% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
40.00	2,600	0	0
42.00	2,600	5,200	5,200

**Primary OutFlow (Free Discharge)**

↑1=Culvert

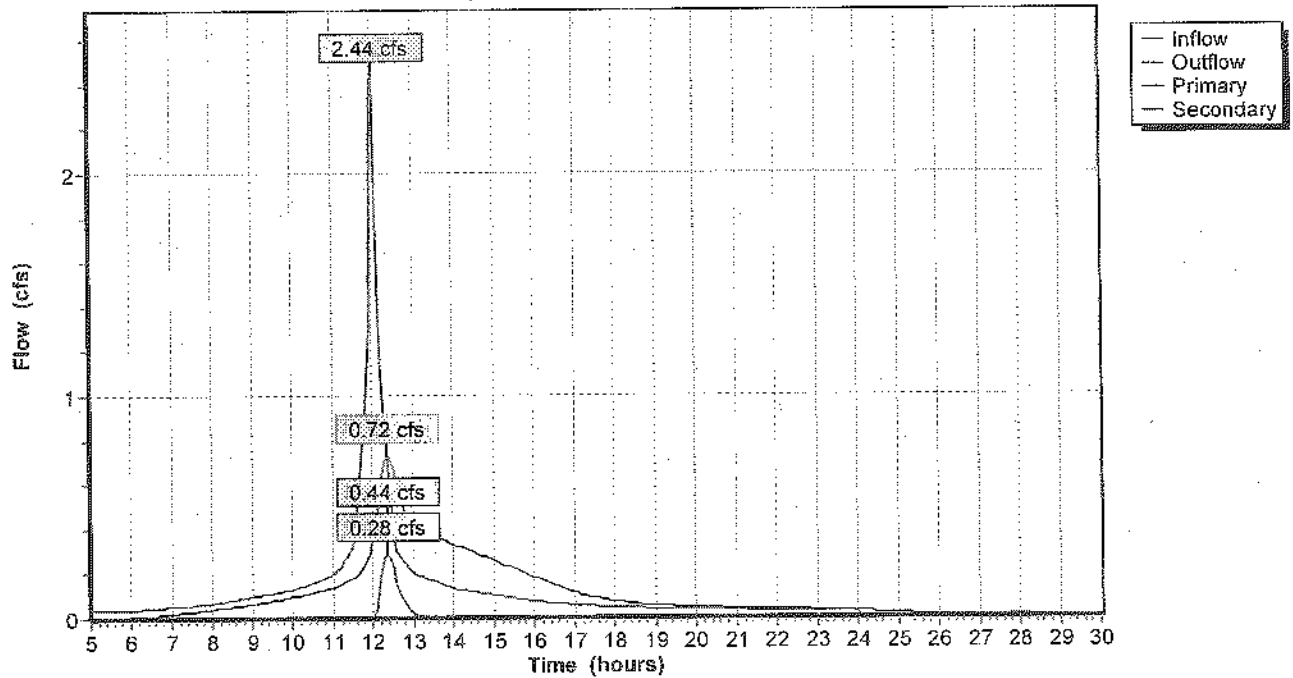
**Secondary OutFlow (Free Discharge)**

↑2=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	40.00'	<b>4.0" x 10.0' long Culvert</b> RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 39.50' S= 0.0500 '/' n= 0.011 Cc= 0.900
2	Secondary	41.00'	<b>12.0" x 10.0' long Culvert</b> RCP, sq.cut end projecting, Ke= 0.500 Outlet Invert= 39.50' S= 0.1500 '/' n= 0.011 Cc= 0.900

### Pond P23: Pond 23

Hydrograph Plot



**TSS REMOVAL EFFICIENCY (%)**

The following estimate is based on the following references.

Stormwater Management for Maine: BMPs (Table 5.1, Table 6.1, Section 6.2.3)  
 Stormwater Management for Maine: BMPs (1996 Addendum)

SUBCATCHMENT	BMP #1	%	BMP #2	%	BMP #3	%	TOTAL %	Imp Acres	TSS Removal
11S	Detention Basin	10	50' Wooded Buffer, 20% Slope	42			47.8	0.27	5.7
12S	Vegetative Swale	25					25.0	0.17	2.0
15S	Water Quality Inlet	10	Detention Pond	10	100' Wooded Buffer, 7% Slope	66	72.5	0.34	11.8
16S	Detention Pond	10	100' Wooded Buffer, 7% Slope	66			69.4	0.1	3.5
21S	50' Wooded Buffer, 15% Slope	50					50.0	0.01	0.0
22S	Water Quality Inlet	10	50' Wooded Buffer, 15% Slope	50			55.0	0.34	8.8
23S	Water Quality Inlet	10	50' Wooded Buffer, 18% Slope	42			47.8	0.48	10.5
24S	100' Wooded Buffer, 6% Slope	66					66.0	0.26	7.9
25S	Water Quality Inlet	10	50' Wooded Buffer, 18% Slope	42			47.8	0.22	4.8
								2.19	54.8



## 8. STATE AND FEDERAL PERMITTING

The following statement is made in accordance with City of Portland Code of Ordinances, Chapter 14 Land Use, Section 14-525(c)(8).

*§14-525(c)(8) State and Federal Permits:* In addition to the City's Major Site Plan Review, the following permits are also required:

- Minor Amendment to the existing Site Location of Development (SLOD) Permit for Stroudwater Estates Phase II, submitted to the Maine Department of Environmental Protection (MDEP). In contrast to previous discussions, the MeDEP has now determined that it will review the proposed addition as a minor amendment to the existing SLOD Permit. As a minor amendment, the MeDEP will review only water usage, wastewater generation, solid waste, and stormwater. The project will not break the 3-acre threshold and therefore will not require its own SLOD Permit. A letter from Marybeth Richardson, MeDEP, dated January 17, 2006, confirming the extent of MeDEP review has been attached to this section. A copy of the Application form has also been attached to this section without attachments. (All attachments have been submitted to the City as individual sections.)
- NRPA Wetlands Alteration Permit, submitted to the MDEP. Woodard & Curran initially submitted an NRPA Permit by Rule (PBR) Notification to the MeDEP on January 5, 2006. As a result of the MeDEP's most recent determination of permitting, the PBR Notification form was returned, to be resubmitted with the Minor Amendment Application. A copy of the PBR Notification Form has been attached to this section.
- Building Permits from the State Fire Marshall's office and City of Portland. An application will be submitted before construction begins in 2006.

It is anticipated that the following permit will NOT be required:

- Stormwater Discharge Permit, submitted to the MDEP. The proposed project is covered under the existing Site Location of Development permit for Stroudwater Estates Phase II, issued by the MeDEP in June of 1984. As a result, no separate stormwater permitting is required. An email from Linda Kokemuller, MeDEP, dated December 16, 2005, has been attached to this section as evidence.



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI  
GOVERNOR

DAVID P. LITTELL  
ACTING COMMISSIONER

January 17, 2006

Kenneth Volock  
Woodard and Curran  
41 Hutchins Dr.  
Portland, ME 04102

**RE: CADCAM Associates, Inc.**

Dear Ken:

As we discussed last Friday, your application for a minor revision associated with Stroudwater Estates, Lots 15 and 16, has been received and reviewed by the Department. Based on my review, it appears that the proposed project will require a minor amendment approval to the Stroudwater Estates Site Location permit. Therefore, I am returning your minor revision application and the Permit-By-Rule information you submitted. You agreed to resubmit the application as a minor Site Location amendment application (two copies) and Permit-By-Rule for adjacent activities, Section 2. The fees you submitted with the minor revision will be refunded with the exception of the \$55 non-refundable Permit-By-Rule fee.

We also briefly discussed other issues that may apply to the office building expansion. I understand, based on our conversation, that you may need to address the sections of the application that deal with water usage, wastewater disposal, and solid waste.

You may refile at any time with the above-noted items, and substantive review of your application will begin at that time.

Please feel free to call me at 822-6335 if you have any questions regarding your project.

Sincerely,

Marybeth Richardson, Project Manager  
Division of Land Resources Regulation  
Bureau of Land & Water Quality

cc: file

AUGUSTA  
17 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0017  
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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  
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Department of Environmental Protection  
Bureau of Land & Water Quality  
17 State House Station  
Augusta, Maine 04333  
Telephone: 207-287-2111

FOR DEP USE  
ATS # \_\_\_\_\_  
L- \_\_\_\_\_  
Total Fees: \_\_\_\_\_  
Date: Received \_\_\_\_\_

FORM A PAGE 1 02/02

\*\*\*\*\*

**PERMIT APPLICATION**  
**SITE LOCATION OF DEVELOPMENT LAW, 38 M.R.S.A. §§ 481-490**

**Please type or print:**

This application is for (check the one that applies): 20 acre development  
Planning Permit  
Metallic Mining  
Marine Oil Terminal

<input type="checkbox"/>	Structure	<input type="checkbox"/>
<input type="checkbox"/>	Subdivision	<input type="checkbox"/>
<input type="checkbox"/>	Amendment	<input checked="" type="checkbox"/>
<input type="checkbox"/>		

Name of Applicant: CADCAM Associates, Inc.

Address: 41 Hutchins Drive, Portland, Maine 04102 Telephone/Fax: (207)774-2112 / (207)774-6635

Name of local contact or agent: Woodard & Curran, Inc.

Address: 41 Hutchins Drive, Portland, Maine, 04102 Telephone/Fax: (207)774-2112 / (207)774-6635

Name of development: Woodard & Curran Building Addition

Location of development including road, street, or nearest route number: 41 Hutchins Drive

For entrance road (if available): UTM Northing \_\_\_\_\_ UTM Easting \_\_\_\_\_

City/Town/Plantation: Portland, County: Cumberland, Tax Map # 239, Lot # A004

Type of development: Building addition with associated parking and utilities

Was this development started prior to obtaining a license? No Is this development or any portion of the site currently subject to enforcement action? No

Will a Natural Resources Protection Act (NRPA) permit be required for this project? Yes Has the NRPA permit application (PBR, Tier, full NRPA) been submitted as part of this application? Yes

Will a Traffic Permit be required for this project? No Has the Maine Department of Transportation been contacted? No

Is the development located in the watershed of a body of water most at risk or in a sensitive or threatened region or watershed? No If yes, which one? \_\_\_\_\_

Existing DEP permit number (if applicable): L-010223-39-A-A

Name(s) of department staff person(s) present at the pre-application meeting:  
Marybeth Richardson

Name(s) of department staff person(s) otherwise contacted concerning this application:  
Linda Kokemuller, Dawn Hallowell, Doug Burdick

CERTIFICATION

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: Barry Sheff

Name (print): BARRY SHEFF

Date: 1/20/06

Re/Cert/Lic No.: \_\_\_\_\_  
Engineer # 9708 ME P.E.  
Geologist \_\_\_\_\_  
Soil Scientist \_\_\_\_\_  
Land Surveyor \_\_\_\_\_  
Site Evaluator \_\_\_\_\_  
Active Member of the Maine Bar \_\_\_\_\_  
Professional Landscape Architect \_\_\_\_\_  
Other \_\_\_\_\_

If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

[Handwritten Signature]  
Signature of applicant

1-20-06  
Date

**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
PERMIT BY RULE NOTIFICATION FORM**  
(For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN BLACK INK ONLY

Name of Applicant: (owner)		CADCAM Associates		Applicant Mailing Address:		41 Hutchins Drive	
Town/City:		Portland		State:		Maine	
Zip Code:	04102	Daytime Telephone No: (include area code)	(207) 774-2112		Project Location: (town)		Portland
County:	Cumberland	Map #:	238A	Lot #:	A001 A004	Name of Wetland or Waterbody:	Unnamed brook
Name of Agent:		Kenneth Volock, Woodard & Curran, Inc.		Agents Telephone No: (include area code)		(207) 774-2112	
Detailed Directions to Site:		From Portland, take Congress Street (Routes 9&22) west to Johnson Road (Route 9). Bear right to stay on Congress Street (Route 22). Turn right at second light onto Hutchins Drive. Site is approximately 0.1 miles down Hutchins Drive on the right.					
Description of Project:		The proposed project involves the construction of a three-story addition to the office building currently located on the site, an expansion of an existing satellite parking lot, and associated utility improvements.					
				Part of a larger project?		Yes	X No

(CHECK ONE) This project does  does not  involve work below mean low water.

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, have read and will comply with all of the standards in the Sections checked below.

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Sec. (2) Act. Adjacent to Protected Natural Res. | <input type="checkbox"/> Sec. (8) Shoreline stabilization                         | <input type="checkbox"/> Sec. (14) REPEALED                   |
| <input type="checkbox"/> Sec. (3) Intake Pipes                                       | <input type="checkbox"/> Sec. (9) Utility Crossing                                | <input type="checkbox"/> Sec. (15) Public Boat Ramps          |
| <input type="checkbox"/> Sec. (4) Replacement of Structures                          | <input type="checkbox"/> Sec. (10) Stream Crossing                                | <input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects |
| <input type="checkbox"/> Sec. (5) REPEALED   | <input type="checkbox"/> Sec. (11) State Transportation Facilities                | <input type="checkbox"/> Sec. (17) Transfers/Permit Extension |
| <input type="checkbox"/> Sec. (6) Movement of Rocks or Vegetation                    | <input type="checkbox"/> Sec. (12) Restoration of Natural Areas                   | <input type="checkbox"/> Sec. (18) Maintenance Dredging       |
| <input type="checkbox"/> Sec. (7) Outfall Pipes                                      | <input type="checkbox"/> Sec. (13) F&W Creation/Enhance/Water Quality Improvement |   |

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that *this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.*

I have attached the following required submittals. NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:

- Attach a check for \$55 (non-refundable) made payable to: "Treasurer, State of Maine".
- Attach a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
- Attach all other required submissions as outlined in the PBR Sections checked above.

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant:	<i>Kenneth Volock</i>	Date:	01/05/06
----------------------------------	-----------------------	-------	----------

Keep a copy as a record of permit. Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection at the appropriate regional office listed below. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. Work carried out in violation of any standard is subject to enforcement action.

AUGUSTA DEP  
STATE HOUSE STATION 17  
AUGUSTA, ME 04333-0017  
(207)287-2111

PORTLAND DEP  
312 CANCO ROAD  
PORTLAND, ME 04103  
(207)822-6300

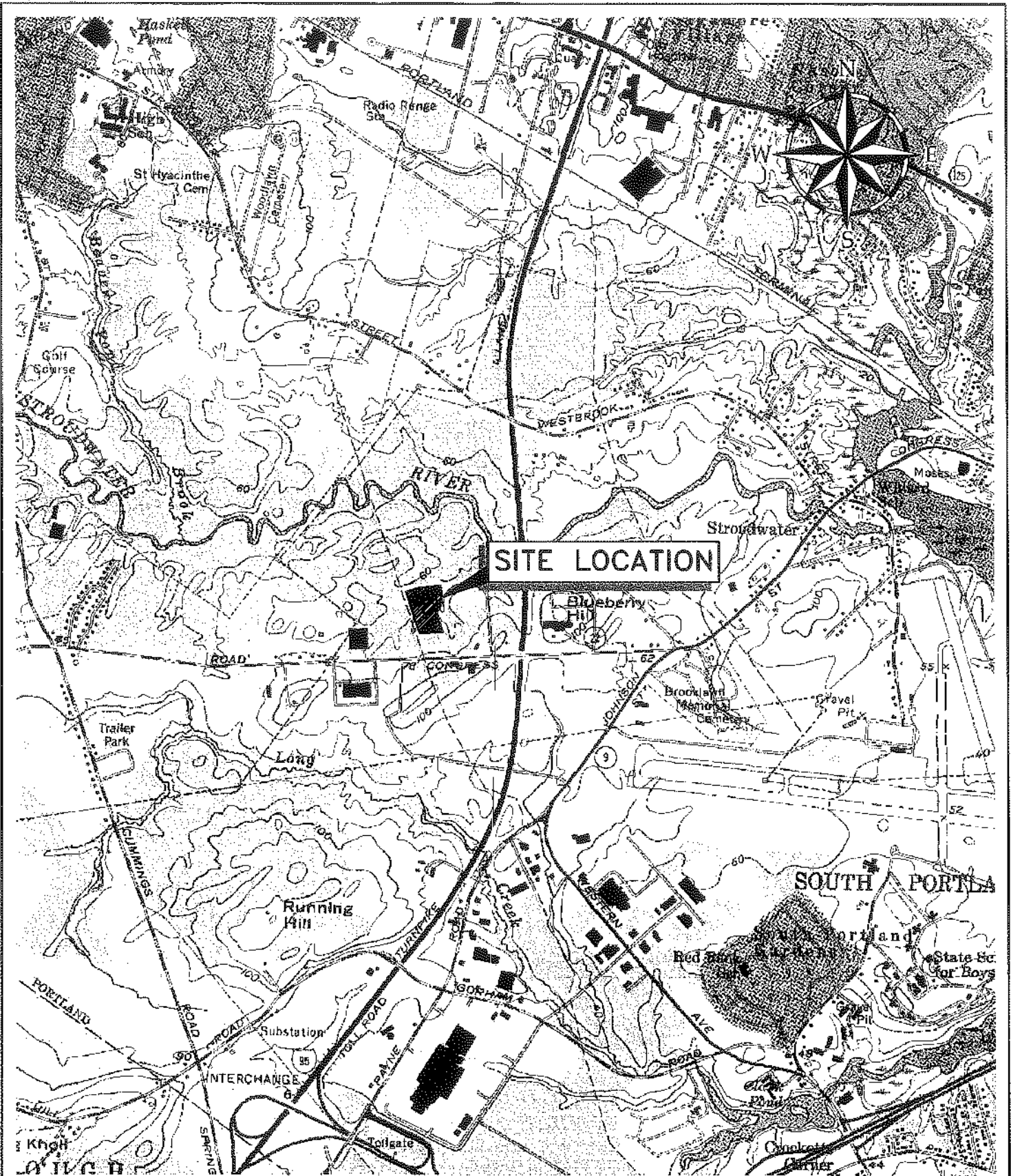
BANGOR DEP.  
106 HOGAN ROAD  
BANGOR, ME 04401  
(207)941-4570

PRESQUE ISLE DEP  
1235 CENTRAL DRIVE  
PRESQUE ISLE, ME 04769  
(207)764-0477

OFFICE USE ONLY	Ck.#	1347	Staff	Staff	
PBR #	FP	55.00	Date	01/09/06	Acc. Date
					Def. Date
					1.17.06
					After Photos

*P/O L-10223-39-P-M*





**NOTE:**

TOPO QUADS OBTAINED FROM MAINE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS.



**WOODARD & CURRAN**  
Engineering • Science • Operations  
PORTLAND, MAINE 800-426-4262

**USGS TOPOGRAPHIC MAP**

DESIGNED BY: JBC  
DRAWN BY: JBC

CHECKED BY: BSS  
20383401-U001.1.dwg

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.01  
DATE: SEPTEMBER 2006  
SCALE: 1" = 2000'

Figure 1.1

## MEMORANDUM

**TO:** Maine Department of Environmental Protection

**FROM:** Kenneth Volock

**DATE:** January 5, 2006

**RE:** Woodard & Curran Office Addition - Permit by Rule

---

This memorandum is written in support of our Permit by Rule (PBR) Notification for the above referenced project. The project involves the construction of an addition to the office building currently located on the site, an expansion of an existing parking lot, and associated utility improvements. Sheet C100 Existing Site Plan and Sheet C200 Proposed Site Plan have been attached to this memorandum for reference.

Layout of the proposed development was designed to void wetland impacts to the extent possible. As is shown in Sheet C100 Existing Site Plan, there is little area available on the site outside the 75-foot wetland setback that has not already been developed. In order to provide the addition and necessary related infrastructure, development within the 75-foot setback is required.

The site contains a central wetland area with a small unnamed brook passing through it. Through discussions with your office, our understanding is that in order to qualify for the PBR, we must remain entirely outside of the 25-foot setback from the brook. Further, slopes steeper than 3:1 can not be considered to be part of the 25-foot setback. In all areas, at least 25 feet of ground sloped at 3:1 or shallower will remain undisturbed between the proposed project and the brook.

On the southern portion of the site, where the building and adjacent parking is located, a portion of the proposed access driveway, totaling approximately 1,000 square feet, is located within the 25-foot setback from the wetland. However, this area does not sit within the 25-foot setback from the brook.

On the northern portion of the site, where the satellite parking is located, a small area of wetland fill, totaling approximately 50 square feet, is proposed. As this area is over 100 feet from the brook, it is our understanding that no permitting is required for this small fill area.

As part of the PBR Notification form, photos of existing site conditions were taken. These photos are attached to this memorandum. The locations and directions in which the photos were taken have been indicated on the attached Sheet C100 Existing Site Plan. Post construction photos will be taken within 20 days of completion of the project and submitting to the Department.

If you have any questions or require further information, please contact me at (207) 774-2112, or via email at [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

KRV/  
203834.01

Attachments: Photos of Existing Site Conditions  
Sheet C100 Existing Site Plan  
Sheet C200 Proposed Site Plan



PHOTOS OF EXISTING SITE CONDITIONS



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4



PHOTO 5



PHOTO 6



**PHOTO 7**



**PHOTO 8**

## Kenneth Volock

---

From: Kokemuller, Linda K [Linda.K.Kokemuller@maine.gov]  
Sent: Friday, December 16, 2005 11:26 AM  
To: Hallowell, Dawn; Kenneth Volock  
Subject: RE: Woodard & Curran Office Addition

I did speak to him.

Kenny,

Your analysis is basically correct. As long as your new project stays within the parameters approved for the subdivision and follows the stormwater management plan approved for the subdivision then you don't need any other permits from the Department. If you do more than the subdivision's stormwater management plan requires that's fine but you can't deviate from it in any significant way without a site modification of the subdivision's permit. If your project triggers the Site Law "structure" definition then it needs its own Site Law permit. The stormwater law would never apply directly to your project because Woodard & Curran is in a Site Law approved subdivision. The Site Law supercedes any stormwater law issues.

Linda

-----Original Message-----

From: Hallowell, Dawn  
Sent: Thursday, December 15, 2005 1:19 PM  
To: Kokemuller, Linda K  
Subject: FW: Woodard & Curran Office Addition

Hi Linda -

Sounds he already spoke with you about this project...

-----Original Message-----

From: Kenneth Volock [mailto:kvolock@woodardcurran.com]  
Sent: Thursday, December 15, 2005 1:05 PM  
To: Hallowell, Dawn  
Subject: Woodard & Curran Office Addition

Hey Dawn,

While I've got you thinking about Stormwater on a W&C project, we're having an addition put on our building here in Portland. I have attached a pdf of the latest proposed site plan for reference. Currently, we are covered under the existing Stroudwater Estates Phase II site location permit (#L-010223-39-A-A). I have previously spoken with Linda Kokemuller about this and she said that as long as we did not break the site law threshold on our own, we would continue to be covered under the existing permit.

It is our understanding that since we are covered under an existing site location permit, further stormwater permitting is not required. As a condition of the site location permit, we are required to maintain pre-development peak runoff. As such, the site improvements involved with our addition have been designed to do so.

Based on the fact that our project does not require a stormwater permit, our development does not require its own site law permit, and we are not proposing any infiltration, Chapter 500 does not apply to our project. Nonetheless, we plan to comply with the Basic Standards and will comply with the BMP standard to the extent practicable based on site constraints (about 65% of the impervious area rather than 95%).



Gorrill-Palmer Consulting Engineers, Inc.

Traffic and Civil Engineering Services

PO Box 1237  
15 Shaker Rd.  
Gray, ME 04039

207-657-6910  
FAX: 207-657-6912  
E-Mail: mailbox@gorrillpalmer.com

January 23, 2006

Mr. Tom Errico, PE  
Wilbur Smith Associates  
59 Middle Street  
Portland, ME 04101-4211

Re: Proposed Expansion of Woodard and Curran  
Hutchins Drive  
Portland, Maine

Dear Tom:

Woodard and Curran asked Gorrill-Palmer Consulting Engineers Inc. to respond to your request for additional traffic information for the above referenced project. Based on my conversation with you last week, you have requested documentation of the history of the permitting of the site from a traffic perspective, including research and details of prior permitting requirements. The purpose of this letter is to present this information.

The current and proposed site is located on lot 16 of Stroudwater Estates which was originally permitted with 8 lots in 1979 and did not include any provisions regarding traffic nor a traffic impact study. Phase 2 of Stroudwater Estates was permitted in June of 1984 and included an additional 12 lots. The Maine Department of Environmental Protection Site Location of Development Permit found that the applicant had "made adequate provision for traffic movement of all types into, out of or within the development area". No traffic impact study was contained in their files and the permit did not contain any conditions of approval with respect to traffic.

A traffic impact study was completed in November, 1991 by T. Y. Lin International in conjunction with Phase 3 of Stroudwater Estates. The traffic impact study for Phase 3 included 13 lots with approximately 10,000 sf of building space on each lot, or a total of 130,000 sf estimated at 50 percent office and 50 percent light industrial space. The report contained three recommendations:

- "Cummings Road/Spring Street/County Road- Reconstructing the Spring Street and Cummings Road approaches to provide one exclusive left turn lane, one exclusive through lane and one shared through/right turn lane" - A project including these improvements and others has been designed by our office for the Maine DOT and is currently scheduled for construction in 2007 by the Maine Department of Transportation (MaineDOT).
- "Congress Street/Johnson Road- Reconstructing the intersection to provide two exclusive left-turn lanes and one exclusive right-turn lane on the Congress Street eastbound approach" - This work was completed by the City and the MaineDOT several years ago.

Mr. Thomas Errico, PE

January 23, 2006

Page 2 of 2

- "Traffic signal warrant analysis was performed at the Congress Street/Hutchins Drive intersection for the 1996 Build condition. Based on criteria in the Manual on Uniform Traffic Devices, the traffic signals are warranted." - Traffic signals have been installed at this location.

Following the permitting of these three phases, Woodard and Curran expanded in 1996 and the City determined that a traffic study was not required. Documentation of the above summary is attached to this letter.

Currently Woodard and Curran employ 111 persons in their main office building. They have 32 more employees next door in the Annex (formerly occupied by Clark Insurance). Once the proposed building is complete the employees in the Annex will move into the new building bringing the total employees up to 143. The proposed building is designed to have enough room to accommodate approximately 64 more employees, for a total of 207 at full occupancy.

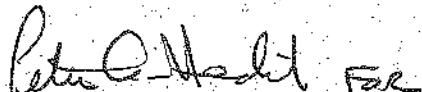
The attached spreadsheet breaks down floor areas for Phase 1 and 2 of the Stroudwater Estates development for prior to 1991 (when the Phase 3 Traffic Impact Study was written), prior to 1997 and post 1997. The only change between 1991 and 1997 is the 22,766 sf addition to the Woodard and Curran building and a 10,057 sf industrial building.

In terms of trip generation after 1997, if we assume the 32 employees now in the Annex and the future 64 employees (a total of 96 employees) have or will be added post 1997, the additional traffic which would be generated by Woodard and Curran is estimated at 65 and 76 trip ends during the AM and PM peak hours respectively based on ITE Land Use code 715, single tenant office building. Adding in the 10,057 sf of additional industrial space since 1997, would yield an additional 10 and 11 trip ends during the AM and PM peak hours respectively for a total of 75 and 87 AM and PM trip ends respectively since 1997. This total is below the MaineDOT threshold of 100 and thus would not require a MaineDOT traffic movement permit.

Please review the information presented in this letter and contact me should you have any further questions.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.



Thomas L. Gorrill, P.E., PTOE  
President

C: Barry Sheff

Stroudwater Estates

Phase	Tax Map/Lot	At time of Phase 3 Traffic		Total Pre-7/97		Post 7/97	
		Office Floor Area	Industrial Floor Area	Office Floor Area	Industrial Floor Area	Office Floor Area	Industrial Floor Area
Phase 1							
Lot 1	238A/A6 *						10057
Lot 2	238A/A5 *	13779		13779			
Lot 3	238A/A4		83960		83960		
Lot 4	238A/A3	25080		25080			
Lot 5	238A/B2	8072		8072			
Lot 6	238A/B1	16637		16637			
Lot 7	239A/A4	10184		10184			
Lot 8	239A/A5 *						
Phase 2							
Lot 9	238A/B3						
Lot 10	238A/B4	9960		9960			
Lot 11	240/A1	9960		9960			
Lot 12a	240/A2		41261		41261		
Lot 12b	240/A3		41261		41261		
Lot 13	240/A4						
Lot 14	240/A5						
Lot 15	238A/A1	11184		11184			
Lot 16	238A/A1			22766			
Lot 17	240/B2	34230		34230			
Lot 18	240/B3		8500		8500		
Lot 19	240/B4						
Lot 20	240/B5						
Total		139086	174982	161852	174982		10057





DEPARTMENT ORDER

IN THE MATTER OF

STROUDWATER ESTATES	)	SITE LOCATION ORDER
Portland, Maine	)	
STROUDWATER ESTATES PHASE II	)	
#L-010223-39-A-A (CORRECTED 7/16/84)	)	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 STROUDWATER ESTATES with its supportive data, staff summary, agency review comments, and other related materials on file and finds the following facts:

- 1. The applicant proposes to expand an existing Board Approved industrial subdivision. The proposed expansion will consist of 12 more lots with an interior road for access.

Access to the site is via Congress Street, City owned and maintained.

Sewer and water service will be provided by the City of Portland.

Solid Waste generated by the new expansion will be collected and disposed of at the Portland Regional Waste Disposal Facility.

Financing for the project is through a \$300,000 U.D.A.G. Grant from the City of Portland. Technical assistance for engineering is being provided by the E.C. Jordan Co. Soils in the project area are classified as weathered silty clays underlain by silty sands. No sand or gravel aquifer was reported in the area.

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 surface water runoff is controlled on individual lots.
- 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.



Have the owner of the solid waste disposal facility fill out Attachment A on page 10. This form or one containing the same information must be submitted with the application.

NOTE: If the solid waste disposal facility is run by the municipality, the letter should be filled out by the Mayor, Town Manager or Selectmen.

19. If project is other than a subdivision, state plans for landscaping and show details on site plan or a separate landscaping plan. Landscape plans should include as a minimum: species type and location of trees and/or shrubs, size of trees and/or shrubs, planting dates. N/A

20. If other than residential subdivision, state below the estimate average number of vehicles per day anticipated on or using the site. The number of vehicles per day will depend on the development of the individual lots.

21. If other than residential subdivision, state below the manner in which police and fire service requirements of the proposed project will be provided. If public departments are to provide service, letters from these departments should be provided.

Police and Fire service will be supplied by the City of Portland.

See Exhibits E and F.

22. Submit the appropriate U.S.G.S. topographic map which includes the project site. Indicate on the map:

- a. Location of boundaries of the project as proposed.
- b. Location of boundaries of all property you own or control.

23. Submit 12 copies of site plans, drawn to a scale sufficient to show all details and be entirely legible: (Recommended Scale: 1" = 100') (ALL PLANS SHALL BE FOLDED 8½" x 11")

- a. Location, function and ground area of all structures and facilities.
- b. Location, ground area of parking lots and all roads, length and typical cross-section of roads.
- c. The nature and extent of any site work such as filling, grading, drainage, dredging, etc.
- d. The nature and extent of any proposed construction or facilities related to the project.
- e. The topography of the project site using 5 foot contours.
- f. Streams and drainage ways. See enclosed site plans.

24. Attach the results of an on-site soil investigation done by a qualified evaluator INCLUDING A SOILS MAP to the same scale as the site plan. The soils designations, lines or demarcation and test pit locations are to be shown directly on the site plan. If the application is for a subdivision, test pits must be made and reported on each proposed lot. All other applications should have test pits made in areas of proposed subsurface sewage disposal and/or construction location. (SEE PAGE 10 FOR EXAMPLE FORMAT.)

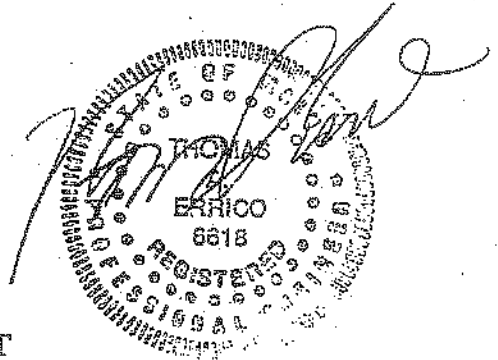
See Exhibit G

25. Attach plans and statements indicating measures which will be taken to control surface water runoff:

- a. These provisions should include predevelopment and postdevelopment runoff calculations and complete specifications for any retention device. This requirement may be waived depending on the individual project. Example: subdivisions with no road construction.  
See Exhibit H

26. Attach plans and statements indicating measures which will be followed to control erosion and sedimentation during both the construction phase and after completion of the project. These should include, but are not limited to the following:

See Exhibit I



REPORT ON  
TRAFFIC IMPACT STUDY  
STROUDWATER ESTATES PROJECT  
PHASE III  
PORTLAND, MAINE

PREPARED FOR  
GEORGE M. HUTCHINS

PREPARED BY  
T. Y. LIN INTERNATIONAL  
CONSULTING ENGINEERS  
5 FUNDY ROAD  
FALMOUTH, MAINE

NOVEMBER 1991

## SECTION I - INTRODUCTION

Mr. George M. Hutchins retained T. Y. Lin International (TYLI) to prepare a Traffic Impact Study in conjunction with the proposed Phase III of the Stroudwater Estates project. The project site is located in Portland, Maine (see Figure 1), adjacent to Hutchins Drive and Congress Street.

Phase I of the Stroudwater Estates project, which consists of eight (8) approved lots, has three (3) unbuilt lots. Phase II of the project has been approved for 13 lots. However, three of them have not been built and two lots (Lot #14 and #20) have been eliminated due to environmental considerations. In addition, the size of Lot #19, which is not built, has decreased. Phase III as proposed will consist of 13 lots with approximately 10,000 square feet of building space on each lot. For this study, it was assumed that all unbuilt lots in Phase I and II, and all proposed lots in Phase III will consist of 50 percent office and 50 percent light industrial space. Phase III of the project is anticipated to be completed in Year 1996.

This report has been prepared in support of a Maine Department of Environmental Protection Site Location Application and presents the evaluation of public road system impacts resulting from the proposed project. The traffic study has been prepared to conform to all requirements of the Rules Regarding the Traffic Movement Standard of the Site Location Law, Chapter 374.

The purpose of this study is to evaluate the potential impact of traffic generated by the development on the existing street system in the vicinity of the project site. In addition, general travel patterns and safety impacts within the vicinity of the site will also be evaluated.

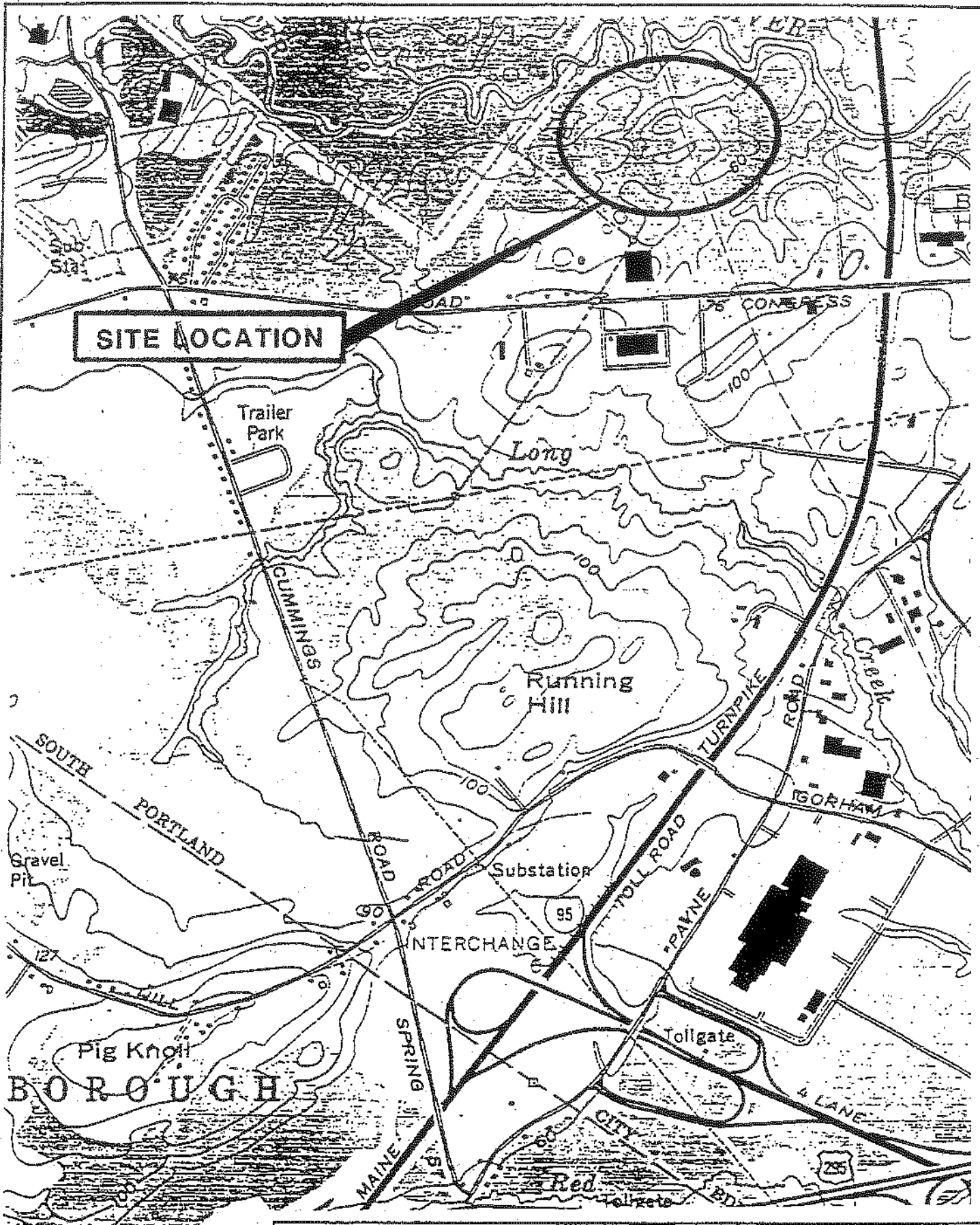
## SECTION II - DATA COLLECTION

The Maine Department of Transportation (MDOT) provided TYLI with the following:

1. Accident data for the 1988-90 period for the following intersections and roadway segments:
  - Congress Street/Hutchins Drive
  - Congress Street/Johnson Road
  - County Road/Spring Street/Cummings Road (Westbrook)
  - Johnson Road/Jetport Drive
  - Congress Street between Blueberry Road and Hutchins Drive

In addition, TYLI collected or prepared the following information:

1. Manual turning movement counts for the period of 7:00-9:00 AM and 4:00-6:00 PM at the following intersections:
  - Congress Street/Hutchins Drive
  - Congress Street/County Road/Spring Street (Westbrook)
  - Johnson Road/Jetport Road



STROUDWATER ESTATES PORTLAND, MAINE

SITE  
LOCATION

(ID-0276)

**TYLIN**  
INTERNATIONAL

DECEMBER 1991

FIGURE 1

2. AM and PM turning movement count data from Vanasse Hangen Brustlin, Inc. at the following intersection:
  - Congress Street/Johnson Road
3. 24-hour Automatic Traffic Recorder (ATR) counts on Hutchins Drive north of Congress Street.
4. Collision diagrams for accidents occurring at the following locations:
  - Congress Street/Hutchins Drive
  - Congress Street/Johnson Road
  - County Road/Spring Street/Cummings Road
  - Johnson Road/Jetport Drive
  - Congress Street between Blueberry Road and Hutchins Drive
5. General field investigation of roadway geometrics and signal phasing and timings at intersections in the study area.

### SECTION III - EXISTING TRAFFIC

In order to estimate the amount of impact the proposed development will have on surrounding roads, the existing traffic patterns and volumes must be established for the Base (i.e., no build) and Build conditions. Traffic impact analysis typically uses volumes and patterns based upon peak hour flows (usually the period of heaviest usage).

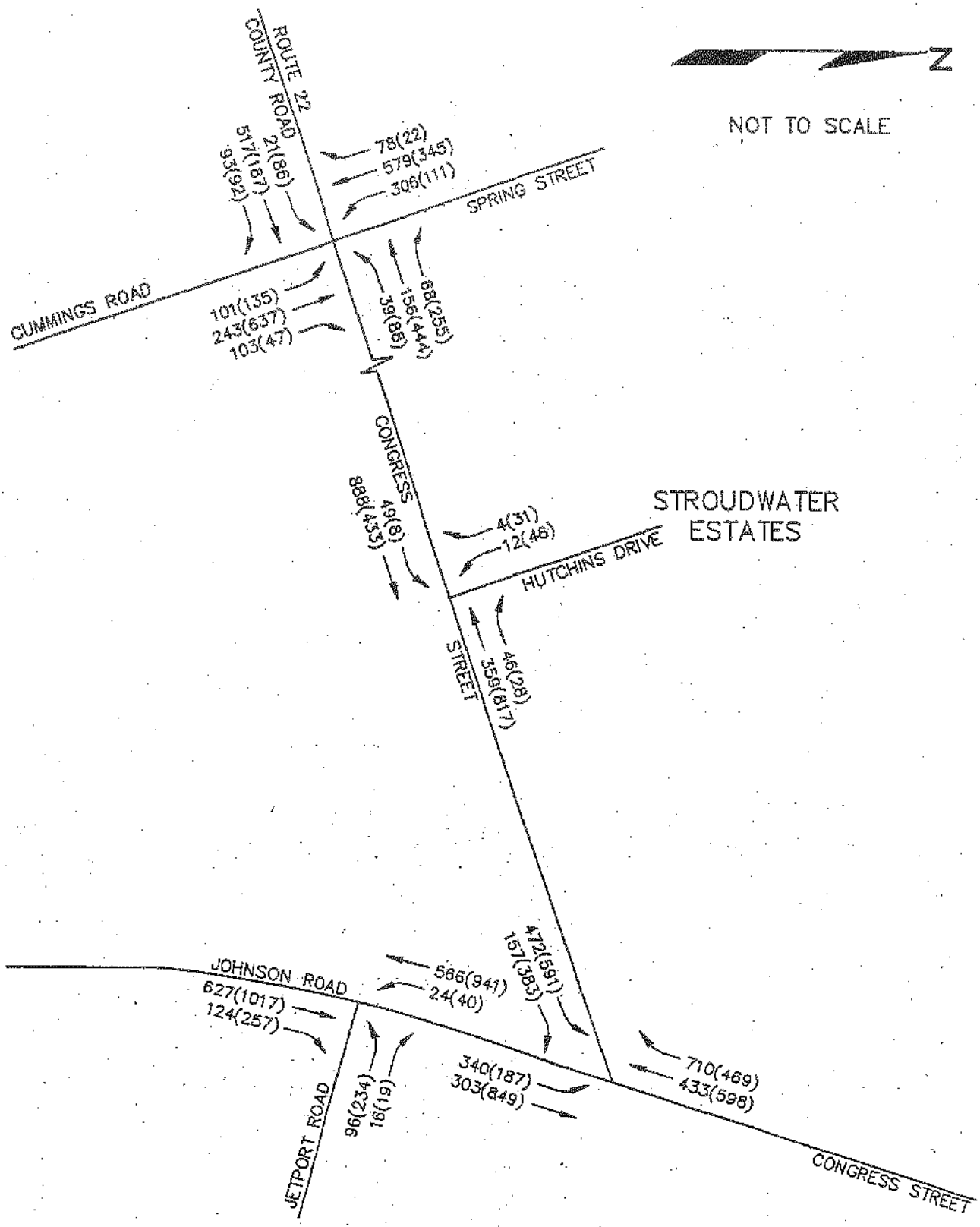
It should be noted that the study intersections included in this study were based upon the estimated site generated traffic (Section IV) and the criteria contained in the State Site Location Law, (i.e., site generated traffic of 35 vehicles per hour per lane for through and/or right-turn movements or 25 vehicles per hour per lane for left-turn movements).

