Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

Please Read Application And Notes, If Any, Attached

Permit Number: 101129

PERMIT ISSUED

This is to certify that City Of Portland/Hardcore Skate Parks

has permission to Build new concrete skate park at the former Tennis Court.

SEP 30 2010

AT 91 Douglass St CBL 066 A002001

City of Portland

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

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lathed or otherwise closed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. _____

Health Dept. _____

Appeal Board _____

Other _____
Department Name

Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

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

Permit No:	Issue Date:	CBL:
10-1129		066 A002001

Location of Construction:	Owner Name:	Owner Address:	Phone:
91 Douglass St	City Of Portland	389 Congress St	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
Dougherty Park	Hardcore Skate Parks	601 McKinley Joplin	8887582695
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Commercial	R05

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:
Park / Dougherty Park (Tennis Court)	Park / Dougherty Park (Skate Park) Build new concrete skate park on the former tennis court.	$2,420.00	$240,000.00	3

FIRE DEPT: ☐ Approved ☐ Denied — Signature: N/A

INSPECTION: Use Group: PARK Type: 1 IBC 2003 — Signature:

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Proposed Project Description:

Build new concrete skate park on the former tennis court.

Permit Taken By:	Date Applied For:
gg	09/10/2010

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..

PERMIT ISSUED

SEP 30 2010

City of Portland

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland N/A	☐ Variance	☑ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☒ Site Plan #10-79000022	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date: 9/13/10 with conditions	Date:	Date:

CERTIFICATION

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

SIGNATURE OF APPLICANT | ADDRESS | DATE | PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE | DATE | PHONE

City of Portland, Maine - Building or Use Permit

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

Permit No:	Date Applied For:	CBL:
10-1129	09/10/2010	066 A002001

Location of Construction:	Owner Name:	Owner Address:	Phone:
91 Douglass St	City Of Portland	389 Congress St	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
Dougherty Park	Hardcore Skate Parks	601 McKinley Joplin	(888) 758-2695
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Commercial	

Proposed Use:	Proposed Project Description:
Park / Dougherty Park (Skate Park) Build new concrete skate park on the former tennis court.	Build new concrete skate park on the former tennis court.

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 09/13/2010

Note: **Ok to Issue:** ✔

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

Dept: Building **Status:** Approved with Conditions **Reviewer:** Tammy Munson **Approval Date:** 09/29/2010

Note: **Ok to Issue:** ✔

1) An inspection of the installation of the concrete and rebar shall be conducted by a licensed engineer and a letter with his/her certification shall be submitted to this office stating compliance with the approved plans by the final inspection or CO.
2) Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.
3) Separate Permits shall be required for any new signage.
4) Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approrval prior to work.

Comments:

9/10/2010-gg: Ethan will email pdf file. /gg

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

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

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

__X__ **Footing/Building Location Inspection: Prior to pouring concrete or setting precast piers**

__X__ **Re-Bar Schedule Inspection: Prior to pouring concrete**

__X__ **Final/Certificate of Occupancy: Prior to any occupancy of the structure or use. NOTE: There is a $75.00 fee per inspection at this point.**

__X__ **Final statement of special inspections shall be sumbitted noting any discrepancies have been corrected.**

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

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

General Building Permit 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.

Location/Address of Construction: Dougherty field - Douglous St. / St. James		
Total Square Footage of Proposed Structure/Area: 8,200 SF	Square Footage of Lot: 846,064	Number of Stories: N/A
Tax Assessor's Chart, Block & Lot Chart# 066 Block# A Lot# 002	Applicant *must be owner, Lessee or Buyer* Name: City of Portland Address: Recreation Dept City, State & Zip: Ethan Owens	Telephone: 756-8275 x207 671-2036
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: $ 240,000.00 C of O Fee: $ Total Fee: $

RECEIVED
SEP 10 2010
Dept. of Building Inspections
City of Portland Maine

Current legal use (i.e. single family): Vacant — Number of Residential Units: N/A
If vacant, what was the previous use? Tennis Courts
Proposed Specific use: Skate Park
Is property part of a subdivision? no — If yes, please name: ———
Project description: Concrete Skate Park built on the former tennis courts at Dougherty Field.

Contractor's name: Hardcore Skate Parks
Address: 601 McKinley
City, State & Zip: Joplin, MO 64801 — Telephone: 888-758-2695
Who should we contact when the permit is ready: Ethan Owens @ 756 8275 — Telephone:
Mailing address: Same Recreation & Facilities Mgt.

Please submit all of the information outlined on the applicable Checklist. Failure to [illegible] **mit.**

066-A-002-004

In [illegible] ; and Development Department
ma [illegible] nation or to download copies of
thi [illegible] ine.gov, or stop by the Inspections
Div

I h [illegible] ord authorizes the proposed work and
tha [illegible] I agree to conform to all applicable
law [illegible] I certify that the Code Official's
aut [illegible] reasonable hour to enforce the
pro

Si [illegible]

[illegible] **permit is issue**

Zoning Administrator Marge Schmuckal
Setpember 13, 2010

This skateboard park is located within an ROS Zone. Such a use is allowable. The ROS setbacks and other dimensional standards are being met. There are 24 off-street parking spaces being provided which is more than meeting the parking requirements of zoning. It is assumed that these parking spaces shall be used by all users of Doughty Field and not just the skateboard users. There is a landscaping plan that shows screening in front of the parking area. Working with the City's Arborist, that landscaping should be beefed up a bit. The Planning Board is required to review the development standards outlined in 14-158.

Separate permits are required for any new signage.

From: "David Senus" <dsenus@woodardcurran.com>
To: "Jean Fraser" <JF@portlandmaine.gov>
CC: "Al Palmer" <APalmer@gorrillpalmer.com>, "Barbara Barhydt" <BAB@portland...
Date: 9/14/2010 11:20 AM
Subject: RE: Updated Site Plans - Skate Park Area Grading & Drainage
Attachments: Rev skatepark plans.pdf; Sheet 3of9.pdf

Hello Jean:

Per our phone call, attached are the revisions to the plans (Hardcore's & W&C/RSL) to address comments received in the Site Plan review process.

We have included 4 updated Hardcore plans:

>SP-1B - Updates to drainage to match W&C/RSL plan; addition of perimeter erosion control barrier; addition of diversion berm uphill of construction; addition of underdrains below skatepark

>SP-1C - Iso 3d view of underdrain and drainage pipes for skatepark

>SP-1D - Detailed spot grades within skatepark

>SP-5D - Additional detail sheet

We have included 1 updated W&C/RSL plan:

>Sheet 3 of 9 - Updates to drainage to match Hardcore plan; update of plan notes to address temporary site stabilization (interim period between Hardcore's work & final grading).

Ethan will be providing hard copies of the latest Hardcore Skatepark design plans to Tammy Munson for bldg permit review.

I will give Dan Goyette 2 hard copies of the attached plans to bring to tomorrow's meeting.

Thanks!

Dave Senus

-----Original Message-----
From: Jean Fraser [mailto:JF@portlandmaine.gov]
Sent: Monday, September 13, 2010 10:36 AM
To: David Senus
Cc: Al Palmer; Barbara Barhydt; David Margolis-Pineo; Ethan Owens; Marge Schmuckal; Sally Deluca; Troy Moon; Tammy Munson; Regina S. Leonard
Subject: RE: Updated Site Plans - Skate Park Area Grading & Drainage

David

These also need to go to the Inspections Division (Tammy Munson TMM@portlandmaine.gov copied to Marge Schmuckal MES@portlandmaine.gov)

as they are reviewing the Building Permit for the concrete work.

David Margolis-Pineo is also reviewing this re Site Plan (along with Al Palmer).

Everyone is included in the cc list in view of the urgency.

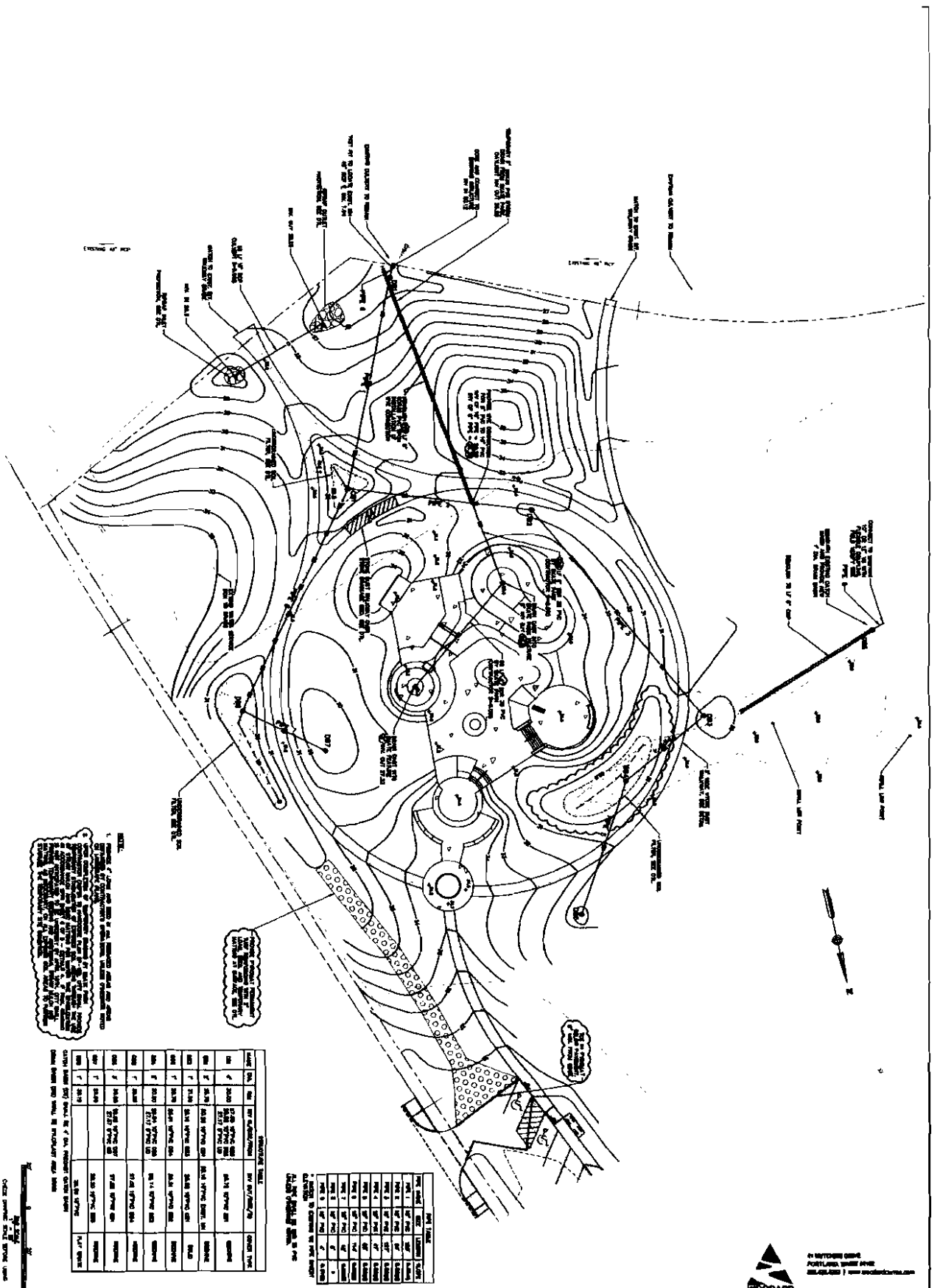
Thanks
Jean

>>> "David Senus" <dsenus@woodardcurran.com> 9/13/2010 9:47 AM >>>

To update you all, Ethan and I contacted Hardcore Skateparks immediately following our meeting last Wednesday and we received a draft version (unstamped) of SP1-B on Friday afternoon. I had a few comments that I sent back to Hardcore on Friday afternoon (including that the plan must be stamped/signed). We have requested that they get us this finalized plan this morning for submittal to Planning & Gorrill-Palmer, and I'm awaiting it's arrival (hopefully soon).

I'll be sure to pass it along as soon as I receive it.