To establish the base AM and PM peak hour volumes, AM and PM manual turning movement counts were conducted at the Johnson Road/Jetport Road (09/27/91), County Road/Spring Street/Cummings Road (09/30/91), and Congress Street/Hutchins Drive (10/01/91) intersections. AM and PM turning movement data at the Congress Street/Johnson Road (09/19/91) intersection was obtained from Vanasse Hangen Brustlin, Inc. In addition a 24-hour Automatic Traffic Recorder (ATR) count on Hutchins Drive north of Congress Street was conducted on October 2-7, 1991.

Results of the peak hour turning movement counts indicated that at all intersections the AM peak hour occurred between 7:00-8:00 AM, while the PM peak hour occurred between 4:00-5:00 PM except the Congress Street/Johnson Road intersection. At the Congress Street/Johnson Road intersection the AM peak hour occurred between 7:15-8:15 AM and the PM peak hour occurred between 4:30-5:30 PM.



NOT TO SCALE



XX(XX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

STROUDWATER ESTATES PORTLAND, MAINE

1991 DESIGN HOURLY VOLUMES

10-0276





The raw AM and PM peak hour volumes were adjusted to represent a Design Hour condition (30th Highest Hour Volume) according to 1991 Maine Department of Transportation weekly group mean factors. The 1991 Design Hour Volumes during the AM and PM peak hour are presented on Figure 2.

Present plans indicate the proposed project will be constructed over several years with completion expected in 1996. To estimate the 1996 Base (No-Build) traffic volumes, the 1991 Design Hour Volumes were increased by a regional background growth rate, and then traffic from all approved but unbuilt developments in the vicinity of the project were added. According to the City of Portland, roadways in the City are currently experiencing an annual growth of approximately 2 percent, and based upon information contained in the Cummings Road Business Park Traffic Study, prepared by John L. Murphy, P.E., traffic generated by the following list of approved but unbuilt developments were included.

- Stroudwater Estates Phase I & II
- Cummings Road Business Park
- Plaza West
- Scarborough Fair Mall
- Wal-Mart
- Signature Properties/Southborough Office Park
- Sable Oaks Office Park

The 1991 Base traffic volumes were estimated by adjusting the 1991 Design Hour volumes by a 2 percent per year background growth rate and then adding the traffic generated for the approved but unbuilt developments summarized above. Figure 3 presents the 1996 Base traffic volumes during the AM and PM peak hours.

#### SECTION IV - SITE GENERATED TRAFFIC

Site generated trips were estimated utilizing trip generation rates from the Institute of Transportation Engineers publication, Trip Generation (5th edition, 1991). As indicated in Section I of this report, Phase III of the Stroudwater Estates project will consist of 13 developable lots. It was assumed that each lot will consist of 10,000 square feet of building space - 50 percent of office and 50 percent of light industrial space. Two lots (#14 and #20) in Phase II of the project will be eliminated due to environmental considerations. Therefore, trips generated by Phase III of the project will be adjusted accordingly (i.e., traffic generated by Lots 14 and 20 of Phase II will be subtracted from traffic generated by Phase III). The estimated trips generated by Phase III of the Stroudwater Estates project based on the square footage data above are summarized in the following table:





Estimated Trip Generation

<u>Land Use</u>	<u>AM Peak Hour</u>			<u>PM Peak Hour</u>			<u>Average Weekday</u>
	<u>Enter</u>	<u>Exit</u>	<u>Total</u>	<u>Enter</u>	<u>Exit</u>	<u>Total</u>	
Light Industrial (Phase III, 65,000 Sq. Ft.)	50	10	60	8	56	64	453
General Office (Phase III, 65,000 Sq. Ft.)	185	23	208	38	183	221	1,599
Subtotal	235	33	268	46	239	285	2,052
Light Industrial (Phase II, 10,000 Sq. Ft.)*	8	1	9	1	9	10	70
General Office (Phase II, 10,000 Sq. Ft.)*	29	3	32	6	28	34	246
NET NEW TRIPS	198	29	227	39	202	241	1,736

\* Trips generated by the eliminated Lots 14 and 20 of Phase II.

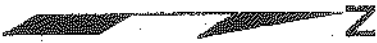
The Proposed project is expected to generate 1,736 new vehicular trips (entering and exiting) on an Average weekday. During the AM peak hour 227 new vehicular trips are expected - 198 entering and 29 exiting. During the PM peak hour, 241 new vehicular trips will be generated - 39 entering and 202 exiting.

The estimated site generated trips were distributed along the street network based on existing travel patterns and the consultant's judgment. The estimated AM and PM peak hour trip distributions are displayed on Figure 4. The 1996 Build traffic volumes during the AM and PM peak hours are shown in Figure 5. These volumes represent the sum of the base traffic volumes plus the estimated site generated traffic volumes.

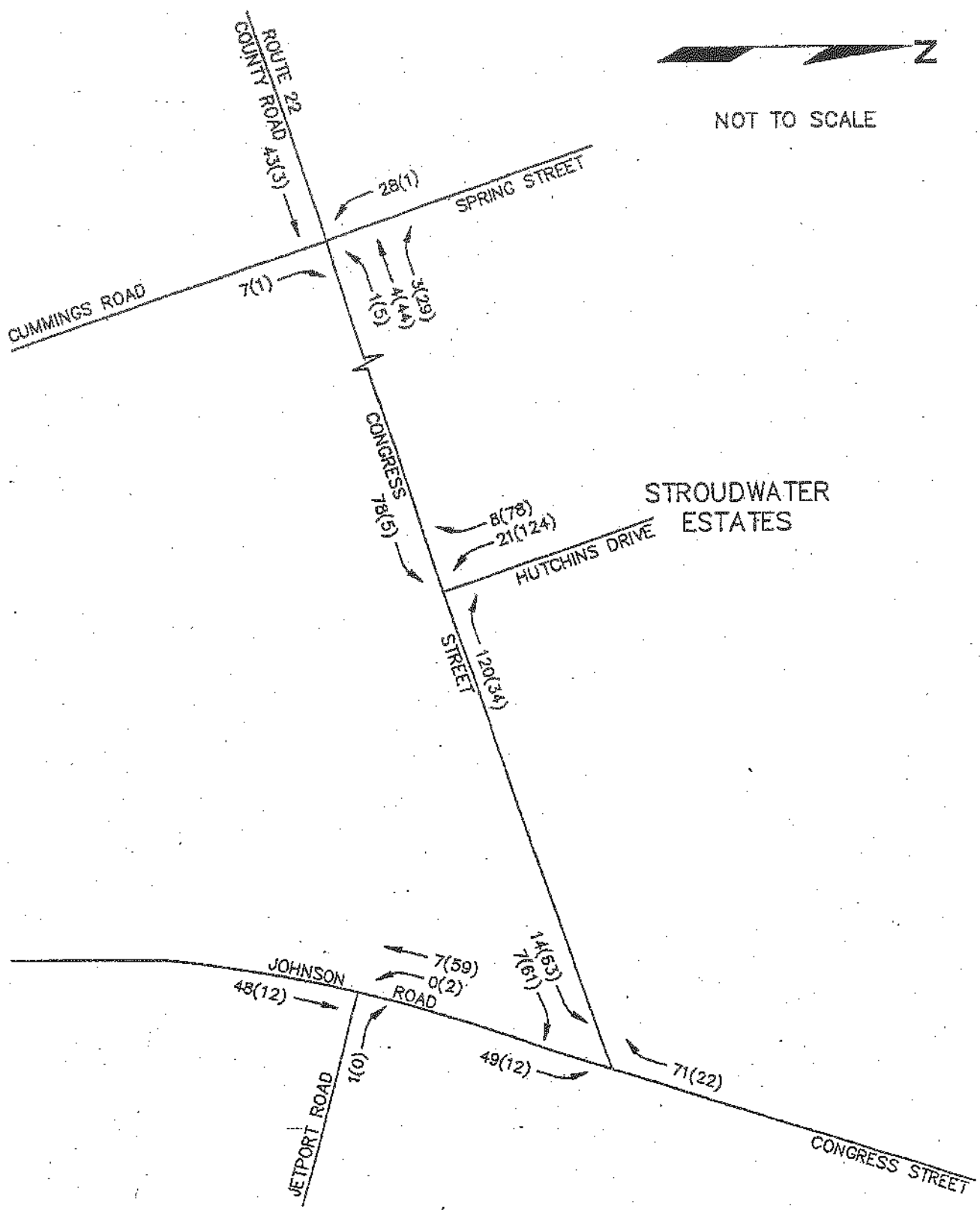
SECTION V - CAPACITY ANALYSIS

To evaluate the impact of traffic generated by the proposed development on the study intersections, capacity analysis was performed for the 1996 Base and Build conditions. Capacity analysis for signalized intersections were performed according to procedures contained in Chapter 9 of the 1985 Highway Capacity Manual, Transportation Research Board. The Level of Service (LOS) of a signalized intersection is based on the average delay experienced by vehicles wishing to pass through the intersection. The relationship between delay per vehicle and Level of Service is as follows:

<u>Level of Service</u>	<u>Delay</u>
A	0-5 seconds
B	5-15 seconds
C	15-25 seconds
D	25-40 seconds
E	40-60 seconds
F	60+ seconds



NOT TO SCALE



XX(XX) - AM(PM) PEAK HOUR  
SITE GENERATED  
TRAFFIC VOLUMES

STROUDWATER ESTATES PORTLAND, MAINE

SITE GENERATED  
TRAFFIC VOLUMES

(TD-0276)

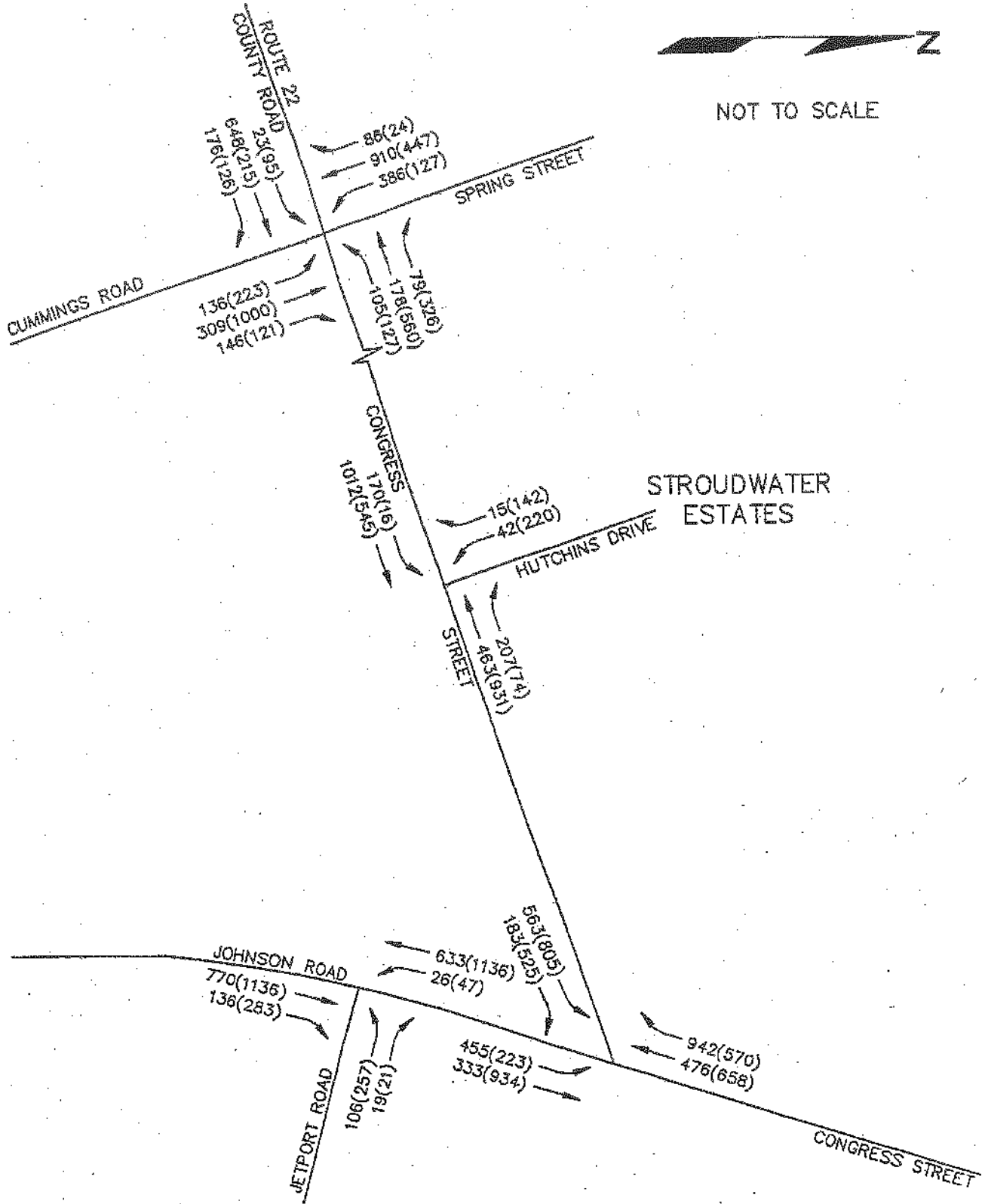
**TYLIN**  
INTERNATIONAL

DECEMBER 1991

FIGURE 4



NOT TO SCALE



XX(XX) - AM(PM) PEAK HOUR TRAFFIC VOLUMES

STROUDWATER ESTATES PORTLAND, MAINE

1996 BUILD TRAFFIC VOLUMES



The capacity analysis calculations was based upon existing geometric and traffic signal conditions. The results of the calculations are summarized in the following table:

Signalized Intersection Capacity Analysis

<u>Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Level of Service</u>	<u>Delay</u>	<u>Level of Service</u>	<u>Delay</u>
Cummings Rd./Spring St./County Rd.	F (F)	60.18 (71.94)	F (F)	63.12 (64.21)
Congress St./Johnson Rd.	C (C)	17.58 (19.73)	E (E)	48.61 (59.97)
Johnson Rd./Jetport Rd.	A (A)	3.20 (3.26)	B (B)	12.95 (14.72)

XXX - 1996 Base Condition  
 (XXX) - 1996 Build Condition

As indicated in the above table, extreme congestion is expected at the Cummings Road/Spring Street/County Road intersection during both the AM and PM peak hours in 1996 (either with or without the proposed project). At the Congress Street/Johnson Road intersection, very long delays can be expected during the PM peak hour in 1996. Minimal delays are expected at the Johnson Road/Jetport Road intersection during both the AM and PM peak hours.

SECTION VI - INTERSECTION IMPROVEMENTS

This section discusses the mitigation actions necessary to provide acceptable Levels of Service at the study intersections. The capacity analysis calculations indicates unacceptable operational conditions are projected at the Cummings Road/Spring Street/County Road and Congress Street/Johnson Road intersections. To improve the operating conditions at each of the deficient locations, it is recommended that the following improvements be implemented:

- Cummings Road/Spring Street/County Road - According to the volume projections, in the year 1996 heavy through volumes are expected on Spring Street during the AM and PM peak hours (900± southbound through vehicles in the AM peak hour and 1000 northbound vehicles in the PM peak hour). Currently, each approach at the intersection consists of one exclusive right-turn lane, one exclusive through lane and one exclusive right-turn lane. In order to accommodate the heavy through volumes on Spring Street/Cummings Road it will be necessary to provide additional capacity. To provide this additional capacity, it is recommended that the exclusive right-turn lane on both Spring Street and Cummings Road be converted to a shared through/right-turn lane. This improvement will require widening on the receiving side of the two lanes for a minimum of 300 feet. Following implementation of this improvement, the

intersection would operate at Level of Service D (delay = 30.60 seconds/vehicle) during the AM peak hour and Level of Service C (delay = 21.21 seconds/vehicle) during the PM peak hour during the 1996 Build condition.

- Congress Street/Johnson Road - Due to the heavy traffic volumes currently traveling through this intersection and the increase expected, unacceptable operating conditions are anticipated during the PM peak hour during 1996 Build condition. To improve operating conditions in 1996 it is recommended that Congress Street eastbound be widened to provide two exclusive left-turn lanes and one exclusive right-turn lane. Following implementation of this improvement, the intersection is expected to operate at Level of Service B (delay = 14.49 seconds/vehicle) during the AM peak hour and Level of Service C (delay = 16.09 seconds/vehicle) during the PM peak hour during the 1996 Build condition.

**SECTION VII - SAFETY**

Accident data for the period 1988-90 was obtained from the Maine Department of Transportation for roadways and intersections in the vicinity of the project. A summary of this data is presented below:

Location	1988-90 Accidents	Yearly Average	Critical Rate Factor
Congress St./Johnson Rd.	20	6.67	0.68
Congress St./Hutchins Dr.	1	0.33	0.16
County Rd./Spring St./Cummings Rd.	15	5.00	0.46
Johnson Rd/Jetport Rd.	3	1.00	0.14
Congress St. from Johnson Rd. to UNUM Dr.	2	0.67	0.22
Congress St. from Blueberry Rd. to Hutchins Dr.	3	1.00	0.31

MDOT considers a Critical Rate Factor (CRF) of 1.0 or greater and 8 accidents or more over a three year period as a general guideline to identify potential safety deficiencies. None of the above locations meet these guidelines. The assessment as to whether a safety deficiency exists is primarily based on a review of accident type and location to determine whether any recurring patterns are present.

Therefore, an analysis of the collision diagrams prepared for the Congress Street/Johnson Road and County Road/Spring Street/Cummings Road intersections was conducted and the results are summarized as follows:

- Congress Street/Johnson Road -

Of the 20 reported accidents occurring over 1988-90 period, two primary accident patterns were observed. These patterns include 16 rear-end and 2 turning movement type. Inspection of the collision diagram indicates that of the 16 rear-end accidents, 6 accidents involved through traffic

on the Johnson Road approach, 4 accidents involve right-turn traffic from the eastbound Congress Street approach and 3 accidents involved vehicles traveling to the west on the westbound Congress Street approach. Analysis of the light and roadway conditions of the reported accidents indicates that most accidents occurred during the day (75 percent) and under the dry roadway (80 percent) condition. Speeding and driving under the influence of alcohol were contributing factors in two reported accidents. Improving traffic signal timing to provide longer yellow/clear time and providing advanced signal warning signs may help to reduce accident occurrence at this intersection.

● County Road/Spring Street/Cummings Road -

Of the 15 reported accidents occurring over 1988-90 period, three primary accident patterns were observed. These patterns include 5 angle-type, 4 rear-end and 3 turning movement type. Of the 5 angle-type accidents, 3 accidents were collisions between northbound through vehicles and westbound through vehicles and 2 accidents involved northbound through vehicles and eastbound through vehicles. Speeding was the contributing factor for 3 accidents involving vehicles traveling to the north on the Cummings Road approach. Analysis of the light conditions of the reported accidents indicates that 6 accidents (40 percent) occurred during the dark with street lights on. Recent improvement to the intersection, and the improvements recommended in Section VI should help to reduce accidents.

SECTION VIII - SIGNAL WARRANT ANALYSIS CONGRESS STREET/HUTCHINS DRIVE

Based upon the level of traffic entering and exiting Hutchins Drive in the 1996 Build year, an evaluation of the need for traffic signals was performed. Procedures set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) published by the Federal Highway Administration, 1990, were used in the analysis.

Assessment of the traffic signals was based upon the investigation of Warrant 11 - Peak Hour Volume warrant. According to the MUTCD, the peak hour volume warrant is intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue traffic delay in entering the major street.

The peak hour volume warrant is satisfied when on an average day the vehicles per hour on the major street and the corresponding vehicles per hour on the minor street meet the threshold values per the MUTCD. Based upon this threshold limit the Congress Street/Hutchins Drive intersection does meet the requirement for traffic signalization.

Because the Stroudwater Estates development is to be phased over several years, the task of predicting when volumes will reach the levels requiring traffic signalization is difficult. In addition, the accuracy of predicting volumes in the distant future can also be erroneous. Therefore, it is recommended that the intersections be monitored and traffic signals be installed when the volume levels indicate there need.



**SECTION IX - CONCLUSIONS AND RECOMMENDATIONS**

1. Phase III of the Stroudwater Estates project is expected to consist of the development of 13 lots, containing approximately 130,000 square feet of office and industrial space. Following construction of the project it is expected that 1,736 new vehicular trips (entering and exiting) will be generated on an Average weekday. During the AM peak hour 227 new vehicular trips (198 entering/29 exiting) are expected and 241 trips (39 entering/202 exiting) are anticipated during the PM peak hour.
2. Capacity analysis was performed at the Congress Street/Johnson Road, Johnson Road/Jetport Road, and County Road/Spring Street/Cummings Road intersections. Results of the analysis indicates Level of Service F can be expected at the County Road/Spring Street/Cummings Road intersection during the AM and PM peak hours in the 1996 Build condition. The Congress Street/Johnson Road intersection is expected to operate at Level of Service C in the AM peak hour and Level of Service E in the PM peak hour in the 1996 Build condition. The Johnson Road/Jetport Road intersection is expected to operate at Level of Service B or better during both the AM and PM peak hours during the 1996 Build condition.
3. To improve operating conditions at the County Road/Spring Street/Cummings Road and Congress Street/Johnson Road intersections, the following improvements are recommended:
  - Cummings Road/Spring Street/County Road - Reconstructing the Spring Street and Cummings Road approaches to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane.
  - Congress Street/Johnson Road - Reconstructing the intersection to provide two exclusive left-turn lanes and one exclusive right-turn lane on the Congress Street eastbound approach.
4. Traffic signal warrant analysis was performed at the Congress Street/Hutchins Drive intersection for the 1996 Build condition. Based upon criteria in the Manual on Uniform Traffic Control Devices, traffic signals are warranted.

Because the Stroudwater Estates development is to be phased over several years, it is recommended that the intersection be monitored and traffic signals be installed when the volume levels warrant there need.

**TY·LIN** INTERNATIONAL

RECEIVED

July 7, 1995

JUL 10 1995

Ms. Mary Conroy  
City of Portland Traffic Engineer  
Traffic Division  
65 Hanover Street  
Portland, Maine 04104

STEVENS MORTON  
ROSE & THOMPSON

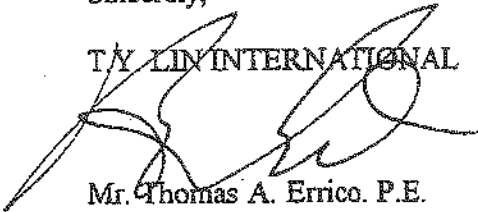
RE: Woodard & Curran Expansion/Stroudwater Estates

Dear Ms. Conroy:

As indicated in our telephone conversation on June 28, 1995, a traffic study for the proposed expansion to the Woodard & Curran building at Stroudwater Estates is not required. If my understanding of this issue is incorrect, please contact me as soon as possible.

Sincerely,

TY·LIN INTERNATIONAL



Mr. Thomas A. Errico, P.E.  
Transportation Engineer

cc: Dennis Judd, SMRT

**From:** "Barry Sheff" <bsheff@woodardcurran.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>, <terrigo@wilbursmith.com>  
**Date:** 1/23/2006 9:54:48 AM  
**Subject:** Woodard & Curran Office Expansion Additional Information

Jean and Tom,

Attached to this email is a letter from Gorrill-Palmer regarding City's request for additional traffic information, as relating to our expansion project. We are sending electronically to expedite delivery and hopefully review, however, we will provide hardcopies to the Planning Office tomorrow.

Please do not hesitate to contact me, or Ken Volock in my office for questions regarding the overall project. As relating to traffic, please contact Tom Gorrill's office directly.

We look forward to Public Hearing on February 7 and desire to have all issues resolved prior to. Thanks in advance for your assistance.

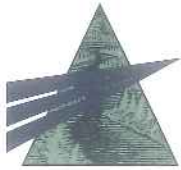
Barry

Enclosure: ErricoW&CExpansion01-23-06.pdf

-----  
Barry Sheff, P.E.  
Vice President/Project Manager  
(800) 426-4262 ext. 3266

Woodard & Curran  
[www.woodardcurran.com](http://www.woodardcurran.com)

**CC:** "Kenneth Volock" <kvolock@woodardcurran.com>, <tgorrill@gorrillpalmer.com>



**Neighborhood Meeting Certification**

I, Kenneth Volock (Woodard & Curran, Inc.), hereby certify that a neighborhood meeting was held on Tuesday, January 17, 2006, at the offices of Woodard & Curran, 41 Hutchins Drive, Portland, Maine, at 6pm.

I also certify that on Tuesday, January 10, 2006, invitations were mailed to all addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development and the residents on the "interested parties" list.

Signed,



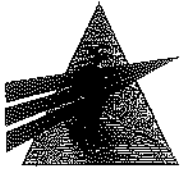
1/24/06

Date

Attached to this certification are:

- 1. Copy of the invitation sent
- 2. Addresses provided by the Planning Department
- 3. Certified mail receipts
- 4. Meeting Minutes (with Meeting Handout and Meeting Attendee Sign-In Sheet as enclosures)

on  
Planning  
file  
JF  
1-24-06



**WOODARD & CURRAN**  
Engineering • Science • Operations

CORPORATE OFFICES: Maine, Massachusetts,  
New Hampshire, Connecticut, Florida  
Operational offices throughout the U.S

January 10, 2006

Neighbor of  
Woodard & Curran  
41 Hutchins Drive  
Portland, Maine 04102

Re: Woodard & Curran Building Addition – Neighborhood Meeting

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for a building addition to the existing offices of Woodard & Curran at 41 Hutchins Drive in Portland.

Meeting Location: Woodard & Curran Office, 41 Hutchins Drive, Portland

Meeting Date: Tuesday January 17, 2006

Meeting Time: 6:00 PM


The City code requires that property owners within 500 feet of the proposed development (1000 feet for proposed industrial development) and residents on an “interested parties list” be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

The attached sheet should direct you to where the meeting will be held.

If you have any questions please contact Ken Volock at (207) 774-2112, or via email at [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,

WOODARD & CURRAN INC.

  
Kenneth Volock  
Engineer

KRV/djt  
203834.01/1.1

Enclosure

Note:

Under Section 14-32(C) of the City Code of Ordinances, an applicant for a major development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting at least seven days prior to the Planning Board public hearing on the proposal.





## Meeting Minutes

### Woodard & Curran Building Addition Neighborhood Meeting – January 17, 2006 Woodard & Curran Office 41 Hutchins Drive Portland

Attending:

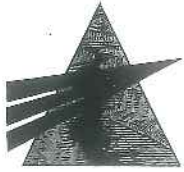
Ken Volock, Woodard & Curran  
Jon Boyd, Harriman Associates  
Douglas Cardente, 34 Diamond Street, Portland, Maine, 04101

The Neighborhood Meeting for the Woodard & Curran Building Addition project was held at the offices of Woodard & Curran, 41 Hutchins Drive, Portland, at 6pm on Tuesday, January 17, 2006. A summary of the discussions which took place at the meeting is contained below.

1. Ken Volock introduced the proposed development, including the building addition, associated parking, landscaping, environmental impacts and stormwater treatment.
2. The lone abutter attendee, Douglas Cardente, had no objection to the project as proposed, but inquired about the process of going through City Site Plan review. The City Site Plan review process was discussed briefly.
3. Mr. Cardente also inquired about materials of construction and whether those proposed for use were typical. Jon Boyd discussed the materials to be used. Brick will be used on the East, West and South facades and wrapping around corners, where it will be most visible. Metal siding will be used on the North façade to match the north façade of the existing North Wing.
4. The LEED process was also discussed including siting the project as well as several interior measures such as energy efficiency and use of natural light.
5. The meeting adjourned at approximately 6:30pm.

Enclosures: Meeting Handout  
Meeting Attendee Sign-In Sheet





Attachment III F

2 pages

January 24, 2006

Jean Fraser  
City of Portland  
389 Congress Street  
Portland, ME 04101

Re: Woodard & Curran Building Addition  
Major Site Plan Review - Additional Information

Dear Jean:

On behalf of the joint applicants, CADCAM Associates and Peggy and Eric Cianchette, we are submitting additional information in support of the Major Site Plan Application for the Woodard & Curran Building Addition, originally submitted September 21, 2005, to be used in Planning Board review.

These documents were prepared in accordance with Chapter 14, Land Use, of the Code of Ordinances of the City of Portland, Maine, and meet the applicable sections of the City of Portland, Maine, Technical and Design Standards and Guidelines adopted September 1987, last amended March 2000.

The additional information that follows addresses issues that require resolution as we continue towards our Public Hearing, scheduled for February 7, 2006. The information herein supplements that submitted by Woodard & Curran to the Planning Department on January 20, 2006.

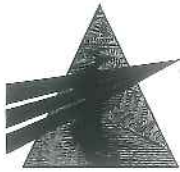
The following items were identified as "Next Steps" in the January 10, 2006 Planning Board Workshop Memorandum:

**8. Further discussion between the applicant and the City Arborist to secure approval to the Landscape Plan**

The Landscape Architect for the project, Pat Carroll of Carroll Associates, Inc., has discussed the project with the City Arborist. At this point we believe we have adequately addressed all comments. The design is depicted on Sheet L-1.0 Landscape Plan, which has been attached to this submission.

**9. Applicant needs to hold a neighborhood meeting**

The neighborhood meeting was held at the offices of Woodard & Curran on January 17, 2006. The Neighborhood Meeting Certification has been attached to this submission with the following attachments: a copy of the invitation that was sent to abutters; address of abutters provided by the Planning Department; certified mail receipts; and the meeting minutes with the meeting handout and a list of meeting attendees.



Jean Fraser, City of Portland  
January 24, 2006  
Page 2

In addition, the following item was raised by members of the Planning Board as an outstanding peer review issue:

**Comment from the City's Traffic Engineer on the need for a Traffic Study**

Woodard & Curran has contracted with Gorrill-Palmer Consulting Engineers, to review traffic generation for the site and provided comment on its compliance with existing permits and studies. A letter from Gorrill-Palmer to the City's Traffic Engineer, dated January 23, 2006, evaluating traffic generation historically and as can be expected from the proposed project, has been attached to this submission. In this letter, Gorrill-Palmer concludes that the proposed project will not require an MDOT traffic movement permit. A copy of this letter has previously been emailed directly to the City's Traffic Engineer.

Thank you for the assistance you have provided. If you have any questions or comments, please do not hesitate to contact me at (207) 797-7515, or via email, [kvolock@woodardcurran.com](mailto:kvolock@woodardcurran.com).

Sincerely,  
WOODARD & CURRAN INC.

Kenneth Volock  
Engineer

KRV/djt  
203834.01

Enclosures: Sheet L-1.0 Landscape Plan  
Letter from Gorrill-Palmer Consulting Engineers, Inc., to Tom Errico, Wilbur Smith Associates, dated January 23, 2006 (with all attachments)  
Neighborhood Meeting Certification (with all attachments)

*2/5 saw here  
in  
packet  
rec'd  
separately  
df.*

Attachment III G

**From:** Marge Schmuckal  
**To:** Jean Fraser; Marge Schmuckal  
**Date:** 1/30/2006 10:22:22 AM  
**Subject:** Re: 41 Hutchins Drive - Woodard & Curran

This may print out better - Also I took a brief look at your table and found no problems.

>>> Marge Schmuckal 1/30/2006 10:18:52 AM >>>  
I have revised my memo

>>> Marge Schmuckal 1/27/2006 11:41:53 AM >>>  
Jean,

I have reviewed the parking for this project. My calculations are based upon plans I received on 1/25/06. Please note that the current plans show a 21,690 sq. ft. new building instead of the 22,680 sq. ft. new building description found in the submitted text. I have chosen to use the square footage used within the submitted text.

<b>Existing Bldgs:</b>	<b>New Bldg:</b>	<b>Totals:</b>
22,766 sq ft 11,184 sq ft	22,680 sq ft	56,630 / 400 = 141.575 or 142 pkg required

The amount of parking shown on the current plan is 167 parking spaces, which is certainly allowable under zoning.

There are 25 extra parking spaces shown.

I would add that the other I-M zone requirements are being met under this current site plan.

I hope this helps you.

Marge Schmuckal  
Zoning Administrator



Attachment III H.

**From:** "Thomas Errico" <terrigo@wilbursmith.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 1/30/2006 1:56:28 PM  
**Subject:** Woodard and Curran Expansion Project

Jean-

I have reviewed the December 2005 site plan prepared by Woodard and Curran and the January 23, 2006 letter from Gorrill-Palmer Consulting Engineers, Inc. and offer the following comments:

\* The internal roadway providing access to the 43-space parking lot to the rear of the building will not meet general City roadway width standards. The roadway is proposed to be 20 feet. I support a waiver for the roadway width in light of the increased environmental impact a wider facility would have. It will be extremely important that good winter maintenance practices are followed to ensure that the effective width is not reduced due to snow accumulation.

\* The driveway "throat" at the Hutchins Drive entrance is currently proposed to be approximately 22 feet. The driveway should be modified such that it is 24 feet wide.

\* The applicant should provide details on the traffic control/pavement markings at the internal intersection at the main entrance.

\* I have reviewed the proposed parking supply and it is my professional opinion that the parking provisions are reasonable. Under the current proposal, a total of 167 parking spaces will be provided. At the time of project completion, 143 employees can be expected to occupy the facility. Under a full occupancy scenario 207 employees can be expected. A review of parking generation information provided by the Institute of Transportation Engineers indicates approximately 164 parking spaces are required for an office building with 207 employees. Accordingly, I find the supply to be adequate and not excessive.

\* Gorrill-Palmer Consulting Engineers, Inc. provided information on the permitting aspect of developments along Hutchins Drive. Based upon the information provided, I concur that a MaineDOT Traffic Movement Permit is not required for the project. However, based upon traffic increases since 1997, I would ask that the applicant conduct an analysis of the Congress Street/Hutchins Drive intersection during the weekday AM and PM peak hours to ensure safe and reasonable operations will be provided following completion of the project.

If you have any questions or comments, please contact me.

Best Regards,

Thomas A. Errico, P.E.

Senior Transportation Engineer

Wilbur Smith Associates

59 Middle Street

Portland, Maine 04101

(207) 871-1785 Phone

(207) 871-5825 Fax

CC: "Katherine Earley" <KAS@portlandmaine.gov>, <EJL@portlandmaine.gov>

**From:** "Errico, Thomas" <terrigo@wilbursmith.com>  
**To:** "Jean Fraser" <JF@portlandmaine.gov>  
**Date:** 2/1/2006 4:27:50 PM  
**Subject:** RE: Woodard and Curran Expansion Project

Jean--

I expect the applicant to conduct a post-development evaluation of the intersection and if that analysis identifies a problem, I would expect some contribution towards correcting the problem. Accordingly, a condition would be required that requires a contribution if deficient conditions are identified. Call me tomorrow if you want to know more.

Tom

Attachment III I



05P225

**TO:** Jean Fraser - Planner  
**FROM:** Jim Seymour - Development Review Coordinator, Sebago Technics, Inc.  
**RE:** Major Site Plan Review: 41 Hutchins Drive, Woodard & Curran Expansion  
**DATE:** January 31, 2006

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Sebago Technics has reviewed the revised submittal of the Major Site Plan application and supporting documentation with latest revision dated January 20, 2006 for the proposed expansion of their current office complex located at 41 Hutchins Drive in the City of Portland. It is our understanding that this development is on a lot, which was part of the Stroudwater Estates Subdivision, which obtained approval of a Maine DEP Site Location of Development permit in the 1980's. Since this site has not reached a threshold of 3 acres impervious it has not triggered a separate requirement for a Site Location permit based on current DEP standards. We respectfully offer the following comments in outline format:

**1. Stormwater Management**

Review of the stormwater management plan and subsequent runoff quantity and quality calculations were in a state of flux with the recent transition of the new Chapter 500: Stormwater Management Law and given the City was relieved of its delegated review authority, both the MeDEP and the City of Portland were not clear on the review level required for this site (quantity vs. quality). We discussed a strategy to address concerns of treatment vs. detention for dealing with stormwater management plan with which staff and the Planning Board could support for approval.

- A. The project will shows evidence that they meet the stormwater quality and quantity standard as required by the City's stormwater standard for required treatment when parking areas exceed 25 spaces. The narrative and calculations discussing and showing proof that the standard was submitted for the entire site. Recent meetings disclosed that the previous DEP order required quantity control. The applicant has shown that the peak rate from runoff has been met for the entire site, through detainment measures such as detention and infiltration ponds.

41 Hutchins Drive-  
Woodard and Curran Expansion

-2-

January 31, 2006

Our review of the quality calculations revealed that the treatment factors utilized for wooded buffer treatment appear not to be correctly sized and incorporate the use of wetlands, which are not allowed. This affects the overall treatment value, which may reduce the effective sediment removal and not meet the sliding scale factor as declared by the engineer. The engineer must re-evaluate the treatment factors for our or staff review.

As attempted all buffers shall be shown on the site plan with labels indicating the width, slope, and percentage of removal efficiency for each buffer shown.

- B. All structures such as manholes, catch basins, and drainage structures with surface openings must label rim elevations.
- C. The curbing along the access driveway/road along the addition should be extended to discourage scouring at the pavement edge. Therefore, we recommend curbing be extended to the edge of sidewalks at the entrance. The curbing from the building's end sidewalk shall be extended from the circle as well.
- D. The internal parking lot islands must be curbed in the satellite lot, for protection of landscape features.
- E. Will the underground detention/storage require an underdrain due to the depth in poor clay silt soils where water tables could be high?

## 2. Road Access/Circulation

- A. Please refer to comments from the City Traffic Engineer for concerns of traffic movements, trip generation, and internal movements.
- B. The access lanes per driveway standards are required to be 24 feet for two-way access. The applicant has requested a waiver of the standard because of the limitations of the wetlands, which traverse the site. The claim is that any further extension of the fill for the road widening will create difficulties in permitting and unnecessary impacts to the wetlands. The proposed road is 20 feet wide with guardrails on the wetland side and a 5-foot grass esplanade against the building.

Typically, the waiver requests for driveway/aisle widths have occurred with City Infill Sites where property limitations and building structures have a physical and geometrical impact on the redevelopment proposed. This property is unique in that the development and the wetland restraint is a direct result of the actions taken by the developer/applicant. The building size, configuration, parking layout, and expansion planning was determined by the applicant. Property lines and existing buildings are not the restriction, but a natural

41 Hutchins Drive-  
Woodard and Curran Expansion

-3-

January 31, 2006

resource is.

The width of 20 feet is marginal, and it is clear 24 feet width is desirable. Based on the layout and spacing between the proposed structure we feel 22 feet may be completed with a compromise of 1 foot towards the building and 1 foot towards the wetlands, with the access road from the proposed building's Hutchins Drive end to the curb cut designed to be 24 feet not 22 feet. Final discussion, arguments, and impacts will have to be weighed by the Board. Our feeling is that at a minimum, both the City and applicant, to accomplish and improvement for safety and vehicular passage can make a compromise for a 22-foot road.

- C. Details are needed for the sidewalk section along the street frontage and shall be in accordance with City of Portland design standards.

### 3. Utilities

- A. Letters to serve and available capacities have been requested showing that adequate service exists for the development. To date those have not been administered by Public Works
- B. The City wastewater division and City Engineer shall assist review of the construction details and location of the re-located interceptor sewer. We did not receive plans or construction details for the sewer relocation plan or profile design. All designs must be in accordance with City details, and the City must accept relocated easements. This should be directly reviewed by Public Works, but we can assist is so directed.
- C. There is a 12 inch steel culvert shown outleting into the stream from either Hutchins Drive or the Water District easement. Please place an easement around this drainage pipe such that either the City or Water District has rights to maintain on private property.

### 4. Grading & Erosion Controls

- A. The applicant should consider stabilized entrances when building the parking lots and access drives. Notes shall be added addressing mud tracking, pavement cleaning, dust control, and or street sweeping during construction.
- B. All existing and proposed catch basins in or near the construction area shall be protected with Silt sacs until the base course of paving is completed for the project.

### 5. General

- A. The project has an attached Geotechnical report, which shall be adhered to during construction. The plans shall add a note referencing the construction



41 Hutchins Drive-  
Woodard and Curran Expansion

-4-

January 31, 2006

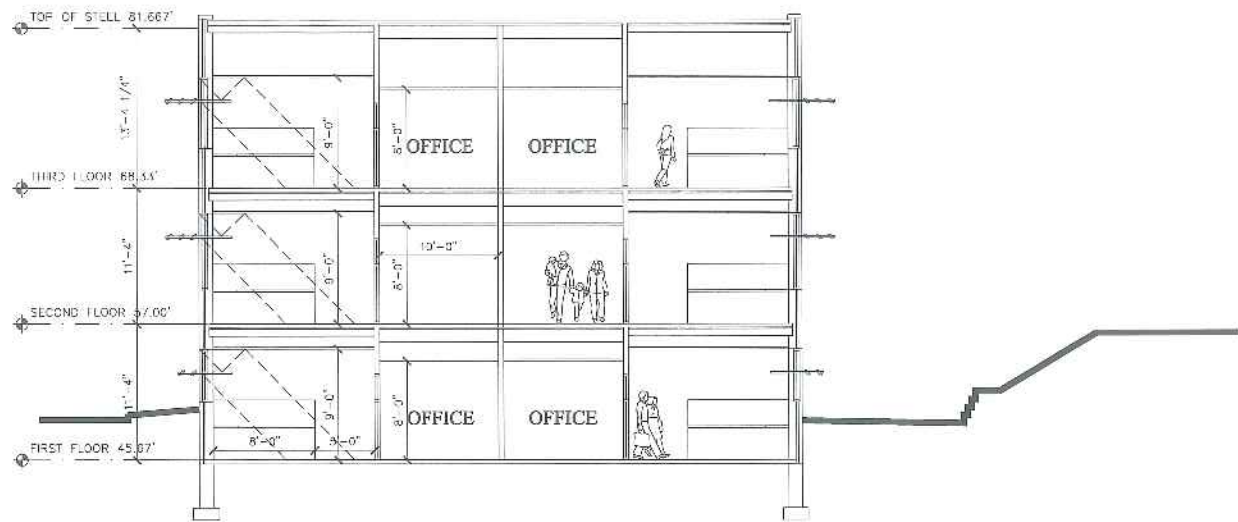
measures required for such foundation and retaining wall construction. The final retaining wall design shall be designed by a profession engineer, and reviewed and approved by the code enforcement officer. It also may be beneficial to require weekly reports from a geotechnical engineer or geologist summarizing findings and construction monitoring during excavation and preparation of the retaining walls and building foundations.

- B. The applicant is likely required to file a revised Maine Construction General Permit for this project. This must be obtained prior to the start of construction. Additionally the applicant shall indicate on the drawings a construction elevation benchmark with the datum specified. Ideally this should be in accordance with City datum for sewer project work. Please contact Bill Clark at public Works to confirm Survey information requirements.
- C. The applicant has appears to have available space for development, but given resource protection limits, treatment measures requiring avoidance of snow storage, and given the extent of parking, snow removal is of some concern. Please provide on a plan to address snow storage locations on site or note on the site plan how it will be removed.

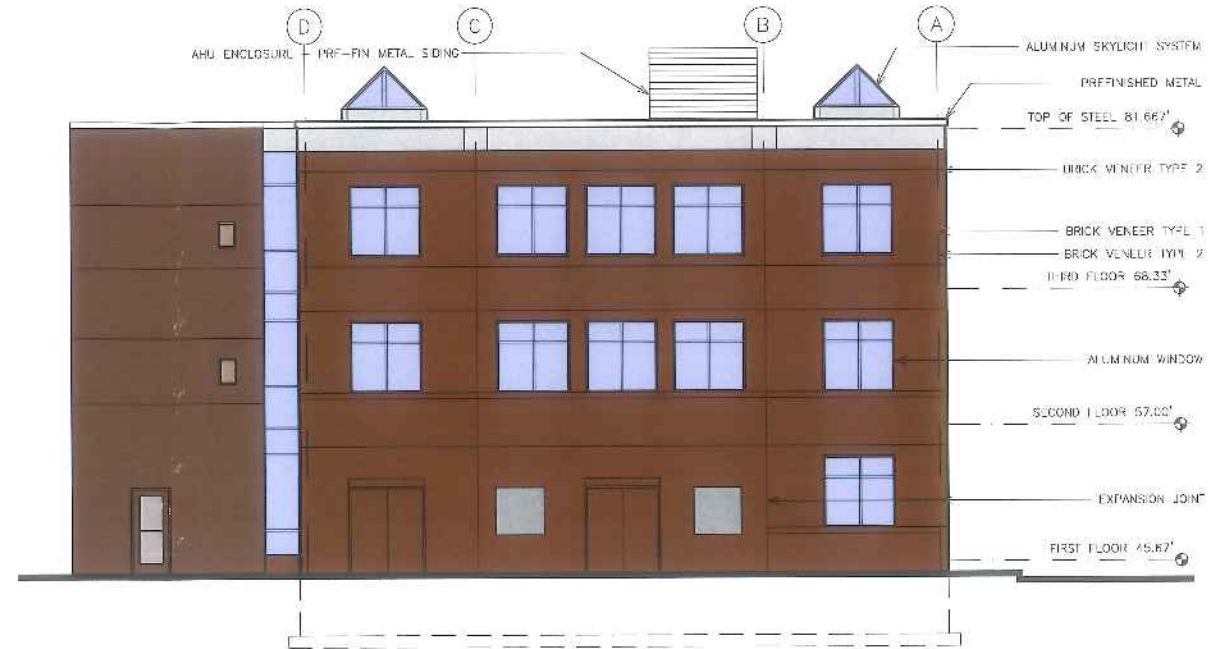
Overall, the project has addressed many challenges. However, the applicant should make the necessary revisions, as noted in the above comments to conform to City stormwater treatment issues for water quality, and some minor grading and parking layout/aisle concerns. If the board determines that the items left can be agreed to, and will be completed by the applicant, we can support conditional approval for the project

Please contact our office if you have any questions.

JRS/jrs



**BUILDING SECTION**  
 1/16"=1'-0" 0 4 8 12' REF. NA **A3**



**EAST ELEVATION**

**EAST BUILDING ELEVATION**  
 1/16"=1'-0" 0 4 8 12' REF. NA **A2**



**NORTH ELEVATION**

**NORTH BUILDING ELEVATION**  
 1/16"=1'-0" 0 4 8 12' REF. NA **A1**

Architects + Engineers  
**HARRIMAN ASSOCIATES**  
 One Auburn Business Park  
 Auburn, MA 04210  
 207.848.0200 ext.  
 307.883.2017 fax  
 www.harriman.com  
 Building commenced  
 since 1992  
 © 2004

Project Title  
**Woodard & Curran  
 Office Addition**  
 PORTLAND, MAINE

IA Project No. 04-28

Key Plan

Mark	Date	Description
1-24-06		P.R. MEETING
1-3-06		FINAL REVIEW
12-9-05		S. D. REVIEW

Drawing Status

Drawing Title  
**BUILDING  
 ELEVATIONS**

TA / PM: J.M.R.C.Y. Drawn By: J.V.B.O.Y.

Drawing Number  
**A20.2**

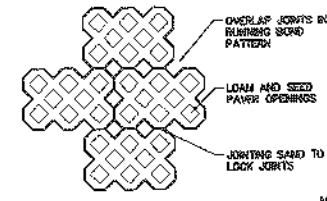


NO.	DESCRIPTION	DATE	BY	CHKD.
1	SUBMITTED FOR PLANNING BOARD APPROVAL	3/09/08		
2	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/08		
3	DESIGNED BY	03/03/08	SSS/RYV	
4	CHECKED BY	03/03/08	SSS/RYV	
5	DESIGNED BY	03/03/08	SSS/RYV	
6	CHECKED BY	03/03/08	SSS/RYV	

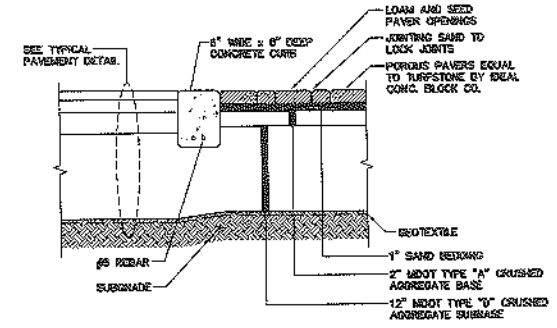
CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

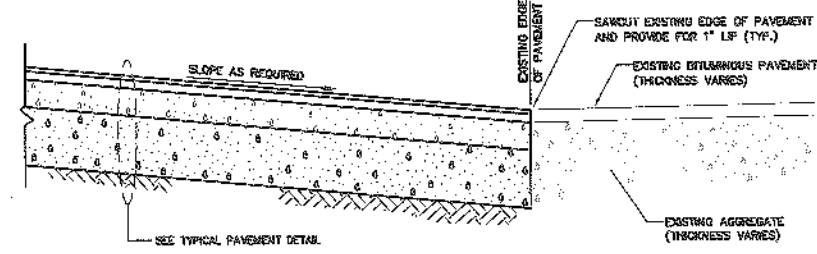
JOB NO.: 20384.01  
 DATE: MARCH 2008  
 SCALE: AS NOTED  
 SHEET: OF -



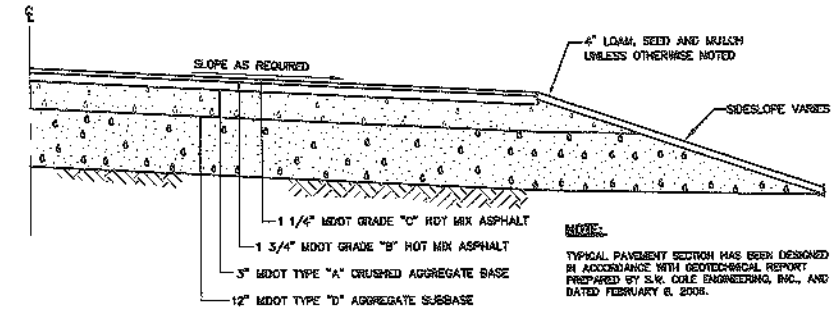
**TURFSTONE PAVER PATTERN**  
N.T.S.



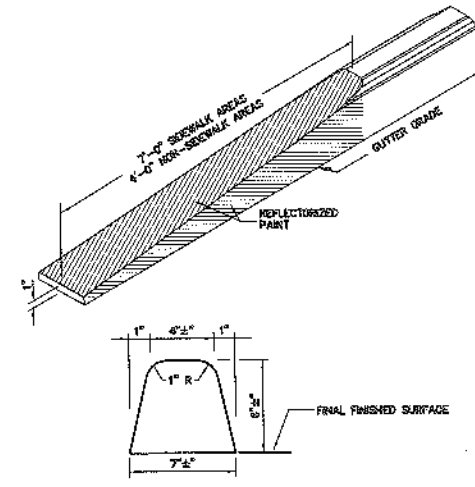
**TYPICAL PAVER DETAIL**  
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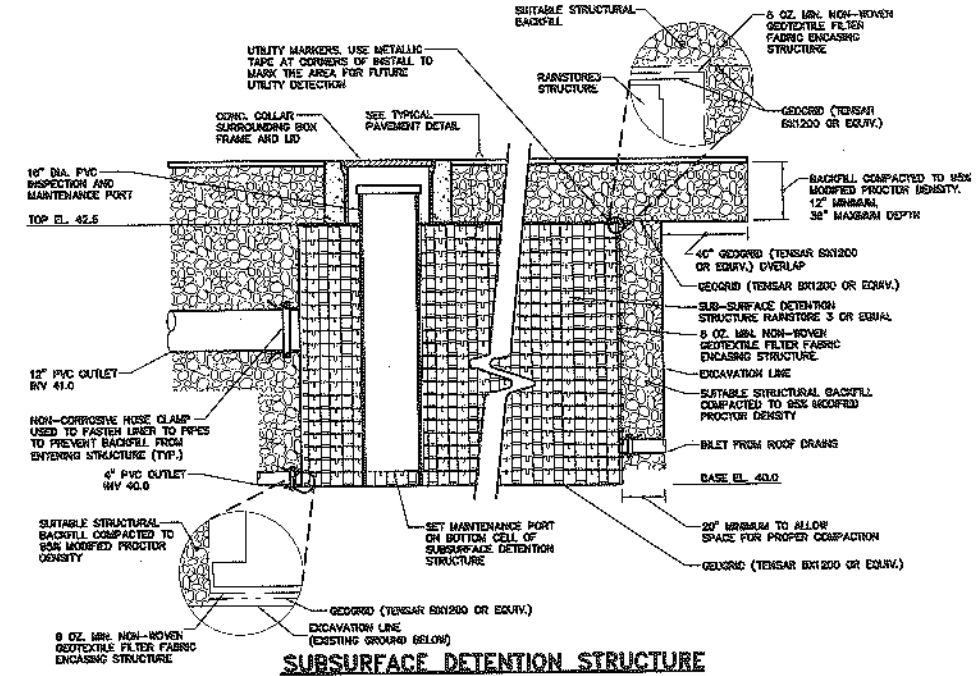
**PAVEMENT BUTT JOINT**  
N.T.S.



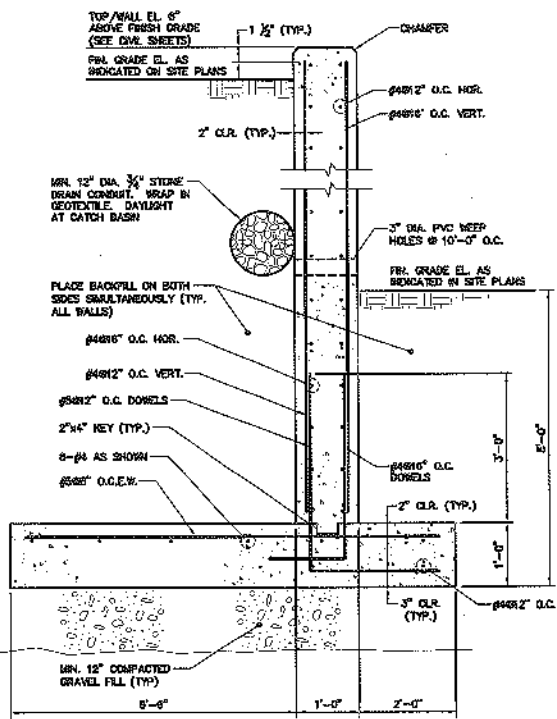
**TYPICAL PAVEMENT**  
N.T.S.



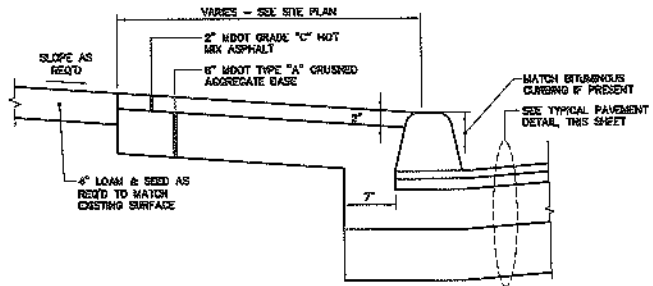
**BITUMINOUS CURB**  
N.T.S.



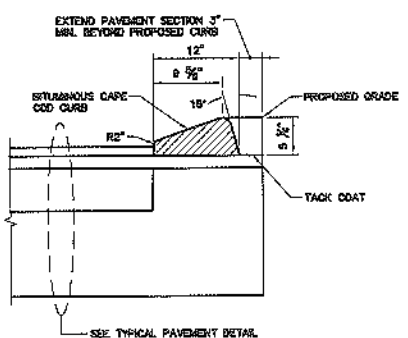
**SUBSURFACE DETENTION STRUCTURE**  
N.T.S.



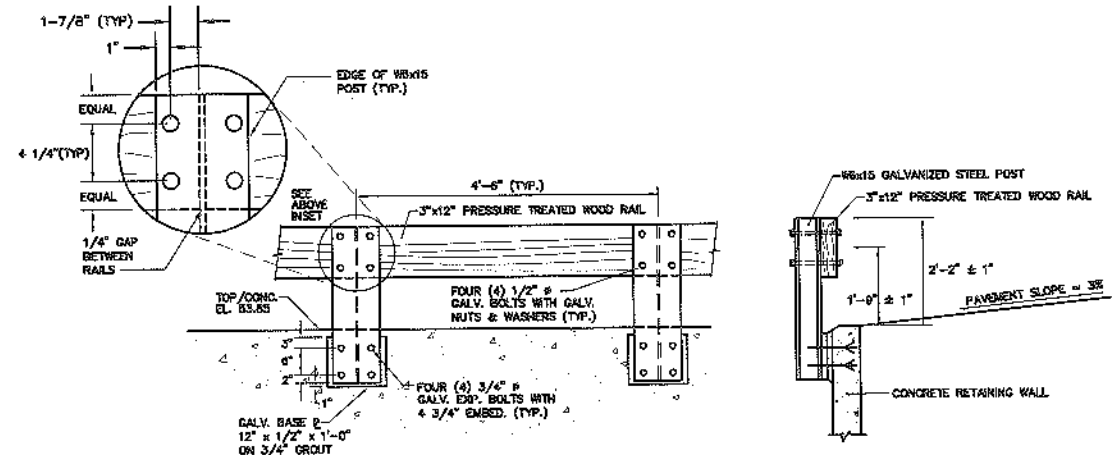
**REINFORCED CONCRETE RETAINING WALL**  
N.T.S.



**SIDEWALK DETAIL**  
N.T.S.



**CAPE COD CURB DETAIL**  
N.T.S.

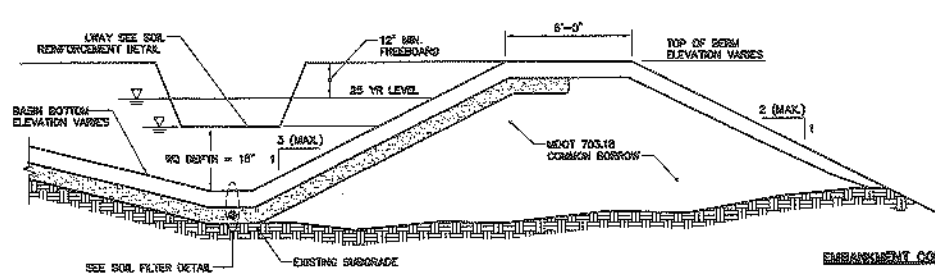


**GUARDRAIL NOTES:**

1. ALL POST SPACING SHALL BE 4'-0" UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. ALL HOLES IN POSTS SHALL BE SHOP-PUNCHED BEFORE GALVANIZING.
3. ALL POSTS AND HARDWARE SHALL BE GALVANIZED STEEL.
4. ALL RAIL LUMBER SHALL BE PRESSURE-TREATED SOUTHERN PINE, NO. 2 GRADE OR BETTER.

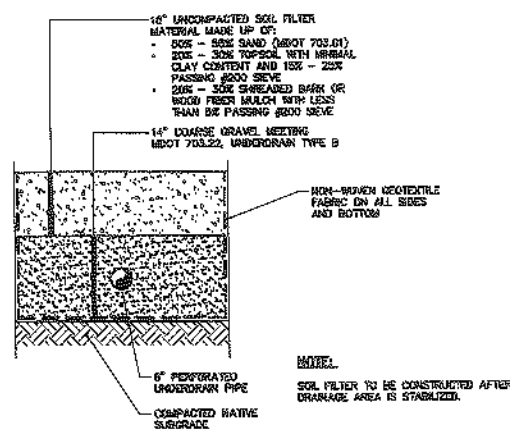
**GUARDRAIL DETAIL**  
N.T.S.

PortlandProject\20384\CAD\CAM\Project\Deliverables\2008-03-08\_Final\Submittal to City\Drawings\20384\01-C301.dwg, Mr. 05, 2008 - 11:35pm

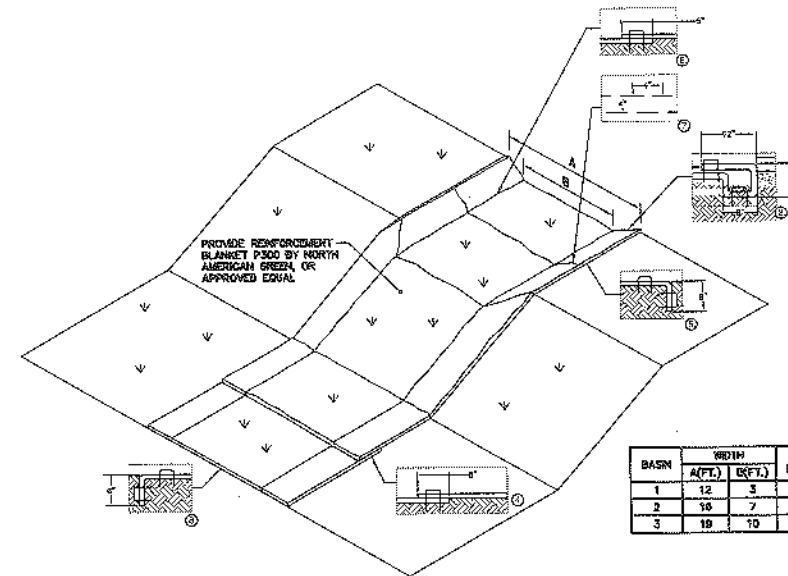


**TYPICAL FILTER BASIN SECTION**  
N.T.S.

- EMBANKMENT CONSTRUCTION:**
- COMMON BORROW TO BE PLACED IN 12" LOOSE LIFTS COMPACTED TO 90% OF MAX DRY DENSITY.
  - SEE GRADING PLAN FOR ELEVATIONS.

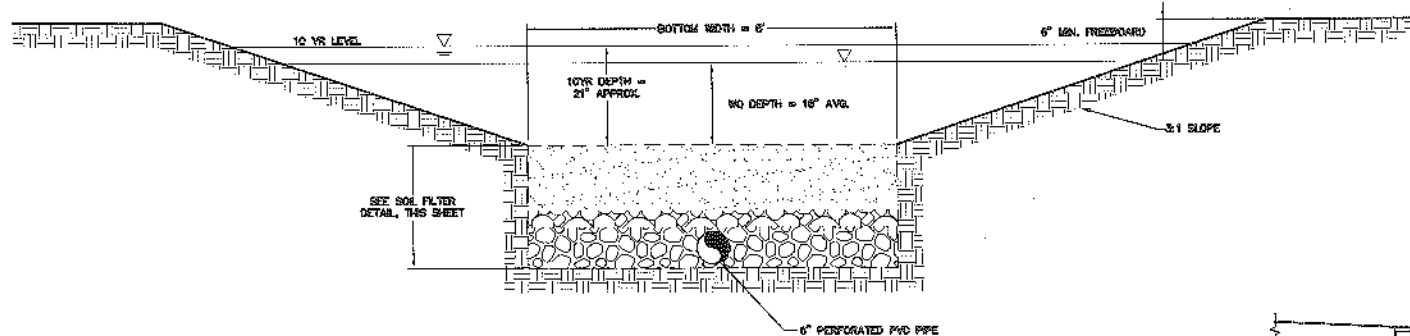


**SOIL FILTER DETAIL**  
N.T.S.

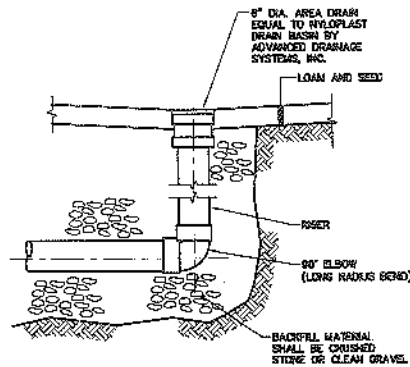


**INSTALLATION NOTES:**

- REINFORCEMENT BLANKETS FOR SPILLWAY SHALL BE P300 BY NORTH AMERICAN GREEN OR APPROVED EQUAL. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ALL NECESSARY APPLICATION OF LIMES, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GRID. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 6" AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
- A STAPLE CHECK SLOT AT 30 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
- THE TRENCH END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE OVERLAPS, SEAMS, AND BOTTOM/SIDE SLOPE ALONG THE CHANNEL SURFACE.
- IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

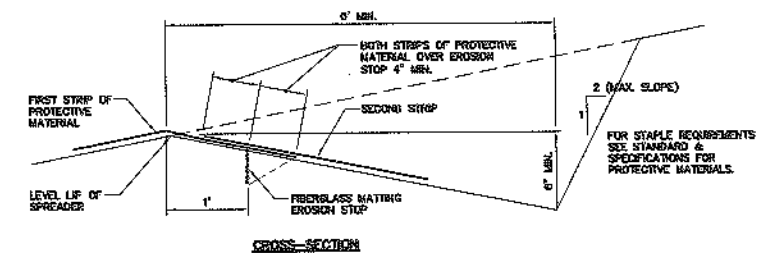


**DRY SWALE SECTION**  
N.T.S.



**AREA DRAIN DETAIL**  
N.T.S.

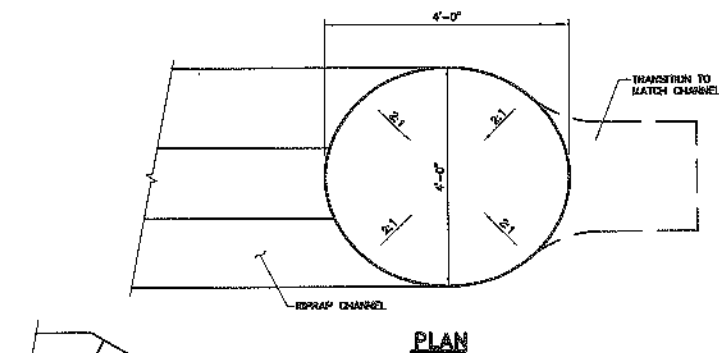
**SOIL REINFORCEMENT**  
N.T.S.



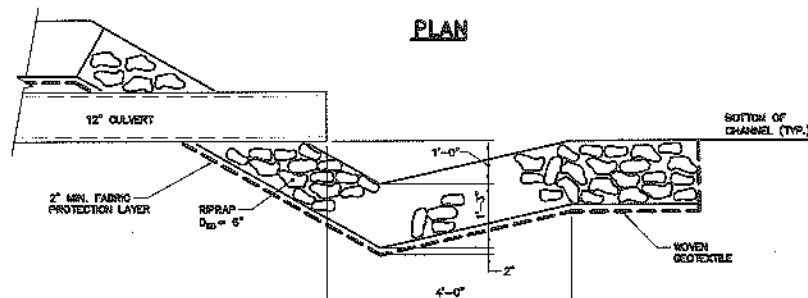
**CONSTRUCTION SPECIFICATIONS:**

- LEVEL SPREADERS SHALL BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE ENGINEER.
- CONSTRUCT LEVEL LIP ON ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF SEDIMENT-FREE RUNOFF (CONVERTING CHANNEL FLOW TO SHEET FLOW).
- LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL (NOT ON FILL).
- A FIBERGLASS MATTING EROSION STOP SHALL BE PLACED VERTICALLY AND AT LEAST SIX INCHES DEEP IN A SLIT TRENCH ONE FOOT BACK OF THE LEVEL LIP AND PARALLEL WITH THE LIP. THIS EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP AND SHALL BE TRIMMED AFTER BACKFILLING WITH TAMPAED SOIL SO THAT THE UPPER EDGE IS FLUSH WITH THE SOIL SURFACE.
- THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF JUTE OR EXCELSON PROTECTIVE MATERIAL AS SHOWN.
- THE ENTRANCE CHANNEL SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE ENTERING SPREADER.
- STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTLET ONTO STABILIZED AREAS. WATER SHALL NOT BE RECONCENTRATED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
- PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED.

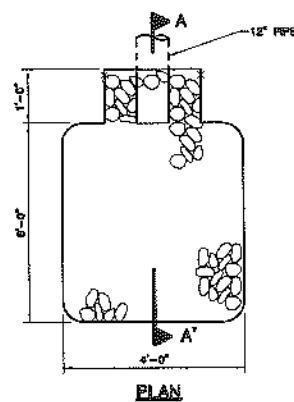
**OPEN TYPE LEVEL SPREADER**  
N.T.S.



**PLAN**

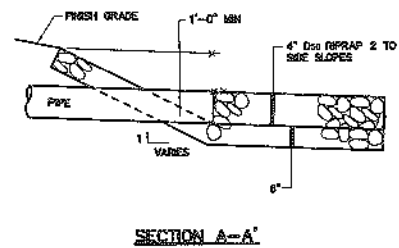


**RIPRAP PLUNGE POOL**  
N.T.S.



**PLAN**

**RIPRAP APRON**  
N.T.S.



**SECTION A-A'**

**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE  
900-128-4882



NO.	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/06
2	DESIGNED BY	BEZ/ARY
3	DRAWN BY	JOSSELYN/COULDRY

**CIVIL DETAILS - 3**

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

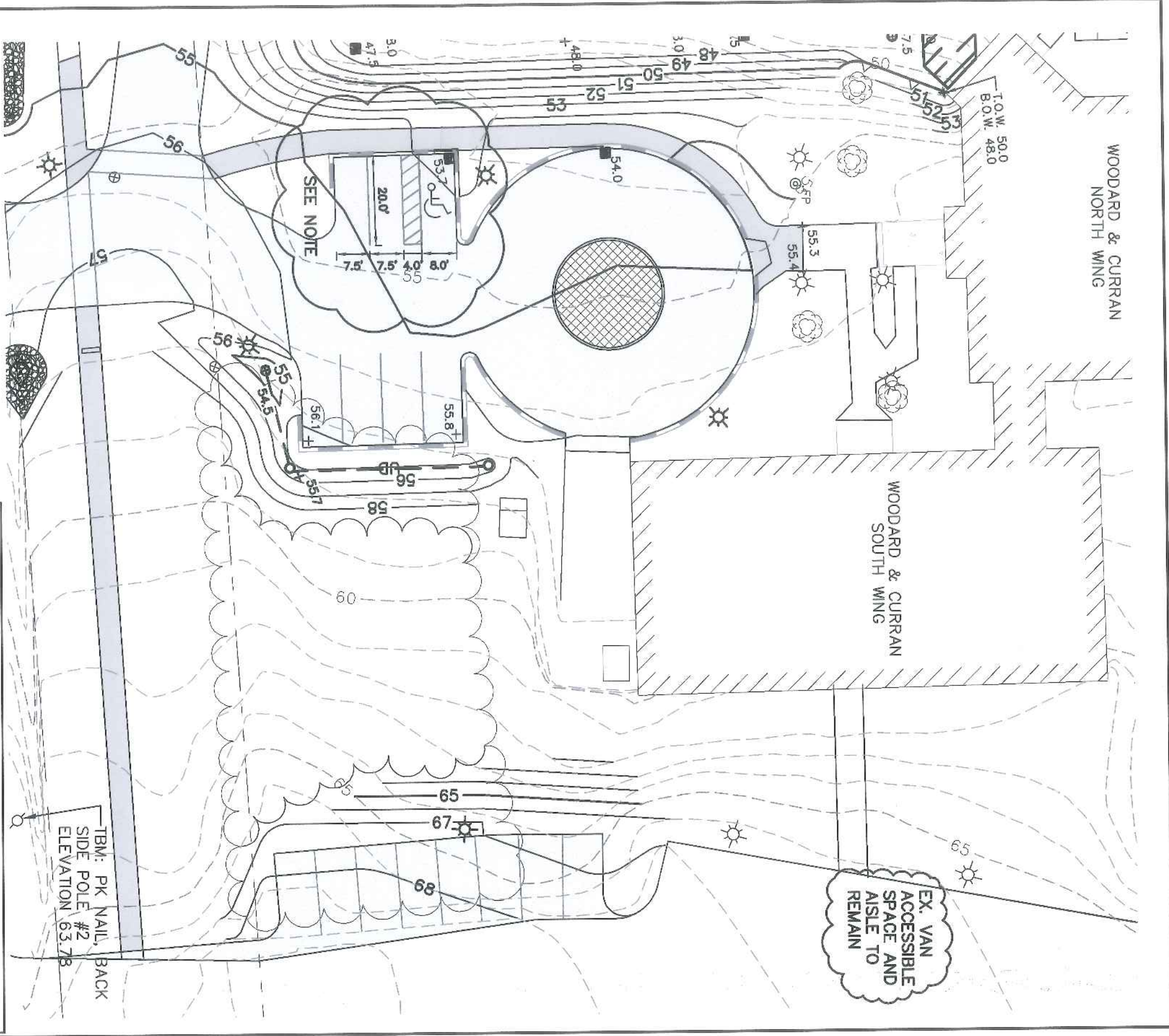
WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203434-01  
DATE: JANUARY 2006  
SCALE: AS NOTED  
SHEET: 02 OF 11

**C302**

I:\Projects\Projects\203434 CAD-CAM\05 Building Addition Project\Detail\Detail.dwg, 2006-02-23, City Site Plan\Drawings\203434-01-C302A.dwg, Wed 02/23/2006 11:42am





CHECK GRAPHIC SCALE BEFORE USING

**NOTE:**  
 PROVIDE 1 ACCESSIBLE SPACE, 2 COMPACT SPACES, AND AISLE. VAN ACCESSIBLE SPACE TO BE REMOVED AND LOCATED AS CURRENTLY STRIPED AT SOUTH WING PARKING LOT.

<p><b>WOODARD &amp; CURRAN</b>          Engineering • Science • Operations          PORTLAND, MAINE 800-426-4262</p>	<p><b>ENTRY LOOP VISITOR PARKING STRIPING MODIFICATIONS</b></p>		<p>CIANCHETTE FAMIL Y, LLC          PORTLAND, MAINE</p>	<p>JOB NO: 203834.02          DATE: JUNE 2007          SCALE: 1"=30'</p>
	<p>DESIGNED BY: BSS          DRAWN BY: BSS</p>	<p>CHECKED BY: BSS          20383401-SKC7.dwg</p>	<p>WOODARD &amp; CURRAN          OFFICE EXPANSION</p>	<p>SKC-07</p>

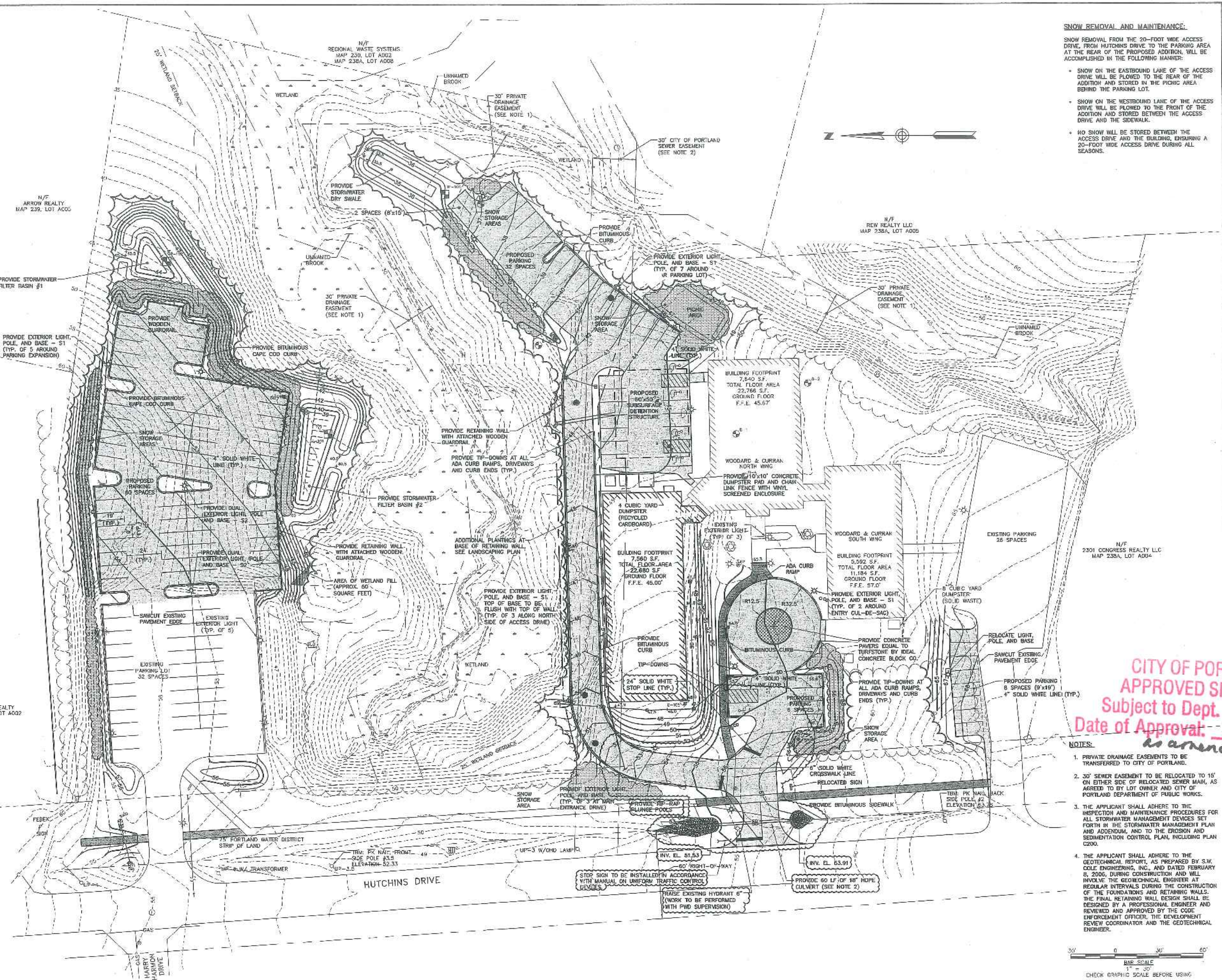
**CITY OF PORTLAND**  
**APPROVED SITE PLAN**  
 Subject to Dept. Conditions  
 Date of Approval: 6/20/07  
 Amendment to approved site plan







\\portland\Projects\203834\CADD\CADD\_01\_Building Addition\_Proposed\Deliverables\2006-09-28\_Site Plan Modification Plot Comments\Drawn\203834.dwg, Sep 23, 2006 - 10:33am



**SNOW REMOVAL AND MAINTENANCE:**

SNOW REMOVAL FROM THE 20'-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE PARKING AREA AT THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:

- SNOW ON THE EASTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE REAR OF THE ADDITION AND STORED IN THE PICNIC AREA BEHIND THE PARKING LOT.
- SNOW ON THE WESTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE FRONT OF THE ADDITION AND STORED BETWEEN THE ACCESS DRIVE AND THE SIDEWALK.
- NO SNOW WILL BE STORED BETWEEN THE ACCESS DRIVE AND THE BUILDING, ENSURING A 20'-FOOT WIDE ACCESS DRIVE DURING ALL SEASONS.

**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE 800-426-4262



NO.	DESCRIPTION	DATE
2A	SITE PLAN MOD. RESPONSE TO FINAL COMMENTS	08/29/06
2B	SITE PLAN MODIFICATION APPLICATION	08/15/06
1	SITE PLAN MODIFICATION APPLICATION	06/19/06
REV	ISSUED FOR CONSTRUCTION	05/22/06

DESIGNED BY: ABC/ARV CHECKED BY: BSS/ARV  
 DRAWN BY: ABC 20383401-C201.dwg

**PROPOSED SITE PLAN**

CITY OF PORTLAND  
 APPROVED SITE PLAN  
 Subject to Dept. Conditions  
 Date of Approval: 3-14-2006  
*As amended 9-29-2006*

- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30" SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES FOR ALL STORMWATER MANAGEMENT DEVICES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  4. THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC., AND DATED FEBRUARY 8, 2006, DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE  
 WOODARD & CURRAN, INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME



**C201**







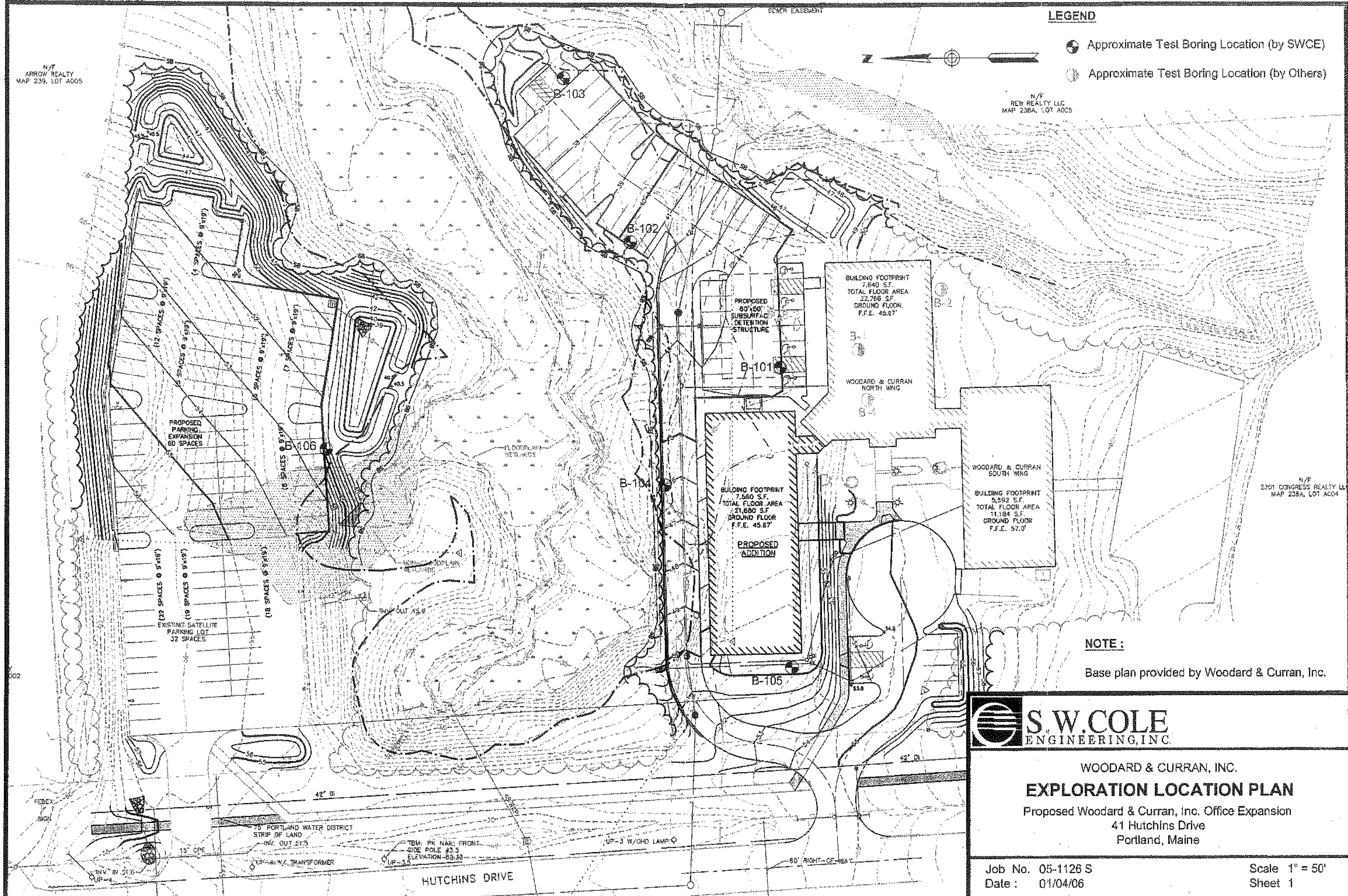
N/F  
ARROW REALTY  
MAP 239, LOT A005

**LEGEND**

- ⊕ Approximate Test Boring Location (by SWCE)
- ⊙ Approximate Test Boring Location (by Others)

N/F  
REW REALTY LLC  
MAP 238A, LOT A005

N/F  
2301 CONGRESS REALTY LL  
MAP 238A, LOT A004



**NOTE:**

Base plan provided by Woodard & Curran, Inc.



WOODARD & CURRAN, INC.