Thanks
Dave



SITE PLAN APPLICATION - NOT FOR CONSTRUCTION

CITY OF PORTLAND, MAINE
PUBLIC SERVICES DEPARTMENT
ENGINEERING SECTION

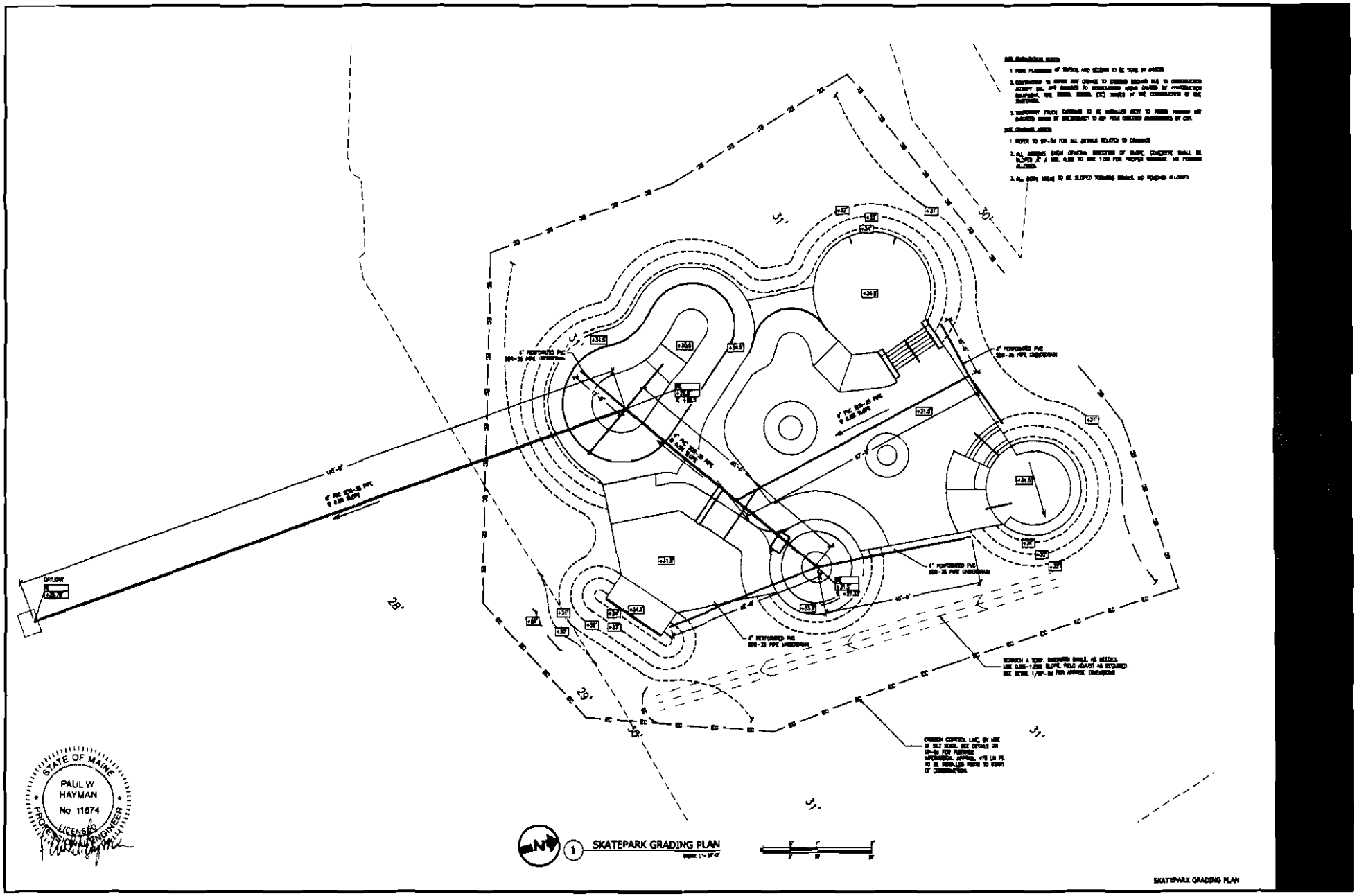
DOUGHERTY FIELD
IMPROVEMENTS

SKATE PARK AREA
GRADING & DRAINAGE PLAN

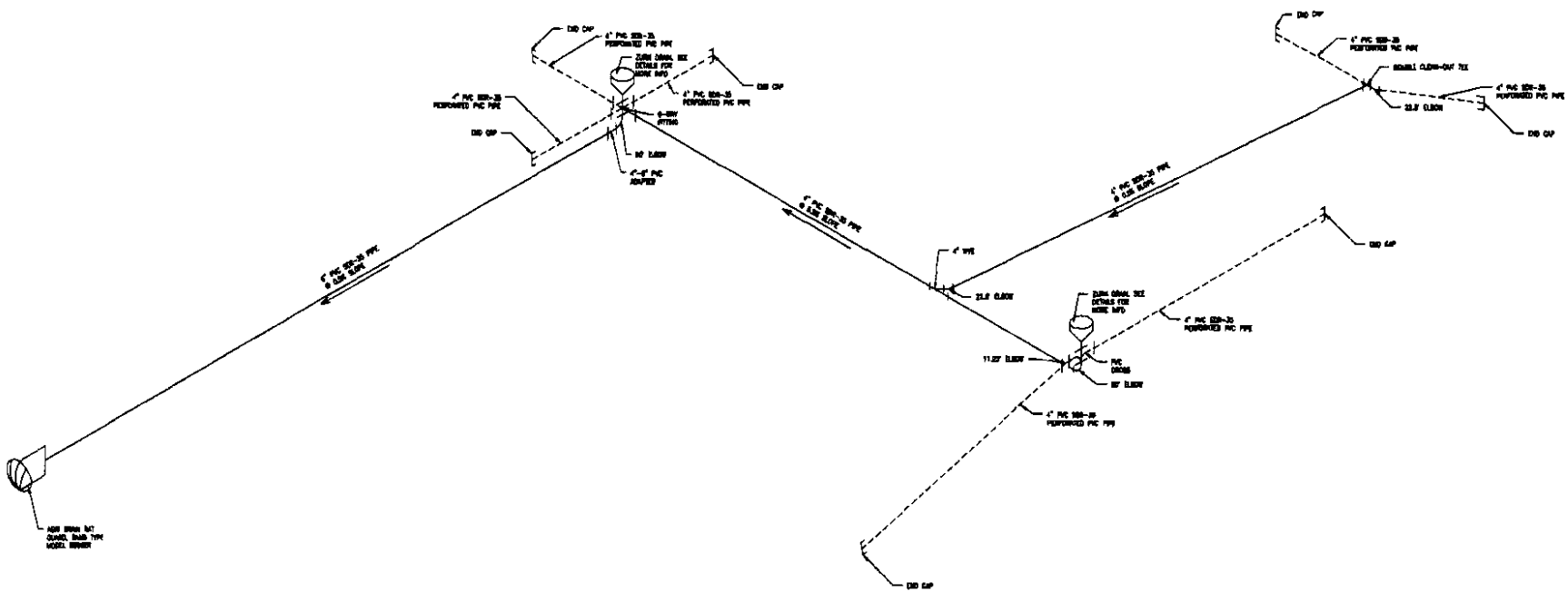
REFERENCES:

WOODARD & CURRAN

SHEET 3 OF 9



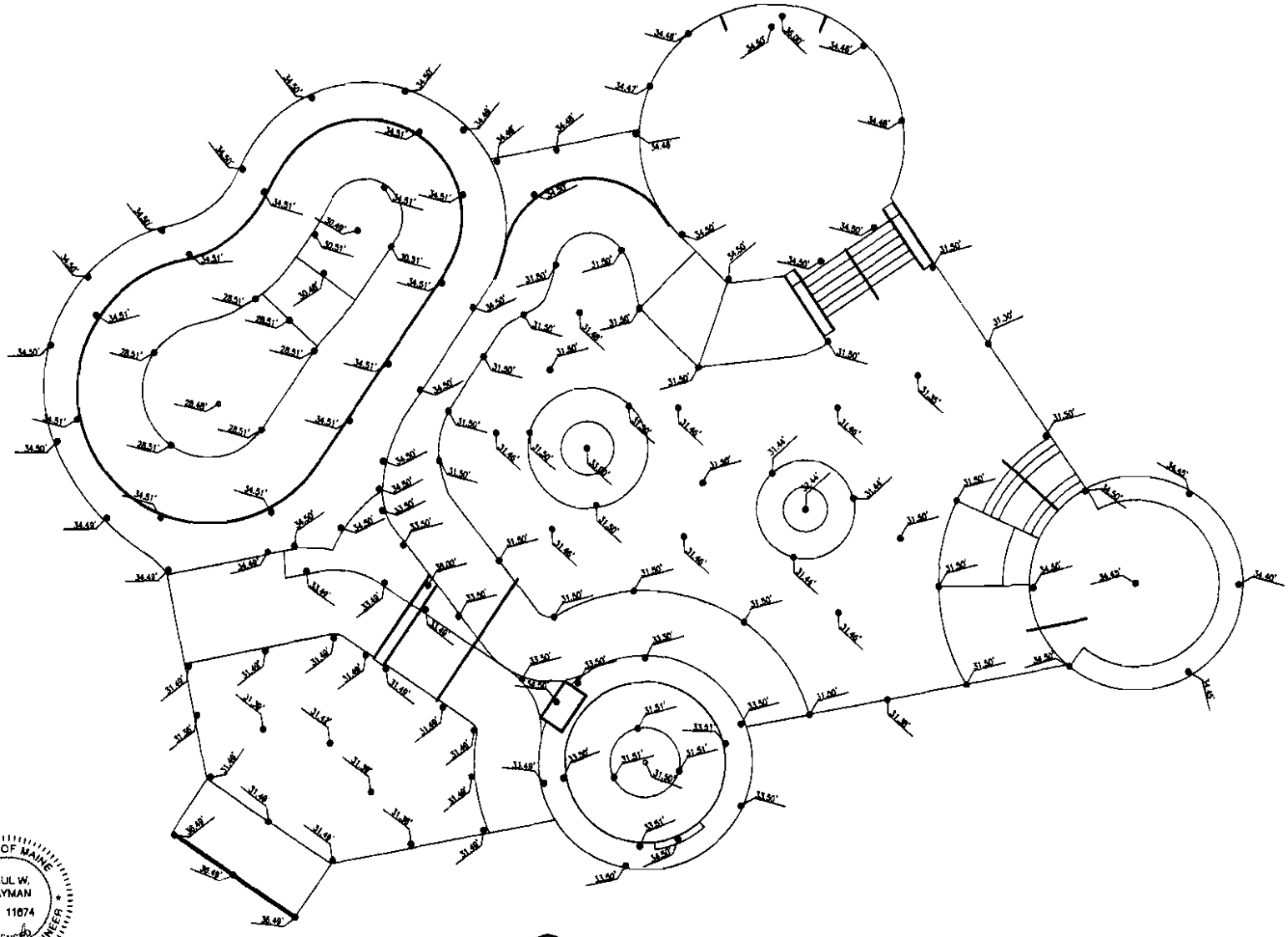
STATE OF MAINE
PAUL W
HAYMAN
No 11674
LICENSED
PROFESSIONAL ENGINEER



STATE OF MAINE
PAUL W
HAYMAN
No 11674
LICENSED
PROFESSIONAL ENGINEER

1 SKATEPARK DRAINAGE ISO VIEW

SKATEPARK ELEVATION PLAN



STATE OF MAINE
PAUL W. HAYMAN
No 11674
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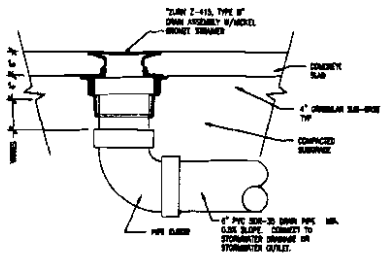
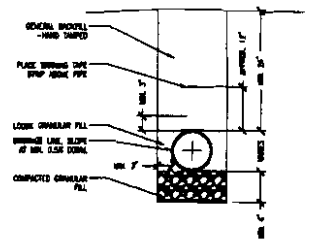
PROFESSIONAL ENGINEER

1 SKATEPARK ELEVATION PLAN

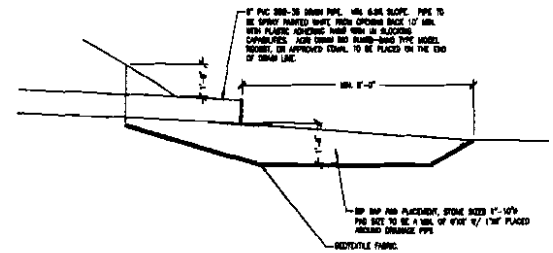
SKATEPARK ELEVATION PLAN



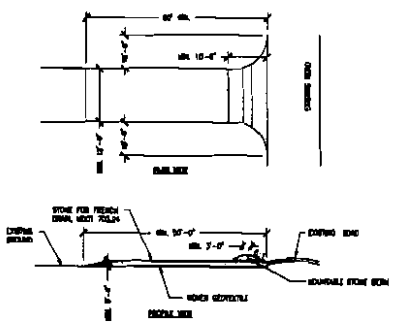
1 TYP. SLAB DRAIN



2 BURIED DRAINAGE LINE



3 DRAINAGE OUTFLOW



NOTES:

- CONSTRUCTION ENTRANCES MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
- [illegible] MAY ALSO BE USED, IF APPROVED.