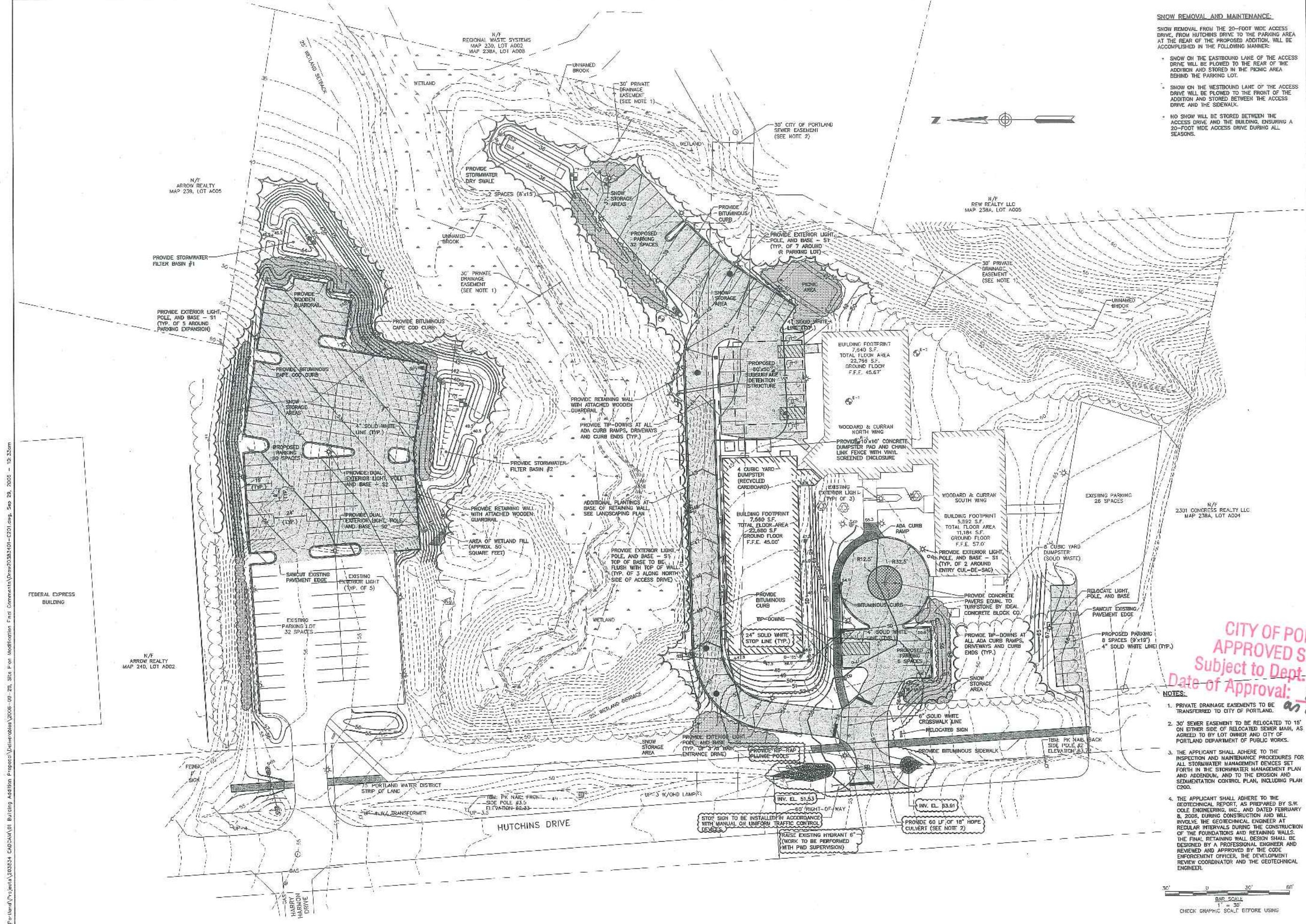
**EXPLORATION LOCATION PLAN**

Proposed Woodard & Curran, Inc. Office Expansion  
41 Hutchins Drive  
Portland, Maine

Job No. 05-1126 S  
Date: 01/04/06

Scale 1" = 50'  
Sheet 1

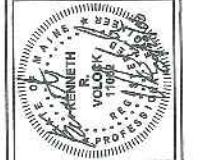




**SNOW REMOVAL AND MAINTENANCE:**  
 SNOW REMOVAL FROM THE 20-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE PARKING AREA AT THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:

- SNOW ON THE EASTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE REAR OF THE ADDITION AND STORED IN THE PICNIC AREA BEHIND THE PARKING LOT.
- SNOW ON THE WESTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE FRONT OF THE ADDITION AND STORED BETWEEN THE ACCESS DRIVE AND THE SIDEWALK.
- NO SNOW WILL BE STORED BETWEEN THE ACCESS DRIVE AND THE BUILDING, ENSURING A 20-FOOT WIDE ACCESS DRIVE DURING ALL SEASONS.

**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE  
 800 426-1262



2A	SITE PLAN NO. RESPONSE TO FINAL COMMENTS	02/28/06	
2	SITE PLAN MODIFICATION APPLICATION	05/15/06	
1	SITE PLAN MODIFICATION APPLICATION	03/19/06	
REV	ISSUED FOR CONSTRUCTION	03/22/06	
REV	DESCRIPTION	DATE	
DESIGNED BY:	JBC/ARV	CHECKED BY:	ESS/ARV
DRAWN BY:	JBC	PROJECT NO.:	203634-01-C201 (AW)

**PROPOSED SITE PLAN**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

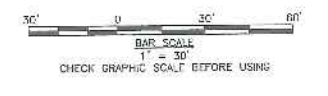
WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203634-01  
 DATE: MAY 2006  
 SCALE: AS NOTED  
 SHEET: 01 OF -

**C201**

**CITY OF PORTLAND APPROVED SITE PLAN**  
 Subject to Dept. Conditions  
 Date of Approval: 3-14-2006  
 as amended 4-29-2006

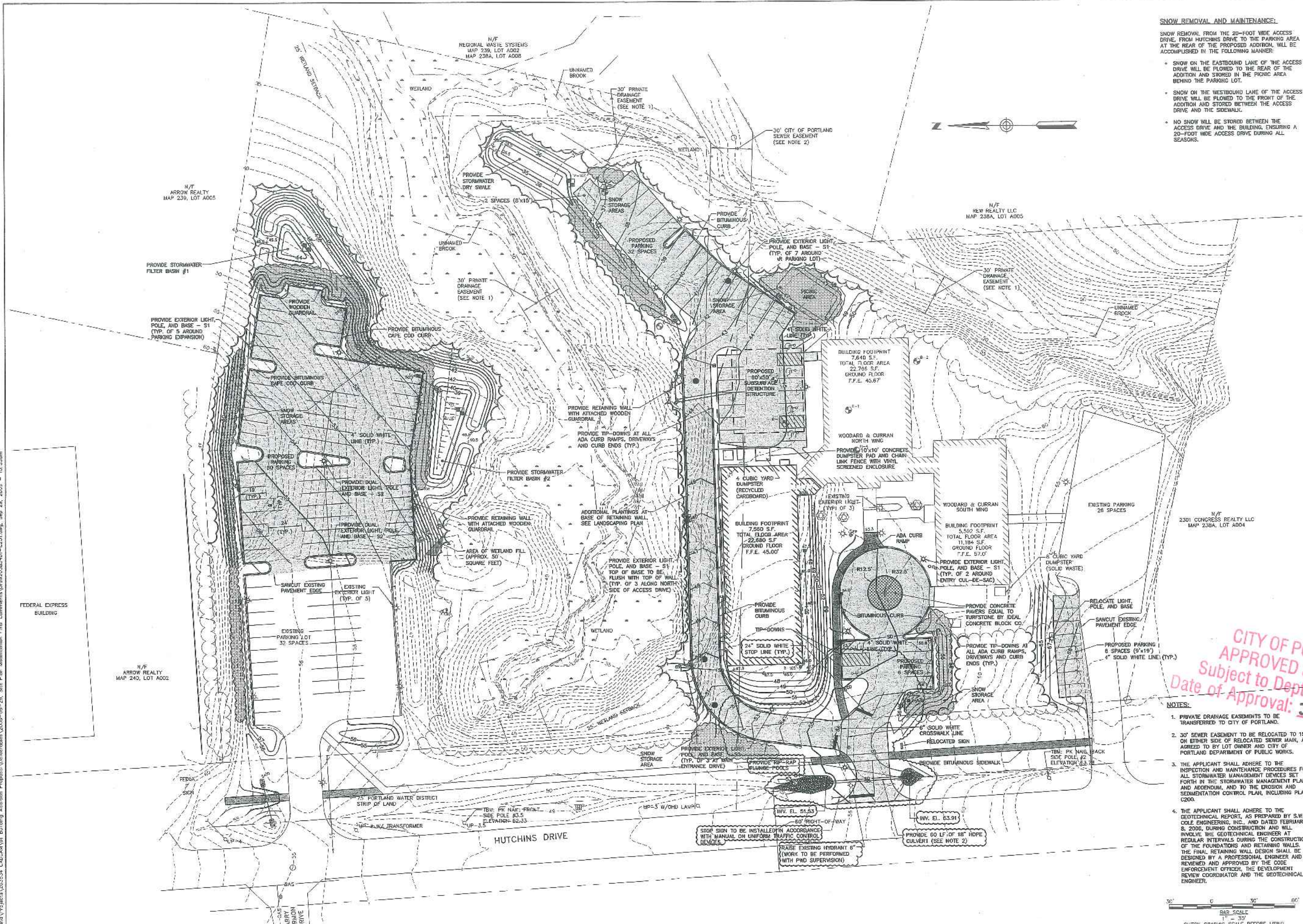
- NOTES:**
- PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  - 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  - THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES FOR ALL STORMWATER MANAGEMENT DEVICES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  - THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC. AND DATED FEBRUARY 8, 2006. DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.



V:\portland\Projects\2006\01\_Bldg Exp\Drawings\Drawings\203634-01-C201.dwg, Sep 29, 2006 - 10:33am

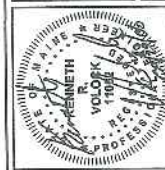


\\Portland\Projects\2006\01 - Building Activities\Process\Drawings\2006\01 - 01 - Site Plan Modification\Final Comments\Draw\2006\01 - 01 - C201.dwg, Sep 28, 2006 - 10:33am



**SNOW REMOVAL AND MAINTENANCE:**  
SNOW REMOVAL FROM THE 20-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE PARKING AREA AT THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:  
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**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE  
800-426-1262



NO.	DESCRIPTION	DATE
2A	SITE PLAN MOD. RESPONSE TO FINAL COMMENTS 08/28/06	08/28/06
1	SITE PLAN MODIFICATION APPLICATION	08/28/06
1	SITE PLAN MODIFICATION APPLICATION	08/28/06
1	ISSUED FOR CONSTRUCTION	09/22/06
REV		

DESIGNED BY: JBC/ARY CHECKED BY: BSS/ARY  
DRAWN BY: JBC

**PROPOSED SITE PLAN**  
CAD-CAM ASSOCIATES  
PORTLAND, MAINE  
WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME 04101

**CITY OF PORTLAND  
APPROVED SITE PLAN**  
Subject to Dept. Conditions  
Date of Approval: 3-14-2006

- NOTES:**
- PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  - 30" SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  - THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES FOR ALL STORMWATER DEVICES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  - THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC. AND DATED FEBRUARY 8, 2006. DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.

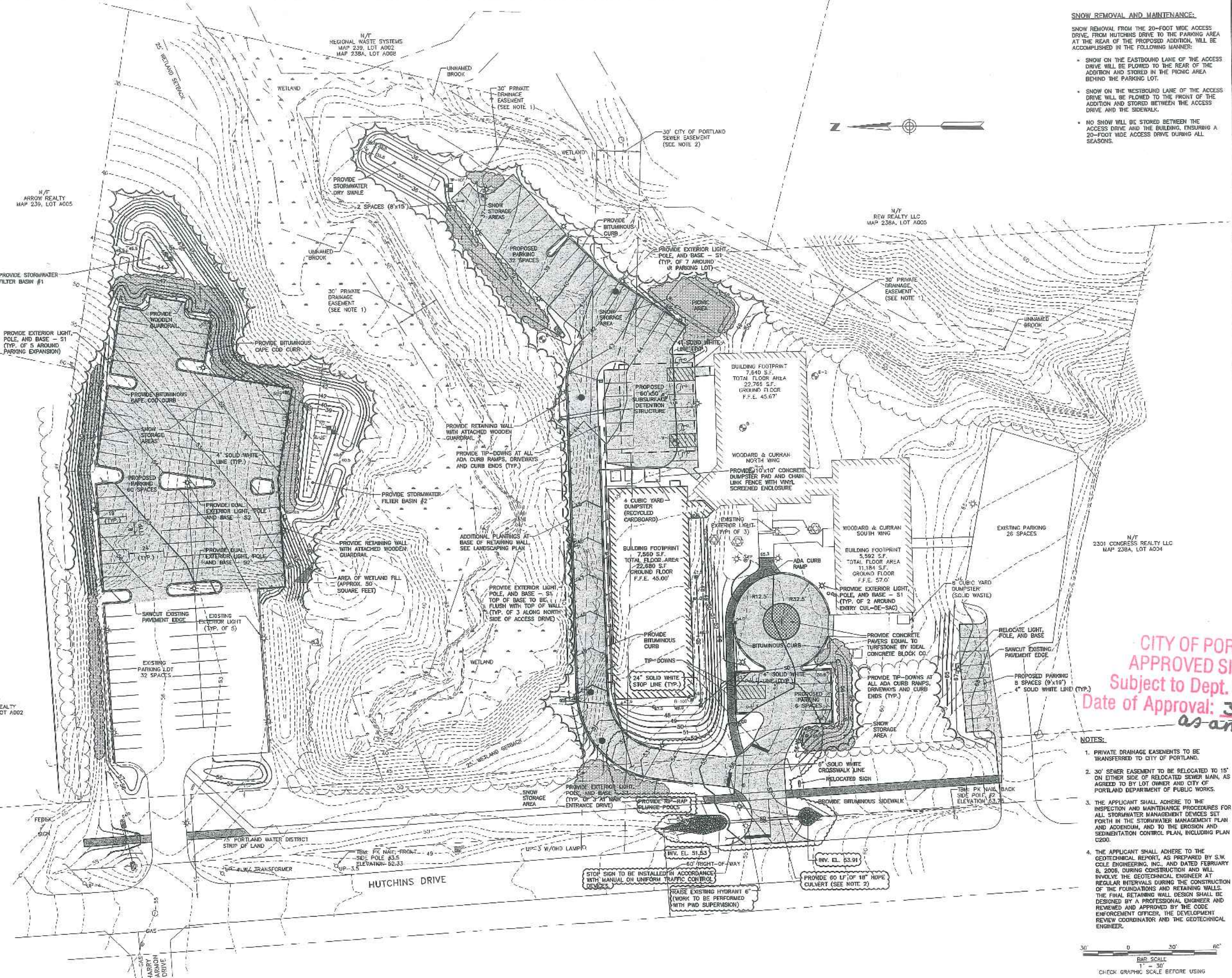


**C201**

*25 amended 09-29-2006*



\\Portland\Projects\200854\_CAD\CAD\01\_Bldg\_Expn\_Addition\_Proposal\Drawings\200854-01-C201.dwg, Sep 23, 2006 - 10:33am



**SNOW REMOVAL AND MAINTENANCE:**

SNOW REMOVAL FROM THE 20-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:

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- SNOW ON THE WESTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE FRONT OF THE ADDITION AND STORED BETWEEN THE ACCESS DRIVE AND THE SIDEWALK.
- NO SNOW WILL BE STORED BETWEEN THE ACCESS DRIVE AND THE BUILDING, ENSURING A 20-FOOT WIDE ACCESS DRIVE DURING ALL SEASONS.

**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE 800-426-4292



2A	SITE PLAN MOD. RESPONSE TO FINAL COMMENTARY 03/02/06	ISSUED FOR CONSTRUCTION	DATE
2	SITE PLAN MODIFICATION APPLICATION 03/12/06	DESCRIPTION	DATE
1	SITE PLAN MODIFICATION APPLICATION 03/12/06	DESCRIPTION	DATE
0	SITE PLAN MODIFICATION APPLICATION 03/12/06	DESCRIPTION	DATE

DESIGNED BY: BCS/ARV CHECKED BY: BCS/ARV  
DRAWN BY: BCS

**PROPOSED SITE PLAN**

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
PORTLAND, ME  
41 HUTCHINS DRIVE, PORTLAND, ME

**CITY OF PORTLAND APPROVED SITE PLAN**  
Subject to Dept. Conditions  
Date of Approval: 3-14-2006  
*as amended 9-29-2006*

- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES FOR ALL STORMWATER MANAGEMENT DEVICES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  4. THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC. AND DATED FEBRUARY 8, 2008. DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.

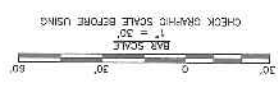
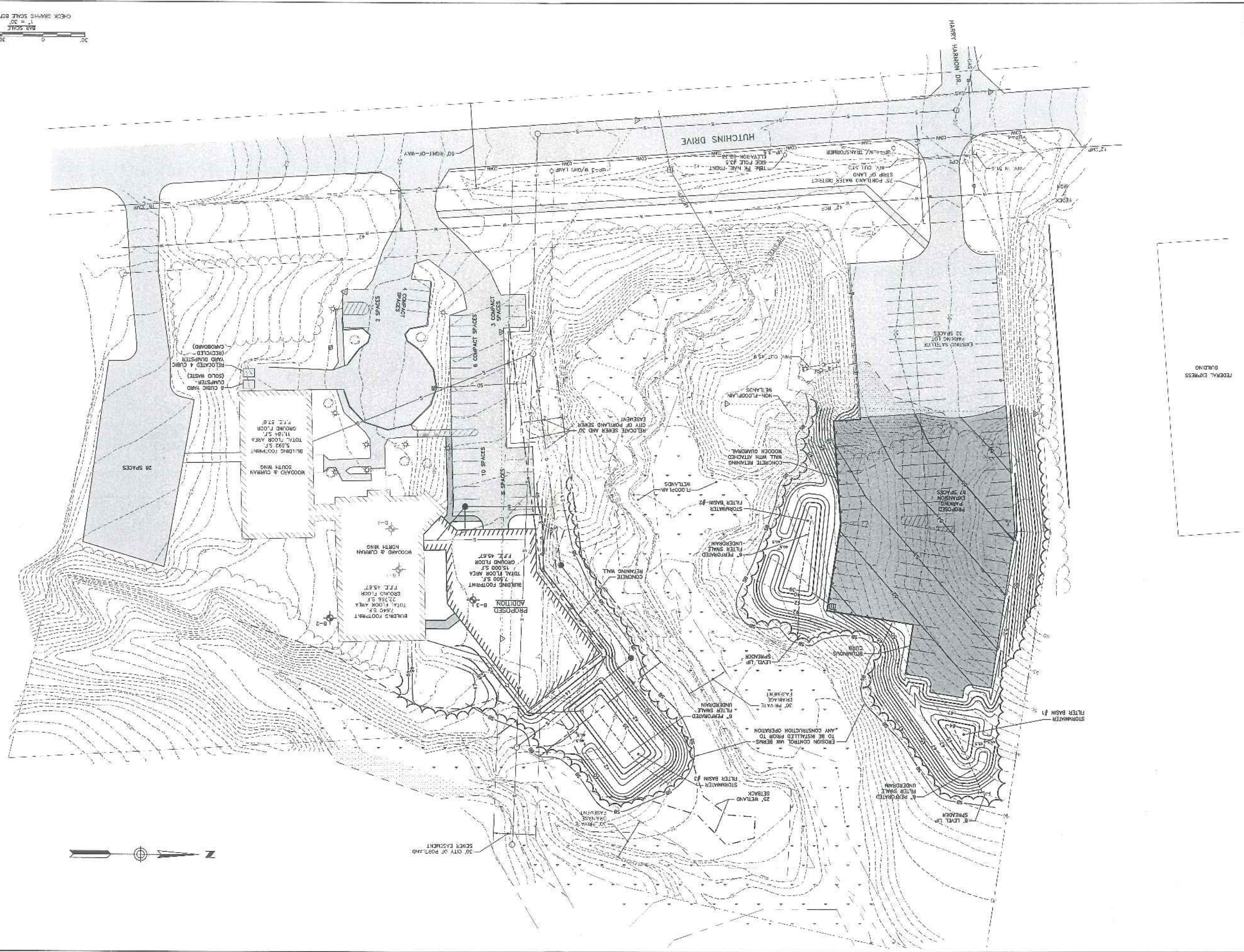


JOB NO.: 203234.01  
DATE: MAY 2006  
SCALE: AS NOTED  
SHEET: OF  
**C201**









FEDERAL EXPRESS BUILDING

C200  
DATE: SEPTEMBER 2005  
SCALE: AS NOTED  
SHEET: OF -

JOB NO.: 20054-01  
WOODWARD & CURRAN INC.  
OFFICE EXPANSION  
PORTLAND, MAINE  
41 HUTCHINS DRIVE, PORTLAND, ME

### PROPOSED SITE PLAN

DATE	BY	DESCRIPTION
	RESIGNED BY: JSC/NAV	
	CHECKED BY: RES	
	DRAWN BY: JSC	

**WOODWARD & CURRAN**  
Engineering • Science • Operations  
503-453-4252  
3001 ARL ST. MAINE

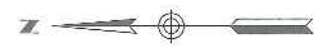
REPRODUCTION OF THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE CLIENT IS PROHIBITED.

*Sample added*

*Attachment R (a)*

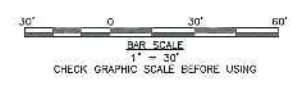


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**STORMWATER LEGEND**

- PROPOSES POND
- POST-DEVELOPMENT REACH
- SUBCATCHMENT AREA
- TIME OF CONCENTRATION PATH, Tc
- SHEET FLOW
- SHALLOW CONCENTRATED FLOW
- CHANNELIZED FLOW (CIRCULAR PIPE)



**WOODARD & CURRAN**  
 Engineering • Science • Operations  
 PORTLAND, MAINE  
 800-455-1852

REV	DESCRIPTION	DATE

DESIGNED BY: NRV  
 CHECKED BY: BES  
 DRAWN BY: JBC  
 20383401-0008.2.dwg

**POST-DEVELOPMENT  
 STORMWATER PLAN**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203834.01  
 DATE: SEPTEMBER 2005  
 SCALE: AS NOTED  
 SHEET: OF -

**Figure 6.2**

50 percent



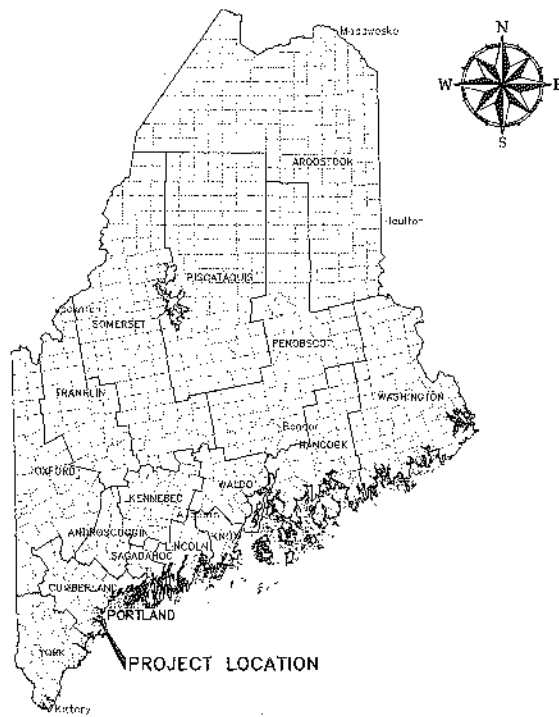
# CAD-CAM ASSOCIATES PORTLAND, MAINE

## WOODARD & CURRAN INC. OFFICE EXPANSION

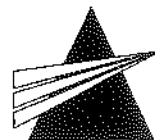
41 HUTCHINS DRIVE  
PORTLAND, MAINE

PROJECT NO. 203834.01

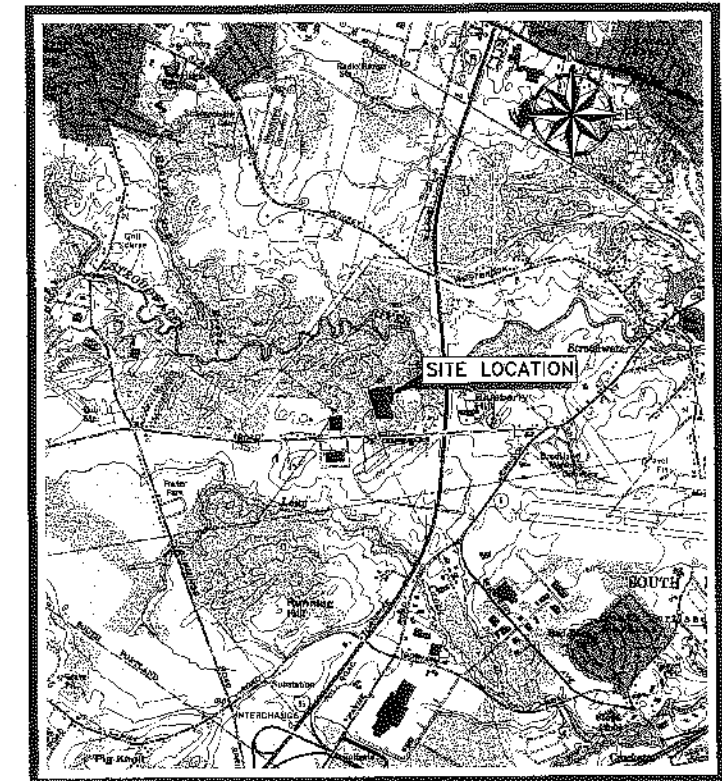
JANUARY 2006



PROJECT LOCATION MAP

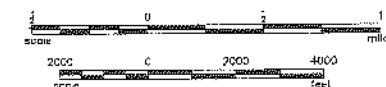


**WOODARD & CURRAN**  
Engineering · Science · Operations

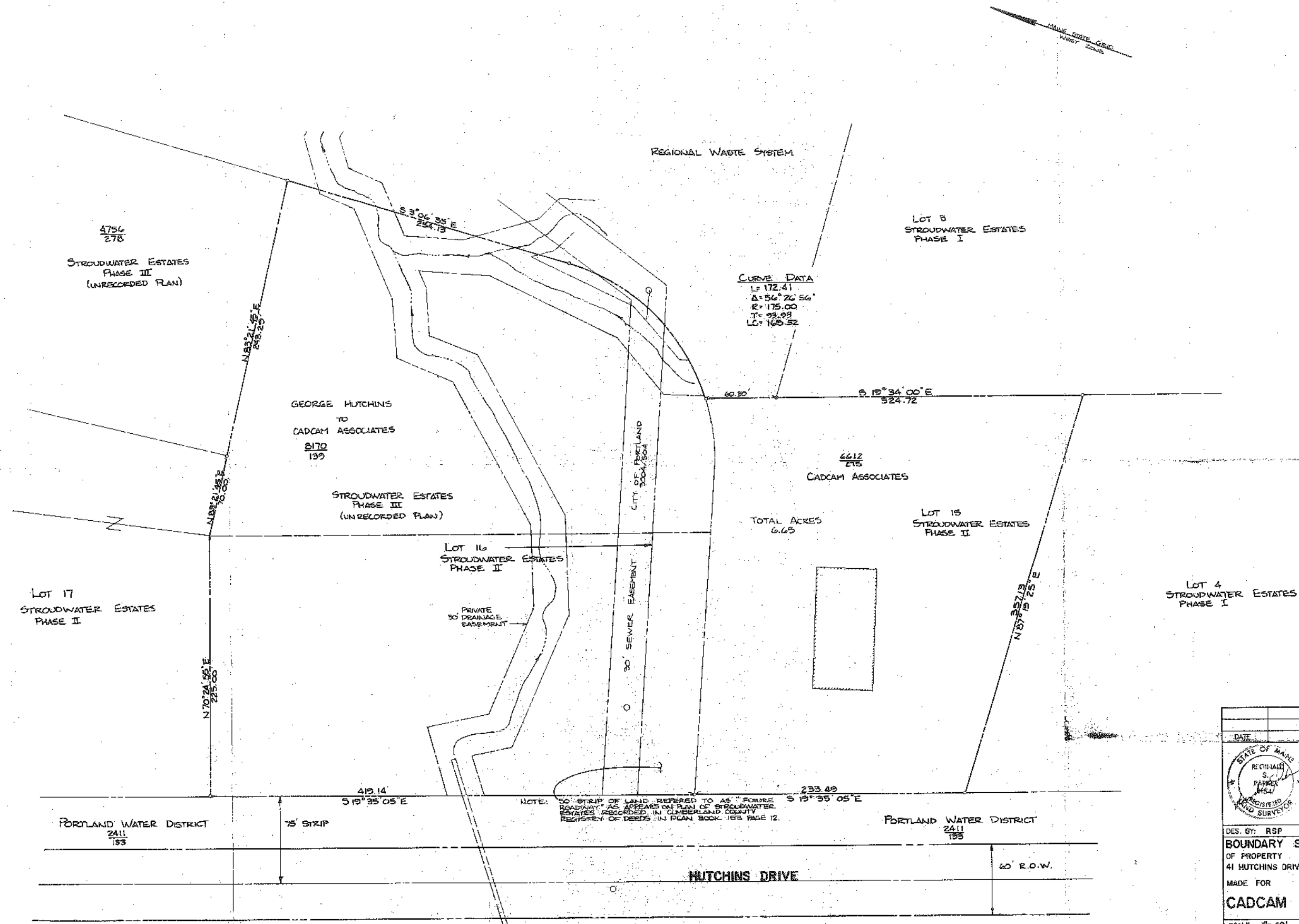


SOURCE: USGS TOPOGRAPHIC MAP

SITE LOCATION MAP







DATE	ADDITION OR REVISION	
DES. BY: RSP	DR. BY: SWE	CK. BY:
<b>BOUNDARY SURVEY</b> OF PROPERTY 41 HUTCHINS DRIVE PORTLAND, MAINE MADE FOR <b>CADCAM Associates</b>		
SCALE: 1" = 40'	JOB NO.: 87183.01	
DATE: FEB. 1988	SHEET:	
<b>WOODARD &amp; CURRAN INC.</b> CONSULTING ENGINEERS 41 HUTCHINS DRIVE - PORTLAND, MAINE 04102 (603) 774-2132		

**GENERAL NOTES**

- TOPOGRAPHIC AND UTILITY SURVEY WAS DERIVED FROM THE FOLLOWING SOURCES:
  - TOPOGRAPHIC AND UTILITY SURVEY DATA PROVIDED BY ROYAL RIVER SURVEY, YARMOUTH, ME., FROM FIELD SURVEY DATED FEBRUARY 2000.
  - CAD-CAM ASSOCIATES PARKING LOT ADDITION DESIGN DRAWINGS DATED JUNE 2000. WOODARD & CURRAN INC. PROJECT NUMBER 990047.01
  - CAD-CAM ASSOCIATES BUILDING ADDITION DESIGN DRAWINGS DATED AUGUST 1995. WOODARD & CURRAN INC. PROJECT NUMBER 95095.02
- THE UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITY. NOT ALL EXISTING UTILITIES ARE SHOWN ON PLANS.
- TRENCH WORK, PIPE BEDDING, INSTALLATION OF FIXTURES AND ALL OTHER UTILITY INSTALLATIONS SHALL CONFORM TO THE CITY OF PORTLAND'S DESIGN GUIDELINES AND DETAILS OR THOSE PROVIDED BY UTILITY COMPANIES, AS APPLICABLE.
- CLEAN AND/OR FLUSH ALL MANHOLES, CATCH BASINS, AND ASSOCIATED PIPING AFTER THE WORK HAS BEEN COMPLETED.
- COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES, EMERGENCY SERVICES, AND DMV OFFICE. CONTACTS ARE LISTED IN SPECIFICATIONS. NOTIFY UTILITY COMPANIES WITHIN 48 HOURS OF WORK ACTIVITY ADJACENT TO THOSE UTILITIES.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK, ALLOWING SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF BURIED UTILITIES. CONTRACTOR SHALL CONTACT "DIG SAFE", TELEPHONE 888-344-7233 PRIOR TO EXCAVATION.
- RESTORE ALL AREA DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, GRASS, ETC.) UNLESS OTHERWISE NOTED ON PLANS. RESTORATION OF GRAVEL ROAD AND DRIVEWAY SURFACES AND LAWNS DAMAGED BY CONTRACTOR SHALL BE INCIDENTAL TO THE PROJECT.
- PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE, BY A REGISTERED LAND SURVEYOR APPROVED BY THE ENGINEER.
- CALCULATIONS FOR STAKING, PIPE LENGTHS, AND PIPE INVERTS ARE BASED ON CENTERLINE MEASUREMENTS.
- EXISTING FACILITIES (I.E. GUARDRAILS, TREES, POLES, LIGHT POSTS, CATCH BASINS, ETC.) THAT ARE REMOVED SHALL BE PROTECTED DURING CONSTRUCTION. OWNER RETAINS RIGHT TO KEEP ANY AND ALL REMOVED FACILITIES. CONTRACTOR TO DISPOSE OF ANY REMOVED FACILITY AT THE REQUEST OF OWNER OR ENGINEER AT CONTRACTOR'S EXPENSE.
- DO NOT PARK OR STORE EQUIPMENT ON ADJACENT TOWN OR PRIVATELY OWNED LOTS, UNLESS PERMISSION HAS BEEN GRANTED IN WRITING BY TOWN OR LAND OWNER.
- COORDINATE DISRUPTION OF PRIVATE UTILITY SERVICES WITH LANDOWNERS AT LEAST TWO DAYS (48 HOURS) PRIOR TO DISRUPTION. ALL UTILITY COORDINATION IS RESPONSIBILITY OF CONTRACTOR.
- RESTRICT ACCESS TO CONSTRUCTION AREA THROUGH THE USE OF APPROPRIATE SIGNAGE, GATES, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS. NO TRENCH SHALL BE LEFT OPEN DURING NON-WORKING HOURS. SITE SAFETY IS THE SOLE RESPONSIBILITY OF CONTRACTOR, DURING BOTH WORKING AND NON-WORKING HOURS.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS. PERMIT APPLICATIONS SHALL BE SUBMITTED WITH ADEQUATE TIME SO AS NOT TO DELAY CONSTRUCTION.
- ALL WORK THAT INVOLVES THE WATERLINE SHALL BE DONE IN ACCORDANCE WITH PORTLAND WATER DISTRICT'S SPECIFICATIONS. PORTLAND WATER DISTRICT SHALL BE CONTACTED BEFORE ANY WORK IS STARTED INVOLVING THE WATERLINE.

**SYMBOLS**

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER MANHOLE		
SANITARY SEWER SERVICE CLEANOUT		
STORM DRAIN MANHOLE		
CATCH BASIN		
TELECOMM MANHOLE		
TELECOMM SERVICE BOX		
ELECTRIC MANHOLE		
TRANSFORMER		
UTILITY POLE W/GUY		
UTILITY POLE		
LIGHTPOST		
GAS METER BOX		
GAS VENT		
GAS GATE		
WATER GATE		
CURB STOP		
HYDRANT		
WATER WELL		
WATER METER BOX		
SIGN		
MAILBOX		
FLAGPOLE		
WETLAND HATCHING		
CONIFEROUS TREE		
DECIDUOUS TREE		
STONE CHECK DAM		
SURVEY STATION		
TEMPORARY BENCH MARK		
IRON PIN MONUMENTS		
SPOT ELEVATION		
TEST PIT & NUMBER		
BORING & NUMBER		

**LINE TYPES**

DESCRIPTION	EXISTING	PROPOSED
CONTOUR (1' INTERVAL)		
CONTOUR (INDEX)		
SANITARY SEWER		
FORCE MAIN		
STORM DRAIN		
UNDERDRAIN		
WATER MAIN		
UNDERGROUND ELECTRIC		
UNDERGROUND TELEPHONE		
UNDERGROUND TELEVISION		
GAS LINE		
OVERHEAD ELECTRIC		
ABANDONED SEWER		
ABANDONED WATER MAIN		
CULVERT		
HOUSE SERVICE / LATERAL		
PROPERTY LINE		
RIGHT OF WAY		
EASEMENT		
EDGE OF VEGETATION		
FENCE		
CENTERLINE		
RETAINING WALL		
STONEWALL		
CURB		
EDGE OF PAVEMENT		
EDGE OF GRAVEL		
GUARDRAIL		
DRAINAGE DITCH / SWALE		
WETLAND		
BROOK		

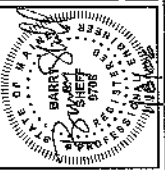
**ABBREVIATIONS**

A.G.	AND ABOVE GROUND
B	BORING
BIT	BITUMINOUS
BM	BENCHMARK
CB	CATCH BASIN
OMP	CENTRAL MAINE POWER COMPANY
CONC	CONCRETE
CONDUIT	CONDUIT
CITY	CITY OF PORTLAND
DI	DUCTILE IRON
DIA.	DIAMETER
DMH	DRAIN MANHOLE
E	EAST
EL.	ELEVATION
ELEC.	ELECTRICAL
EMBED.	EMBEDMENT
EX.	EXISTING
FF	FINISH FLOOR
FIN.	FINISH
FL	FLOOR
FT	FOOT/FEET
GALV.	GALVANIZED
GRAN.	GRANITE
HDPE	HIGH DENSITY POLYETHYLENE
Hwy	HIGHWAY
HYD	HYDRANT
IN	INCH
INV.	INVERT
LF	LINEAR FEET
MAX.	MAXIMUM
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
MIN.	MINIMUM
MON	MONUMENT
NO.	NUMBER
NR	NO REFUSAL
N.T.S.	NOT TO SCALE
N.U.	NORTHERN UTILITIES
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
±	PLUS OR MINUS
PLS	PROFESSIONAL LAND SURVEYOR
PSI	PER SQUARE INCH
PSIG	PER SQUARE INCH GAUGE PRESSURE
PVC	POLYVINYL CHLORIDE
R.O.W.	RIGHT-OF-WAY
RCF	REINFORCED CONCRETE PIPE
REINF.	REINFORCED
REQ'D	REQUIRED
RET	RETAINING
RLS	REGISTERED LAND SURVEYOR
RTE	ROUTE
S	SLOPE
SMH	SEWER MANHOLE
SCH.	SCHEDULE
SOR	STANDARD DIMENSION RATIO
STA.	STATION
TYP.	TYPICAL
UC	UNDERGROUND CABLE
VER.	VERIZON
W	WEST
W/	WITH
WV	WATER VALVE

**SHEET INDEX**

G001	GENERAL NOTES, LEGEND, ABBREVIATIONS AND SHEET INDEX
C100	EXISTING SITE PLAN
C200	PROPOSED SITE PLAN
C201	PROPOSED UTILITY PLAN
C300	CIVIL DETAILS - 1
C301	CIVIL DETAILS - 2
C302	CIVIL DETAILS - 3
C303	CIVIL DETAILS - 4

**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE  
800-499-4992



REV	DESCRIPTION	DATE

CHECKED BY: KRY/BSB  
DRAWN BY: JBC

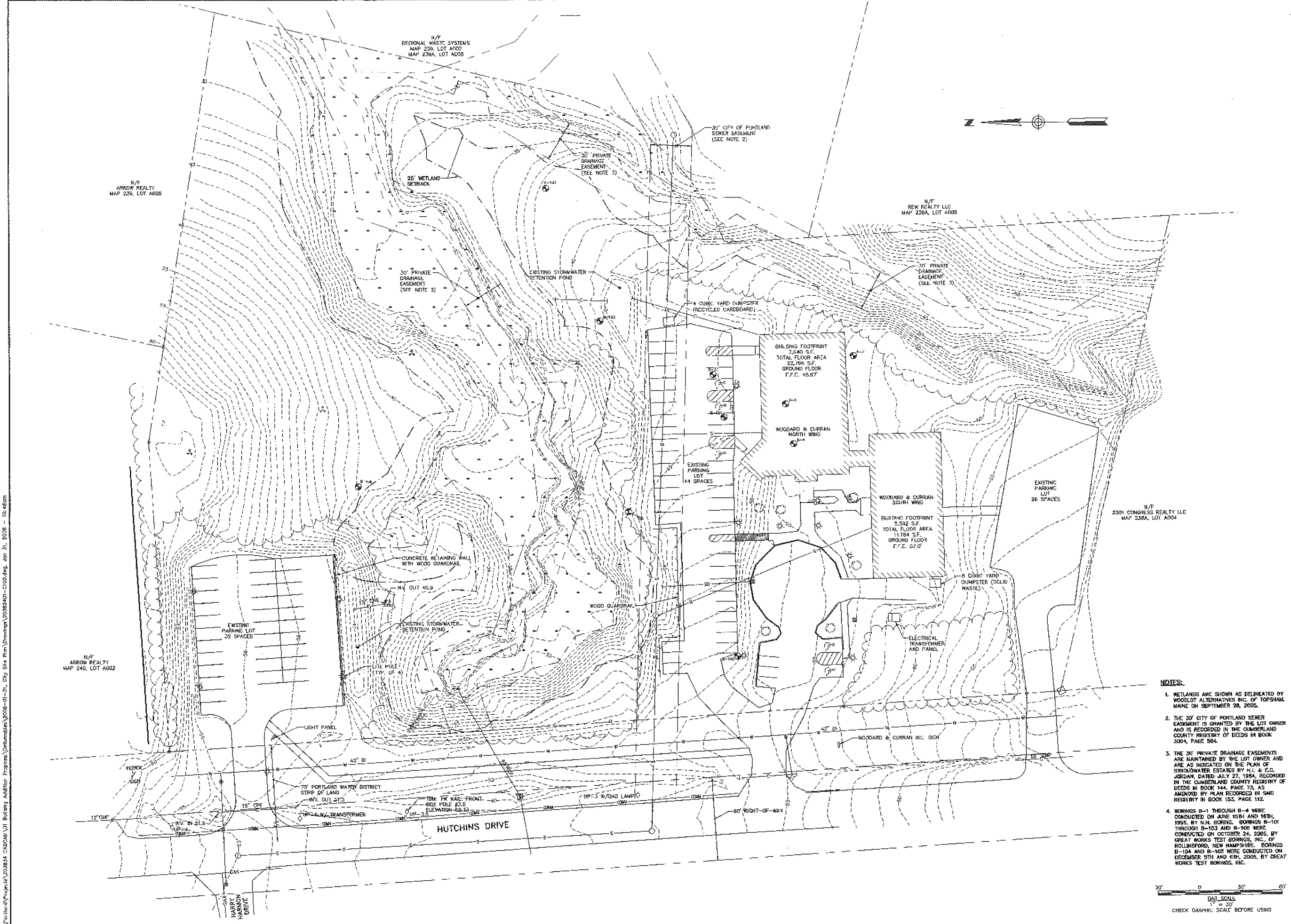
**GENERAL NOTES, LEGEND, ABBREVIATIONS AND SHEET INDEX**

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN, INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.	203834.01
DATE	JANUARY 2006
SCALE	AS NOTED
SHEET	OF

**G001**



**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE 800-426-4662



REV	DESCRIPTION	DATE

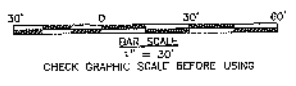
DESIGNED BY: JBC/ARY  
CHECKED BY: BBS  
DRAWN BY: JBC

**EXISTING SITE PLAN**

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

- NOTES:**
1. WETLANDS ARE SHOWN AS DELINEATED BY WOODLOT ALTERNATIVES INC. OF TOPSHAM, MAINE ON SEPTEMBER 28, 2005.
  2. THE 30' CITY OF PORTLAND SEWER EASEMENT IS GRANTED BY THE LOT OWNER AND IS RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 3004, PAGE 504.
  3. THE 30' PRIVATE DRAINAGE EASEMENTS ARE MAINTAINED BY THE LOT OWNER AND ARE AS INDICATED ON THE PLAN OF STROUDWATER ESTATES BY H.J. & E.C. JORDAN, DATED JULY 27, 1884, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 144, PAGE 73, AS AMENDED BY PLAN RECORDED IN SAID REGISTRY IN BOOK 153, PAGE 112.
  4. BORINGS B-1 THROUGH B-4 WERE CONDUCTED ON JUNE 16TH AND 16TH, 1995, BY N.L. BORING. BORINGS B-101 THROUGH B-103 AND B-108 WERE CONDUCTED ON OCTOBER 24, 2005, BY GREAT WORKS TEST BORINGS, INC. OF ROLLINGSFORD, NEW HAMPSHIRE. BORINGS B-104 AND B-105 WERE CONDUCTED ON DECEMBER 5TH AND 6TH, 2005, BY GREAT WORKS TEST BORINGS, INC.



JOB NO.: 203854.01  
DATE: JANUARY 2005  
SCALE: AS NOTED  
SHEET: 01 -  
**C100**

\\p01\itd\Projects\203854 - CAD-CAM\311 - Bldg Exp\Addition\Propose\Utilities\2005-01-21 - City Site Plan\Drawings\203854-01-C100.dwg, Jun 31, 2005 - 10:46am

MAJOR SITE PLAN, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

**WOODARD & CURRAN**  
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 800-426-4662



REV	DESCRIPTION	DATE

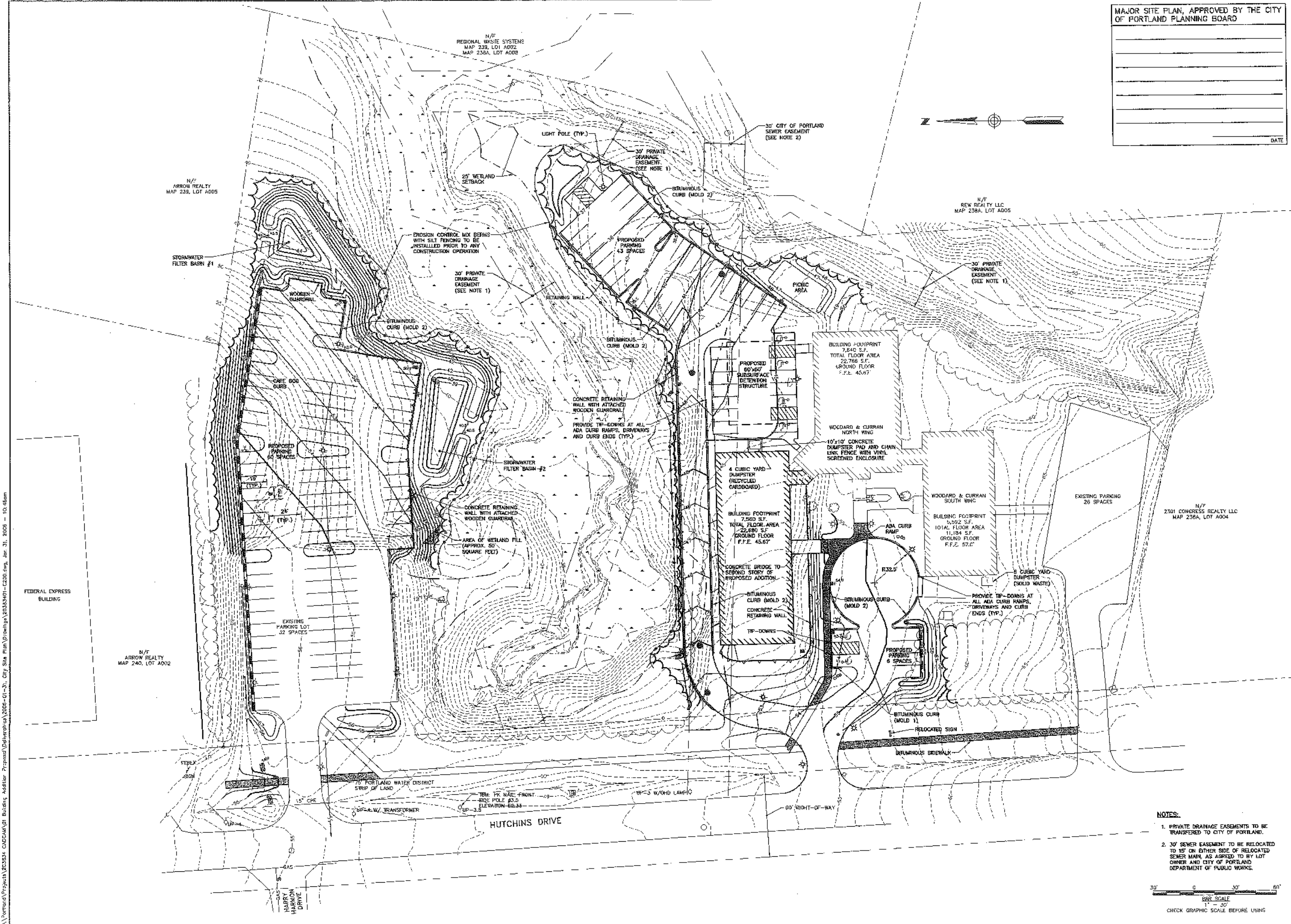
**PROPOSED SITE PLAN**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

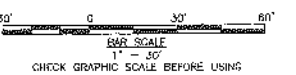
WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO: 203834.0  
 DATE: JANUARY 2008  
 SCALE: AS NOTED  
 SHEET: OF

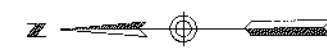
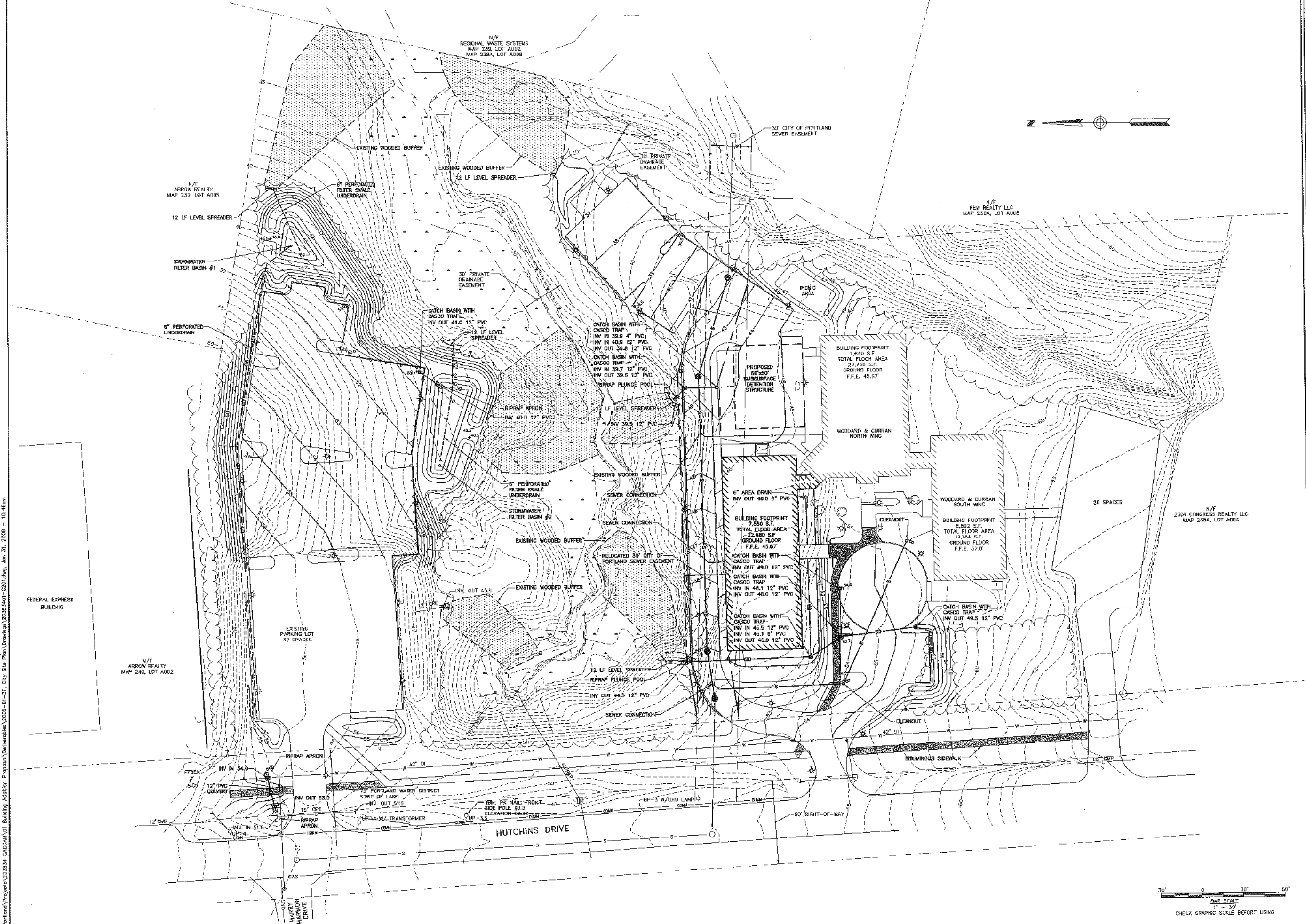
**C200**



- NOTES:**
- PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  - 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.



C:\Projects\203834\01 Building Addition\Proposed\Deliverables\2008-01-31\_City\_Site\_Plan\_Vp.dwg, 2/13/08 10:10:00 AM, 10:10:00 AM



**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE  
 800-426-4262



REV	DESCRIPTION	DATE

DESIGNED BY: JBC/RRV  
 CHECKED BY: BJS  
 DRAWN BY: JBC

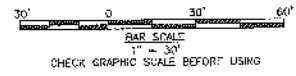
**PROPOSED UTILITY PLAN**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

**WOODARD & CURRAN INC.**  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 205834.01  
 DATE: JANUARY 2006  
 SCALE: AS NOTED  
 SHEET: OF ...

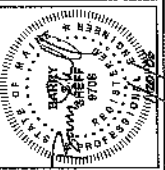
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V:\Portland\Projects\233834 CAD-CAM\01 Building Addition\Proposed\Utilities\2006-01-21-City Site Plan\Drawings\205834.dwg - C201.dwg, Jan 31, 2006 - 10:16am







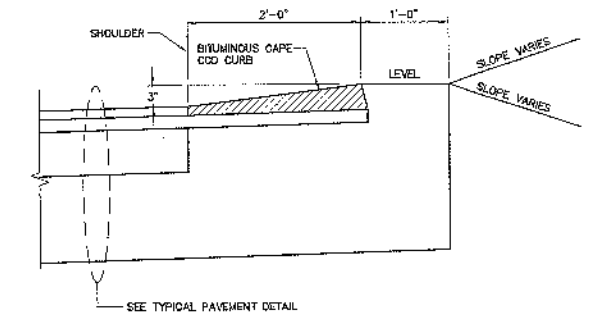
DESIGNED BY: JBC/KRY	CHECKED BY: BRS
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PROJECT: 20383401-C300A.dwg	

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

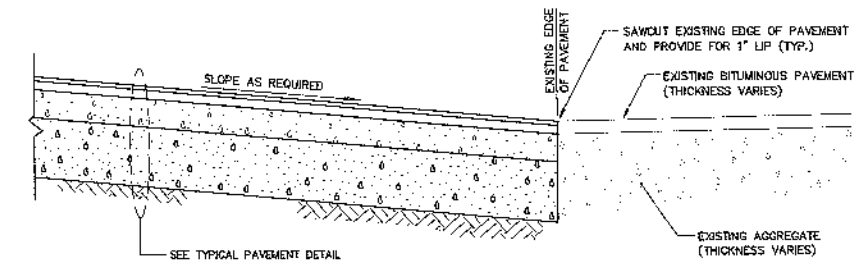
WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203834.01
DATE: JANUARY 2006
SCALE: AS NOTED
SHEET: 01

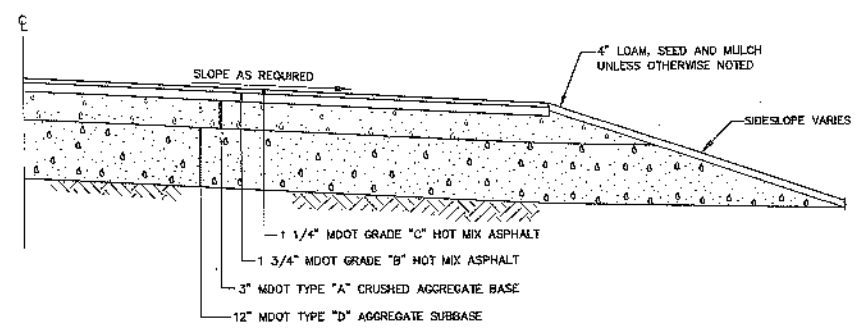
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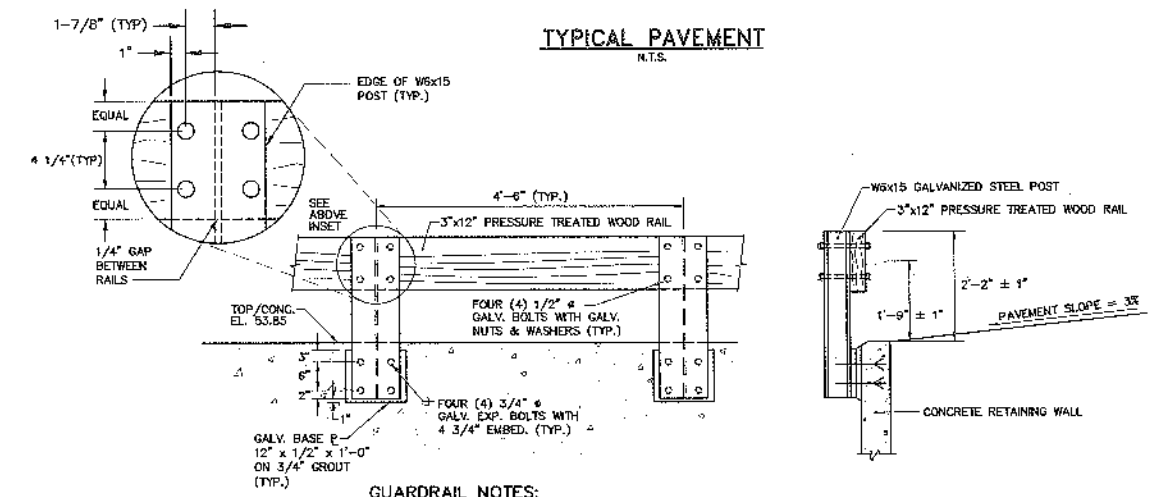
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**PAVEMENT BUTT JOINT**  
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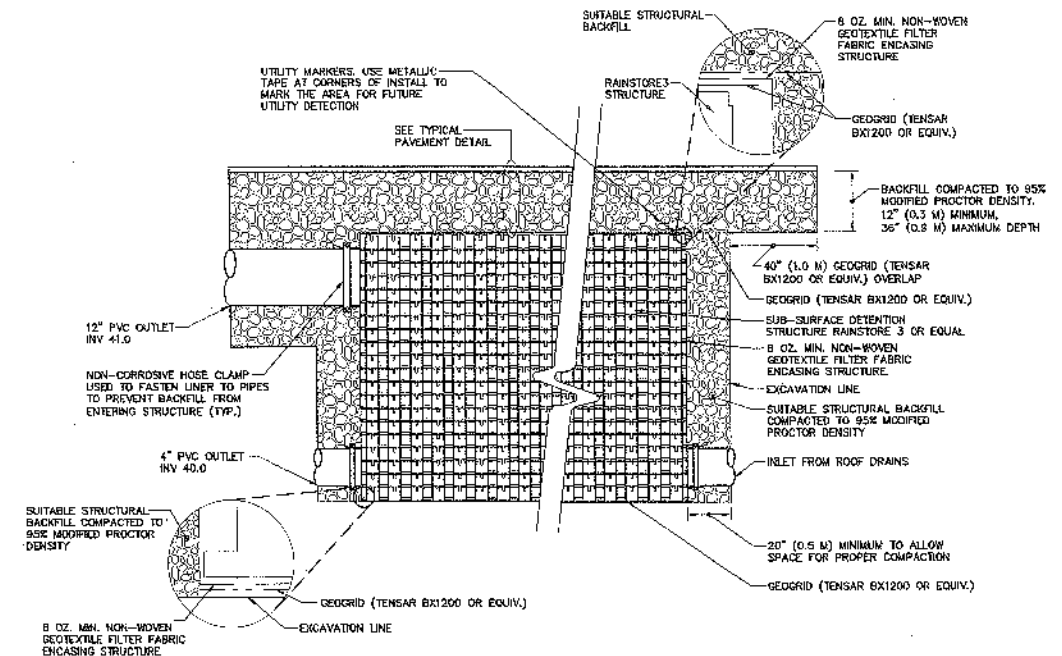


**TYPICAL PAVEMENT**  
N.T.S.

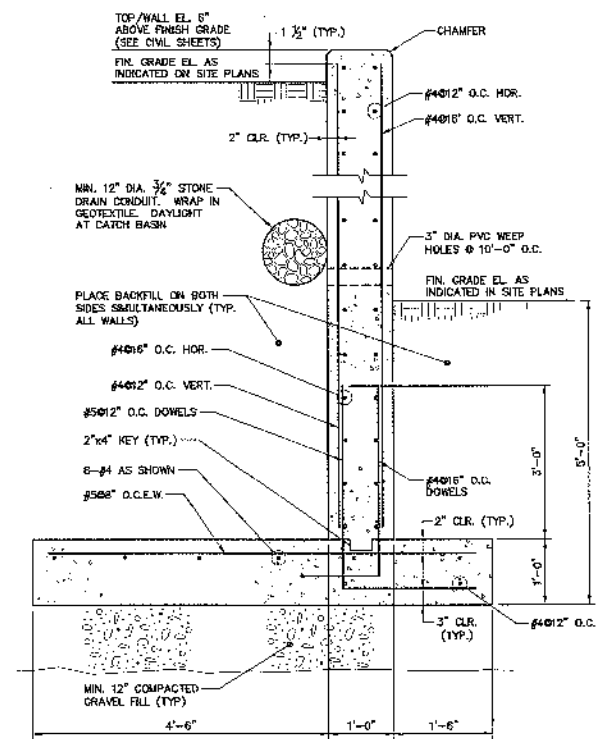


- GUARDRAIL NOTES:**
1. ALL POST SPACING SHALL BE 4'-6" UNLESS OTHERWISE DIRECTED BY ENGINEER.
  2. ALL HOLES IN POSTS SHALL BE SHOP-PUNCHED BEFORE GALVANIZING.
  3. ALL POSTS AND HARDWARE SHALL BE GALVANIZED STEEL.
  4. ALL RAIL LUMBER SHALL BE PRESSURE-TREATED SOUTHERN PINE, NO. 2 GRADE OR BETTER.

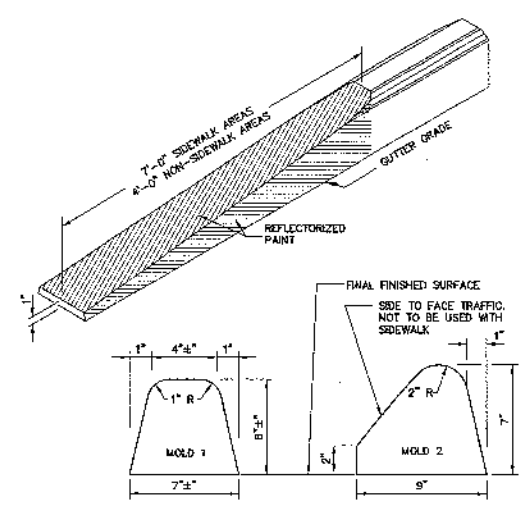
**GUARDRAIL DETAIL**  
N.T.S.



**SUB-SURFACE DETENTION STRUCTURE**  
N.T.S.

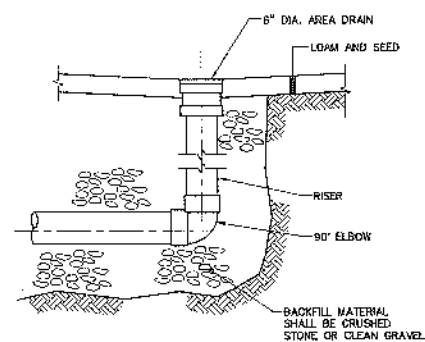


**REINFORCED CONCRETE RETAINING WALL**  
N.T.S.

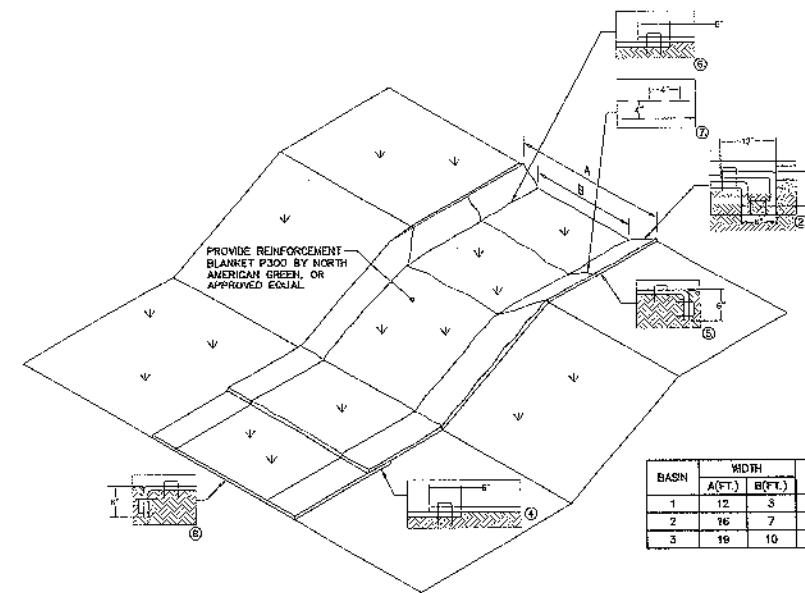


**BITUMINOUS CURB TYPE 3**  
N.T.S.

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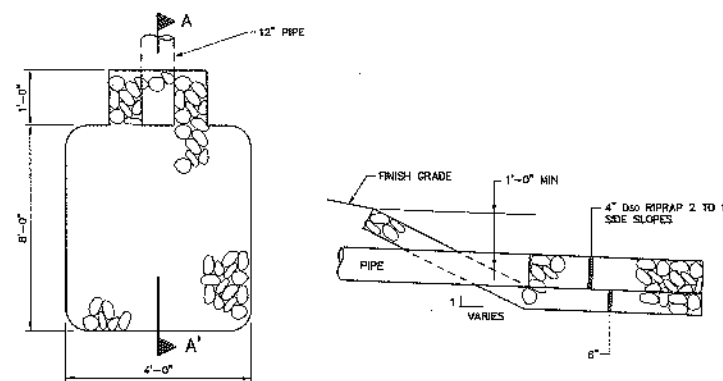


AREA DRAIN DETAIL  
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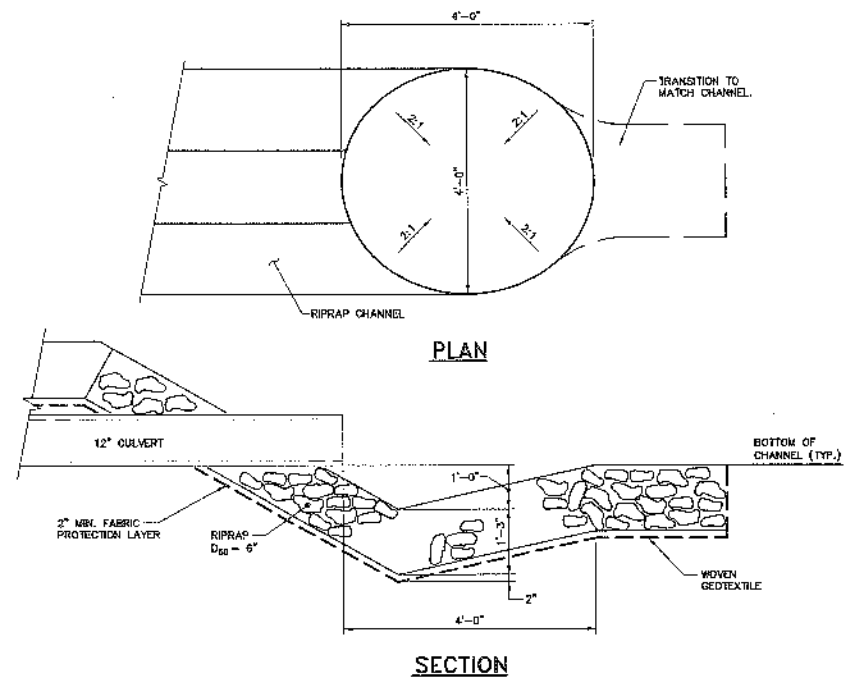


INSTALLATION NOTES:

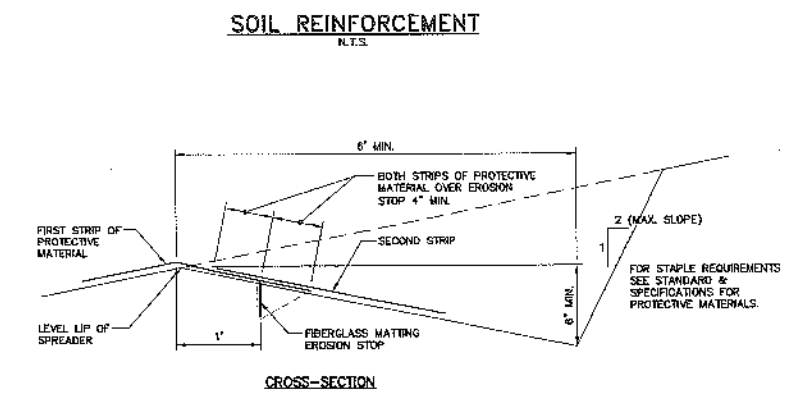
- REINFORCEMENT BLANKETS FOR SPILLWAY SHALL BE P300 BY NORTH AMERICAN GREEN OR APPROVED EQUAL. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ALL NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 6" AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
- A STAPLE CHECK SLOT AT 30 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE OVERLAPS, SEAMS, AND BOTTOM/SIDE SLOPE ALONG THE CHANNEL SURFACE.
- IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.



RIPRAP APRON  
N.T.S.



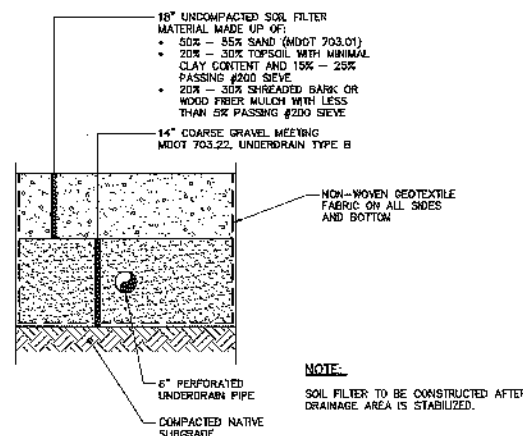
RIPRAP PLUNGE POOL  
N.T.S.



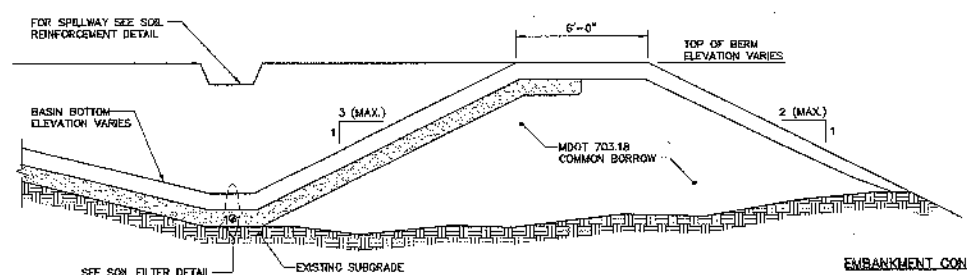
CONSTRUCTION SPECIFICATIONS:

- LEVEL SPREADERS SHALL BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE ENGINEER.
- CONSTRUCT LEVEL LIP ON ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF SEDIMENT-FREE RUNOFF (CONVERTING CHANNEL FLOW TO SHEET FLOW).
- LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL (NOT ON FILL).
- A FIBERGLASS MATTING EROSION STOP SHALL BE PLACED VERTICALLY AND AT LEAST SIX INCHES DEEP IN A SLIT TRENCH ONE FOOT BACK OF THE LEVEL LIP AND PARALLEL WITH THE LIP. THIS EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP AND SHALL BE TRIMMED AFTER BACKFILLING WITH TAMPED SOIL SO THAT THE UPPER EDGE IS FLUSH WITH THE SOIL SURFACE.
- THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF JUTE OR EXCELSONOR PROTECTIVE MATERIAL AS SHOWN.
- THE ENTRANCE CHANNEL SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE ENTERING SPREADER.
- STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTFLET ONTO STABILIZED AREAS. WATER SHALL NOT BE RECONCENTRATED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
- PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED.

OPEN TYPE LEVEL SPREADER  
N.T.S.



SOIL FILTER DETAIL  
N.T.S.



TYPICAL FILTER BASIN SECTION  
N.T.S.

- EMBANKMENT CONSTRUCTION:
- COMMON BORROW TO BE PLACED IN 12" LOOSE LIFTS COMPACTED TO 90% OF MAX. DRY DENSITY.
  - SEE GRADING PLAN FOR ELEVATIONS.

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REV.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	01/04/06
2	REVISION	01/04/06
3	REVISION	01/04/06
4	REVISION	01/04/06

CIVIL DETAILS - 3

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.:	202834.01
DATE:	JANUARY 2006
SCALE:	AS NOTED
SHEET:	OF

C302



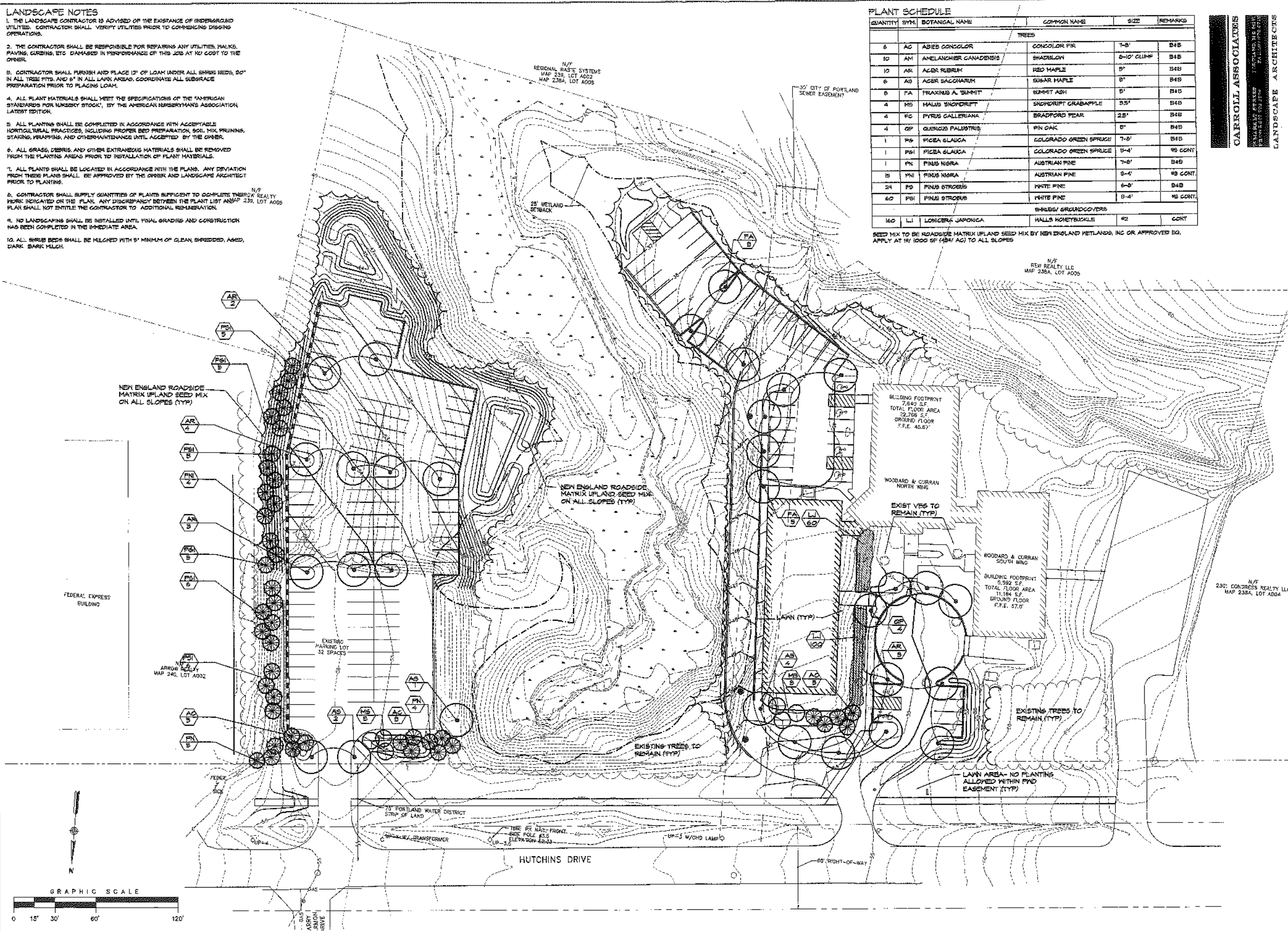
**LANDSCAPE NOTES**

1. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES. CONTRACTOR SHALL VERIFY UTILITIES PRIOR TO COMMENCING DIGGING OPERATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY UTILITIES, MARKS, PAVING, CURBS, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO COST TO THE OWNER.
3. CONTRACTOR SHALL FURNISH AND PLACE 12" OF LOAM UNDER ALL SHRUB BEDS, 20" IN ALL TREE PITS, AND 8" IN ALL LAWN AREAS. COORDINATE ALL SUBGRADE PREPARATION PRIOR TO PLACING LOAM.
4. ALL PLANT MATERIALS SHALL MEET THE SPECIFICATIONS OF THE 'AMERICAN STANDARDS FOR NURSERY STOCK', BY THE AMERICAN NURSERYMANS ASSOCIATION, LATEST EDITION.
5. ALL PLANTING SHALL BE COMPLETED IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES, INCLUDING PROPER BED PREPARATION, SOIL MIX PRUNING, STAKING, WRAPPING, AND OTHER MAINTENANCE UNTIL ACCEPTED BY THE OWNER.
6. ALL GRASS, DEBRIS, AND OTHER EXTRANEIOUS MATERIALS SHALL BE REMOVED FROM THE PLANTING AREAS PRIOR TO INSTALLATION OF PLANT MATERIALS.
7. ALL PLANTS SHALL BE LOCATED IN ACCORDANCE WITH THE PLANS. ANY DEVIATION FROM THESE PLANS SHALL BE APPROVED BY THE OWNER AND LANDSCAPE ARCHITECT PRIOR TO PLANTING.
8. CONTRACTOR SHALL SUPPLY QUANTITIES OF PLANTS SUFFICIENT TO COMPLETE THEREIN. REALTY MARK INDICATED ON THE PLAN. ANY DISCREPANCY BETWEEN THE PLANT LIST AND MAP 238, LOT 4008 PLAN SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL REIMBURSEMENT.
9. NO LANDSCAPING SHALL BE INSTALLED UNTIL FINAL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
10. ALL SHRUB BEDS SHALL BE MULCHED WITH 3" MINIMUM OF CLEAN, SHREDDED, AGED, DARK BARK MULCH.

**PLANT SCHEDULE**

QUANTITY	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES					
6	AC	ABIES CONCOLOR	CONCOLOR FIR	1-8"	B&B
10	AM	AMELANCHIER CANADENSIS	SHADBLON	6-10" CLUMP	B&B
10	AR	ACER RUBRUM	RED MAPLE	8"	B&B
6	AS	ACER SACCCHARUM	SUGAR MAPLE	8"	B&B
6	FA	FRAXINUS A. SUMMIT	SUMMIT ASH	8"	B&B
4	MS	MAHUS SNOWDRIFT	SNOWDRIFT GRABAPPLE	3-5"	B&B
4	FG	PYRUS GALLERIANA	BRADFORD PEAR	2-5"	B&B
4	QP	QUERCUS PALUSTRIS	PIN OAK	8"	B&B
1	PS	PICEA SLAUCA	COLORADO GREEN SPRUCE	7-8"	B&B
1	PS1	PICEA SLAUCA	COLORADO GREEN SPRUCE	3-4"	95 CONT.
1	PN	PINUS NIGRA	AUSTRIAN PINE	7-8"	B&B
15	PN1	PINUS NIGRA	AUSTRIAN PINE	3-4"	95 CONT.
24	PS	PINUS STROBUS	WHITE PINE	6-8"	B&B
60	PS1	PINUS STROBUS	WHITE PINE	3-4"	95 CONT.
SHRUBS / GRANDCOVERS					
160	LJ	LONGICORN JAPONICA	HALLS HONEYBUCKLE	62	CONT.

SEED MIX TO BE ROADSIDE MATRIX UPLAND SEED MIX BY NEW ENGLAND WETLANDS, INC OR APPROVED EQ. APPLY AT 1W/1000 SF (4B4/AC) TO ALL SLOPES



**CARROLL ASSOCIATES**  
 LANDSCAPE ARCHITECTS  
 1000 S. GARDEN ST. SUITE 200  
 PORTLAND, ME 04102  
 TEL: 603-771-1111  
 FAX: 603-771-1112

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 WC-PHONE  
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DESIGNED BY: PAC	CHECKED BY: GAO
DESIGNED BY: DR/PLC	CHECKED BY: DR/PLC
DATE: 1/24/06	
PROJECT: LANDSCAPE PLAN	

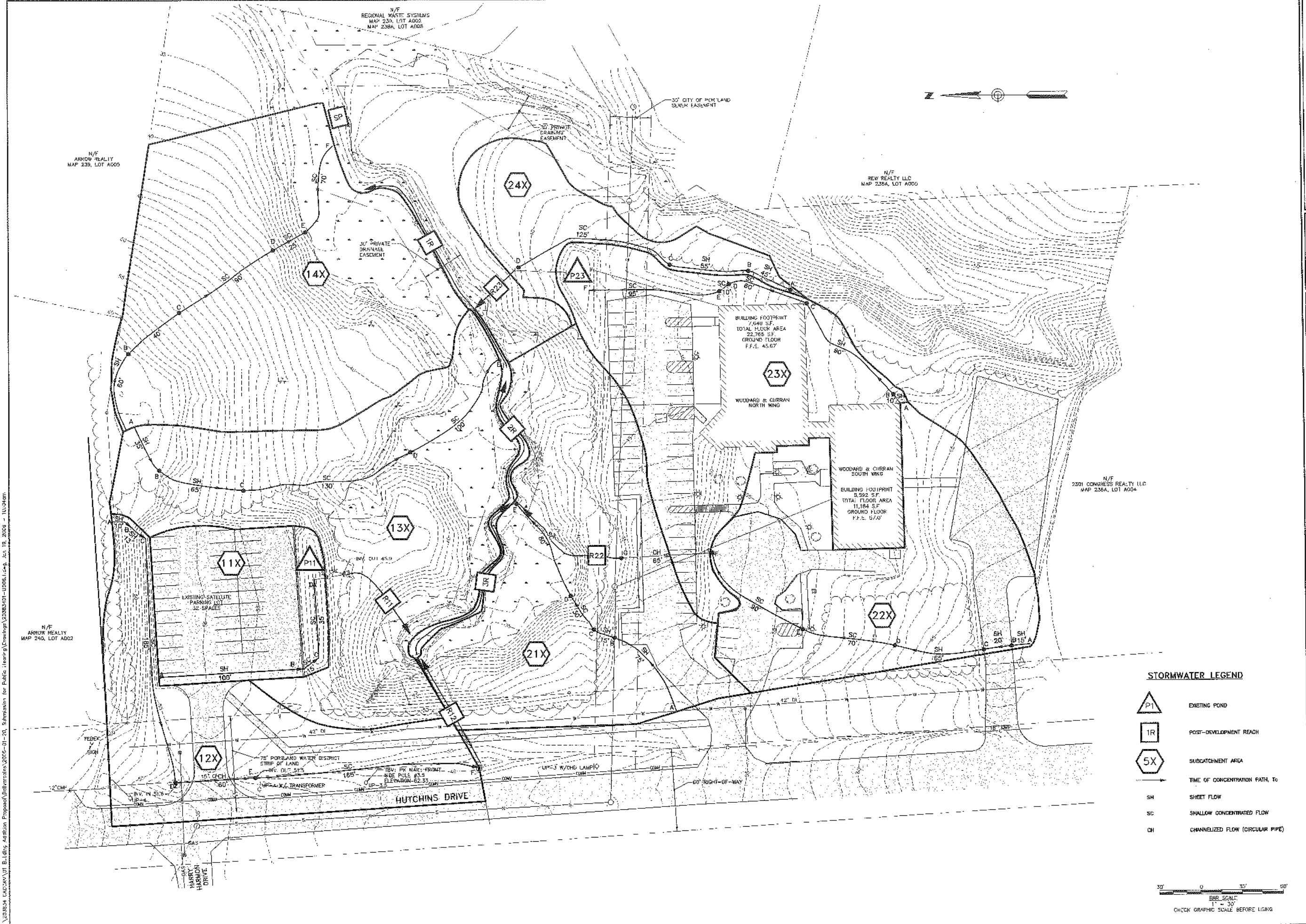
**LANDSCAPE PLAN**

WOODARD AND CURRAN  
 61 HUTCHINS DRIVE  
 PORTLAND, ME 04102

PROPOSED ADDITION

JOB NO: 05-02  
 DATE: 1-24-06  
 SCALE: 1" = 30'-0"  
 SHT-1 OF

**L-1.0**



**STORMWATER LEGEND**

- EXISTING POND
- POST-DEVELOPMENT REACH
- SUBCATCHMENT AREA
- TIME OF CONCENTRATION PATH, TO
- SHEET FLOW
- SHALLOW CONCENTRATED FLOW
- CHANNELIZED FLOW (CIRCULAR PIPE)

BAR SCALE  
1" = 30'  
CHECK GRAPHIC SCALE BEFORE USING

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PORTLAND, MAINE  
900-425-4282



REV.	DESCRIPTION	DATE
DESIGNED BY: KRV	CHECKED BY: BSS	01/11/06
DRAWN BY: JSO	DATE PLOTTED: 2006/01/11 10:43	

**EXISTING  
STORMWATER PLAN**

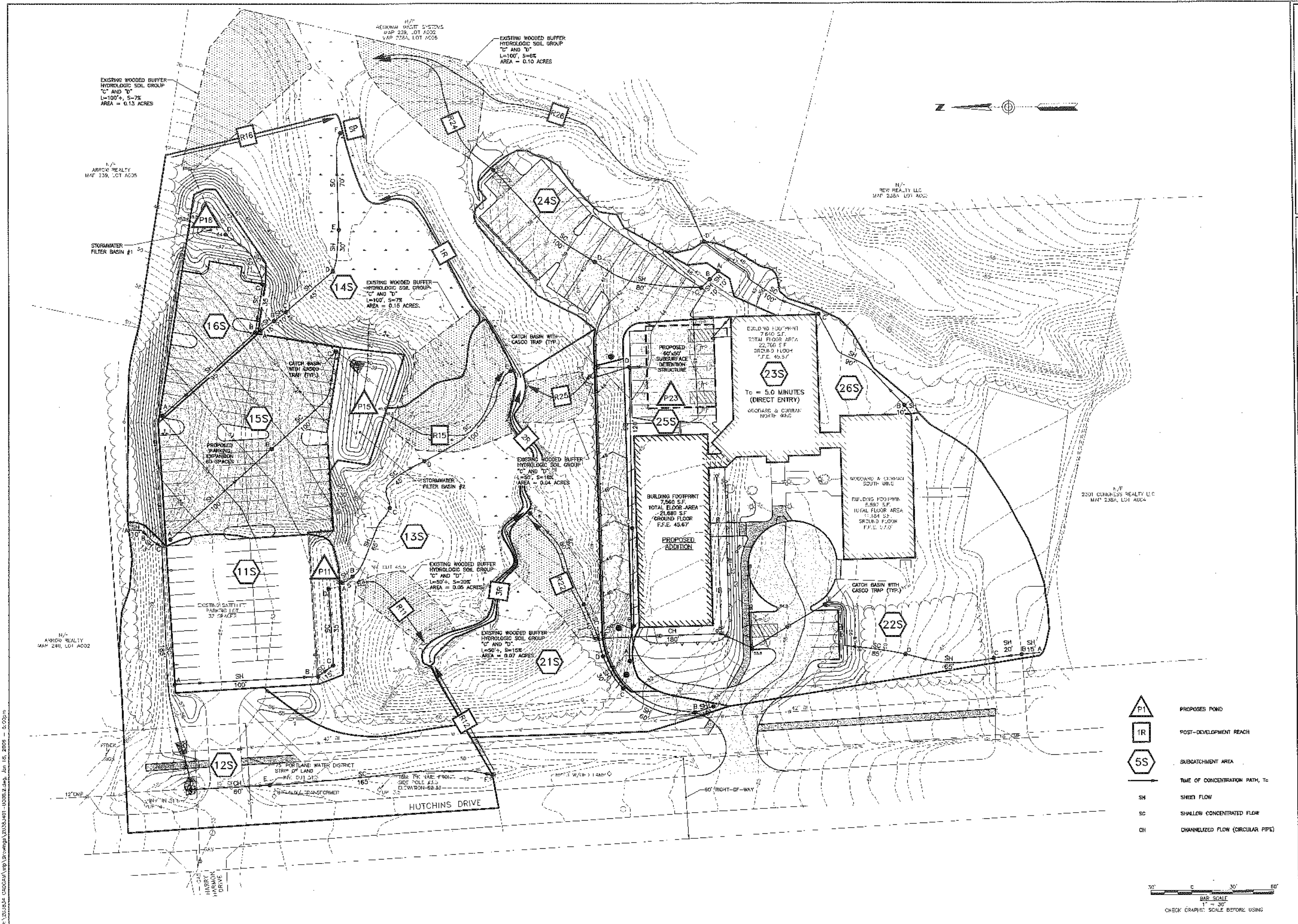
CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 200334.01  
DATE: JANUARY 2006  
SCALE: AS NOTED  
SHEET: 9