MAINTENANCE: INSPECT FOR EFFECTIVE REMOVAL OF SOIL FROM VEHICLES PRIOR TO LEAVING THE SITE. SWEEP ANY SOIL FROM ADJACENT ROADWAYS.

REMOVAL: AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL AREAS OF THE SITE ARE STABILIZED.

4 CONSTRUCTION ENTRANCE DETAIL

Zoning Administrator Marge Schmuckal
Setpember 13, 2010

This skateboard park is located within an ROS Zone. Such a use is allowable. The ROS setbacks and other dimensional standards are being met. There are 24 off-street parking spaces being provided which is more than meeting the parking requirements of zoning. It is assumed that these parking spaces shall be used by all users of Doughty Field and not just the skateboard users. There is a landscaping plan that shows screening in front of the parking area. Working with the City's Arborist, that landscaping should be beefed up a bit. The Planning Board is required to review the development standards outlined in 14-158.

NO Zoning Sheet
only requires 25' setback
from Street line —
72' scaled - All
other setbacks of 25'
are further AWAY

Marge Schmuckal - Skate Park Building Permit

From: Jean Fraser
To: Munson, Tammy; Schmuckal, Marge
Date: 9/13/2010 9:37 AM
Subject: Skate Park Building Permit
CC: Barhydt, Barbara; Bourke, Jeanie; Dobson, Lannie; Guertin, Gayle

---

Marge and Tammy,

I think Gayle has probably explained the background to this, but just to recap....Ethan Owens (Portland Dept of Rec- kind of joint applicant with Hardcore) had been waiting for the final Skate park plans before addressing the issue of the building permit- and these were delayed because of some last minute questions regarding drainage.

Joe Gray asked on Friday where things stood re the BP (as the site plan approval will be issued this week and he has agreed with Cllr Marshall for a start on site of Sept 21) and it came to light that the actual BP application had not been made to your Division.

On Friday I helped Ethan Owens get the forms etc into your office and Gayle got it logged in so that the review could move forward as urgently as possible. I believe Tammy has already spoken to the firm (Hardcore) who are doing the actual concrete Skate Park area (although because of the urgency they were not involved in making the BP application).

Barbara is arranging a letter from Penny to say they can start on site before getting the Building Permit because they have submitted a letter saying they have alot of site work (I understand several weeks) to do before starting on the concrete work (site work to include temp fencing; erosion control; removing debris; creation of access road; stocking of materials- I will bring down a copy of the letter) so they can start on Monday 9.21 even if the Building permit is not ready to be issued.

Please call me or Barbara if you have any questions.

Thank you
Jean

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

Department of Recreation & Facilities Management
Anita LaChance, Director

Recreation Division
Sally L. DeLuca CPRP, Director

This application is for the new skate park to be built on Dougherty Field Complex, on the old existing tennis courts. The park is being constructed by Hardcore ShotCrete Skateparks and overseen by Woodard & Curren, Sally Deluca and myself.

Please call with any questions or concerns.

Ethan Owens
Athletic Facilities Manager
Recreation Dept.

rec'd 8/4/10

City of Portland
Development Review Application
Planning Division Transmittal form

Application Number: 10-79900022 **Application Date:** **8-3-10**

Project Name: SKATE PARK

Address: Douglass St **CBL:** 066 - A-002-001

Project Description: Skatepark; Doughty Field, Douglass Street; City of Portland, Hardcore Shotcrete Skateparks, Applicant.

Zoning: ~~RS~~ ROS

Other Reviews Required:

Review Type: MINOR SITE PLAN

Applicant:
Mark Leone
601 McKinley Avenue
Joplin Mo 64801

Applicant:
Sally Deluca
134 Congress Street
Portland Me 04101

AUG - 4 2010

Distribution List:

☐ Planner	Jean Fraser	☐ Parking	John Peverada
☑ ZoningAdministrator	Marge Schmuckal	☐ Design Review	Alex Jaegerman
☐ Traffic	Tom Errico	☐ Corporation Counsel	Danielle West-Chuhta
☐ Stormwater	Dan Goyette	☐ Sanitary Sewer	John Emerson
☐ Fire Department	Keith Gautreau	☐ Inspections	Tammy Munson
☐ City Arborist	Jeff Tarling	☐ Historic Preservation	Deb Andrews
☐ Engineering	David Margolis-Pineo	☐ Outside Agency	
		☐ DRC Coordinator	Phil DiPierro

Preliminary Comments needed by: August 11, 2010

Final Comments needed by: August 18, 2010

Development Review Application
PORTLAND, MAINE
Department of Planning and Urban Development,
Planning Division and Planning Board

PROJECT NAME: Dougherty Field Skatepark

PROPOSED DEVELOPMENT ADDRESS:

Douglas Street, Portland Maine

PROJECT DESCRIPTION:

Design and construction of an in-ground concrete skatepark

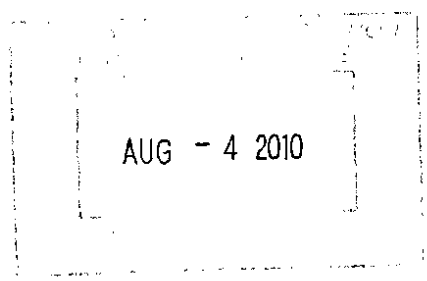
CHART/BLOCK/LOT: _____

CONTACT INFORMATION:

APPLICANT Mark Leone, Project Manager		**PROPERTY OWNER**	
Name:	Hardcore Shotcrete Skateparks, Inc.	**Name:**	City of Portland
Address:	601 McKinley Ave.	**Address:**	Exposition Building
	Joplin, Missouri		239 Park Ave., Portland ME
Zip Code:	64801	**Zip Code:**	04102
Work #:	888-758-2695	**Work #:**	207-874-8654
Cell #:	858-829-9264	**Cell #:**	207-874-8801
Fax #:	417-206-6888	**Fax #:**	207-874-8669
Home:	858-829-9264	**Home:**	na
E-mail:	mark@hardcoreskateparks.com	**E-mail:**	tgc@portlandmaine.gov

BILLING ADDRESS

Name:	Hardcore Shotcrete Skateparks, Inc.
Address:	601 McKinley Ave.
	Joplin, Missouri
Zip:	64801
Work #:	888-758-2695
Cell #:	858-829-9264
Fax #:	417-206-6888
Home:	858-829-9264
E-mail:	mark@hardcoreskateparks.com



~As applicable, please include additional contact information on the next page~

AGENT/REPRESENTATIVE

Name: Sally Deluca, Recreation Div Manager
Address: 134 Congress St.
Portland ME
Zip Code: 04101
Work #: 207-756-8275
Cell #:
Fax #:
Home:
E-mail: sld@portlandmaine.gov

ENGINEER

Name: Paul Hayman, PE
Hayman Engineering Servcies
Address: 206 Park Central East, Ste. 412
Springfield, Missouri
Zip Code: 65806
Work #: 417-831-5550
Cell #: 417-880-1396
Fax #: 417-831-5551
Home:
E-mail: jchamberlain@haymanengineering.com
phayman@haymanengineering.com

ARCHITECT

Name: Hardcore Shotcrete Skateparks, Inc.
Address: 601 McKinley Ave.
Joplin, Missouri
Zip Code: 64801
Work #: 888-758-2695
Cell #: 858-829-9264
Fax #: 417-206-6888
Home: 858-829-9264
E-mail: mark@hardcoreskateparks.com

CONSULTANT

Name: Hardcore Shotcrete Skateparks, Inc.
Address: 601 McKinley Ave.
Joplin, Missouri
Zip Code: 64801
Work #: 888-758-2695
Cell #: 858-829-9264
Fax #: 417-206-6888
Home: 858-829-9264
E-mail: mark@hardcoreskateparks.com

SURVEYOR

Name: Hardcore Shotcrete Skateparks, Inc.
Address: 601 McKinley Ave.
Joplin, Missouri
Zip Code: 64801
Work #: 888-758-2695
Cell #: 858-829-9264
Fax #: 417-206-6888
Home: 858-829-9264
E-mail: mark@hardcoreskateparks.com

ATTORNEY

Name:
Address:
Zip Code:
Work #:
Cell #:
Fax #:
Home:
E-mail:

PROJECT DATA

The following information is required where applicable, in order complete the application

Total Site Area		sq. ft.
Proposed Total Disturbed Area of the Site		sq. ft.

(If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland)

IMPERVIOUS SURFACE AREA

Proposed Total Paved Area	9,000 sf	sq. ft.
Existing Total Impervious Area	0 sf	sq. ft.
Proposed Total Impervious Area	0 sf	sq. ft.
Proposed Impervious Net Change	9,000 sf	sq. ft.

BUILDING AREA

Existing Building Footprint	NA	sq. ft.
Proposed Building Footprint	NA	sq. ft.
Proposed Building Footprint Net change	NA	sq. ft.
Existing Total Building Floor Area	NA	sq. ft.
Proposed Total Building Floor Area	NA	sq. ft.
Proposed Building Floor Area Net Change	NA	sq. ft.
New Building	NA	(yes or no)

ZONING

Existing		
Proposed, if applicable		

LAND USE

Existing		
Proposed		

RESIDENTIAL, IF APPLICABLE

Proposed Numbet of Affordable Housing Units	NA	
Proposed Number of Residential Units to be Demolished	NA	
Existing Number of Residential Units	NA	
Proposed Number of Residential Units	NA	
Subdivision, Proposed Number of Lots	NA	

PARKING SPACES

Existing Number of Parking Spaces	NA	
Proposed Number of Parking Spaces	NA	
Number of Handicapped Parking Spaces	NA	
Proposed Total Parking Spaces	NA	

BICYCLE PARKING SPACES

Existing Number of Bicycle Parking Spaces	NA	
Proposed Number of Bicycle Parking Spaces	NA	
Total Bicycle Parking Spaces	NA	

ESTIMATED COST OF PROJECT

$240,000.00

Please answer the following with a Yes/No response on all that apply to the proposed development

Institutional	no	Change of Use	no	
Parking Lot	no	Design Review	no	
Manufacturing	no	Flood Plain Review	no	
Office	no	Historic Preservation	no	
Residential	no	Housing Replacement	no	
Retail/Business	no	14-403 Street Review	no	
Warehouse	no	Shoreland	no	
Single Family Dwelling	no	Site Location	no	
2 Family Dwelling	no	Stormwater Quality	no	
Multi-Family Dwelling	no	Traffic Movement	no	
B-3 Ped Activity Review	no	Zoning Variance	no	(or date)
Change of Use	no	Historic Dist./Landmark	no	
		Off Site Parking	no	

APPLICATION FEE:

Check all reviews that apply. Payment may be made in cash or check to the City of Portland.

Major Development (more than 10,000 sq. ft.) ___ Under 50,000 sq. ft. ($500.00) ___ 50,000 - 100,000 sq. ft. ($1,000.00) ___ Parking Lots over 100 spaces ($1,000.00) ___ 100,000 - 200,000 sq. ft. ($2,000.00) ___ 200,000 - 300,000 sq. ft. ($3,000.00) ___ Over 300,000 sq. ft. ($5,000.00) ___ After-the-fact Review ($1,000.00 plus applicable application fee)	**Plan Amendments** ___ Planning Staff Review ($250.00) ___ Planning Board Review ($500.00) **Subdivision** ___ Subdivision ($500.00) + amount of lots____ ($25.00 per lot) $_____ + (applicable Major site plan fee)
Minor Site Plan Review X Less than 10,000 sq. ft. ($400.00) ___ After-the-fact Review ($1,000.00 plus applicable application fee)	**Other Reviews** ___ Site Location of Development ($3,000.00) (except for residential projects which shall be $200.00 per lot_____) ___ Traffic Movement ($1,000.00) ___ Storm water Quality ($250.00) ___ Section 14-403 Review ($400.00 + $25.00 per lot) ___ Other_____

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submissions shall include seven (7) packets with folded plans containing the following materials:

1. Seven (7) full size site plans that must be folded.
2. Application form that is completed and signed.
3. Cover letter stating the nature of the project.
4. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
5. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 100 feet.
6. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
7. Copy of the checklist completed for the proposal listing the material contained in the submitted application.
8. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist (page 9) for a detailed list of submittal requirements.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site: www.portlandmaine.gov Copies of the ordinances may be purchased through the Planning Division.

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 Planning Authority and Code Enforcement'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.

This application is for site review only; a Performance Guarantee, Inspection Fee, Building Permit Application and associated fees will be required prior to construction.

Signature of Applicant:	**Date:** 7/29/10

Site Plan Checklist

Portland, Maine

Department of Planning and Urban Development, Planning Division and Planning Board

Dougherty Field Skate Park Douglas St., Portland Maine

Project Name, Address of Project **Application Number**

(The form is to be completed by the Applicant or Designated Representative)

Check Submitted		Required Information	Section 14-525 (b,c)
Applicant	**Staff**		
____	____	Standard boundary survey (stamped by a registered surveyor, at a scale of not less than 1 inch to 100 feet and including:	1
____	____	Name and address of applicant and name of proposed development	a
____	____	* Scale and north points	b
____	____	* Boundaries of the site	c
____	____	* Total land area of site	d
____	____	* Topography - existing and proposed (2 feet intervals or less)	e
____	____	Plans based on the boundary survey including:	2
____	____	* Existing soil conditions	a
____	____	* Location of water courses, wetlands, marshes, rock outcroppings and wooded areas	b
____	____	* Location, ground floor area and grade elevations of building and other structures existing and proposed, elevation drawings of exterior facades, and materials to be used	c
____	____	* Approx location of buildings or other structures on parcels abutting the site and a zoning summary of applicable dimensional standards (example page 11 of packet)	d
____	____	* Location of on-site waste receptacles	e
____	____	* Public utilities	
____	____	* Water and sewer mains	e
____	____	* Culverts, drains, existing and proposed, showing size and directions of flows	e
____	____	* Location and dimensions, and ownership of easements, public or private rights-of-way, both existing and proposed	f
____	____	* Location and dimensions of on-site pedestrian and vehicular access ways	g
____	____	* Parking areas	
____	____	* Loading facilities	g
____	____	* Design of ingress and egress of vehicles to and from the site onto public streets	g
____	____	* Curb and sidewalks	g
____	____	Landscape plan showing:	h
____	____	* Location of existing vegetation and proposed vegetation	h
____	____	* Type of vegetation	h
____	____	* Quantity of plantings	h
____	____	* Size of proposed landscaping	h
____	____	* Existing areas to be preserved	h
____	____	* Preservation measures to be employed	h
____	____	* Details of planting and preservation specifications	h
____	____	* Location and dimensions of all fencing and screening	i
____	____	Location and intensity of outdoor lighting system	j
____	____	Location of fire hydrants, existing and proposed (refer to Fire Department checklist – page 11)	k
____	____	Written statements to include:	c
____	____	* Description of proposed uses to be located on site	c1
____	____	* Quantity and type of residential, if any	c1
____	____	* Total land area of the site	c2
____	____	* Total floor area, total disturbed area and ground coverage of each proposed Building and structure	c2
____	____	* General summary of existing and proposed easements or other burdens	c3
____	____	* Type, quantity and method of handling solid waste disposal	c4
____	____	* Applicant's evaluation or evidence of availability of off-site public facilities, including sewer, water and streets (refer to the wastewater capacity application – page 12)	c5
____	____	* Description of existing surface drainage and a proposed stormwater management plan or description of measures to control surface runoff.	c6

_____	_____	* An estimate of the time period required for completion of the development	7
_____	_____	* A list of all state and federal regulatory approvals to which the development may be subject to. the status of any pending applications, anticipated timeframe for obtaining such permits, or letters of non-jurisdiction.	8
_____	_____	* Evidence of financial and technical capability to undertake and complete the development including a letter from a responsible financial institution stating that it has reviewed the planned development and would seriously consider financing it when approved.	
_____	_____	* Evidence of applicant's right title or interest, including deeds, leases, purchase options or other documentation.	
_____	_____	* A description of any unusual natural areas, wildlife and fisheries habitats, or archaeological sites located on or near the site.	
_____	_____	A jpeg or pdf of the proposed site plan, if available.	
_____	_____	Final sets of the approved plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*.dwg), release AutoCAD 2005 or greater.	

Note: Depending on the size and scope of the proposed development, the Planning Board or Planning Authority may request additional information, including (but not limited to):

- drainage patterns and facilities
- erosion and sedimentation controls to be used during construction
- a parking and/or traffic study
- a wind impact analysis
- an environmental impact study
- a sun shadow study
- a study of particulates and any other noxious emissions
- a noise study

Example of Zoning Summary

1. Property is located in the IM Zone (Moderate Impact Industrial)
2. Parcel Acreage: 1.37 AC (59,677.2 sf)

Regulations	Required/Allowed	Provided
Min Lot Area	none	59,677.2 sf.
Min Street Frontage	60 ft.	314.46 ft.
Min Front Yard Setback	1 ft./1 ft. Building Height	72.04 ft.
Min Rear Yard Setback	1 ft./1 ft. Building Height	35.66 ft.
Min Side Yard Setback	1 ft./1 ft. Building Height	82.80 and 38.22
Max Building Height	75 ft.	65 ft.
4. Parking – Warehouse Distribution:	1 space/1000 sf.	10 spaces
5. Maximum Impervious Surface Ratio:	75%	43%

Portland Fire Department Checklist

A separate drawing[s] shall be provided to the Portland Fire Department for all site plan reviews, which shall include:

1. Name, address, telephone number of applicant.
2. Name address, telephone number of architect
3. Proposed uses of any structures [NFPA and IBC classification]
4. Square footage of all structures [total and per story]
5. Elevation of all structures
6. Proposed fire protection of all structures
7. Hydrant locations
8. Water main[s] size and location
9. Access to any fire department connections
10. Access to all structures [min. 2 sides]
11. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.
12. Elevators shall be sized to fit an 81" x 23" stretcher and two personnel.
13. Some structures may require Fire flows using annex H of NFPA 1

Additional Submission for Subdivisions:

Street Names and Street Numbering for Proposed Subdivisions

Notice to Developers of New Subdivisions

Effective January 1, 1998, the City of Portland requests that developers of new subdivisions submit information regarding the origin of the name of any new street(s) created within the City limits. This information shall be submitted to the Planning Division with all other related application materials and shall include information regarding the person or subject for which all new streets are being named. In the case of a person, the full name should be submitted, as well as their vocation, relationship to the developer or the area, or other pertinent information.

Street Numbering Assignments

The assignment of official street addresses is the sole responsibility of the Department of Public Services. These assignments proceed by a set of guidelines and are done from submitted site plans whenever possible. Fot Enhanced 9-1-1 purposes, they need to be as accurate as possible and, depending on size and site layout, the creation of new street names may be required. Despite addresses listed on such things as the check sheet for site plan approval, building inspection documents or tax maps, it is requested you contact the Department of Public Services for your official address(es). Please call, Leslie Kaynor, GIS Surveyor at (207) 874-8346.

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: _____

Mr. Frank J. Brancely,
Senior Engineering Technician,
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-mail:fjb@portlandmaine.gov

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: _____

(Regarding addressing, please contact Leslie Kaynor, either at 756-8346, or at LMK@portlandmaine.gov)

Chart Block Lot Number: _____

Proposed Use: _____

Previous Use: _____

Existing Sanitary Flows: _____ GPD

Existing Process Flows: _____ GPD

Description and location of City sewer, at proposed building sewer lateral connection:

_____

_____

Clearly, indicate the proposed connection, on the submitted plans.

Site Category

Commercial ___
Industrial *(complete part 4 below)* ___
Governmental ___
Residential ___
Other *(specify)* ___

2. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: _____ GPD

Peaking Factor/ Peak Times: _____

Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __ "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, _ Other (specify)*

_____

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

3. Please, Submit Contact Information.

Owner/Developer Name: City of Portland Maine

Owner/Developer Address: 239 Park Ave., Portland Maine 04102

Phone: 207-874-8654 Fax: 207-874-8669 E-mail: tgc@portlandmaine.gov

Engineering Consultant Name: _____

Engineering Consultant Address: _____

Phone: _____ Fax: _____ E-mail: _____

City Planner's Name: _____ Phone: _____

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

4. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: _____ GPD

Do you currently hold Federal or State discharge permits? Yes ___ No ___

Is the process wastewater termed categorical under CFR 40? Yes ___ No ___

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

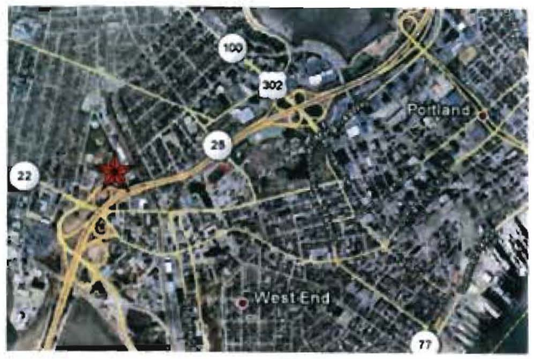
Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show the locations, where the building's sanitary, and process water sewer laterals, exit the facility, where they enter the city's sewer, the location of any control manholes, wet wells, or other access points, and the locations of any filters, strainers, or grease traps.

Notes, Comments, or Calculations:

HARDCORE
SHOTCRETE SKATEPARKS INC
SKATER OWNED/OPERATED SINCE 2001

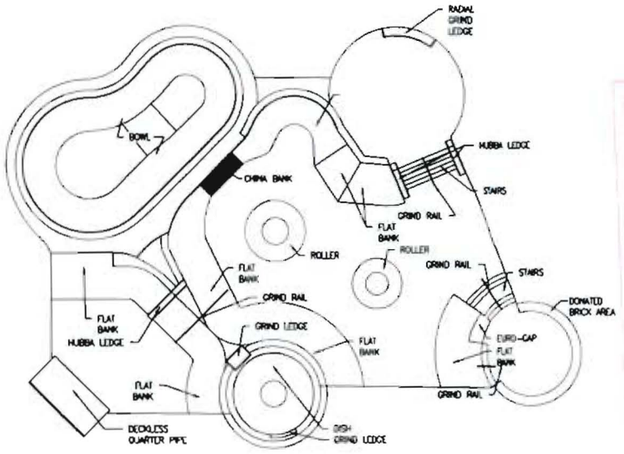
CONSTRUCTION DOCUMENTS:
DOUGHERTY PARK SKATE PARK
PORTLAND, MAINE



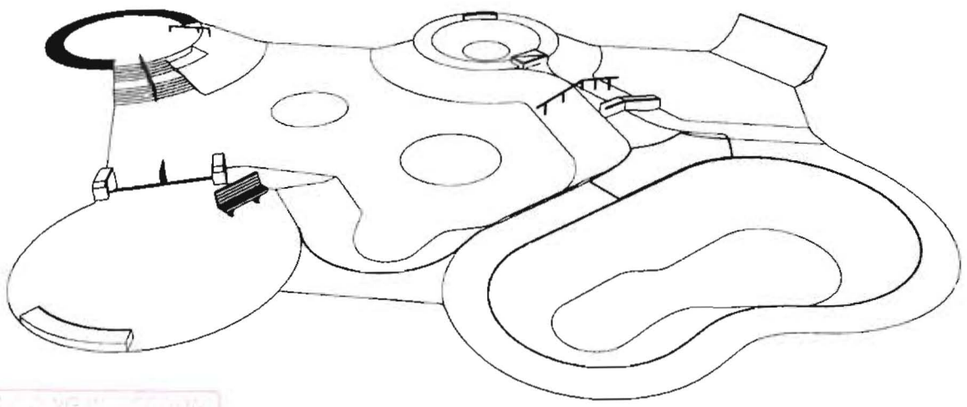
PROJECT VICINITY MAP

PROJECT LOCATION MAP

SKATEPARK SHEET INDEX



SKATEPARK ELEMENTS MAP
NOT TO SCALE



SKATEPARK COMPUTER MODEL VIEW #1
*COMPUTER MODEL FOR GENERAL REFERENCE ONLY

MPUC
Maine Underground Facility Damage Prevention System
Excavators
1-866-OKTODIG
(1-866-658-6344)
www.OKTODIG.COM

STATE OF MAINE
PAUL W. HAYMAN
No 8912
LICENSED PROFESSIONAL ENGINEER
July 19, 2010

SKATEPARK COMPUTER MODEL VIEW #2
*COMPUTER MODEL FOR GENERAL REFERENCE ONLY

AUG - 4 2010

AUG - 4 2010

COVER SHEET

GENERAL NOTES:

1 SITE TO BE GRADED AS PER PLAN.

2 ALL WORK PERFORMED TO COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND/OR LOCAL BUILDING CODES.

3 ALL SOIL USED IN CONSTRUCTION SHALL BE VIBRATORY HAND ROLLED TO 95% MAX. STANDARD PROCTOR DENSITY PRIOR TO ANY POURING OF CONCRETE ON SITE.