Figure 6.1

D:\2006\34 CAD-CAM\01 E:\Lib\Std\Std\Proposed\Deliverables\2006-01-20 Submission for Public Hearing\Drawings\2006\01-1006.L.dwg, Job 19, 2006 - 11:04am



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 Engineering · Science · Operations  
 PORTLAND, MAINE  
 900-126-4282



REV	DESCRIPTION	DATE
1	ISSUE FOR PERMIT	1/15/00
2	REVISION	1/15/00
3	REVISION	1/15/00
4	REVISION	1/15/00
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6	REVISION	1/15/00
7	REVISION	1/15/00
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## POST-DEVELOPMENT STORMWATER PLAN

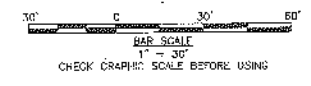
GAD-CAM ASSOCIATES  
 PORTLAND, MAINE

WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203854.01  
 DATE: JANUARY 2000  
 SCALE: AS NOTED  
 SHEET: 75 -

Figure 6.2

- PROPOSED POND
- POST-DEVELOPMENT REACH
- SUBCATCHMENT AREA
- TIME OF CONCENTRATION PATH, Tc
- SHEET FLOW
- SHALLOW CONCENTRATED FLOW
- CHANNELIZED FLOW (CIRCULAR PIPE)



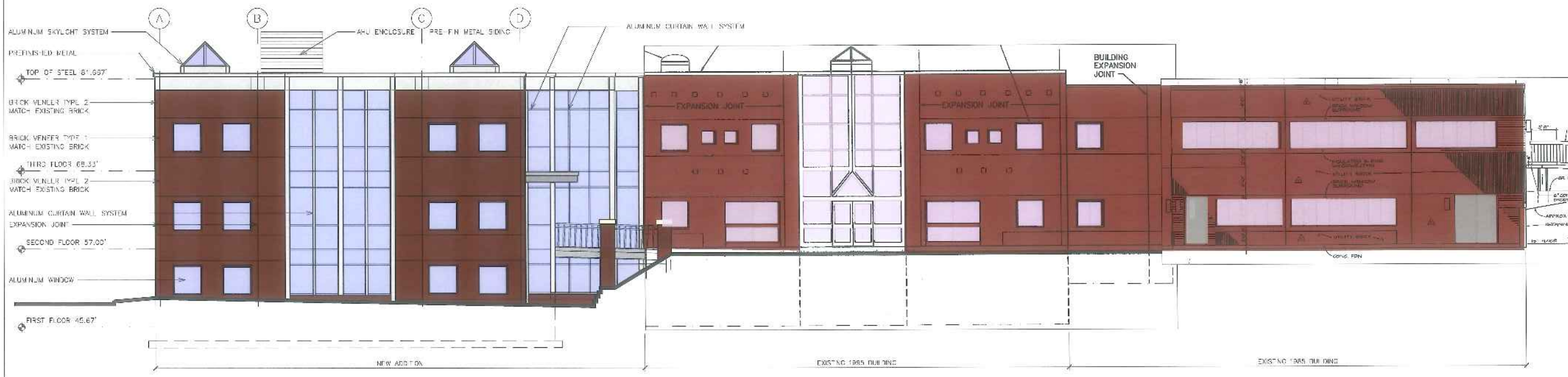
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Architect - Logo  
**HARRISMAN ASSOCIATES**  
 One Adams Building Drive  
 Atlanta, GA 30303  
 404.744.0000  
 404.744.0001  
 www.harrisman.com  
 Building constructed since 1977  
 © 2004

Project Title  
**Woodard & Curran  
 Office Addition**  
 PROJECT, WAVE

AK Project No. 04728  
 Fig. 10a



**WEST BUILDING ELEVATION** A2  
 1/16"=1'-0" REF: NA



**SOUTH BUILDING ELEVATION** A1  
 1/16"=1'-0" REF: NA

Date	Description
1.24.06	P.B. MEETING
1.5.06	FINAL REVIEW
12.9.05	S. D. REVIEW

Drawing Status

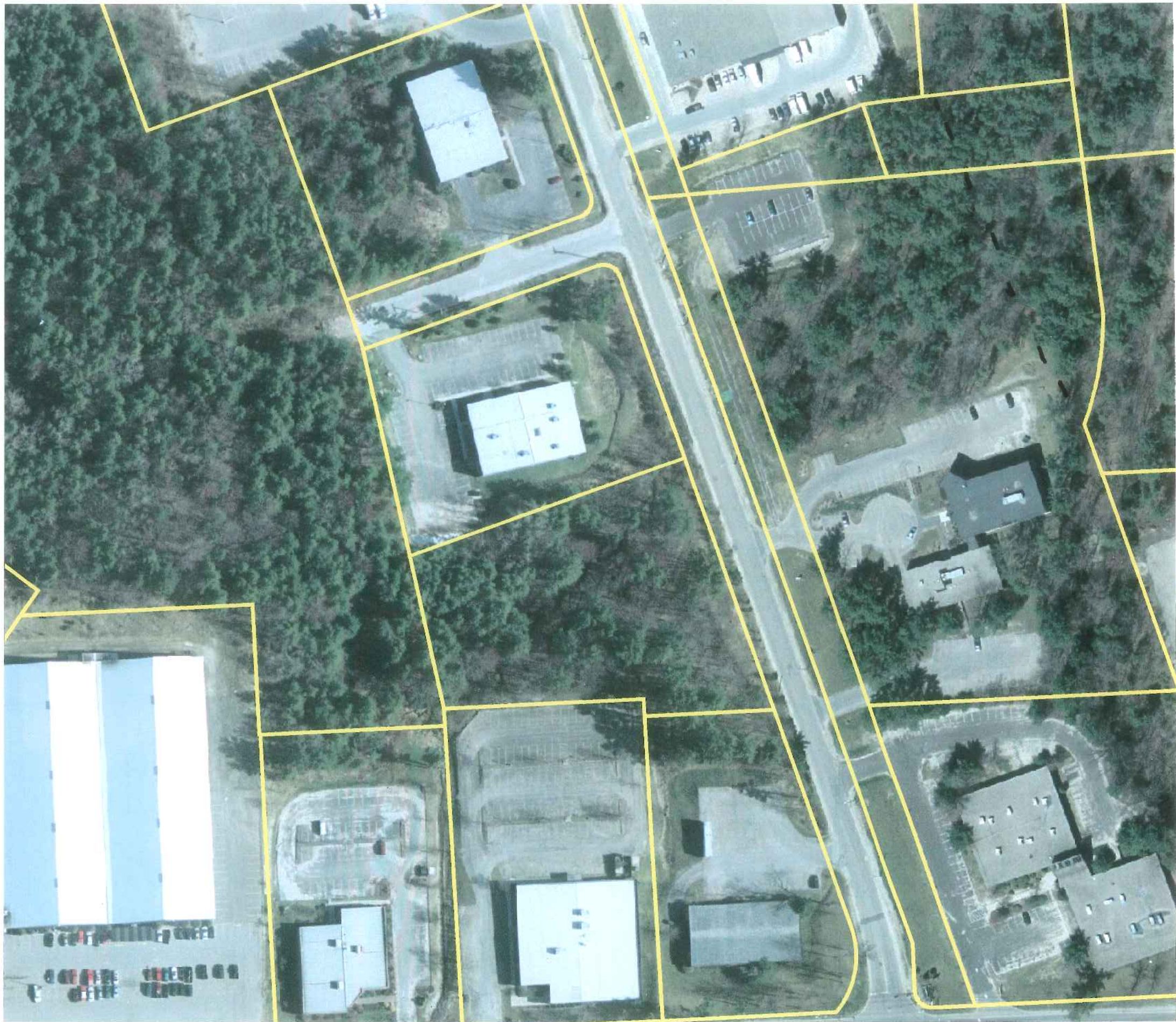
**BUILDING ELEVATIONS**

DR / DE: JWB/DY Drawn By: JWB/DY

Drawing Number  
**A20.1**







PARK-108 → 177



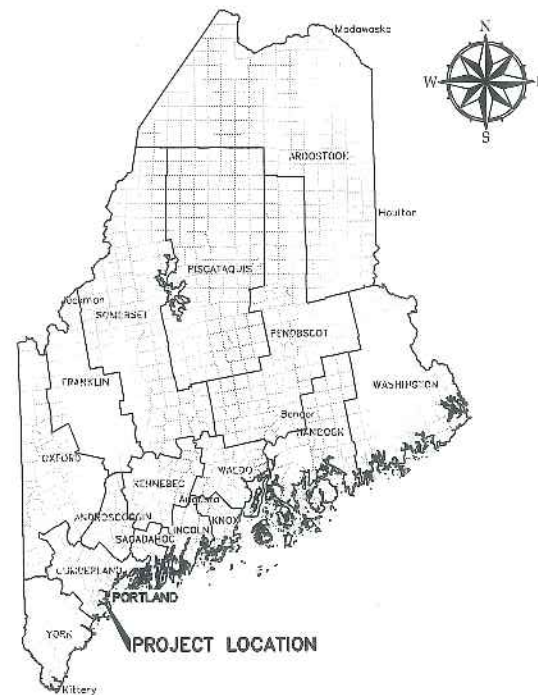
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# CAD-CAM ASSOCIATES PORTLAND, MAINE

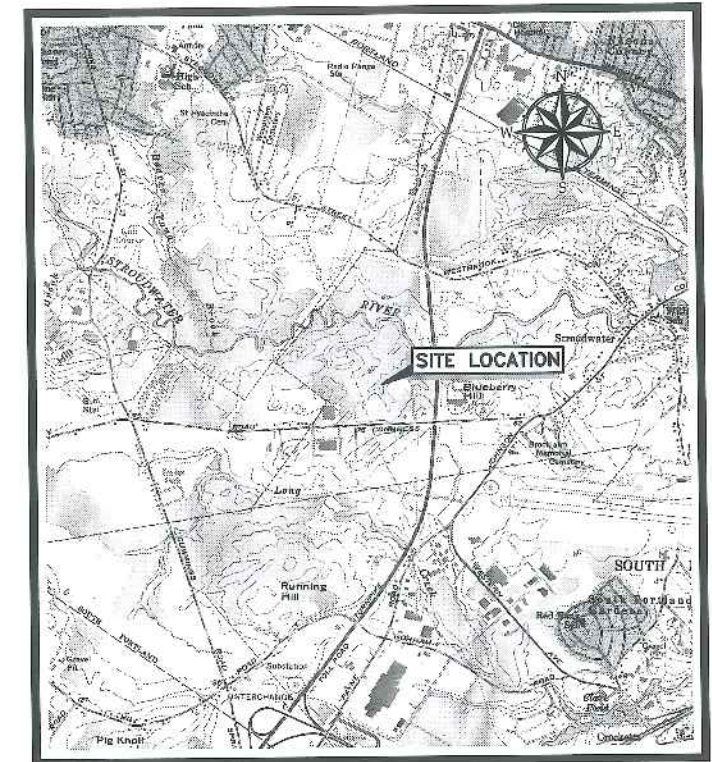
## WOODARD & CURRAN INC. OFFICE EXPANSION 41 HUTCHINS DRIVE PORTLAND, MAINE

PROJECT NO. 203834.01

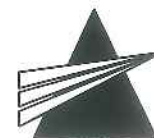
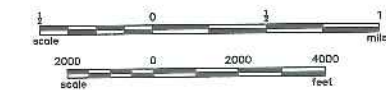
FEBRUARY 2006



PROJECT LOCATION MAP



SOURCE: USGS TOPOGRAPHIC MAP  
SITE LOCATION MAP



WOODARD & CURRAN  
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**GENERAL NOTES**

- TOPOGRAPHIC AND UTILITY SURVEY WAS OBTAINED FROM THE FOLLOWING SOURCES:
  - TOPOGRAPHIC AND UTILITY SURVEY DATA PROVIDED BY ROYAL RIVER SURVEY, YORKMOUTH, ME, FROM FIELD SURVEY DATED FEBRUARY 2000.
  - CAD-CAM ASSOCIATES FARMING LOT ADDITION DESIGN DRAWINGS DATED JUNE 2000. WOODARD & CURRAN INC. PROJECT NUMBER #60047.01
  - CAD-CAM ASSOCIATES BUILDING ADDITION DESIGN DRAWINGS DATED AUGUST 1999. WOODARD & CURRAN INC. PROJECT NUMBER #60050.02
- THE UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND RESUME FIELD VERIFICATION BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITY. NOT ALL EXISTING UTILITIES ARE SHOWN ON PLANS.
- TRENCH WORK, PIPE BEDDING, INSTALLATION OF FITTINGS AND ALL OTHER UTILITY INSTALLATIONS SHALL CONFORM TO THE CITY OF PORTLAND'S DESIGN GUIDELINES AND DETAILS OR THOSE PROVIDED BY UTILITY COMPANIES, AS APPLICABLE.
- CLEAN AND/OR FLUSH ALL MANHOLES, CATCH BASINS, AND ASSOCIATED PIPING AFTER THE WORK HAS BEEN COMPLETED.
- COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES, EMERGENCY SERVICES, AND MPW OFFICE. CONTACTS ARE LISTED IN SPECIFICATIONS. NOTIFY UTILITY COMPANIES WITHIN 48 HOURS OF WORK ACTIVITY ADJACENT TO THOSE UTILITIES.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK, ALLOWING SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF BURIED UTILITIES. CONTRACTOR SHALL CONTACT "DIG SAFE", TELEPHONE 626-344-7233 PRIOR TO EXCAVATION.
- RESTORE ALL AREA DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, GRASS, ETC.) UNLESS OTHERWISE NOTED ON PLANS. RESTORATION OF GRAVEL ROAD AND DRAINAGE SURFACES AND LAIRNS DAMAGED BY CONTRACTOR SHALL BE INCIDENTAL TO THE PROJECT.
- PROPERLY PROTECT AND DO NOT DISTURB PROPERTY MARKS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE, BY A REGISTERED LAND SURVEYOR APPROVED BY THE ENGINEER.
- CALCULATIONS FOR STATIONING, PIPE LENGTHS, AND PIPE INVERTS ARE BASED ON CENTERLINE MEASUREMENTS.
- EXISTING FACILITIES (I.E. GUARDRAILS, TREES, POLES, LIGHT POSTS, CATCH BASINS, ETC.) THAT ARE REMOVED SHALL BE PROTECTED DURING CONSTRUCTION. OWNER RETAINS RIGHT TO KEEP ANY AND ALL REMOVED FACILITIES. CONTRACTOR TO DISPOSE OF ANY REMOVED FACILITY AT THE REQUEST OF OWNER OR ENGINEER AT CONTRACTOR'S EXPENSE.
- DO NOT MARK OR STORE EQUIPMENT ON ADJACENT TOWN OR PRIVATELY OWNED LOTS, UNLESS PERMISSION HAS BEEN OBTAINED IN WRITING BY TOWN OR LAND OWNER.
- COORDINATE DISRUPTION OF PRIVATE UTILITY SERVICES WITH LANDOWNERS AT LEAST TWO DAYS (48 HOURS) PRIOR TO DISRUPTION. ALL UTILITY COORDINATION IS RESPONSIBILITY OF CONTRACTOR.
- RESTRICT ACCESS TO CONSTRUCTION AREA THROUGH THE USE OF APPROPRIATE SIGNAGE, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS. NO TRENCH SHALL BE LEFT OPEN DURING NON-WORKING HOURS. SITE SAFETY IS THE SOLE RESPONSIBILITY OF CONTRACTOR, DURING BOTH WORKING AND NON-WORKING HOURS.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS. PERMIT APPLICATIONS SHALL BE SUBMITTED WITH ADEQUATE TIME SO AS NOT TO DELAY CONSTRUCTION.
- ALL WORK THAT INVOLVES THE WATERLINE SHALL BE DONE IN ACCORDANCE WITH PORTLAND WATER DISTRICT'S SPECIFICATIONS. PORTLAND WATER DISTRICT SHALL BE CONTACTED BEFORE ANY WORK IS STARTED INVOLVING THE WATERLINE.

**SYMBOLS**

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER MANHOLE		
SANITARY SEWER SERVICE CLEANOUT		
STORM DRAIN MANHOLE		
CATCH BASIN		
TELECOM MANHOLE		
TELECOM SERVICE BOX		
ELECTRIC MANHOLE		
TRANSFORMER		
UTILITY POLE W/OUT		
UTILITY POLE		
LIGHTPOST		
GAS METER BOX		
GAS VENT		
GAS GATE		
WATER GATE		
CURB STOP		
HYDRANT		
WATER WELL		
WATER METER BOX		
SIEN		
SHARBOX		
FLAGPOLE		
WETLAND MATCHING		
CONIFEROUS TREE		
DECIDUOUS TREE		
STONE CHECK DAM		
SURVEY STATION		
TEMPORARY BENCH MARK		
HIGH PSH		
MARKERS		
SPOT ELEVATION		
TEST PIT & NUMBER		
BORING & NUMBER		

**LINE TYPES**

DESCRIPTION	EXISTING	DESCRIPTION	PROPOSED
CONTOUR (1' INTERVAL)		CONTOUR (1' INTERVAL)	
CONTOUR (HATCH)		CONTOUR (HATCH)	
SANITARY SEWER		SANITARY SEWER	
FORCE MAIN		FORCE MAIN	
STORM DRAIN		STORM DRAIN	
UNDERDRAIN		UNDERDRAIN	
WATER MAIN		WATER MAIN	
UNDERGROUND ELECTRIC		UNDERGROUND ELECTRIC	
UNDERGROUND TELEPHONE		UNDERGROUND TELEPHONE	
UNDERGROUND TELEVISION		UNDERGROUND TELEVISION	
GAS LINE		GAS LINE	
OVERHEAD ELECTRIC		OVERHEAD ELECTRIC	
ABANDONED SEWER		ABANDONED SEWER	
ABANDONED WATER MAIN		ABANDONED WATER MAIN	
CULVERT		CULVERT	
HOUSE SERVICE / LATERAL		HOUSE SERVICE / LATERAL	
PROPERTY LINE		PROPERTY LINE	
RIGHT OF WAY		RIGHT OF WAY	
EASEMENT		EASEMENT	
EDGE OF VEGETATION		EDGE OF VEGETATION	
FENCE		FENCE	
CENTERLINE		CENTERLINE	
RETAINING WALL		RETAINING WALL	
STONEWALL		STONEWALL	
CURB		CURB	
EDGE OF PAVEMENT		EDGE OF PAVEMENT	
EDGE OF GRAVEL		EDGE OF GRAVEL	
GUARDRAIL		GUARDRAIL	
DRAINAGE DITCH / SWALE		DRAINAGE DITCH / SWALE	
WETLAND		EROSION CONTROL BERM WITH SILT FENCE	
25-FOOT WETLAND SETBACK			
BROOK			

**ABBREVIATIONS**

A	AND
A.G.	ABOVE GRADE
B	BENCH
BT	BULBULOUS
BM	BENCHMARK
CB	CATCH BASIN
CAP	CENTRAL MAIN POWER COMPANY
COND.	CONCRETE
CONV.	CONVERT
CR	CITY OF PORTLAND
DI	DUCTILE IRON
DIA	DIAMETER
D.M.	DRAIN MANHOLE
E	EAST
E.L.	ELEVATION
ELEC.	ELECTRICAL
ENGR.	ENGINEER
EX	EXISTING
FF	FRESH FLOOR
FL	FRESH
FL	FLOOR
FT	FOOT/FEET
UNCL. DRAIN	GALVANIZED IRON
HDPE	HIGH DENSITY POLYETHYLENE
H.M.	HIGHWAY
HD	HYDRANT
IN	INCH
INV.	INVERT
LF	LINEAR FEET
MAX. DEPT.	MAXIMUM DEPARTMENT OF TRANSPORTATION
MIN. MON.	MINIMUM MONUMENT
NO. REF.	NO REFUSAL
N.T.S.	NOT TO SCALE
NUL	NON-UTILITY
O.D.	OUTSIDE DIAMETER
OH	OVERHEAD
±	PLUS OR MINUS
PLS	PROFESSIONAL LAND SURVEYOR
PS	PER SQUARE FOOT
PSG	PER SQUARE HIGH GUAGE PRESSURE
PVC	POLYVINYL CHLORIDE
R.O.W.	RIGHT-OF-WAY
RENF.	REINFORCED CONCRETE PIPE
RENF.	REINFORCED
REQ'D	REQUIRED
RET.	RETAINING
R.L.S.	REGISTERED LAND SURVEYOR
ROUTE	ROUTE
S	SLOPE
SM	SEWER MANHOLE
SON	SCHEDULE
STR	STANDARD
STA.	STATION
YYP.	TYPICAL
UC	UNDERGROUND CABLE
VER.	VERTICAL
W	WEST
W/	WITH
WV	WATER VALVE

**SHEET INDEX**

G001	GENERAL NOTES, LEGEND, ABBREVIATIONS AND SHEET INDEX
C100	EXISTING SITE PLAN
C200	EROSION AND SEDIMENTATION CONTROL PLAN
C201	PROPOSED SITE PLAN
C202	PROPOSED UTILITY PLAN
C300	CIVIL DETAILS - 1
C301	CIVIL DETAILS - 2
C302	CIVIL DETAILS - 3
C303	CIVIL DETAILS - 4

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PORTLAND, MAINE  
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NO.	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	2/27/09
2	CHECKED BY: KRY/ISS	
3	DESIGNED BY: KRY	
4	DRAWN BY: JBC	

**GENERAL NOTES, LEGEND, ABBREVIATIONS AND SHEET INDEX**

CAD-CAM ASSOCIATES  
PORTLAND, MAINE  
WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.:	203534.01
DATE:	JANUARY 2009
SCALE:	AS NOTED
SHEET:	- OF -

**G001**

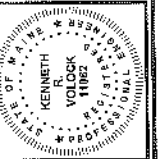




MAJOR SITE PLAN, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

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 800-428-4292



REV	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	3/28/08
1	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/08

DESIGNED BY: SEC/RYV  
 CHECKED BY: BSS/MRV  
 DRAWN BY: BSS

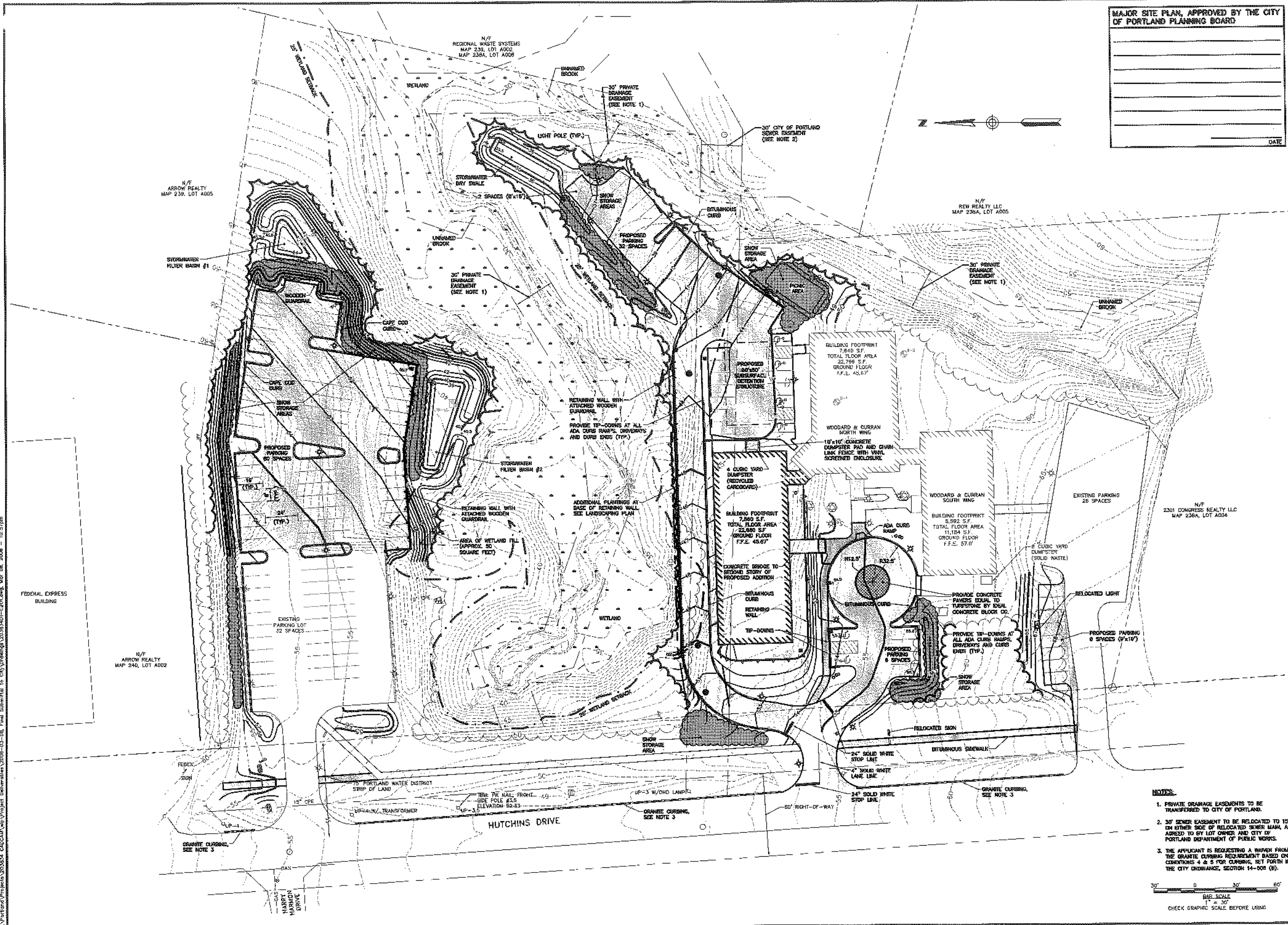
**PROPOSED SITE PLAN**

CAC-CAM ASSOCIATES  
 PORTLAND, MAINE

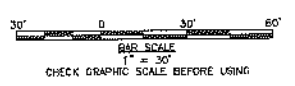
**WOODARD & CURRAN INC.**  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203634.01  
 DATE: MARCH 2008  
 SCALE: AS NOTED  
 SHEET: 02

**C201**

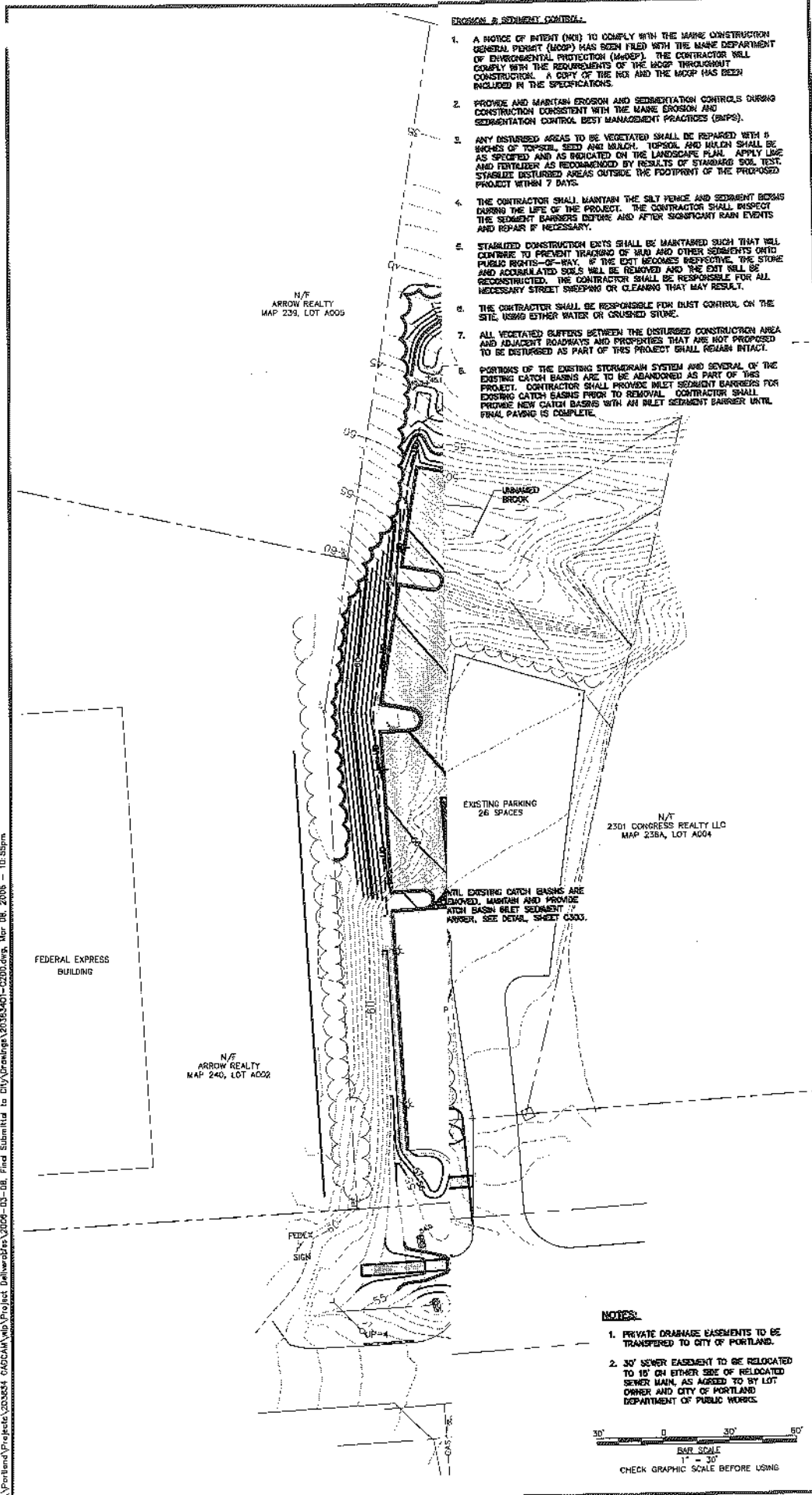


- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT IS REQUESTING A VARIANCE FROM THE GRANITE CURBING REQUIREMENT BASED ON CONDITIONS 4 & 5 FOR CURBING, SET FORTH IN THE CITY ORDINANCE, SECTION 14-508 (B).



I:\Portland\Projects\203634 CAC-CAM\Map\Project Deliverables\2008-03-08\_Final Submittal to City\Drawings\20363401-C201.dwg, Mo. 08. 2008 - 10:57am

\\Portland\Projects\2006\2006-CAD\CAM\Project Deliverables\2006-03-08\_Fin Final\2006-03-08\_Fin Final.dwg, Ver. DR. 2006 - 10:55pm

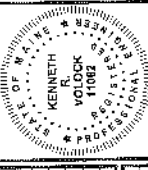


- EROSION & SEDIMENT CONTROL**
1. A NOTICE OF INTENT (NOI) TO COMPLY WITH THE MAINE CONSTRUCTION GENERAL PERMIT (MCOGP) HAS BEEN FILED WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION (MEDEP). THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE MCOGP THROUGHOUT CONSTRUCTION. A COPY OF THE NOI AND THE MCOGP HAS BEEN INCLUDED IN THE SPECIFICATIONS.
  2. PROVIDE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION CONSISTENT WITH THE MAINE EROSION AND SEDIMENTATION CONTROL BEST MANAGEMENT PRACTICES (BMPs).
  3. ANY DISTURBED AREAS TO BE VEGETATED SHALL BE REPAIRED WITH 5 SHOVELS OF TOPSOIL, SEED AND MULCH. TOPSOIL AND MULCH SHALL BE AS SPECIFIED AND AS INDICATED ON THE LANDSCAPE PLAN. APPLY LIME AND FERTILIZER AS RECOMMENDED BY RESULTS OF STANDARD SOIL TEST. STABILIZE DISTURBED AREAS OUTSIDE THE FOOTPRINT OF THE PROPOSED PROJECT WITHIN 7 DAYS.
  4. THE CONTRACTOR SHALL MAINTAIN THE SILT FENCE AND SEDIMENT BOMBS DURING THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL INSPECT THE SEDIMENT BARRIERS BEFORE AND AFTER SIGNIFICANT RAIN EVENTS AND REPAIR IF NECESSARY.
  5. STABILIZED CONSTRUCTION EXITS SHALL BE MAINTAINED SUCH THAT WELLS CONTINUE TO PREVENT TRACKING OF MUD AND OTHER SEDIMENTS ONTO PUBLIC RIGHTS-OF-WAY. IF THE EXIT BECOMES INEFFECTIVE, THE STORE AND ACCUMULATED SOILS WILL BE REMOVED AND THE EXIT WILL BE RECONSTRUCTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY STREET SWEEPING OR CLEANING THAT MAY RESULT.
  6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL ON THE SITE, USING EITHER WATER OR CRUSHED STONE.
  7. ALL VEGETATED BUFFERS BETWEEN THE DISTURBED CONSTRUCTION AREA AND ADJACENT ROADWAYS AND PROPERTIES THAT ARE NOT PROPOSED TO BE DISTURBED AS PART OF THIS PROJECT SHALL REMAIN INTACT.
  8. PORTIONS OF THE EXISTING STORMDRAIN SYSTEM AND SEVERAL OF THE EXISTING CATCH BASINS ARE TO BE ABANDONED AS PART OF THIS PROJECT. CONTRACTOR SHALL PROVIDE INLET SEDIMENT BARRIERS FOR EXISTING CATCH BASINS PRIOR TO REMOVAL. CONTRACTOR SHALL PROVIDE NEW CATCH BASINS WITH AN INLET SEDIMENT BARRIER UNTIL FINAL PAVING IS COMPLETE.

- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30" SEWER EASEMENT TO BE RELOCATED TO 10' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.



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PORTLAND, MAINE



REV	DESCRIPTION	DATE	DESIGNED BY	CHECKED BY	DRAWN BY
1	SUBMITTED FOR PLANNING BOARD APPROVAL	3/09/06			
2	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/06			
			BRJ/ARY	BRJ/ARY	
				20060401-0200.dwg	

**EROSION AND SEDIMENTATION CONTROL PLAN**

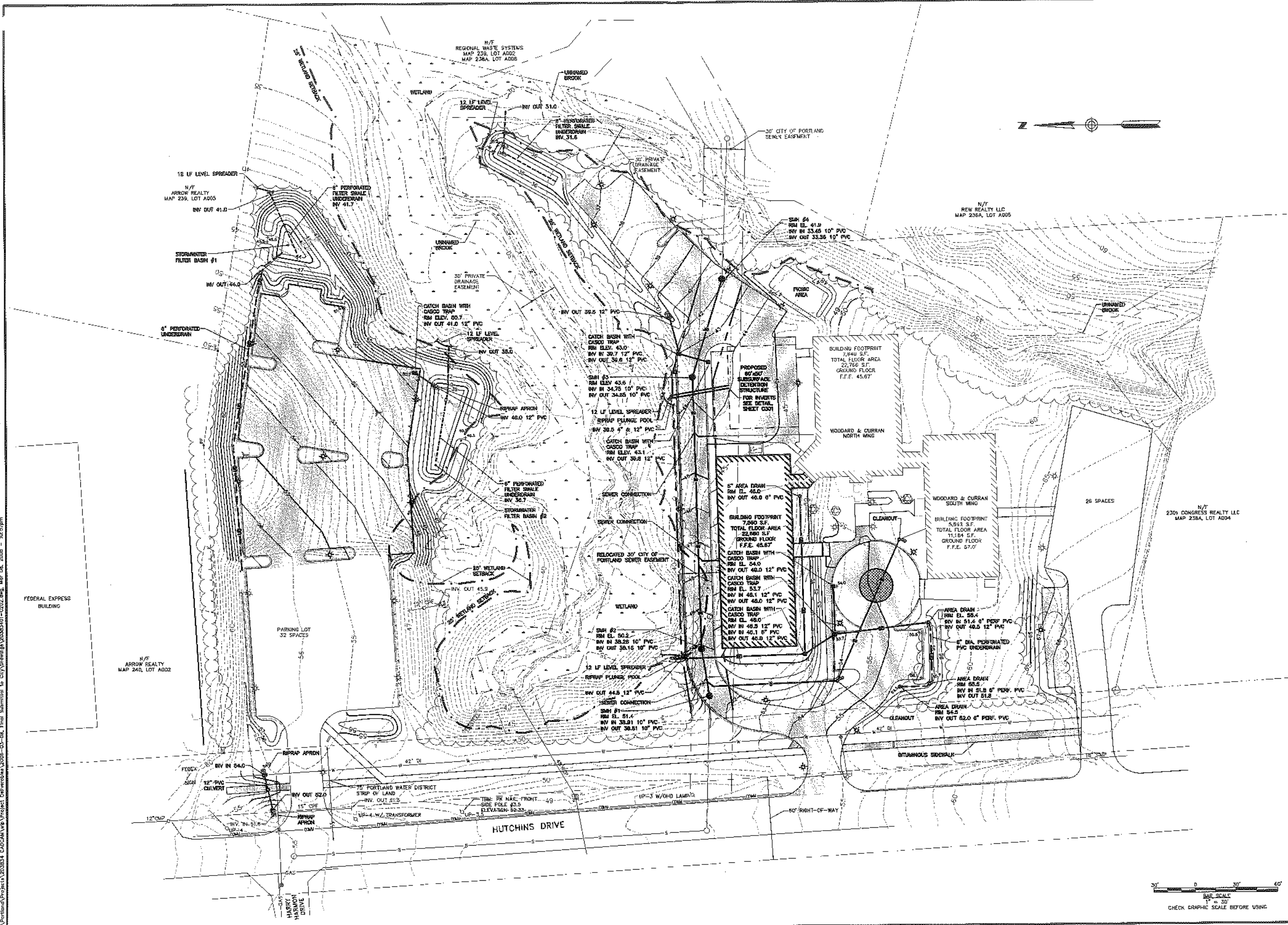
CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
44 HUTCHINS DRIVE, PORTLAND, ME

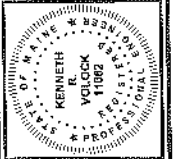
JOB NO.: 200604-01  
DATE: MARCH 2006  
SCALE: AS NOTED  
SHEET: OF 1

**C200**

\\Portland\Projects\203834\CADD\CAM\Site\Project\_Deliverables\2008-03-08\_Final\Submital to City\Drawings\20383401-C202.dwg, Mar 08, 2008 - 10:57am



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NO.	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	3/09/08
2	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/08
REV.	DESCRIPTION	DATE
DESIGNED BY:	SSJ/ARV	
DRAWN BY:	SSJ	
CHECKED BY:	203834-0202.dwg	

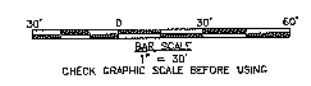
## PROPOSED UTILITY PLAN

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

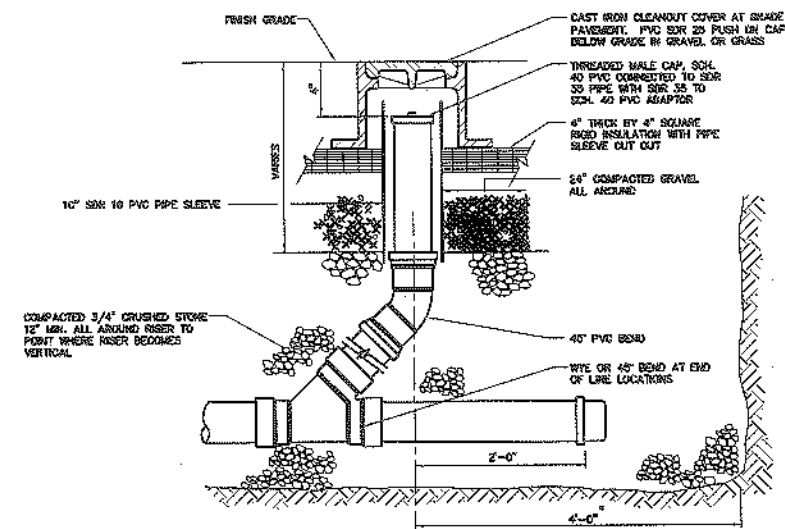
WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.:	203834.01
DATE:	MARCH 2008
SCALE:	AS NOTED
SHEET:	02

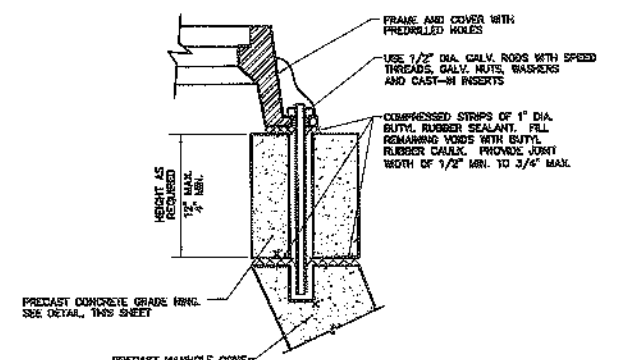
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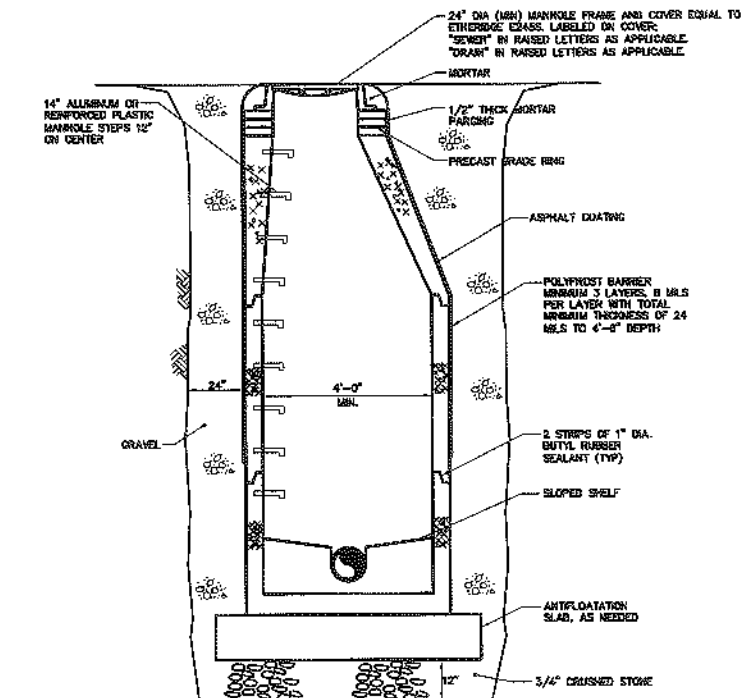




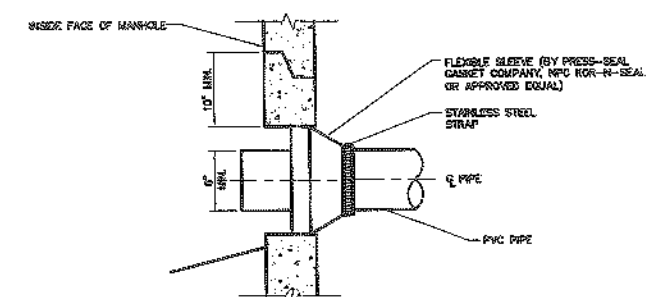
**CLEANOUT DETAIL**  
N.T.S.