4 CONTRACTOR SHALL TAKE ALL PRECAUTIONS ON SITE INVOLVING RUN OFF, BY USING EITHER SILT SOCKS, OR HAY BALE DIKES, IN ACCORDANCE WITH COUNTY REGULATIONS.

5 CONTRACTOR SHALL NOTIFY ALL UTILITIES TO ALL FOR LOCATION OF ANY BURIED SERVICES IN THE AREA PRIOR TO BEGINNING OF CONSTRUCTION. ANY SERVICES SHOWN IN THE SET ARE FOR REFERENCE ONLY, AND MAY NOT SHOW ALL SERVICES CURRENTLY ON SITE. CONTRACTOR SHALL WAIT A MINIMUM OF TWO (2) BUSINESS DAYS TO ALLOW UTILITIES TO BE LOCATED.

6 CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR ANY DAMAGED PROPERLY MARK UTILITIES. ANY UTILITIES DAMAGED WILL BE SOLELY THE CONTRACTORS RESPONSIBILITY TO REPAIR AND SHALL PROVIDE ALL EXPENSES ASSOCIATED WITH THE DAMAGE.

7 CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TRANSPORTATION, AND SERVICES NECESSARY TO FURNISH AND INSTALL ALL CONSTRUCTION ELEMENTS AND SHOWN IN THIS SET OF PLANS AND NOTES.

8. CONTRACTOR SHALL IMPLEMENT THE CONSTRUCTION OF THE SKATEPARK PROJECT, INCLUDING BUT NOT LIMITED TO, CONSTRUCTION OF THE ENTRY WALKWAY, ON-STREET PARKING DESIGNATIONS, CONCRETE PLAZA, SITE GRADING, SKATE PARK IMPROVEMENTS, ANY SWPPP THAT MAY BE REQUIRED (PER LOCAL OR STATE REGULATIONS), AND/OR SITE PLANTINGS AND IRRIGATION.

SHOTCRETE NOTES:

1 ACI STANDARD 506, LATEST EDITION "SPECIFICATION FOR MATERIALS, PROPORTIONING, AND APPLICATION OF SHOTCRETE" AND ACI 506.2, LATEST EDITION "RECOMMENDED PRACTICES FOR SHOTCRETING" SHALL BE FOLLOWED.

2 ANY IN-PLACE SHOTCRETE MATERIAL WHICH EXHIBITS SAGS OR SLOUGHS, SEGREGATION, HONEYCOMBING, SAND POCKETS OR OTHER OBVIOUS DEFECTS SHALL BE REMOVED AND REPLACED.

3 ANY REBOUND OR ACCUMULATED LOOSE AGGREGATE SHALL BE REMOVED FROM THE SURFACES TO BE COVERED PRIOR TO PLACING THE INITIAL OR ANY SUCCEEDING LAYERS OF SHOTCRETE APPLICATION.

4 JOINTS IN WALLS ARE PERMISSIBLE. AT JOINTS, SHOTCRETE SHALL BE SLOPED TO A THIN EDGE. BEFORE PLACING ADDITIONAL MATERIAL, ALL SURFACES SHALL BE THOROUGHLY CLEANED AND WETTED AND ALL REINFORCING STEEL SHALL BE BRUSHED FREE OF LATENT SHOTCRETE MATERIALS.

CONCRETE NOTES:

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE'S "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318 - LATEST EDITION) AND "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301 - LATEST EDITION)

2 REINFORCEMENT SHALL CONFORM TO ASTM "SPECIFICATIONS FOR DEFORMED & PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT" - A515 GRADE 60, MINIMUM YIELD STRENGTH OF 60,000 PSI.

3 MINIMUM COVER FOR REINFORCEMENT IN SITE-CAST CONCRETE SHALL BE AS FOLLOWS:

CONCRETE CAST AGAINST EARTH-----3"

CONCRETE EXPOSED TO WEATHER OR EARTH (FORMED) #5 BAR & LARGER---3"
#4 BAR AND SMALLER-2"

4 FLOOR SLAB CONSTRUCTION SHALL BE SUCH THAT PERIMETER ELEVATIONS AND SCREENED LINES ARE ESTABLISHED SO THAT THERE IS NO PONDING IN THE FINISH WORK.

5 JOINT MATERIAL FOR SAW JOINTS AND CONSTRUCTION JOINTS SHALL BE "BASF NP1" OR APPROVED EQUIVALENT, INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

6. CONDUITS, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO THE 2003 IBC.

7. AGGREGATE BASE COURSE TO BE 4" [10.16cm] OF COMPACTED 1" [2.54cm] CRUSHED LIMESTONE COMPACTED TO NOT LESS THAN 95% OF MAX. STANDARD PROCTOR DENSITY. THE TOP 12" [300mm] OF SUBGRADE MATERIAL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR AS PER ASTM D-698.

8 ALL WORK SHALL BE IN ACCORDANCE WITH THE SAFETY AND PERFORMANCE GUIDELINES PERTAINING TO IN-GROUND SKATEPARK FACILITIES AS SPECIFIED IN THE STANDARD GUIDE FOR IN-GROUND CONCRETE SKATEPARK ASTM F-2480

9 SECURE ALL REINFORCING, ANCHOR BOLTS, INSERTS, ETC RIGIDLY IN PLACE PRIOR TO POURING CONCRETE.

10. ALL REBAR SHALL BE COLD BENT.

11 REMOVE FORMS AT FOLLOWING MINIMUM TIMES AFTER POURING, UNLESS OTHERWISE IDENTIFIED: SLAB EDGES = 24 HOURS, AT WALLS LESS THAN 4'-0" [1.22m] HIGH = 36 HOURS

12 DURING THE CURING PERIOD, CONCRETE SHALL BE MAINTAINED AT A TEMPERATURE ABOVE 40°F [4°C] AND IN MOIST CONDITION. FOR INITIAL CURING, CONCRETE SHALL BE KEPT CONTIGUOUSLY MOIST FOR 24 HOURS AFTER PLACEMENT IS COMPLETE. FINAL CURING SHALL CONTINUE FOR SEVEN DAYS AFTER PLACEMENT AND SHALL CONSIST OF APPLICATION OF CURING COMPOUND AS PER ASTM C309. APPLY AT A RATE SUFFICIENT TO RETAIN MOISTURE, BUT NOT LESS THAN 1 GALLON [4.55L] PER 200 SQUARE FT [18.58m²]. COVER CONCRETE WITH POLYETHYLENE PLASTIC TO MAINTAIN TEMPERATURE IF NECESSARY. LAP SEAMS IN THE PLASTIC 6" [15.24cm] AND TAPE, WEIGHT DOWN THE PLASTIC AS NEEDED.

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED
PROFESSIONAL ENGINEER

July 19, 2010

SKATEPARK NOTES:

1 ALL SKATEPARK CONCRETE SHALL BE REINFORCED WITH #4 REINFORCING BARS @ 12" O.C. FOR SLABS (#3 @ 12" O.C. FOR ALL AREAS USING SHOTCRETE), BOTH DIRECTIONS, SEE DETAILS FOR SLAB THICKNESS USED.

2 ALL EDGES AND CORNERS OF CONCRETE FEATURES SHALL HAVE ½" RADII OR ¾" CHAMFER, AS PER OWNERS CHOICE, UNLESS NOTED OTHERWISE ON PLANS.

3 CONTRACTOR SHALL VERIFY AND COORDINATE ALL FINISH GRADES AND CURB EDGES WITH RELATED SITE IMPROVEMENTS. CONTRACTOR SHALL REPORT IMMEDIATELY TO THE OWNER'S REPRESENTATIVE ANY CONFLICTS OR DISCREPANCIES FOUND.

4 CONTRACTOR SHALL REMOVE ANY RAIN WATER OR DEBRIS FROM SITE, PRIOR TO, AND DURING CONSTRUCTION, AS REQUIRED, PRIOR TO POURING ANY CONCRETE ON SITE.

5 CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL GROUND ELEVATIONS, INVERT AREAS, AND OVERALL TOPOGRAPHY OF THE SITE. CONTRACTOR SHALL VERIFY ALL SITE DIMENSIONS PRIOR TO BEGINNING OF CONSTRUCTION. CONTRACTOR SHALL REPORT IMMEDIATELY TO THE OWNER'S REPRESENTATIVE ANY CONFLICTS OR DISCREPANCIES FOUND WITH ANY ELEVATIONS, INVERT AREAS, ETC.

6. CONTRACTOR SHALL OBTAIN A PROJECT SPECIFIC GEOTECHNICAL REPORT PRIOR TO START OF ANY CONSTRUCTION, IF ONE IS NOT ALREADY PROVIDED. ALL SKATE PARK STRUCTURE GRADING AND EARTHWORK SHALL COMPLY WITH THE PROJECT SPECIFIC GEOTECHNICAL REPORTS RECOMMENDATIONS AND REQUIREMENTS.

7 WRITTEN DIMENSIONS ARE TO TAKE PRECEDENCE OVER ANY SCALED DIMENSIONS, AND IN NO WAY SHALL THE CONTRACTOR SCALE ANY DIMENSIONS DIRECTLY FROM THIS SET FOR ACTUAL CONSTRUCTION USE. CONTRACTOR SHALL REPORT IMMEDIATELY TO THE OWNER'S REPRESENTATIVE ANY CONFLICTS OR DISCREPANCIES FOUND ON SITE.

8 ALL SKATEPARK CONCRETE SHALL HAVE A SMOOTH HARD TROWEL FINISH.

9 ALL REINFORCING BARS SHALL HAVE AN ALTERNATING 24" OVERLAP; TYP. SEE SPECIFICATIONS FOR FURTHER DETAILS.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY, NOTIFICATION OF UTILITIES, AND CONSTRUCTION STAKING.

CONSTRUCTION NOTES:

1 IN THE AREA OF THE SKATEPARK: EXISTING ORGANIC MATERIAL, UNSUITABLE SOIL, AND OTHER DELETERIOUS MATERIALS SHALL BE REMOVED. FILL MATERIAL REQUIRED SHALL BE OF A SIMILAR TYPE OF SOIL THAT IS PRESENT AT THE SITE EXHIBITING LIQUID LIMIT VALUES BELOW 45 AND PLASTIC INDEX VALUES LESS THAN 25. NO ROCK GREATER THAN 8" SHALL BE ALLOWED IN STRUCTURAL FILL MATERIAL. ALL FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NO GREATER THAN 6" IN DEPTH AND SHALL BE COMPACTED TO A DENSITY NO LESS THAN 95% OF THE MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D-698) AT A MOISTURE CONTENT OF 3% ABOVE OR BELOW OPTIMUM. ADEQUATE FIELD DENSITY AND MOISTURE CONTENT TESTS SHOULD BE PRE FORMED TO INSURE COMPLIANCE WITH THE ABOVE SPECIFICATIONS.

2 ALL SOIL BELOW SLABS AND FOOTINGS SHALL BE PROPERLY COMPACTED AND SUBGRADE BROUGHT TO A REASONABLE TRUE AND LEVEL PLANE BEFORE PLACING CONCRETE. AFTER EXCAVATION FOR FOOTINGS AND FLAT SLABS, AND PRIOR TO PLACEMENT OF STEEL REINFORCEMENT OR CONCRETE, CONTRACTOR TO NOTIFY ENGINEER FOR INSPECTION OF SOIL CONDITIONS.

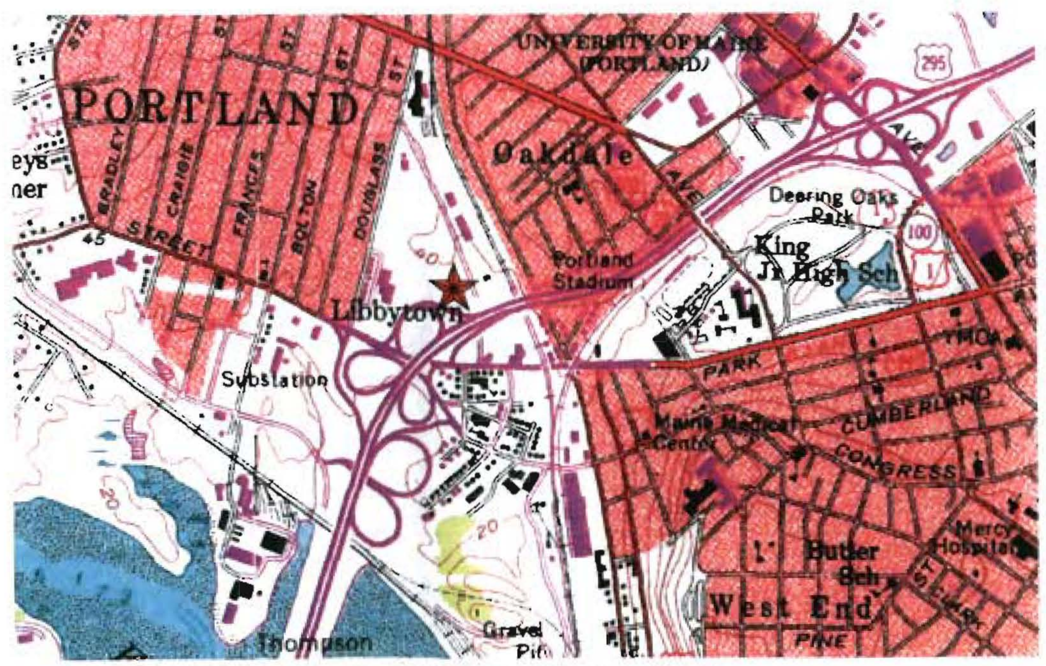
3 TESTING OF CONTROLLED STRUCTURAL FILL SHALL BE PERFORMED BY A QUALIFIED TEST LABORATORY RETAINED BY THE GENERAL CONTRACTOR AND APPROVED BY THE OWNER. SOIL COMPACTION TESTING SHALL BE AS DIRECTED BY THE ENGINEER OR "AS NECESSARY" TO INSURE COMPACTION.

4 EXCAVATION FOR FOOTINGS SHALL BE CUT TO ACCURATE SIZE AND DIMENSIONS AS SHOWN ON PLANS. IF ADEQUATE BEARING IS NOT ENCOUNTERED AT THE MINIMUM ELEVATIONS SPECIFIED, CONTACT THE ENGINEER FOR NEW BEARING ELEVATIONS.

5 ALL LOOSE SOILS OR SOILS SOFTENED DUE TO MOISTURE COLLECTION IN THE TRENCH AFTER EXCAVATION SHOULD BE REMOVED BEFORE CONCRETING.

6 EXTREME CARE SHOULD BE TAKEN DURING EXCAVATION TO AVOID UNDERMINING OR JEOPARDIZING THE STRUCTURAL INTEGRITY OF EXISTING FOUNDATIONS, OR DAMAGE TO SURROUNDING TREES OR NATURAL WATERWAYS.

7 LEVEL OUT BOTTOM OF EXCAVATIONS FOR STRUCTURES. DO NOT LEAVE HARD SPOTS. THE EXCAVATION FOR FOOTINGS SHALL BE CUT TO ACCURATE SIZE AND DIMENSIONS AS SHOWN ON THE PLANS. ALL SOIL BELOW THE SLAB AND FOOTINGS SHALL BE PROPERLY COMPACTED AND THE SUBGRADE BROUGHT UP TO A REASONABLE TRUE AND LEVEL PLANE BEFORE PLACING CONCRETE.



SITE GPS LOCATION: 43°39'28.75"N 70°17'04.31"W

(1) PROJECT VICINITY
Scale: NONE

GENERAL ABBREVIATIONS:

- F.F ------- FINISHED FLOOR
- W.P.L ------- WORK POINT LOCATION
- ELEV. ------- ELEVATION
- T.O.P ------ TOP OF PAVEMENT
- T.O.L ------ TOP OF LEDGE
- T.O.S ------ TOP OF STRUCTURE
- T.O.R ------ TOP OF RAIL
- O.C. ------- ON CENTER
- C.C ------ CENTER TO CENTER
- EA. WAY ---- EACH WAY
- TYP. ------ TYPICAL
- IP ------ IRON PIN

Scale: NONE

EACH SHEET IN THIS SET CONTAINS A BAR SCALE FOR REFERENCING IN THE FIELD. ALL DIMENSIONS ON THE SHEET TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL, AND SHOULD NOT BE SCALED FROM.

SYMBOL LEGEND

WORK POINT LOCATION-------

ELEVATIONAL POINT--------- F.F. 100'-0"

PROJECT LOCATION----------

SECTIONAL VIEW----------- A

DETAIL CALLOUT----------- 1/SP-5

SLOPE DIRECTION----------

NORTH ARROW----------- N

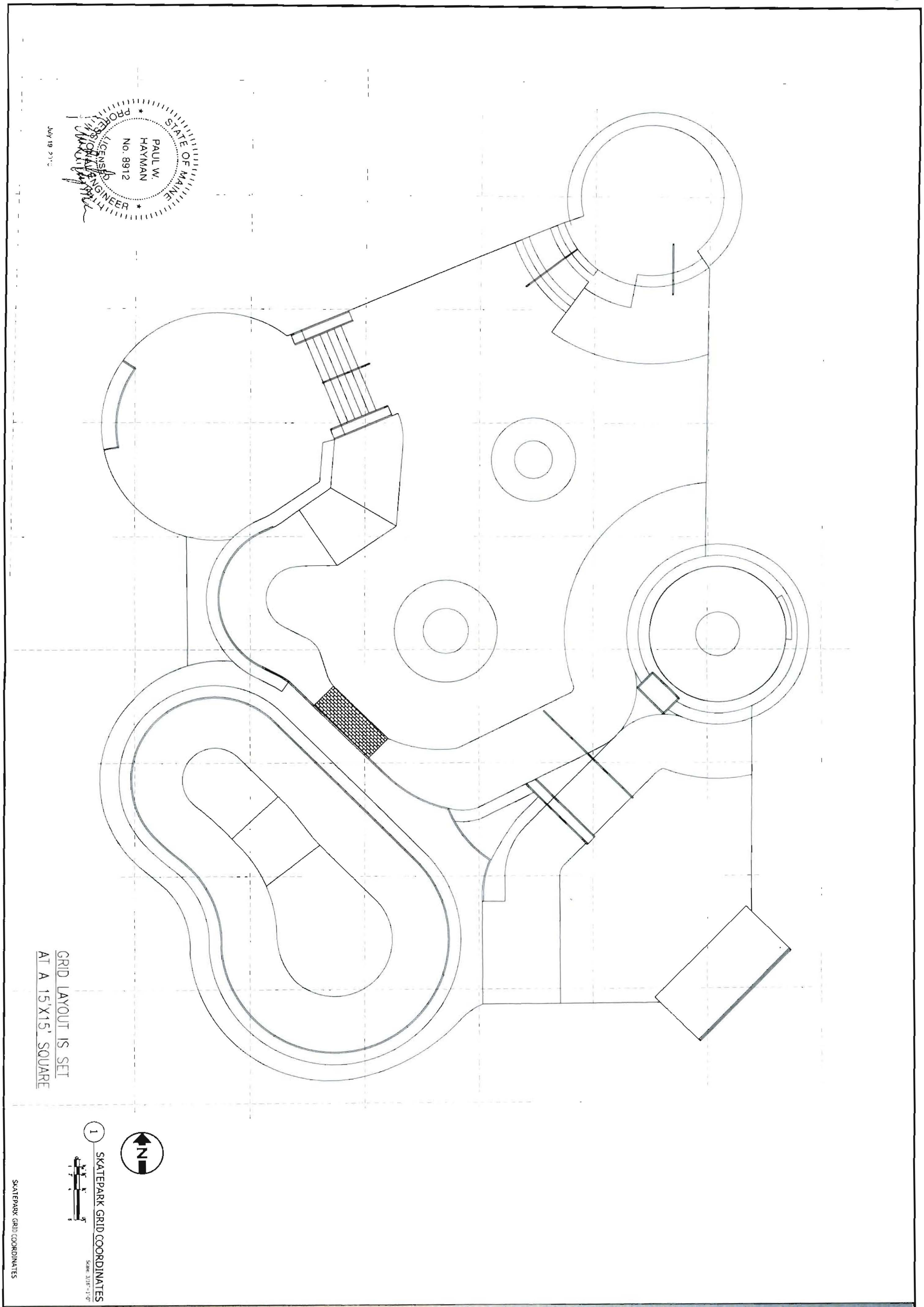
BAR SCALE-------------

SKATEPARK NOTES

HARDCORE
SHOTCRETE SKATEPARKS INC

SKATEPARK NOTES
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

J. HETHMON
M. LEONE
AS NOTED
9079
SP-0



SKATEPARK GRID COORDINATES
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No.: 9078
Drawing No.: SP-0A

HARDCORE SHOTCRETE SKATEPARKS INC
SKATER OWNED/OPERATED SINCE 2001

Rev.	Description	Date
1	ISSUE FOR CONSTRUCTION	07/15/10
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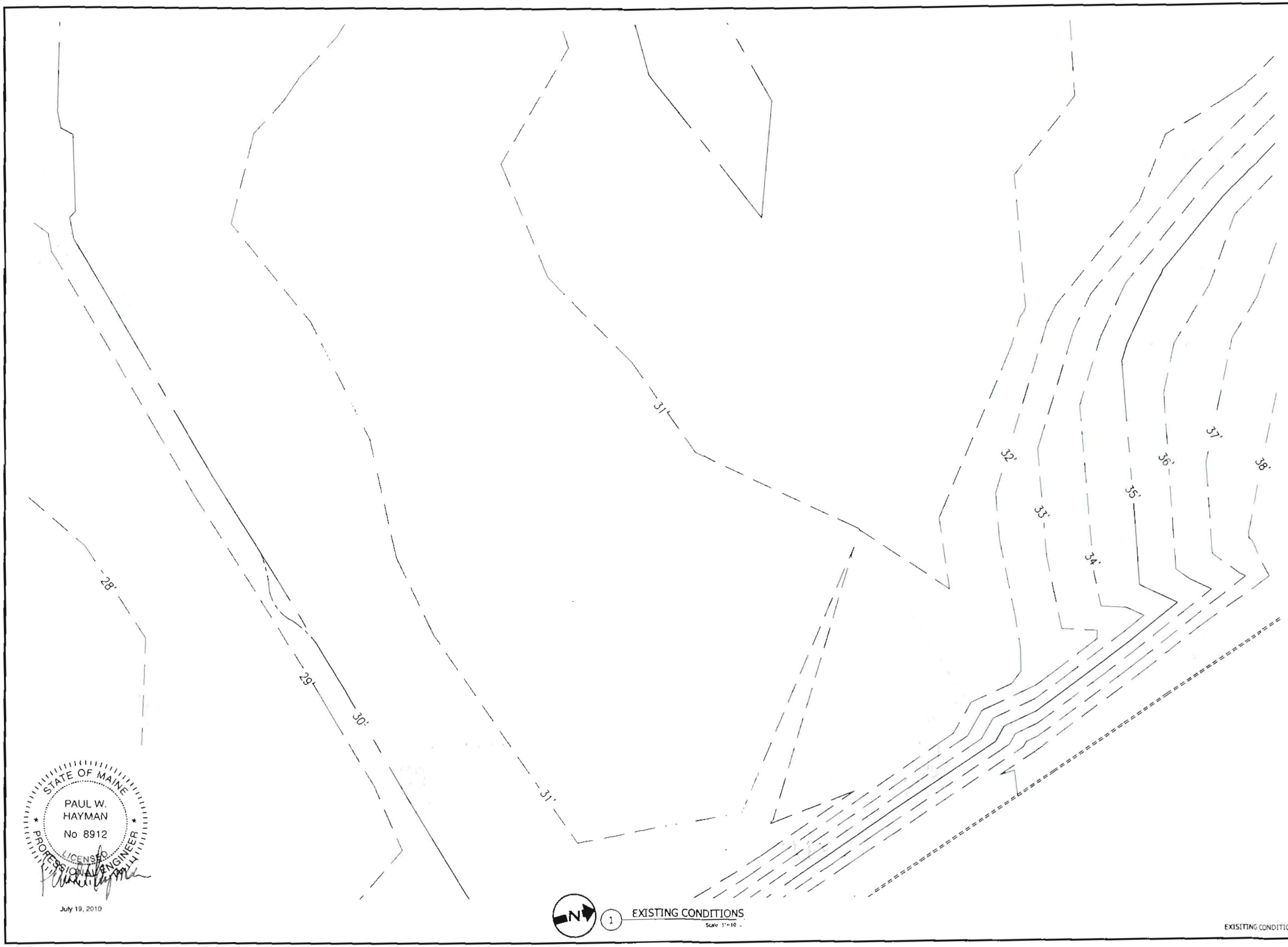