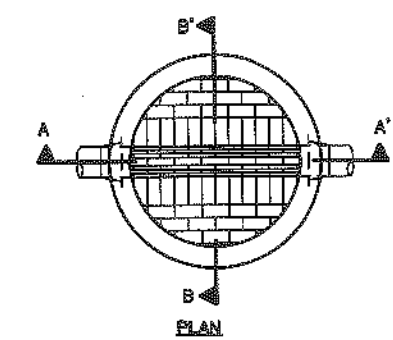
**MANHOLE FRAME FASTENING DETAIL**  
N.T.S.



**PRECAST MANHOLE**  
N.T.S.

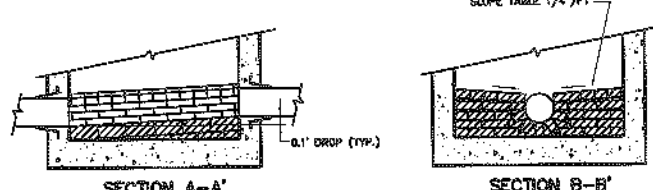


**PIPE TO MANHOLE/CATCH BASIN CONNECTION DETAIL**  
N.T.S.

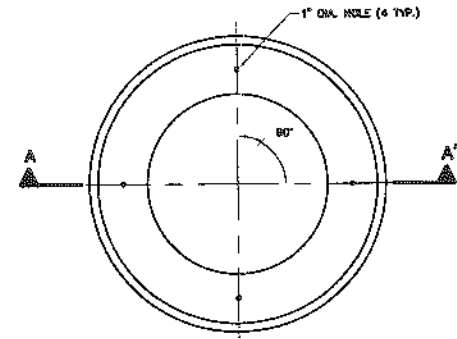


**BRICK INVERT**  
N.T.S.

- NOTES:**
- TIE ALL JOINTS IN CHANNEL AND ON TABLES.
  - FILL UNDER TABLE WITH MORTAR-BEDDED BRICK.
  - SLOPE CHANNEL DOWN FROM INLET TO OUTLET.
  - MAKE CHANGES IN FLOW DIRECTION BY CIRCULAR CHANNEL CONSTRUCTION WITH MAXIMUM RADIUS POSSIBLE.
  - FOR HEAD-END MANHOLES, BUILD CHANNEL AS DIRECTED BY ENGINEER.
  - CONTRACTOR MAY INSTALL CONCRETE (4000 PSI) TABLES AS AN ALTERNATIVE TO BRICK TABLES.

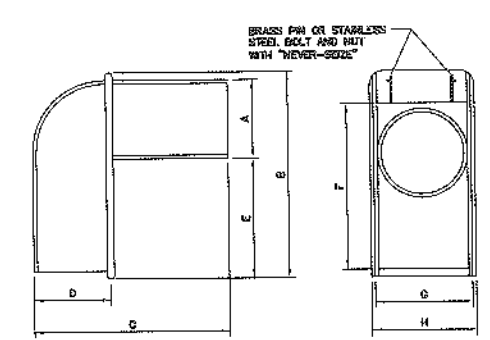
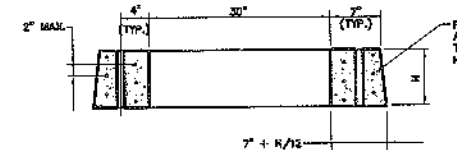


**SECTION A-A'**  
**SECTION B-B'**



**PRECAST CONCRETE GRADE RING**  
N.T.S.

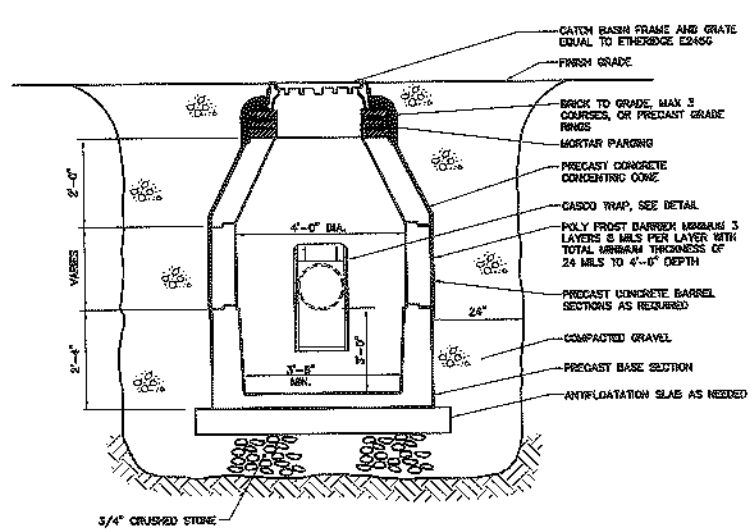
- NOTES:**
- PROVIDE CAST-IN INSERTS IN PRECAST MANHOLE CORES AND FLAT TOPS. LOCATIONS TO MATCH HOLES IN GRADE RING.
  - PROVIDE H OF 4 MIN. TO 12 MAX. AS REQUIRED TO BRING FRAME TO FINAL GRADE.
  - FOR FRAME ADJUSTMENTS OF LESS THAN 4 INCH USE APPROVED ALTERNATE MANHOLE FRAME AND/OR ATTACH FRAME DIRECTLY TO PRECAST MANHOLE CORE.
  - CONTRACTOR MAY USE BRICKS TO BRING MANHOLE TO GRADE.



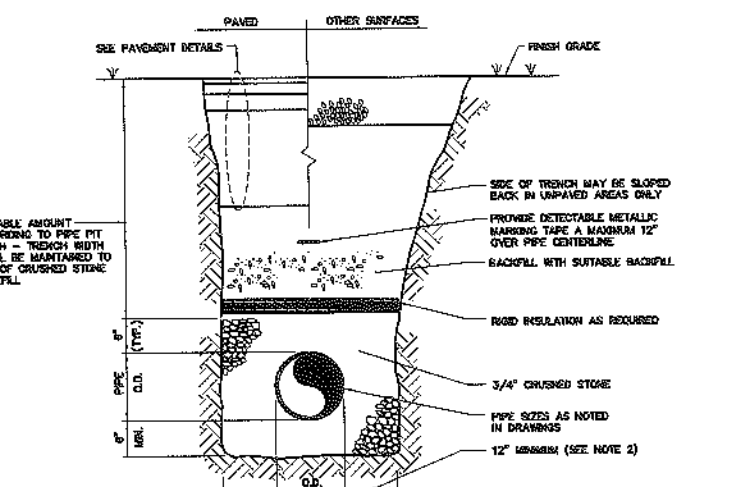
SIZE	A	B	C	D	E	F	G	H
12"	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"

- NOTES:**
- BOLT AND NUT REQUIRED WHERE HOOD WILL NOT OPEN COMPLETELY.
  - FOR OUTLET PIPES GREATER THAN 12" USE "SMOOTH" WRAP BY BEST MANAGEMENT PRODUCTS, INC. OR APPROVED EQUAL.

**CASCO TRAP DETAIL**  
N.T.S.



**TYPICAL CATCH BASIN**  
N.T.S.



- NOTES:**
- MAINTAIN UNIFORM TRENCH WIDTH TO 6" OVER PIPE.
  - PROVIDE RIGID INSULATION, 2" THICKNESS, FOR ALL PIPING WITH LESS THAN 4'-0" OF COVER TO TOP OF PIPE. INSULATE PER MDOT BEST PRACTICES. EXTEND INSULATION 18" OUT FROM EDGE OF PIPE. WHERE INSULATION IS REQUIRED, TRENCH WIDTH MUST EXCEED 14" MIN. FROM OUTSIDE EDGE OF PIPE.
  - BRACINGS AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE O.S.H.A. SAFETY REGULATIONS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF CONTRACTOR.

**SINGLE PIPE TRENCH DETAIL**  
N.T.S.

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1	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/06
2	DESIGNED BY: JEB/ANY	CREATED BY: JEB/ANY
3	DRAWN BY: JBC	2005-01-13

**CIVIL DETAILS - 1**

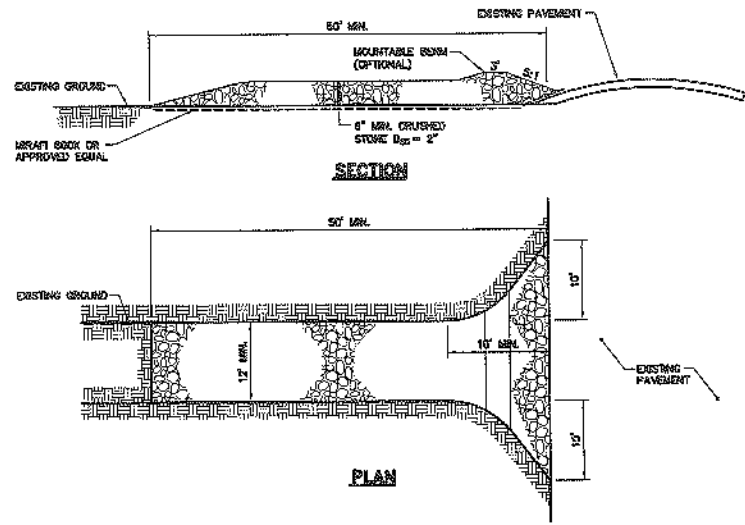
CAD-CAM ASSOCIATES  
PORTLAND, MAINE  
WOODARD & CURRAN INC.  
OFFICE EXPANSION  
44 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203634.01  
DATE: JANUARY 2006  
SCALE: AS NOTED  
SHEET: 07

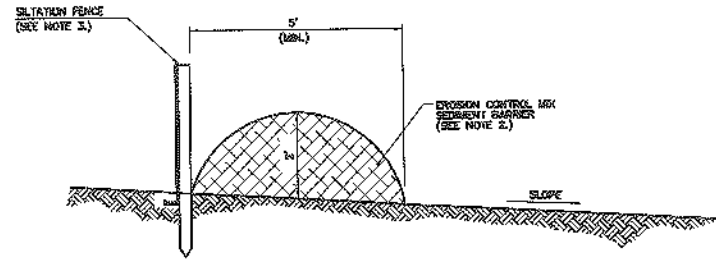
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\\Portland\Projects\203634\01 Building Addition\Proposed\Drawings\203634-01-C300.dwg, Mar 05, 2006 - 11:46pm

TYPICAL

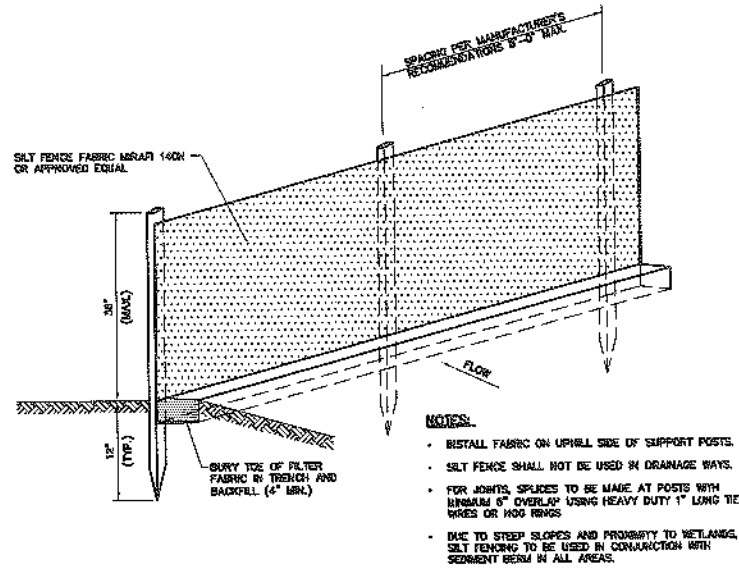


**STABILIZED CONSTRUCTION ENTRANCE DETAIL**  
N.T.S.

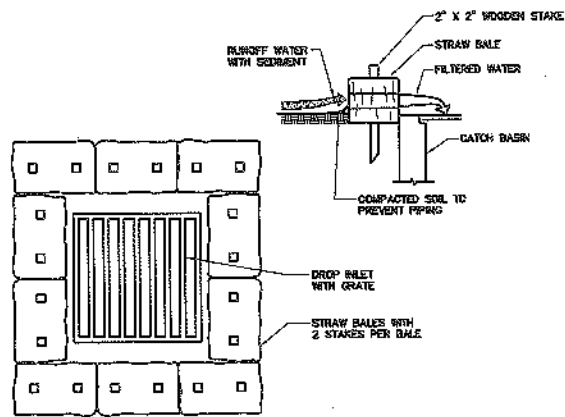


**NOTES:**  
 1. CONSTRUCT CONTINUOUS BERM AS SHOWN ON SITE PLAN.  
 2. SEE SPECIFICATIONS SECTION 0210 FOR EROSION CONTROL MIX SEDIMENT BARRIER REQUIREMENTS. STRAW BALES SHALL NOT BE AN APPROVED SUBSTITUTION.  
 3. DUE TO STEEP SLOPES AND PROXIMITY TO WETLANDS, SILT FENCING TO BE USED IN CONJUNCTION WITH SEDIMENT BERM IN ALL AREAS.

**SEDIMENT BERM**  
N.T.S.



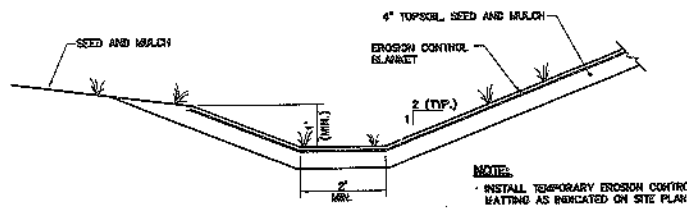
**SILTATION FENCE**  
N.T.S.



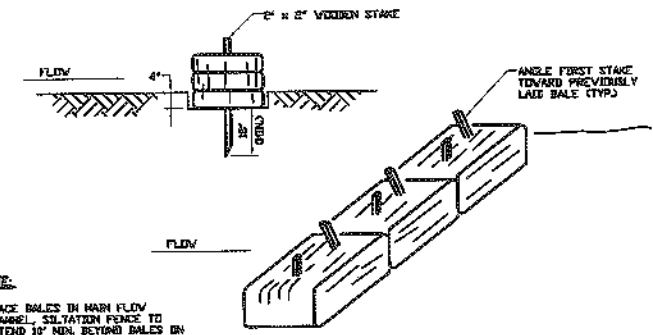
**BARRIER MAINTENANCE NOTES:**

1. ALL BARRIERS SHOULD BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY.
2. SHOULD THE BARRIER DECOMPOSE OR BECOME INEFFECTIVE BEFORE THE END OF THE EXPECTED LIFE AND THE BARRIER IS STILL NECESSARY, IT SHOULD BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN THE DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIER IS NO LONGER REQUIRED SHOULD BE SMOOTHED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SURFACED AS DETAILED.

**CATCH BASIN INLET SEDIMENT BARRIER**  
N.T.S.



**DRAINAGE CHANNEL**  
N.T.S.



**HAYBALE BARRIER**  
N.T.S.

**Temporary Erosion Control:**

Measure	Dates for use	Timing, Activity, and Location
Silt Fence	All	Before site clearing and soil disturbance, install downhill of disturbed areas. Remove within 30 days after permanent stabilization is achieved.
Silt Fence w/ Filter Berm	All	Before site clearing and soil disturbance, nearby protected natural resources, install downhill of disturbed areas.
Stone Check Dams	All	Immediately following construction of drainage channel install in drainage channel.
Hay Bales	All	Short term protection of catch basin inlets, used to add support to silt fences or check dams.
Dust Control	All	During dry weather, apply water and calcium chloride to control dust.
Temporary Seeding	April 15 to Oct. 1	Soil stockpiles and disturbed land soils which will not be disturbed again within 27 days. If grass growth provides less than 95% soil coverage by Nov. 1, apply mulch and anchor with netting.
Mulch	April 15 to Sept. 15	On all areas of exposed soil which will not be disturbed again within 27 days, apply 75 to 90 lbs. mulch (2 bales) per 1,000 sq. ft. within the 7 day period. For areas within 75' of the wetland provide mulch within 48 hours or prior to any storm event.
Winter Mulch	Sept. 16 to Oct. 31 Nov. 1 to April 14	On all areas of exposed soil which will not be disturbed again within 7 days, apply 150 to 200 lbs. mulch (4 bales) per 1,000 sq. ft. to a depth of 4" within the 7 day period. Erosion control blanket may be used as a substitute for winter mulch. On all areas of exposed soil, apply 150 to 200 lbs. mulch (4 bales) per 1,000 sq. ft. to a depth of 4" and anchor with netting, at the end of each working day. Erosion control blanket may be used as a substitute for winter mulch.
Erosion Control Blanket	All	Install immediately following seeding, within drainage channels and on all exposed soil slopes which are 25% or steeper grade, and locations shown on plan. ECB may also be substituted for winter mulch.
Inspections	Until site is permanently stabilized	Inspect the erosion and sedimentation control measures at least once a week and after significant storm events.

**Permanent Erosion Control:**

Measure	Dates for use	Timing, Activity, and Location
Riprap Protection	All	Install riprap immediately following culvert installation or final channel grading at locations shown on plans.
Pavement - Base Course - Final Course	When no frost is in ground	Install only in areas shown on the plan, shortly after pavement base is brought to final grade. Install near completion of project.
Permanent Seeding	April 15 to Sept. 15	On final grade areas, within 7 days of grade preparation, prepare topsoil, followed with seeding and mulch application.
Permanent Seeding	Sept. 16 to April 15	On final grade areas, with prepared topsoil. Apply seed at double the specified rate, on bare soil, and follow with an application of winter mulch.
Ground Cover, Trees, Shrubs	April 15 to Nov. 1	Install with final landscaping.
Permanent Mulch	All	Install with final landscaping.

**WOODWARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE  
800-120-4292



DATE	DESCRIPTION	APPROVAL	DATE
2/22/06			

DESIGNED BY: BR/ARY  
CHECKED BY: BSS/ARY  
DRAWN BY: JBC  
2003/01-C300.dwg

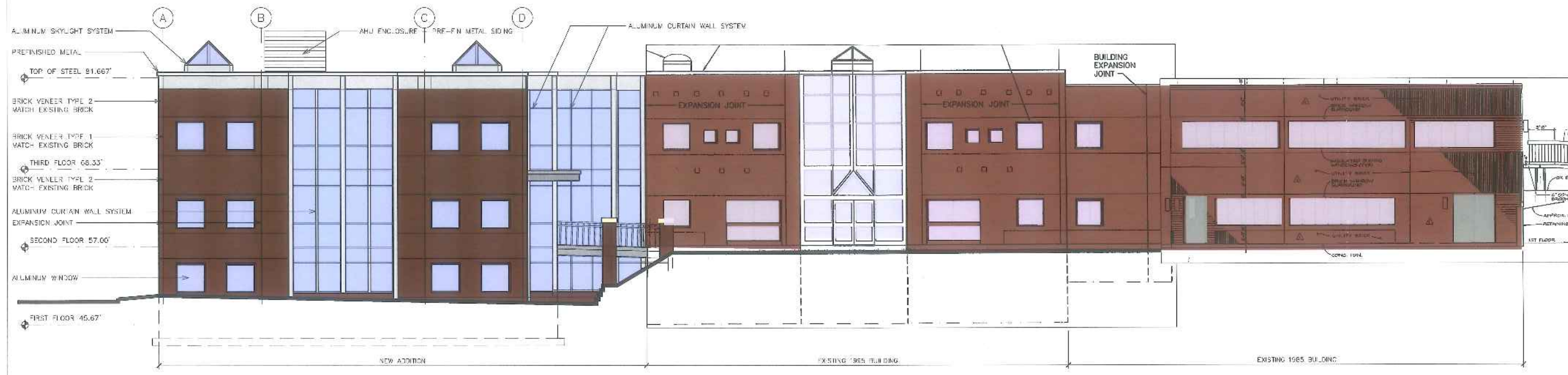
CIVIL DETAILS - 4

CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODWARD & CURRAN INC.  
OFFICE EXPANSION  
41 AUTUMNS DRIVE, PORTLAND, ME

JOB NO.: 200304.01  
DATE: JANUARY 2006  
SCALE: AS NOTED  
SHEET: OF -  
**C303**

I:\Projects\Projects\2003\4 CAD-CAM\01 Building Addition Program\Drawings\2005-02-23\_City Site Plan\Drawings\2003\401-C300.dwg, Mar 08, 2006 - 11:43:07



**WEST BUILDING ELEVATION**  
 1/16"=1'-0" 0 4 8 12 FT. 10"  
**A2**



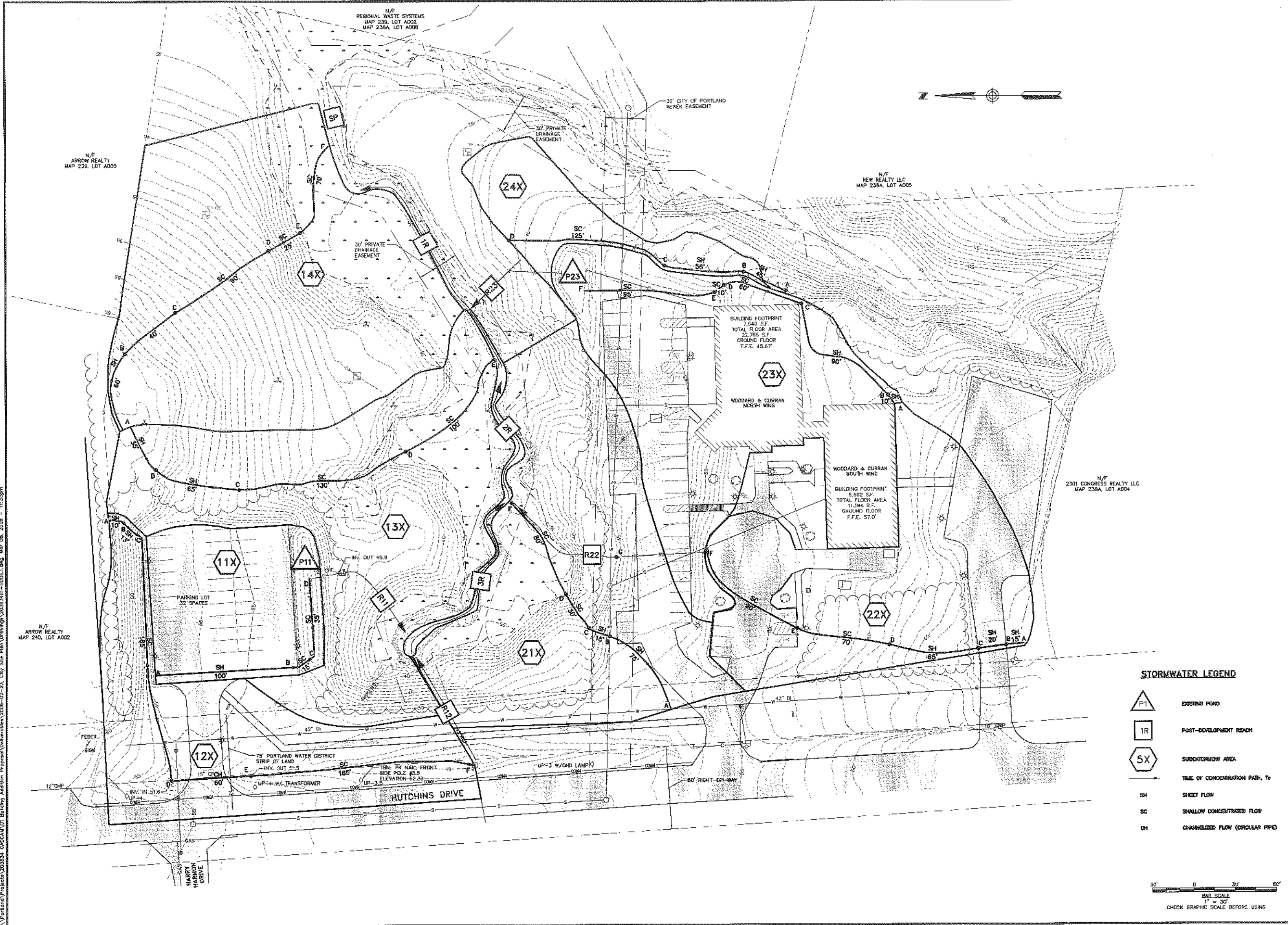
**SOUTH BUILDING ELEVATION**  
 1/16"=1'-0" 0 4 8 12 FT. 10"  
**A1**

Issue	Date	Description
1-24-08	P.D. MEETING	
1-5-08	FINAL REVIEW	
12-9-05	S.D. REVIEW	

Drawing Status

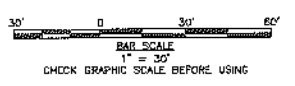


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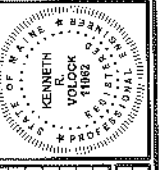


**STORMWATER LEGEND**

- POND
- POST-DEVELOPMENT REACH
- SUBCATCHMENT AREA
- TIME OF CONCENTRATION PATH, Tc
- SHEET FLOW
- SHALLOW CONCENTRATED FLOW
- CHANNELIZED FLOW (CIRCULAR PIPE)



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 800-426-4262



REV.	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/08

DESIGNED BY: JRY  
 CHECKED BY: JBS  
 DRAWN BY: JBS

**EXISTING  
 STORMWATER PLAN**

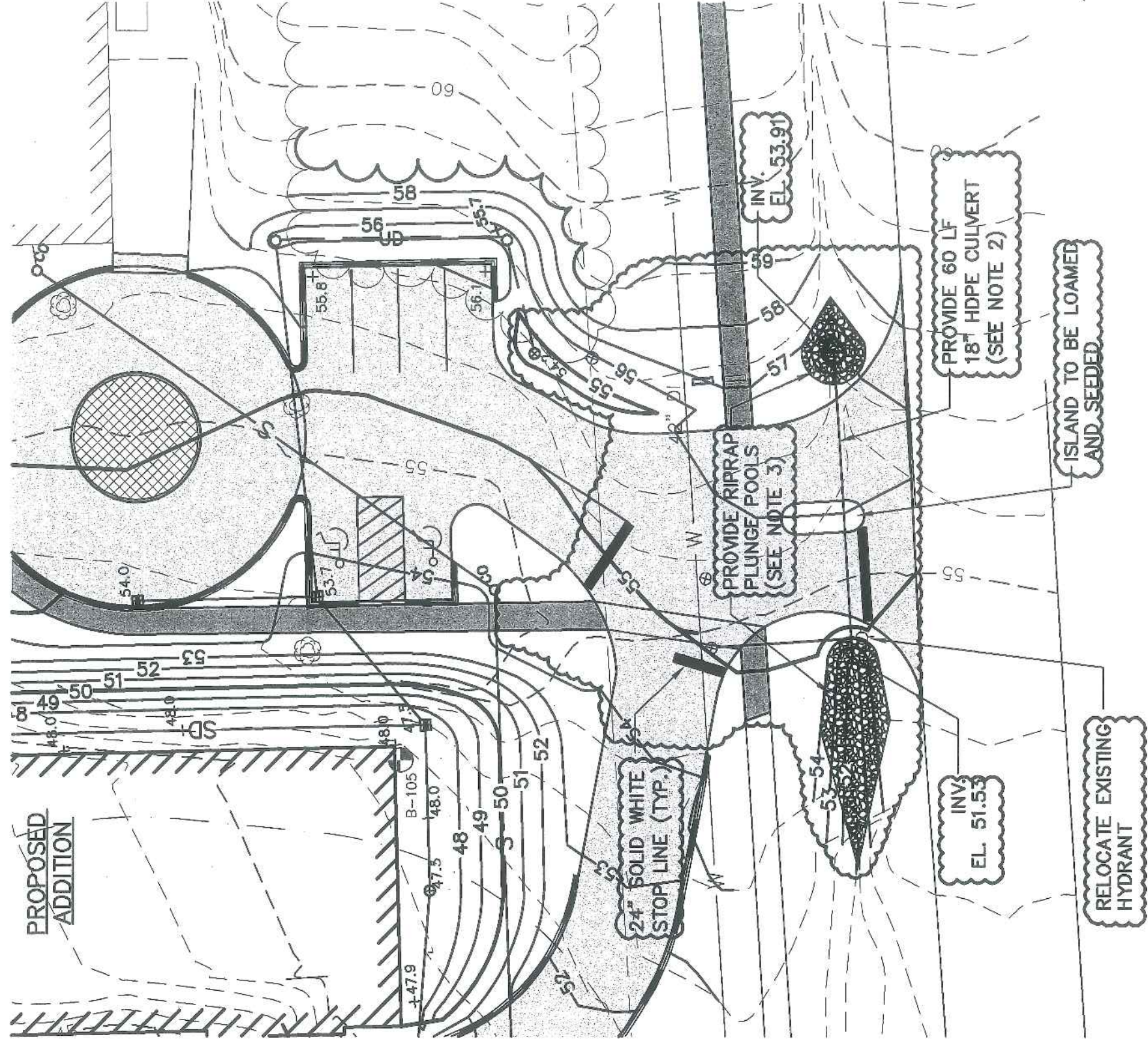
CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

**WOODARD & CURRAN INC.**  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.:	203334-01
DATE:	JANUARY 2006
SCALE:	AS NOTED
SHEET:	01

Figure 6.1





**NOTES:**

1. THE CHANGES INDICATED ON THIS SKETCH ARE ASSOCIATED WITH THE RELOCATION OF THE MAIN ENTRANCE.
2. BID ALTERNATE: CONTRACTOR SHALL ALSO PRICE AN ALTERNATE FOR 60 LF OF 18" REINFORCED CONCRETE PIPE IN PLACE OF HDPE CALLED OUT ABOVE.
3. RIPRAP PLUNGE POOLS IN THIS SKETCH HAVE BEEN SHOWN LARGER THAN INDICATED IN THE DETAILS IN THE ORIGINAL CONSTRUCTION DOCUMENTS DUE TO OBSERVED EROSION IN THE EXISTING DITCH AROUND THE ENTRANCE. RIPRAP PLUNGE POOLS SHALL BE CONSTRUCTED AS INDICATED ON THIS SKETCH.

**FOR PRICING**

**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE 800-426-4262

REVISED ENTRANCE LAYOUT

DESIGNED BY: KRV  
 DRAWN BY: KRV  
 CHECKED BY: BSS  
 20363401-SKC02\_03.dwg

CIANCHETTE FAMILY, LLC  
 PORTLAND, MAINE

WOODARD & CURRAN  
 OFFICE EXPANSION

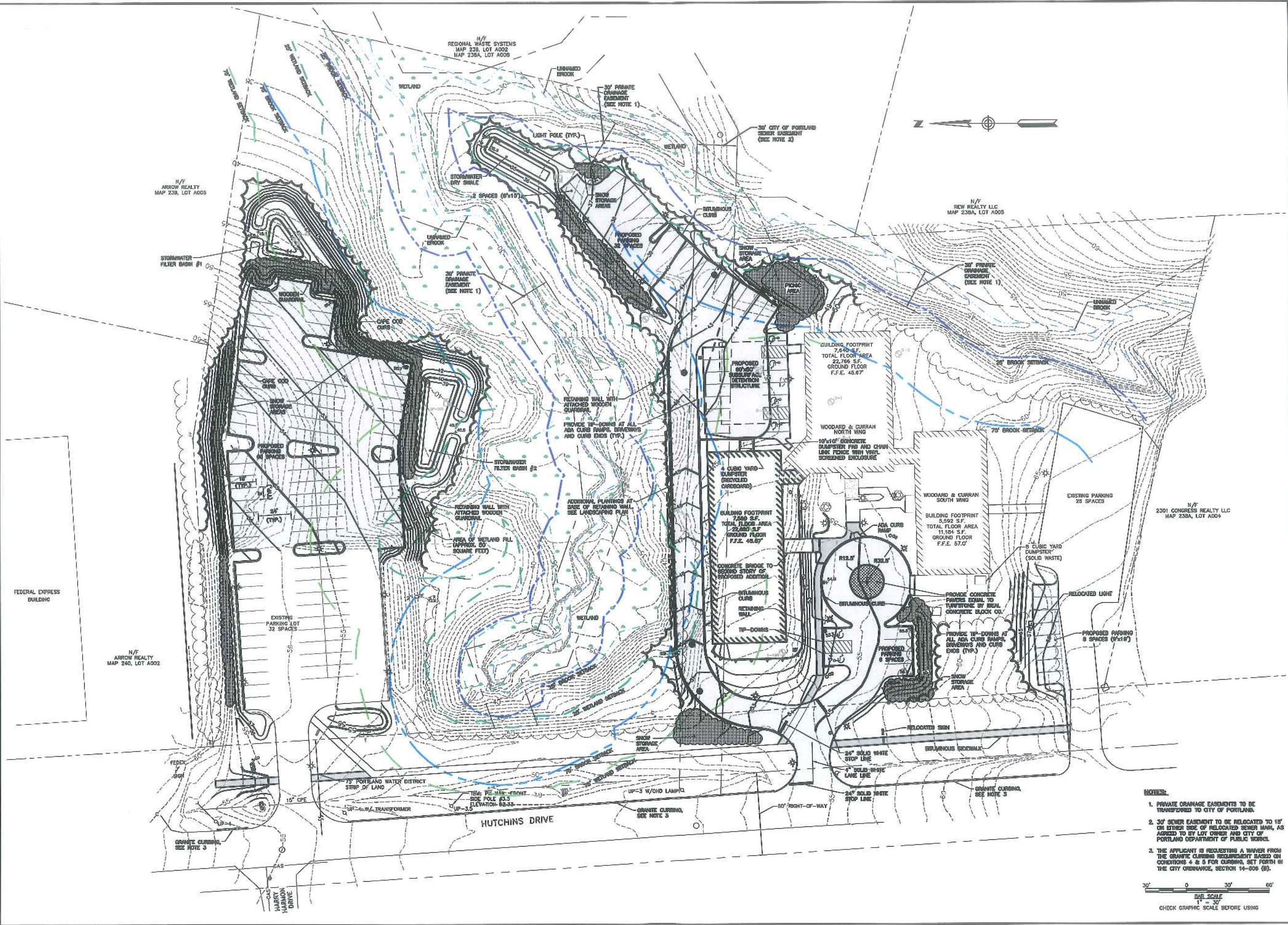
SKC-03

JOB NO: 203634.01  
 DATE: AUGUST 2006  
 SCALE: 1" = 30'

*Proposed amendment under discussion with TE.*



\\Portland\Projects\203534 CAD\CAD\Map\Project\Drawings\2008-03-08\_Final\_Submitted to City\Drawings\203534-01-C201-Subdata.dwg, Mar 05, 2008 - 4:05pm



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 Engineering · Science · Operations  
 PORTLAND, MAINE  
 800-425-4262  
 1000 WASHINGTON STREET, SUITE 200  
 PORTLAND, ME 04101

REV	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	3/06/08
-	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/08

DESIGNED BY: abc/ary  
 CHECKED BY: bss/ary  
 DRAWN BY: abc  
 203534-01-C201-Subdata.dwg

**PROPOSED SITE PLAN  
 WITH SETBACKS INDICATED**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE  
**WOODARD & CURRAN INC.**  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203534.01  
 DATE: MARCH 2008  
 SCALE: AS NOTED  
 SHEET: OF -

**FIGURE 8.1**

- NOTES:**
1. PRIVATE ORANGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT IS REQUESTING A VARIATION FROM THE GRANITE CURBING REQUIREMENT BASED ON CONDITIONS 4 & 5 FOR CURBING, SET FORTH IN THE CITY ORDINANCE, SECTION 14-806 (B).





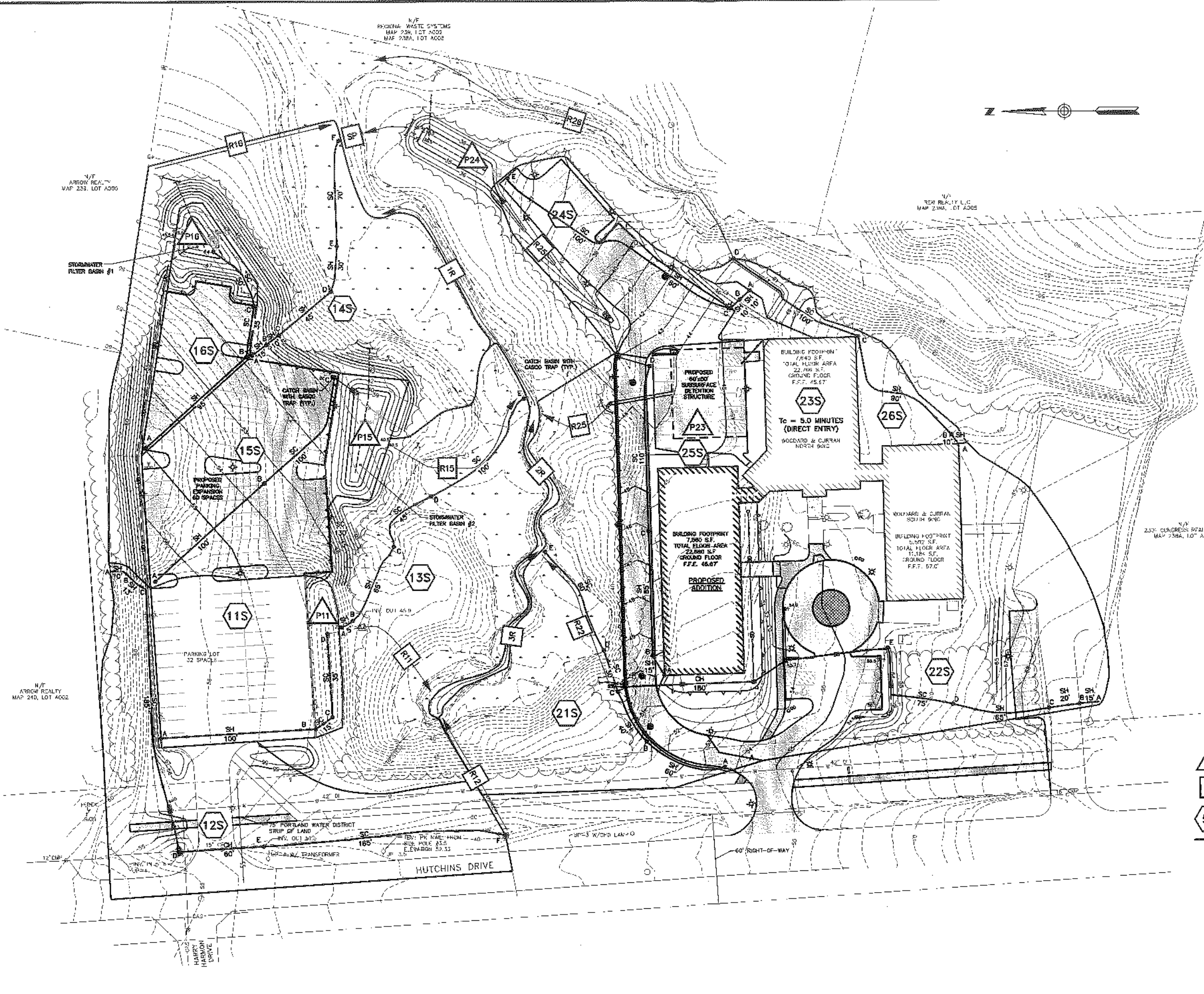
\\Portland\Projects\200834 - CAD\CAD\01 Building Addition Process\Utilities\2008-02-23\_City Site Plan\Drawings\2008-02-23\_Map.DWG, Mar. 06, 2008 - 11:34am

N/T  
 ARROW REALTY  
 MAP 233, LOT A000

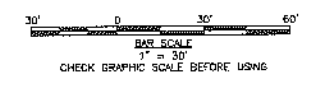
N/T  
 HYDRA WASTE SVS TMS  
 MAP 239, LOT A002  
 MAP 238A, LOT A002

N/T  
 NEW REALTY LLC  
 MAP 239A, LOT A005

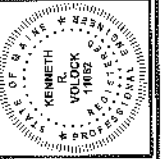
N/T  
 230 CONGRESS REALTY LLC  
 MAP 238A, LOT A007



- P1 PROPOSED POND
- 1R POST-DEVELOPMENT REACH
- 5S SUBCATCHMENT AREA
- TIME OF CONCENTRATION PATH,  $T_c$
- SH SHEET FLOW
- SC SHALLOW CONCENTRATED FLOW
- CH CHANNELIZED FLOW (CIRCULAR PIPE)



**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE  
 603-423-4292



NO.	DESCRIPTION	DATE
1	SUBMITTED FOR PLANNING BOARD APPROVAL	2/22/08
2	DESIGNED BY: REV	03/07/07
3	CHECKED BY: JBC	03/07/07
4	DRAWN BY: JBC	03/07/07

## POST-DEVELOPMENT STORMWATER PLAN

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE  
 WOODARD & CURRAN INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 207834.01  
 DATE: JANUARY 2008  
 SCALE: AS NOTED  
 SHEET: 01

Figure 6.2







**SNOW REMOVAL AND MAINTENANCE:**

- SNOW REMOVAL FROM THE 20-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE PARKING AREA AT THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:
- SNOW ON THE EASTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE REAR OF THE ADDITION AND STORED IN THE PARKING AREA BEHIND THE PARKING LOT.
  - SNOW ON THE WESTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE FRONT OF THE ADDITION AND STORED BETWEEN THE ACCESS DRIVE AND THE SIDEWALK.
  - NO SNOW WILL BE STORED BETWEEN THE ACCESS DRIVE AND THE BUILDING, ENSURING A 20-FOOT WIDE ACCESS DRIVE DURING ALL SEASONS.