STATE OF MAINE
PAUL W. HAYMAN
No 8912
LICENSED PROFESSIONAL ENGINEER

July 19, 2010

1 EXISTING CONDITIONS
Scale: 1"=10'

EXISITING CONDITIONS

HARDCORE CONCRETE SKATEPARKS INC

REV	DESCRIPTION	DATE
1	ISSUE FOR CONSTRUCTION	07/19/10
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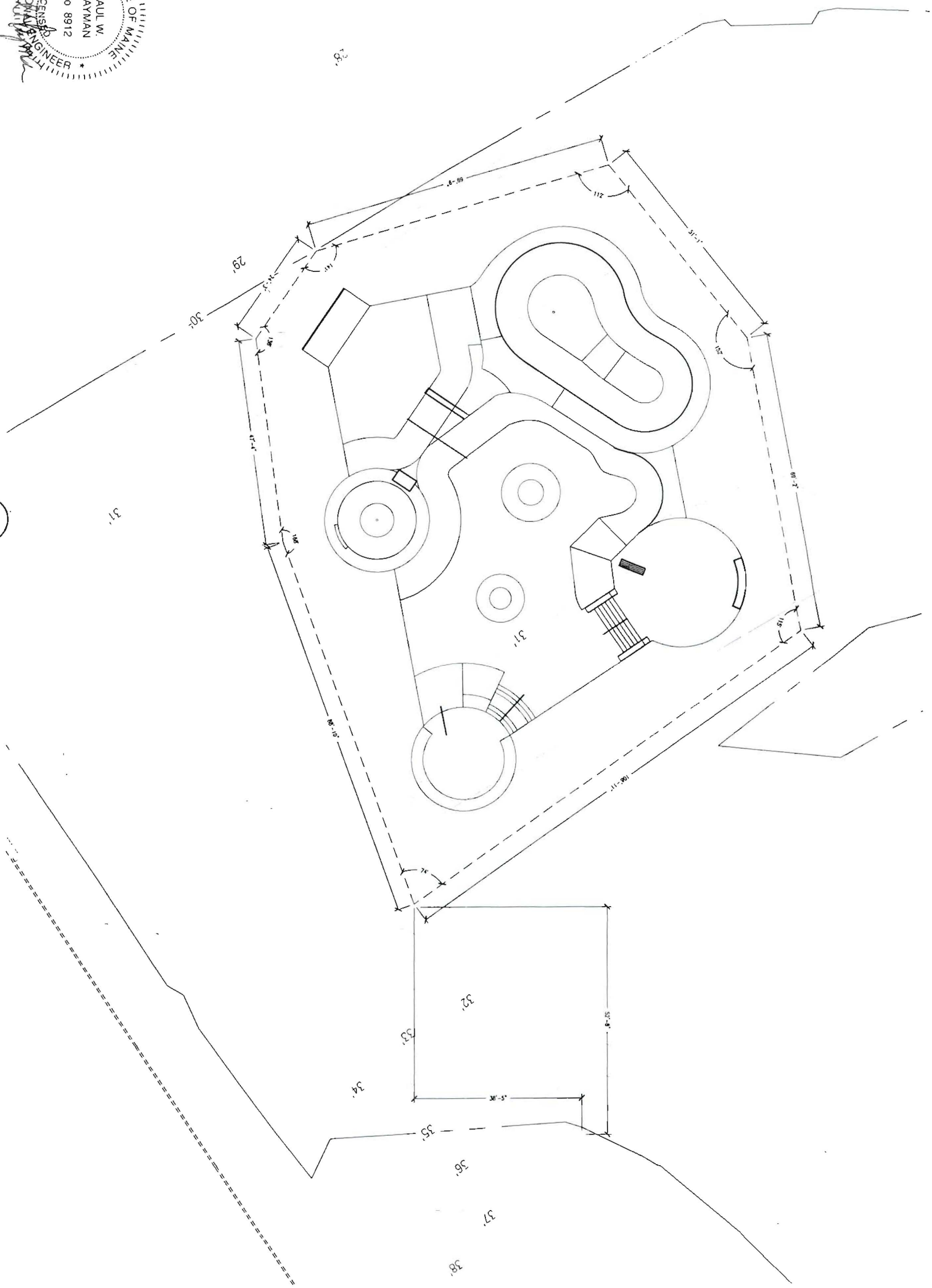
EXISITING CONDITIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No: 9078
Drawing No: SP-1

STATE OF MAINE
PAUL W. HAYMAN
No 8912
REGISTERED PROFESSIONAL ENGINEER

July 19, 2010



N

1 SKATEPARK SITE PLAN
Scale: 1"=10'-0"

SKATEPARK GRADING PLAN

SKATEPARK GRADING PLAN
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: N. LEONE
Date: AS NOTED
Project No: 9078
Drawing No: SP-1A

HARDCORE
SHOTCRETE SKATEPARKS INC
SKATER OWNED/OPERATED SINCE 2001

Rev.	Description	Date
1	ISSUE FOR CONSTRUCTION	07/15/10
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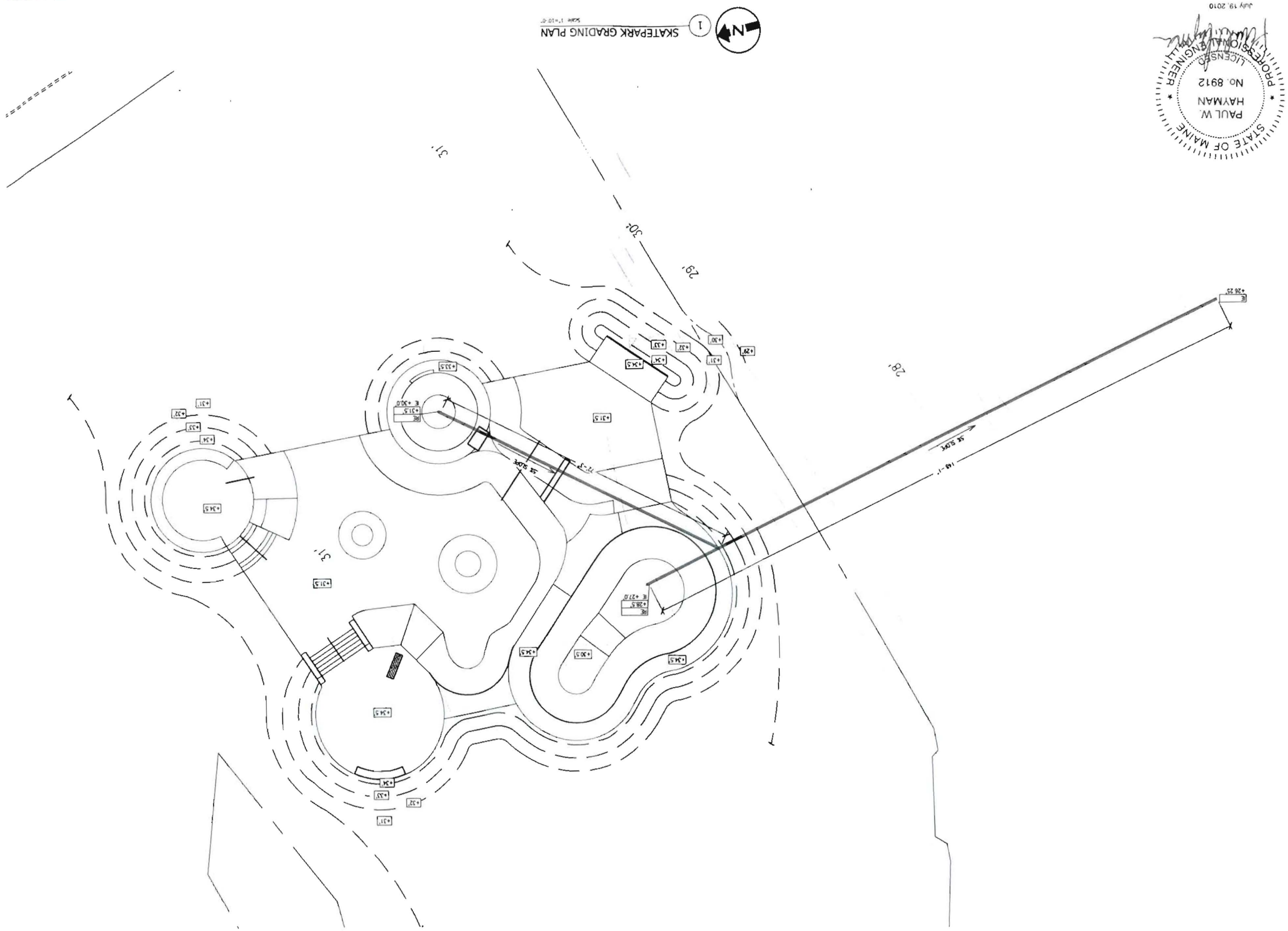
SKATEPARK GRADING PLAN



July 19, 2010

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED
PROFESSIONAL ENGINEER

SKATEPARK GRADING PLAN
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

SP-1B

J. HETHMON
M. LEONE
AS NOTED
9078

HARDCORE
SHOTCRETE SKATEPARKS INC

NO.	DESCRIPTION	DATE
1	ISSUE FOR CONSTRUCTION	07/19/10
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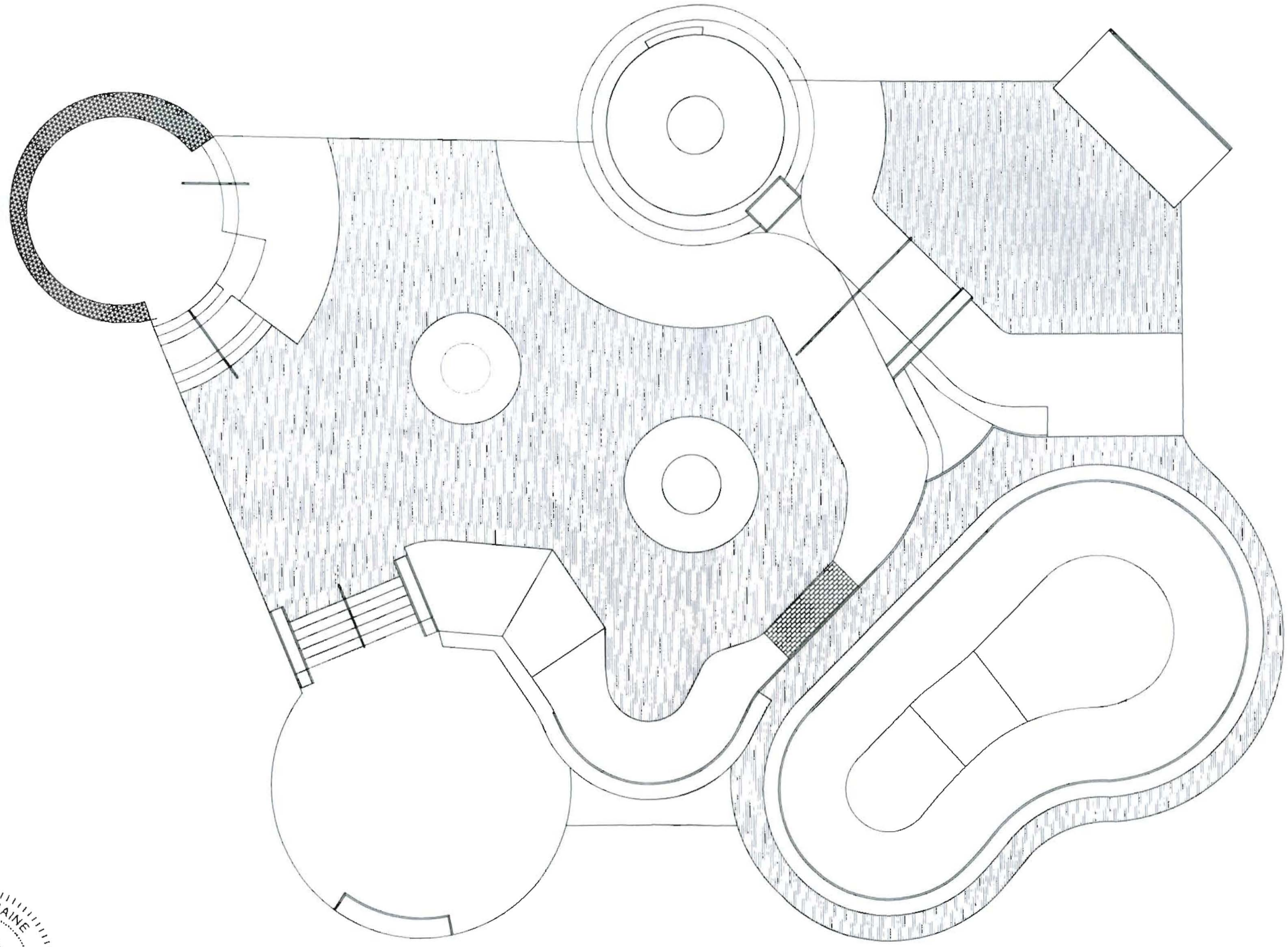
5		



STATE OF MAINE
PAUL W. HAYMAN
No 8912
LICENSED
PROFESSIONAL ENGINEER
July 19, 2010

(1) SKATEPARK CONCRETE PLAN
Scale: 3/16"=1'-0"

COLORED CONCRETE. "SOLOMON COLORS" "DRY PIGMENT READY MIX": "920 SLATE" OR APPROVED EQUAL. INSTALL MIX ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. (EX. USE ONE (1) 25 LB. BAG PER 4 YARDS OF CONCRETE). CONCRETE TO BE A MIN. OF 4000 PSI WITH HARD TROWEL SURFACE.