**WOODARD & CURRAN**  
Engineering · Science · Operations  
PORTLAND, MAINE  
800-428-4282



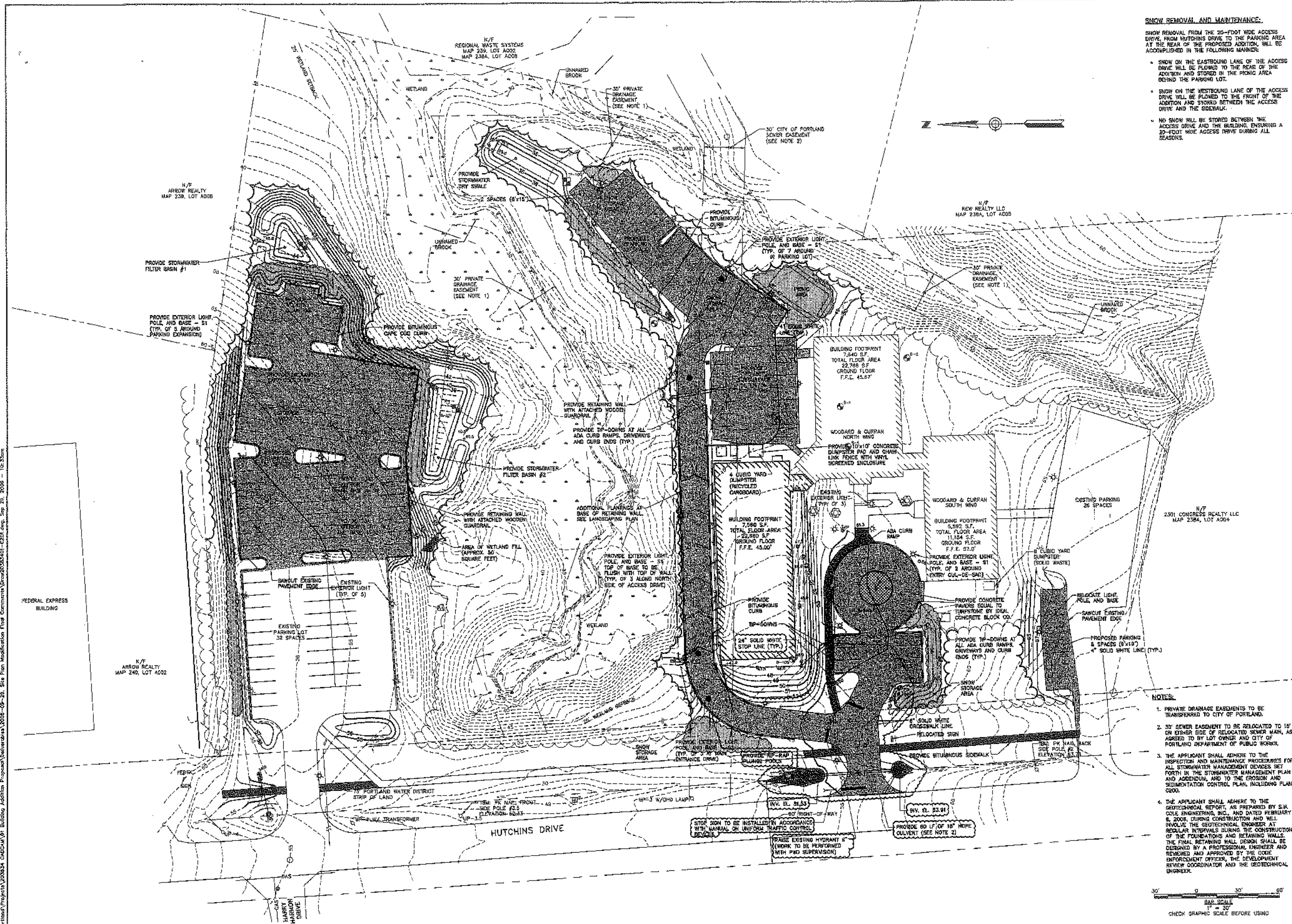
NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR CONSTRUCTION	05/22/06	SEC/ARY
2	SITE PLAN MODIFICATION APPLICATION	08/15/06	SEC/ARY
3	2A SITE PLAN MOD. RESPONSE TO FINAL COMMENTS	08/15/06	SEC/ARY

**PROPOSED SITE PLAN**

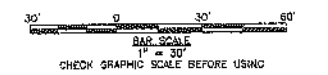
CAD-CAM ASSOCIATES  
PORTLAND, MAINE

WOODARD & CURRAN INC.  
OFFICE EXPANSION  
41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.: 203824.01  
DATE: MAY 2006  
SCALE: AS NOTED  
SHEET: OF -  
**C201**

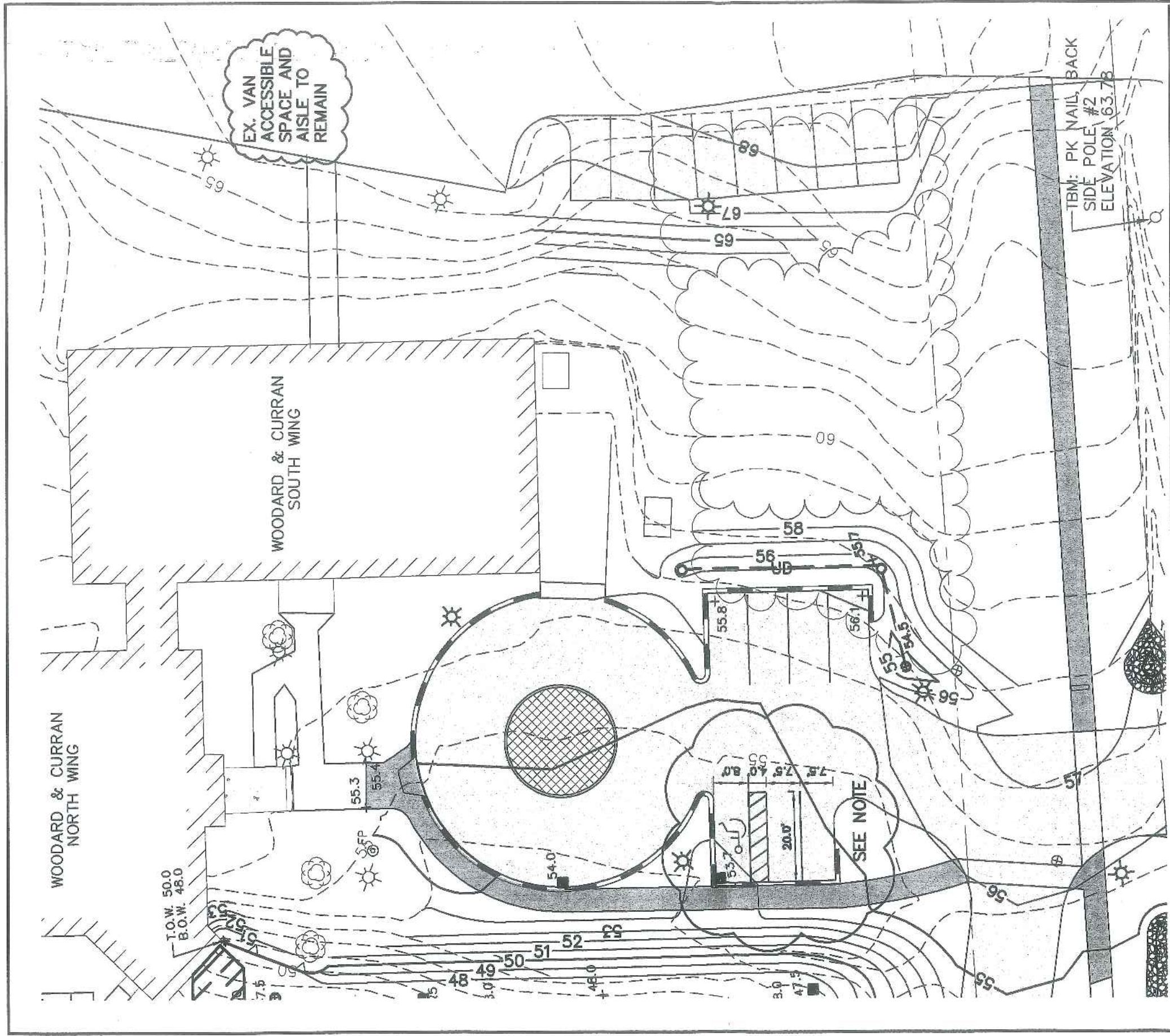


- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES FOR ALL STORMWATER MANAGEMENT DEVICES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  4. THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC., AND DATED FEBRUARY 6, 2006, DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.



\\Portland\Projects\200524 CAD-CAM\01 - Building Addition Proposals\Deliverables\2006-09-20 - Site Plan Modification Final Comments\Woodard\203824-01 - C201.dwg, Sep 20, 2006 - 10:33am





**NOTE:**

PROVIDE 1 ACCESSIBLE SPACE, 2 COMPACT SPACES, AND AISLE. VAN ACCESSIBLE SPACE TO BE REMOVED AND LOCATED AS CURRENTLY STRIPED AT SOUTH WING PARKING LOT.



BAR SCALE  
1" = 30'

CHECK GRAPHIC SCALE BEFORE USING

**WOODARD & CURRAN**  
Engineering • Science • Operations  
PORTLAND, MAINE 800-426-4262

**ENTRY LOOP VISITOR PARKING STRIPING MODIFICATIONS**

DESIGNED BY: BSS  
DRAWN BY: BSS  
CHECKED BY: BSS  
20383401-SKC7.dwg

CIANCHETTE FAMILY, LLC  
PORTLAND, MAINE

WOODARD & CURRAN  
OFFICE EXPANSION

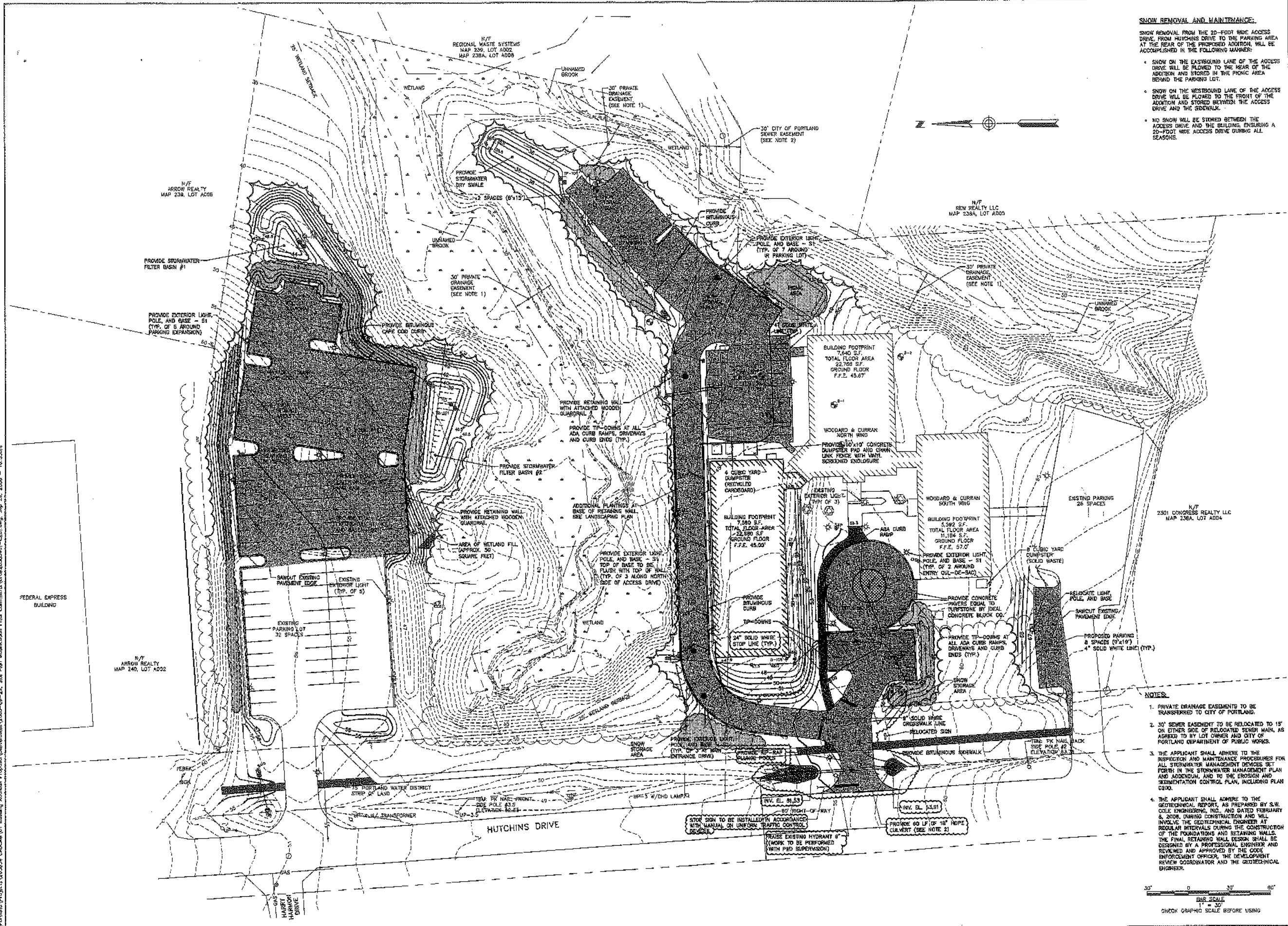
SKC-07

JOB NO: 203834.02  
DATE: JUNE 2007  
SCALE: 1"=30'

**CITY OF PORTLAND**  
**APPROVED SITE PLAN**  
Subject to Dept. Conditions  
Date of Approval: 6/20/07



I:\Work\Projects\200824 CAD\CAD\01 Building Addition\Proposed\Deliverables\2008-08-25\_Site Plan Modification Final Comments\Drawings\200824-01-C201.dwg, Sep 29, 2008 - 10:33am

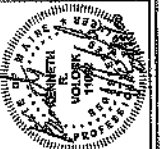


**SNOW REMOVAL AND MAINTENANCE:**

SNOW REMOVAL FROM THE 20-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE PARKING AREA AT THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:

- SNOW ON THE EASTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE REAR OF THE ADDITION AND STORED IN THE PAVED AREA BEHIND THE PARKING LOT.
- SNOW ON THE WESTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE FRONT OF THE ADDITION AND STORED BETWEEN THE ACCESS DRIVE AND THE SIDEWALK.
- NO SNOW WILL BE STORED BETWEEN THE ACCESS DRIVE AND THE BUILDING ENSURING A 20-FOOT WIDE ACCESS DRIVE DURING ALL SEASONS.

**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE  
 800-428-4682



1	2A SITE PLAN NOT RESPONSE TO FINAL COMMENTS	08/15/08
2	1 SITE PLAN MODIFICATION APPLICATION	08/15/08
3	2 SITE PLAN MODIFICATION APPLICATION	08/15/08
4	ISSUED FOR CONSTRUCTION	09/22/08
5	REVISION	DATE

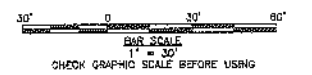
DESIGNED BY: JBC/AVY  
 CHECKED BY: JBC/AVY  
 DRAWN BY: JBC

**PROPOSED SITE PLAN**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

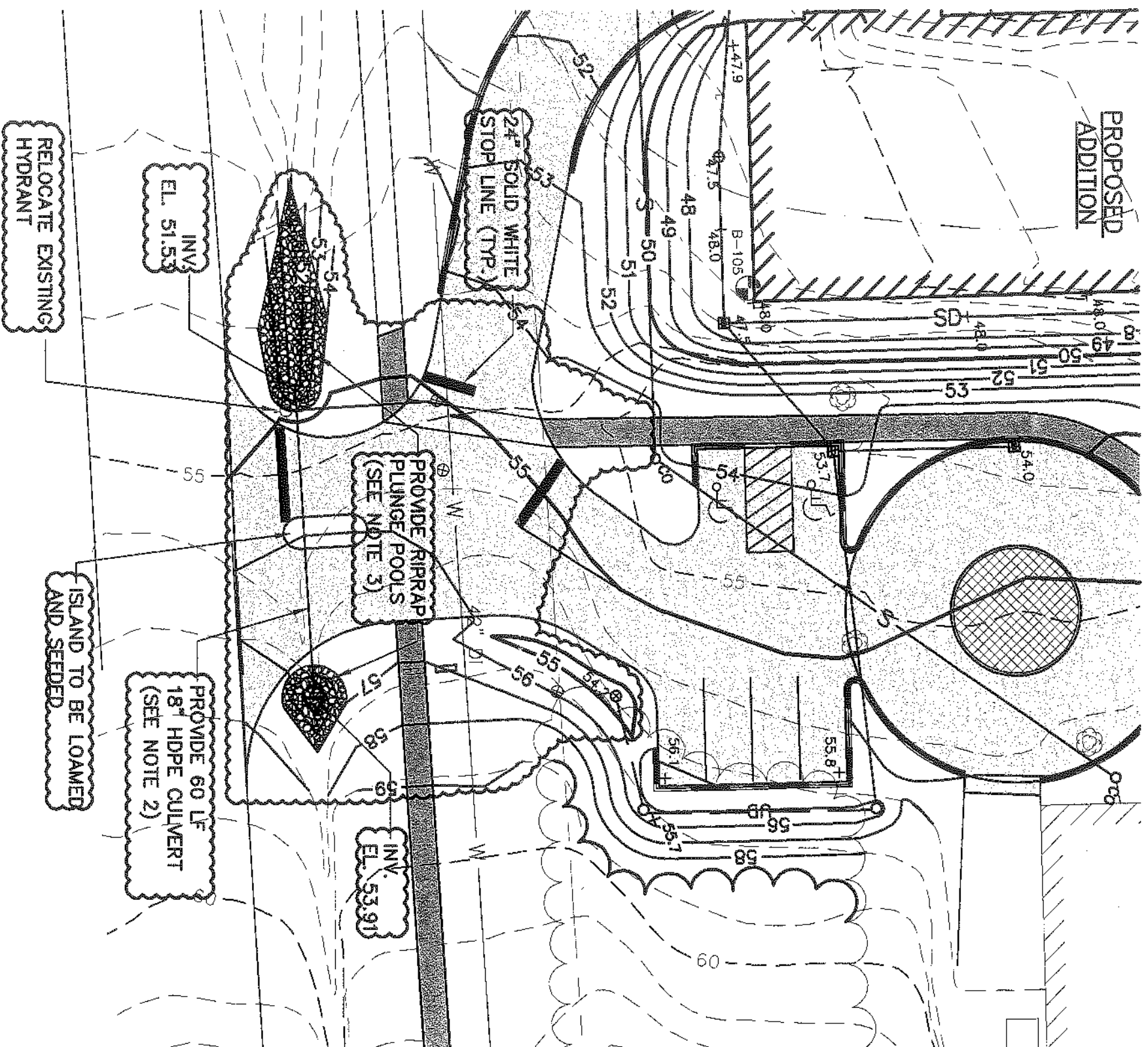
WOODARD & CURRAN, INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30" SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES FOR ALL STORMWATER MANAGEMENT DEVICES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  4. THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC., AND DATED FEBRUARY 8, 2008, DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.



JOB NO.: 200824-01  
 DATE: MAY 2008  
 SCALE: AS NOTED  
 SHEET: OF -

**C201**

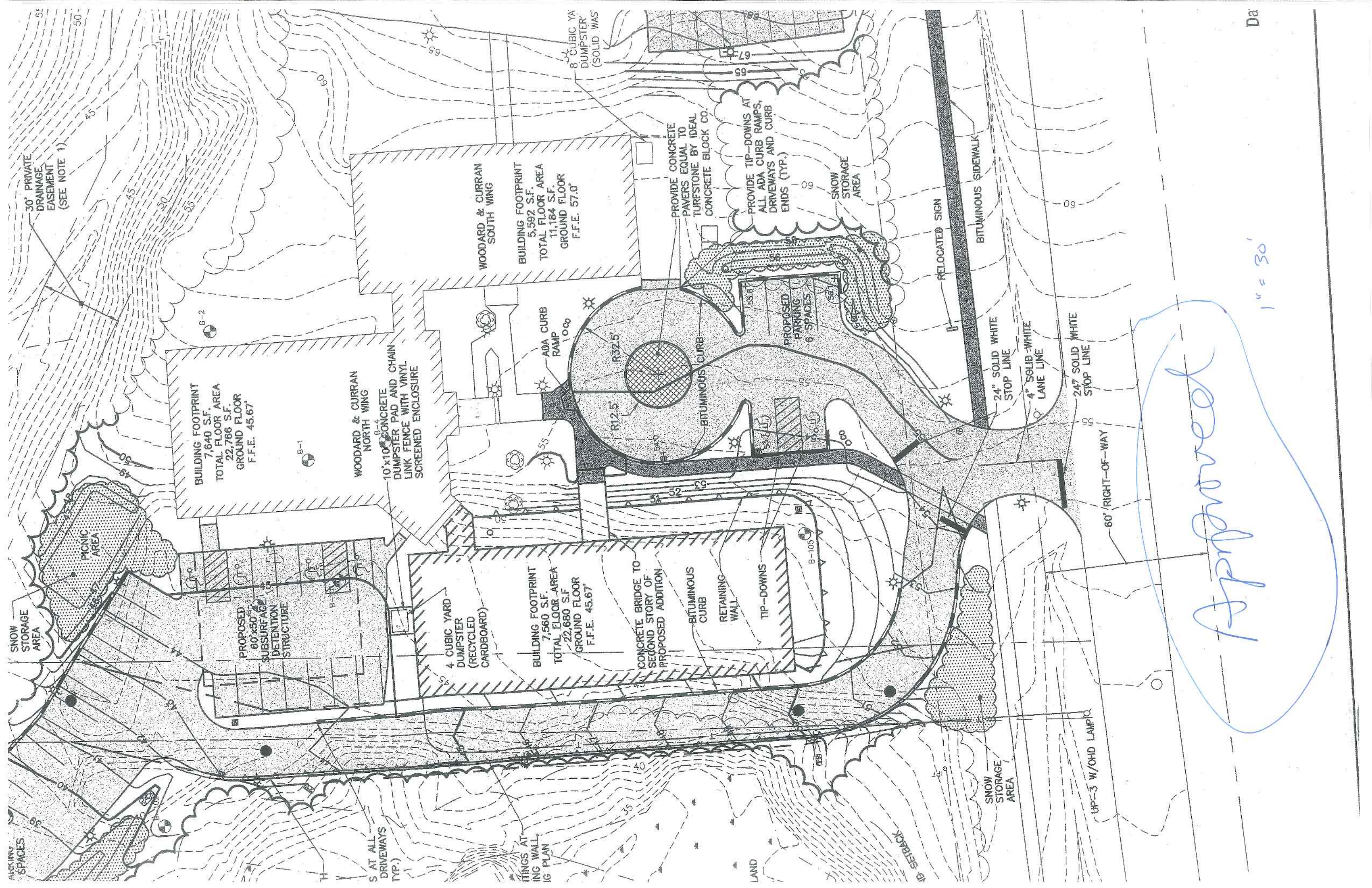


- NOTES:**
1. THE CHANGES INDICATED ON THIS SKETCH ARE ASSOCIATED WITH THE RELOCATION OF THE MAIN ENTRANCE.
  2. BID ALTERNATE: CONTRACTOR SHALL ALSO PRICE AN ALTERNATE FOR 60 LF OF 18" REINFORCED CONCRETE PIPE IN PLACE OF HDPE CALLED OUT ABOVE.
  3. RIPRAP PLUNGE POOLS IN THIS SKETCH HAVE BEEN SHOWN LARGER THAN INDICATED IN THE THE DETAILS IN THE ORIGINAL CONSTRUCTION DOCUMENTS DUE TO OBSERVED EROSION IN THE EXISTING DITCH AROUND THE ENTRANCE. RIPRAP PLUNGE POOLS SHALL BE CONSTRUCTED AS INDICATED ON THIS SKETCH.

**FOR PRICING**

<p><b>WOODARD &amp; CURRAN</b> Engineering • Science • Operations PORTLAND, MAINE 800-426-4262</p>	<p>DESIGNED BY: KRIV DRAWN BY: KRIV</p>	<p>CHECKED BY: BSS 20383401-SKC02_03.dwg</p>	<p>CIANCETTE FAMILY, LLC PORTLAND, MAINE</p>	<p>JOB NO: 203834.01 DATE: AUGUST 2006 SCALE: 1" = 30'</p>
	<p>REVISED ENTRANCE LAYOUT</p>		<p>WOODARD &amp; CURRAN OFFICE EXPANSION</p>	<p><b>SKC-03</b></p>





30' PRIVATE DRAINAGE EASEMENT (SEE NOTE 1)

BUILDING FOOTPRINT  
7,640 S.F.  
TOTAL FLOOR AREA  
22,766 S.F.  
GROUND FLOOR  
F.F.E. 45.67

WOODARD & CURRAN NORTH WING  
10'x10' CONCRETE DUMPSTER PAD AND CHAIN LINK FENCE WITH VINYL SCREENED ENCLOSURE

WOODARD & CURRAN SOUTH WING  
BUILDING FOOTPRINT  
5,592 S.F.  
TOTAL FLOOR AREA  
11,184 S.F.  
GROUND FLOOR  
F.F.E. 57.0'

BUILDING FOOTPRINT  
7,560 S.F.  
TOTAL FLOOR AREA  
22,680 S.F.  
GROUND FLOOR  
F.F.E. 45.67

CONCRETE BRIDGE TO SECOND STORY OF PROPOSED ADDITION

BITUMINOUS CURB  
RETAINING WALL  
TIP-DOWNS

PROVIDE CONCRETE PAVERS EQUAL TO TURFSTONE BY IDEAL CONCRETE BLOCK CO.

PROVIDE TIP-DOWNS AT ALL ADA CURB RAMPS, DRIVEWAYS AND CURB ENDS (TYP.)

SNOW STORAGE AREA

RELOCATED SIGN

BITUMINOUS SIDEWALK

24" SOLID WHITE STOP LINE

4" SOLID WHITE LANE LINE

24" SOLID WHITE STOP LINE

60' RIGHT-OF-WAY

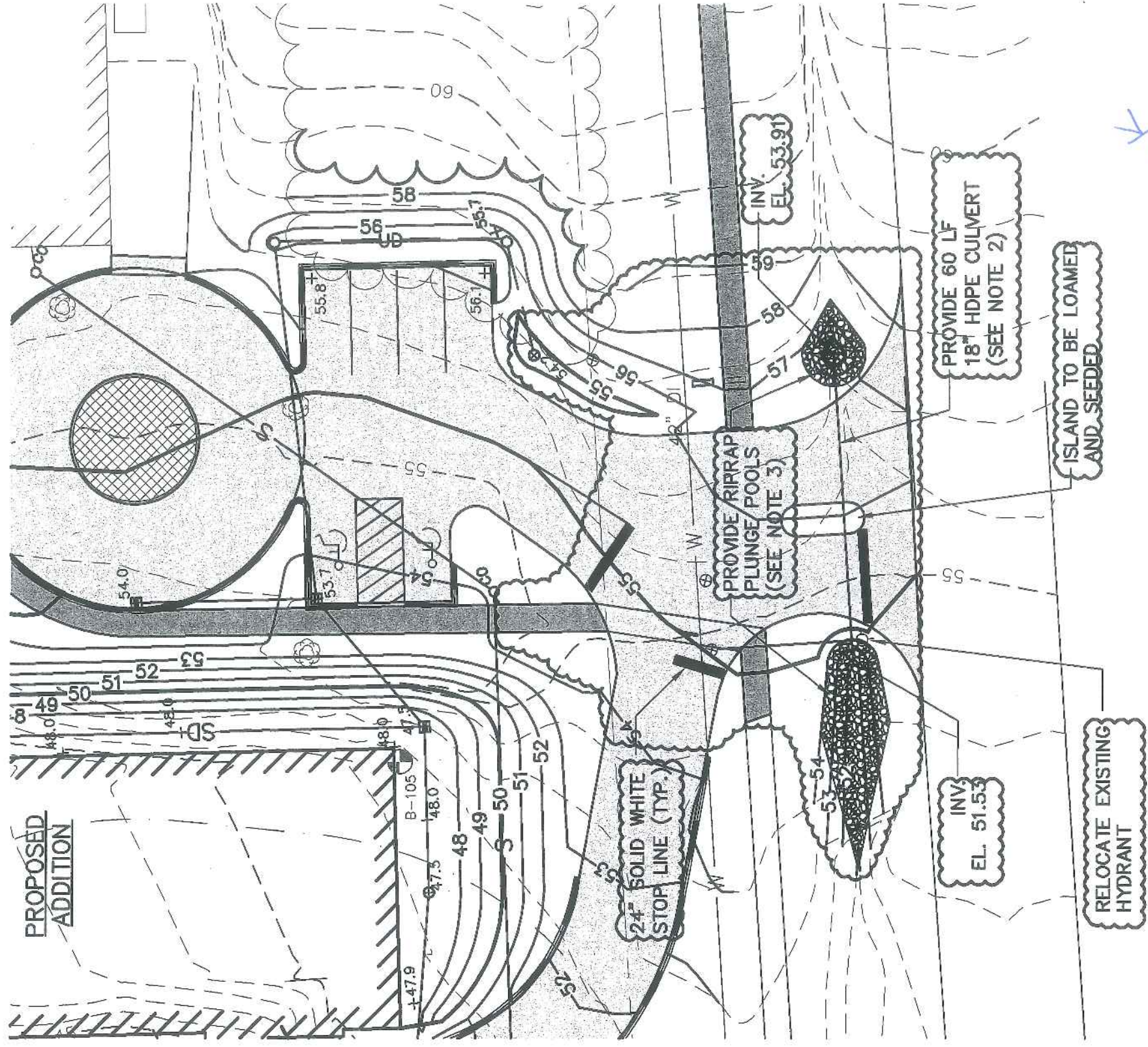
SNOW STORAGE AREA

UP-3 W/OHD LAMP

*Approved*

1" = 30'





*notok*

**NOTES:**

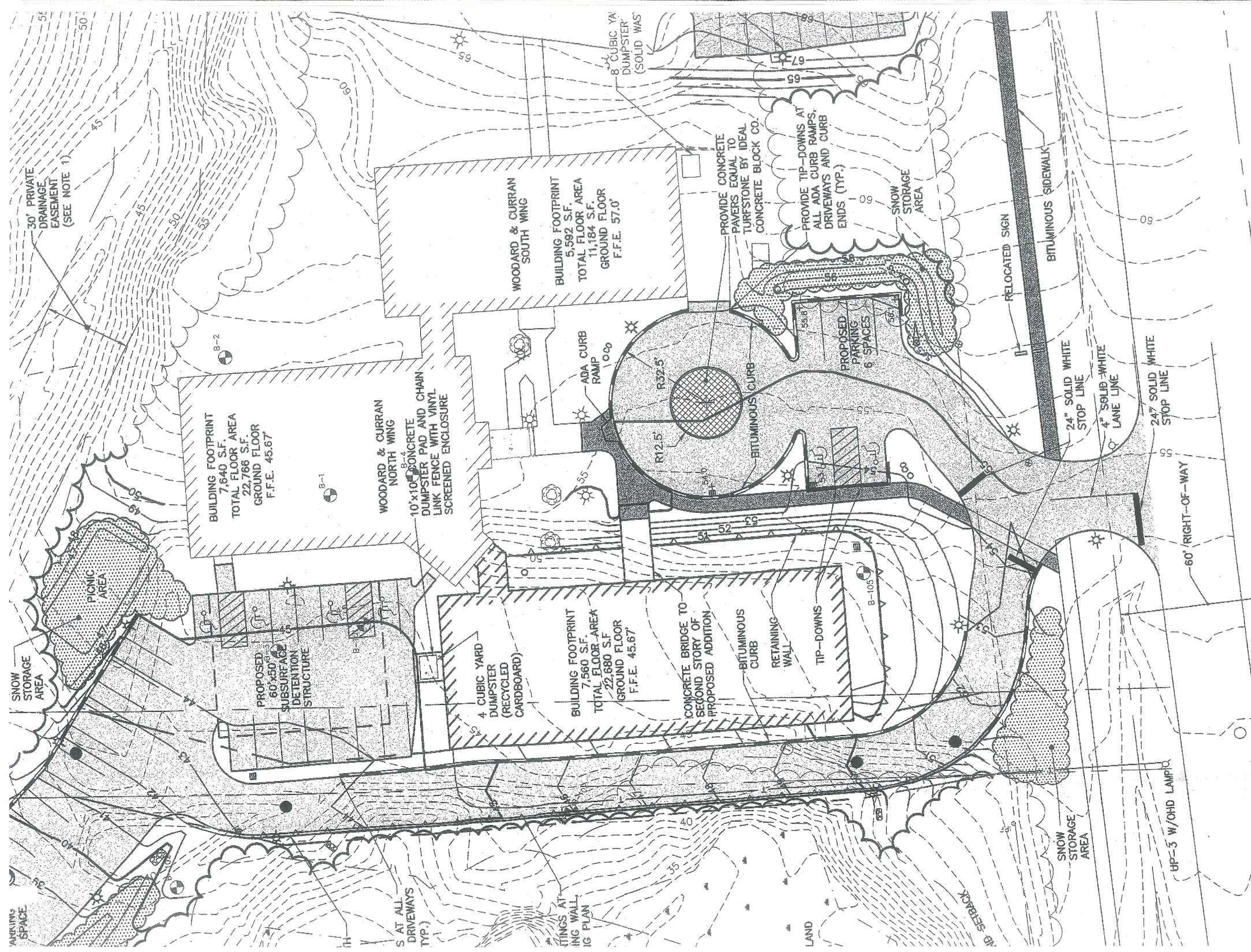
1. THE CHANGES INDICATED ON THIS SKETCH ARE ASSOCIATED WITH THE RELOCATION OF THE MAIN ENTRANCE.
2. BID ALTERNATE: CONTRACTOR SHALL ALSO PRICE AN ALTERNATE FOR 60 LF OF 18" REINFORCED CONCRETE PIPE IN PLACE OF HDPE CALLED OUT ABOVE.
3. RIPRAP PLUNGE POOLS IN THIS SKETCH HAVE BEEN SHOWN LARGER THAN INDICATED IN THE THE DETAILS IN THE ORIGINAL CONSTRUCTION DOCUMENTS DUE TO OBSERVED EROSION IN THE EXISTING DITCH AROUND THE ENTRANCE. RIPRAP PLUNGE POOLS SHALL BE CONSTRUCTED AS INDICATED ON THIS SKETCH.

**FOR PRICING**









30' PRIVATE DRAINAGE EASEMENT (SEE NOTE 1)

BUILDING FOOTPRINT  
7,640 S.F.  
TOTAL FLOOR AREA  
22,766 S.F.  
GROUND FLOOR  
F.F.E. 45.67

WOODARD & CURRAN NORTH WING  
10' x 10' CONCRETE DUMPSTER PAD AND CHAIN LINK FENCE WITH VINYL SCREENED ENCLOSURE

WOODARD & CURRAN SOUTH WING  
BUILDING FOOTPRINT  
5,592 S.F.  
TOTAL FLOOR AREA  
11,184 S.F.  
GROUND FLOOR  
F.F.E. 57.0

BUILDING FOOTPRINT  
7,560 S.F.  
TOTAL FLOOR AREA  
22,680 S.F.  
GROUND FLOOR  
F.F.E. 45.67

CONCRETE BRIDGE TO SECOND STORY OF PROPOSED ADDITION

PROVIDE CONCRETE PAVERS EQUAL TO TURFSTONE BY IDEAL CONCRETE BLOCK CO.

PROVIDE TIP-DOWNS AT ALL ADA CURB RAMPS, DRIVEWAYS AND CURB ENDS (TYP.)

SNOW STORAGE AREA

PICNIC AREA

PROPOSED 60' x 50' x 50' SUBSURFACE DETENTION STRUCTURE

4 CUBIC YARD DUMPSTER (RECYCLED CARDBOARD)

ADA CURB RAMP

PROPOSED PARKING 6 SPACES

SNOW STORAGE AREA

RELOCATED SIGN

BITUMINOUS SIDEWALK

24" SOLID WHITE STOP LINE

4" SOLID-WHITE LANE LINE

24" SOLID WHITE STOP LINE

60' RIGHT-OF-WAY

SNOW STORAGE AREA

HP-5 W/OHD LAMP

*as approved*

1" = 30'





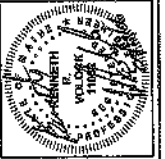


**SNOW REMOVAL AND MAINTENANCE:**

- SNOW REMOVAL FROM THE 20-FOOT WIDE ACCESS DRIVE, FROM HUTCHINS DRIVE TO THE PARKING AREA AT THE REAR OF THE PROPOSED ADDITION, WILL BE ACCOMPLISHED IN THE FOLLOWING MANNER:
- SNOW ON THE EASTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE REAR OF THE SECTION AND STORED IN THE PLOUGH AREA BEHIND THE PARKING LOT.
  - SNOW ON THE WESTBOUND LANE OF THE ACCESS DRIVE WILL BE PLOWED TO THE FRONT OF THE ADDITION AND STORED BETWEEN THE ACCESS DRIVE AND THE SIDEWALK.
  - NO SNOW WILL BE STORED BETWEEN THE ACCESS DRIVE AND THE BUILDING, ENSURING A 22-FOOT WIDE ACCESS DRIVE DURING ALL SEASONS.

**WOODARD & CURRAN**  
 Engineering · Science · Operations  
 PORTLAND, MAINE 603-429-4282

THIS DOCUMENT IS UNCLASSIFIED. DATE OF DECLASSIFICATION INDEFINITE. AUTHORITY: 50 USC 3025



1	DESIGNED BY	JR/AVY	CHECKED BY	BS/AVY	DATE	05/19/08
2	DRAWN BY	JR	CHECKED BY	BS/AVY	DATE	05/19/08
3	DATE	05/19/08	DESCRIPTION	CONSTRUCTION		
4	DATE	05/19/08	DESCRIPTION	CONSTRUCTION		

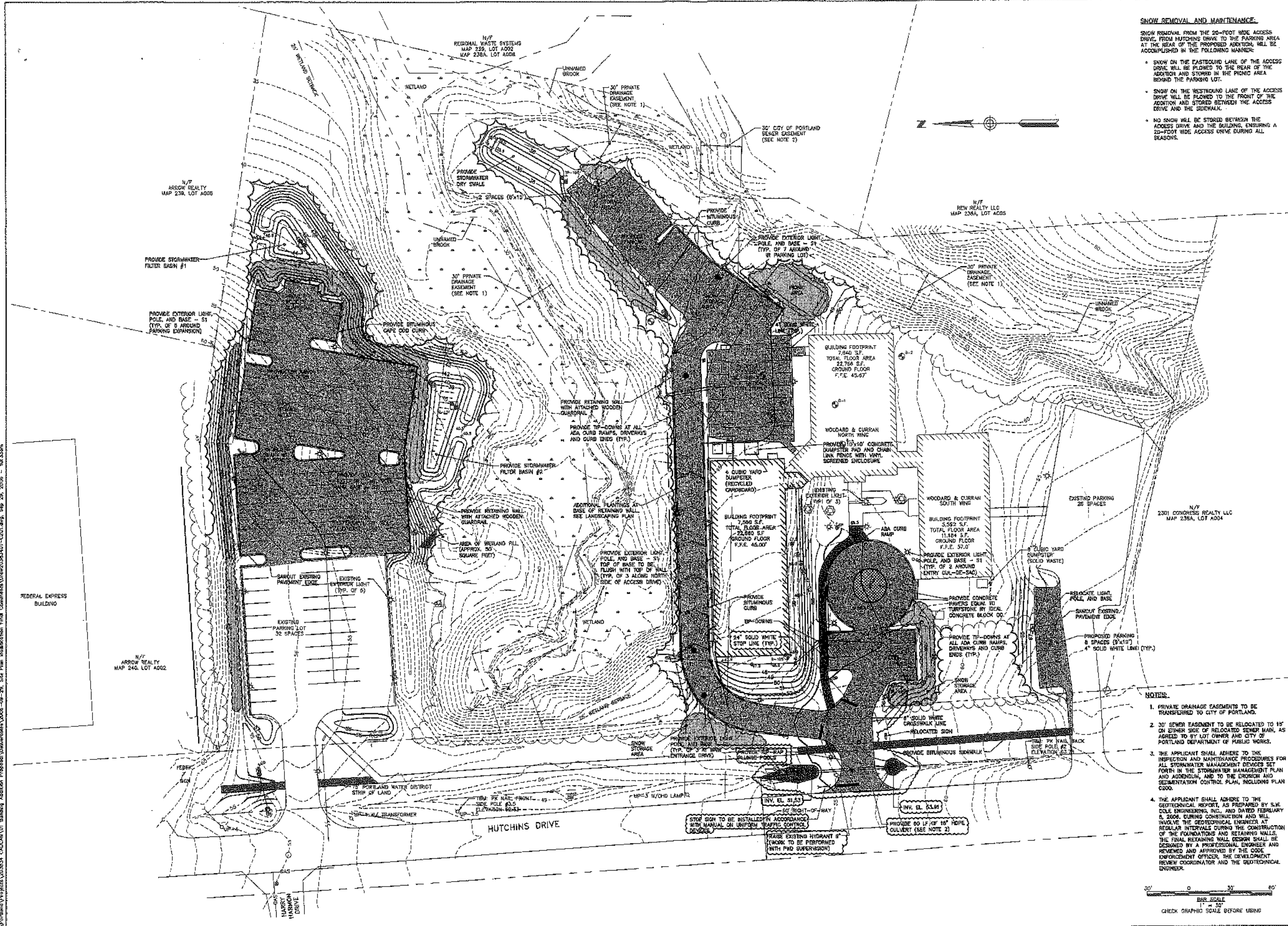
**PROPOSED SITE PLAN**

CAD-CAM ASSOCIATES  
 PORTLAND, MAINE

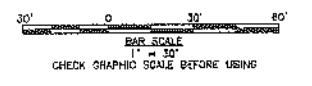
WOODARD & CURRAN, INC.  
 OFFICE EXPANSION  
 41 HUTCHINS DRIVE, PORTLAND, ME

JOB NO.	203834.01
DATE	MAY 2008
SCALE	AS NOTED
SHEET	OF -

**C201**



- NOTES:**
1. PRIVATE DRAINAGE EASEMENTS TO BE TRANSFERRED TO CITY OF PORTLAND.
  2. 30' SEWER EASEMENT TO BE RELOCATED TO 15' ON EITHER SIDE OF RELOCATED SEWER MAIN, AS AGREED TO BY LOT OWNER AND CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS.
  3. THE APPLICANT SHALL ADHERE TO THE INSPECTION AND MAINTENANCE PROCEDURES SET FORTH IN THE STORMWATER MANAGEMENT PLAN AND ADDENDUM, AND TO THE EROSION AND SEDIMENTATION CONTROL PLAN, INCLUDING PLAN C200.
  4. THE APPLICANT SHALL ADHERE TO THE GEOTECHNICAL REPORT, AS PREPARED BY S.W. COLE ENGINEERING, INC., AND DATED FEBRUARY 8, 2008, DURING CONSTRUCTION AND WILL INVOLVE THE GEOTECHNICAL ENGINEER AT REGULAR INTERVALS DURING THE CONSTRUCTION OF THE FOUNDATIONS AND RETAINING WALLS. THE FINAL RETAINING WALL DESIGN SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND REVIEWED AND APPROVED BY THE CODE ENFORCEMENT OFFICER, THE DEVELOPMENT REVIEW COORDINATOR AND THE GEOTECHNICAL ENGINEER.



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