COLORED CONCRETE. "SOLOMON COLORS" "DRY PIGMENT READY MIX": "755 TRAIL DUST" OR APPROVED EQUAL. INSTALL MIX ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. (EX. USE ONE (1) 25 LB. BAG PER 4 YARDS OF CONCRETE). CONCRETE TO BE A MIN. OF 4000 PSI WITH HARD TROWEL SURFACE.

DONATED BRICKS. LAY BRICKS AROUND EXTERIOR OF POURED PAD. REFER TO DETAIL FOR ACTUAL PATTERN OF BRICK DESIGN. MORTAR IN PLACE.

BRICK STAMPED CHINA BANK. COLORED CONCRETE. "SOLOMON COLORS" "DRY PIGMENT READY MIX": "920 SLATE" OR APPROVED EQUAL. INSTALL MIX ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. (EX. USE ONE (1) 25 LB. BAG PER 4 YARDS OF CONCRETE). CONCRETE TO BE A MIN. OF 4000 PSI WITH HARD TROWEL SURFACE.

SKATEPARK CONCRETE PLAN

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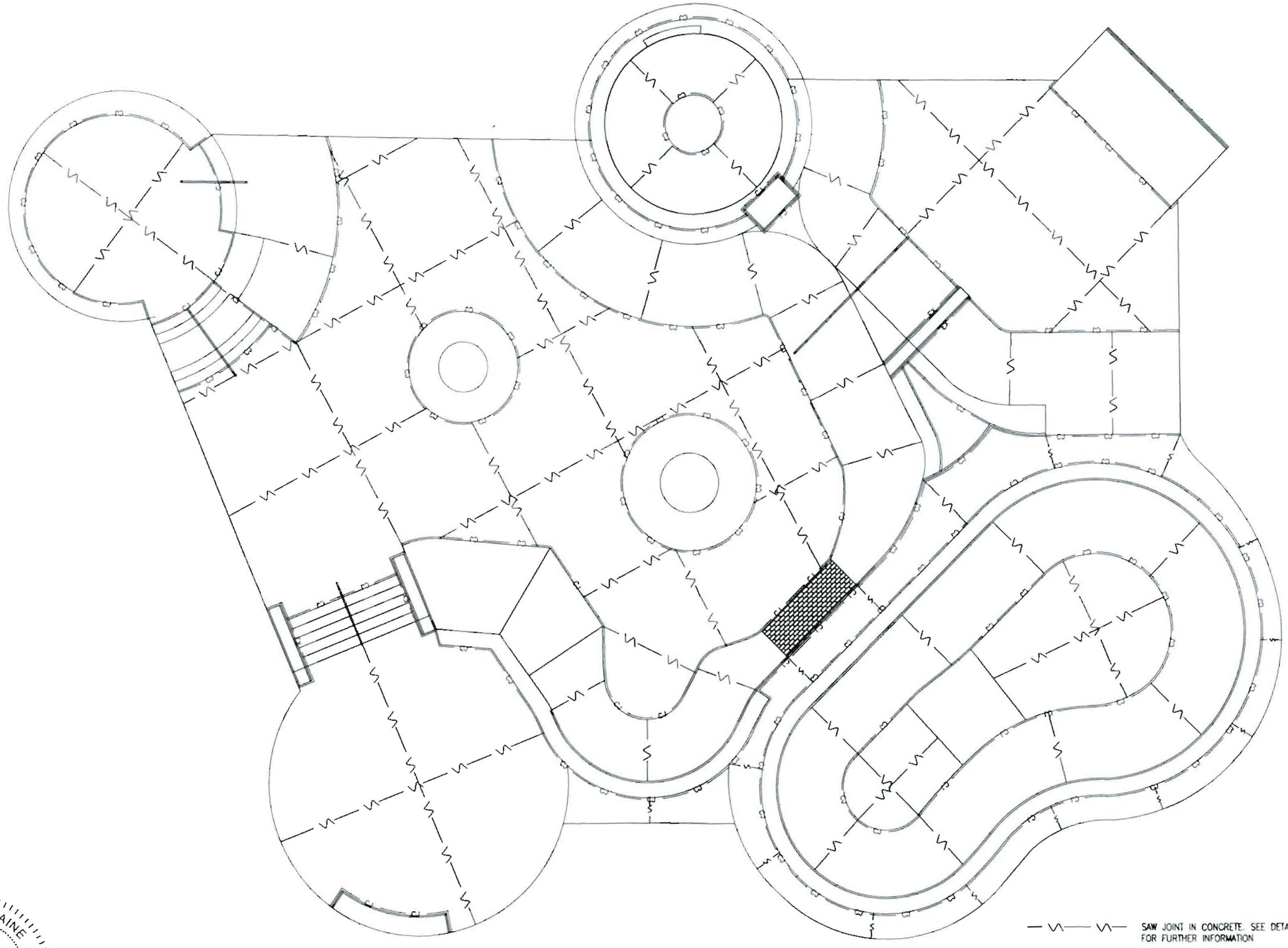
HARDCORE SHOTCRETE SKATEPARKS INC
SKATER OWNED/OPERATED SINCE 2001

SKATEPARK CONCRETE PLAN
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No: 9078
Drawing No: SP-2



July 19, 2010

1 SKATEPARK JOINTING PLAN

Scale: 3/16" = 1'-0"

—VV——VV—	SAW JOINT IN CONCRETE. SEE DETAILS FOR FURTHER INFORMATION
— CJ —— CJ —	COLD JOINT LOCATED AROUND EACH SKATE FEATURE. SEE DETAILS FOR FURTHER INFORMATION
— EX —— EX —	EXPANSION JOINT. SEE DETAILS FOR FURTHER INFORMATION

*THIS VIEW REPRESENTS AN APPROX. LOCATION OF JOINTING FOR THE SLAB. ACTUAL LOCATION MAY VARY, DEPENDING ON LOCATION OF PIECES, SITE ELEVATIONS, AND ACTUAL DIMENSIONS OF CONCRETE PAD.

SKATEPARK JOINTING PLAN

REV.	DESCRIPTION	DATE
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HARDCORE SHOTCRETE SKATEPARKS INC

SKATER OWNED/OPERATED SINCE 2001

SKATEPARK JOINTING PLAN
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

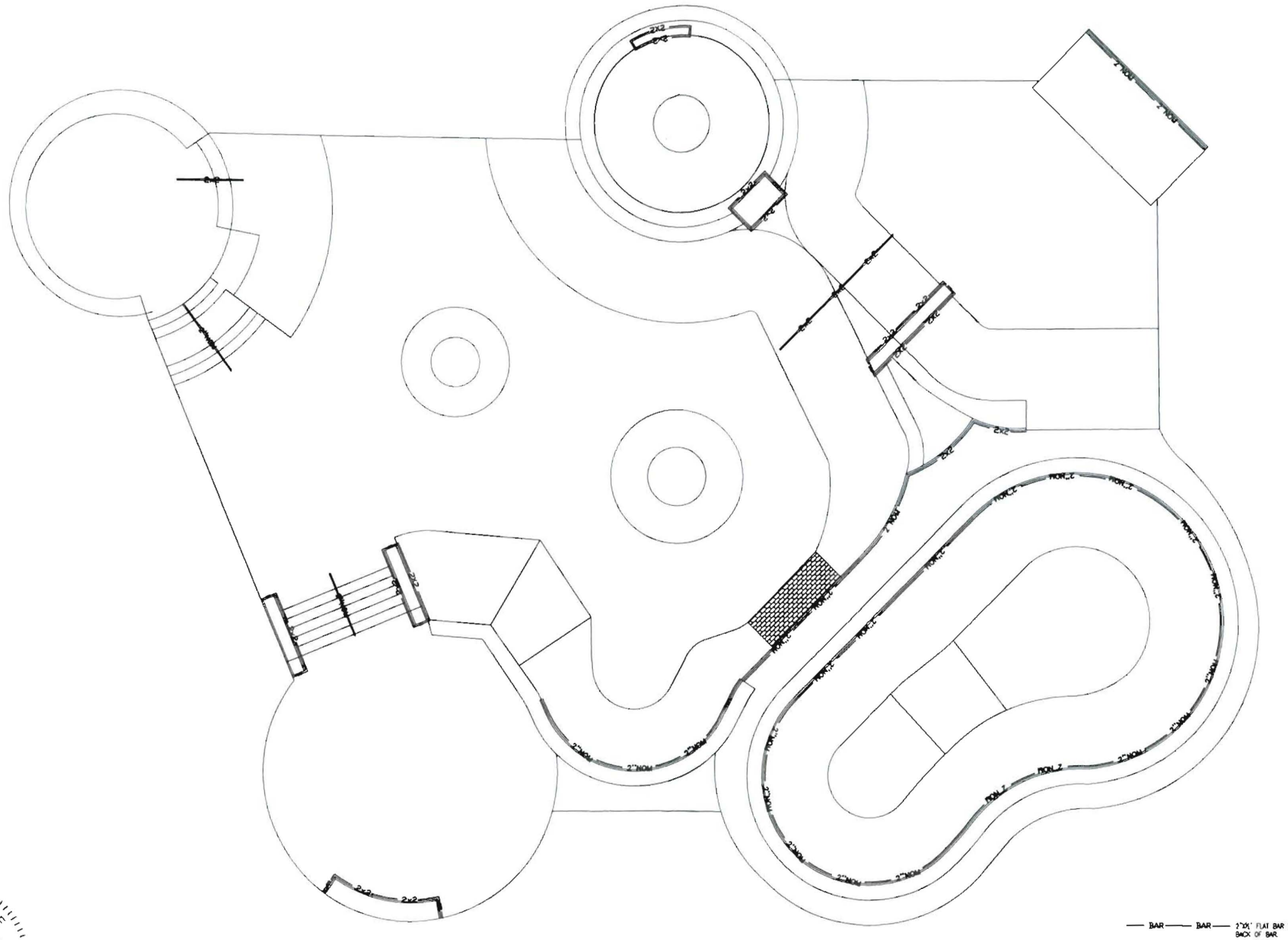
Drawn By: J. HETHMON

Approved By: M. LEONE

Scale: AS NOTED

Project No. 9078

Drawing No. SP-2A



BAR —— BAR —— 2"X¼" FLAT BAR W/ NELSON STUDS WELDED TO BACK OF BAR.

2"NOM —— 2" PIPE COPING W/ NELSON STUDS ATTACHED

2x2 —— 2x2 —— 2"X2" SQUARE METAL TUBE

N

1 SKATEPARK METALS PLAN

Scale 3/16"=1'-0"

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED PROFESSIONAL ENGINEER

July 19, 2010

SKATEPARK METALS PLAN

Rev	Description	Date
1	ISSUE FOR CONSTRUCTION	07.19.10
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TARDCORE
SKATEPARK MASTERPIECES SINCE 1980

SKATEPARK METALS PLAN
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No.: 9078
Drawing No.: SP-2B

SKATEPARK DIMENSIONS

SP-3

SKATEPARK DIMENSIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

J. HETTMON | M. LEONE | AS NOTED | 9078

HARDCORE SKATEPARKS INC

REV	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	07/19/10
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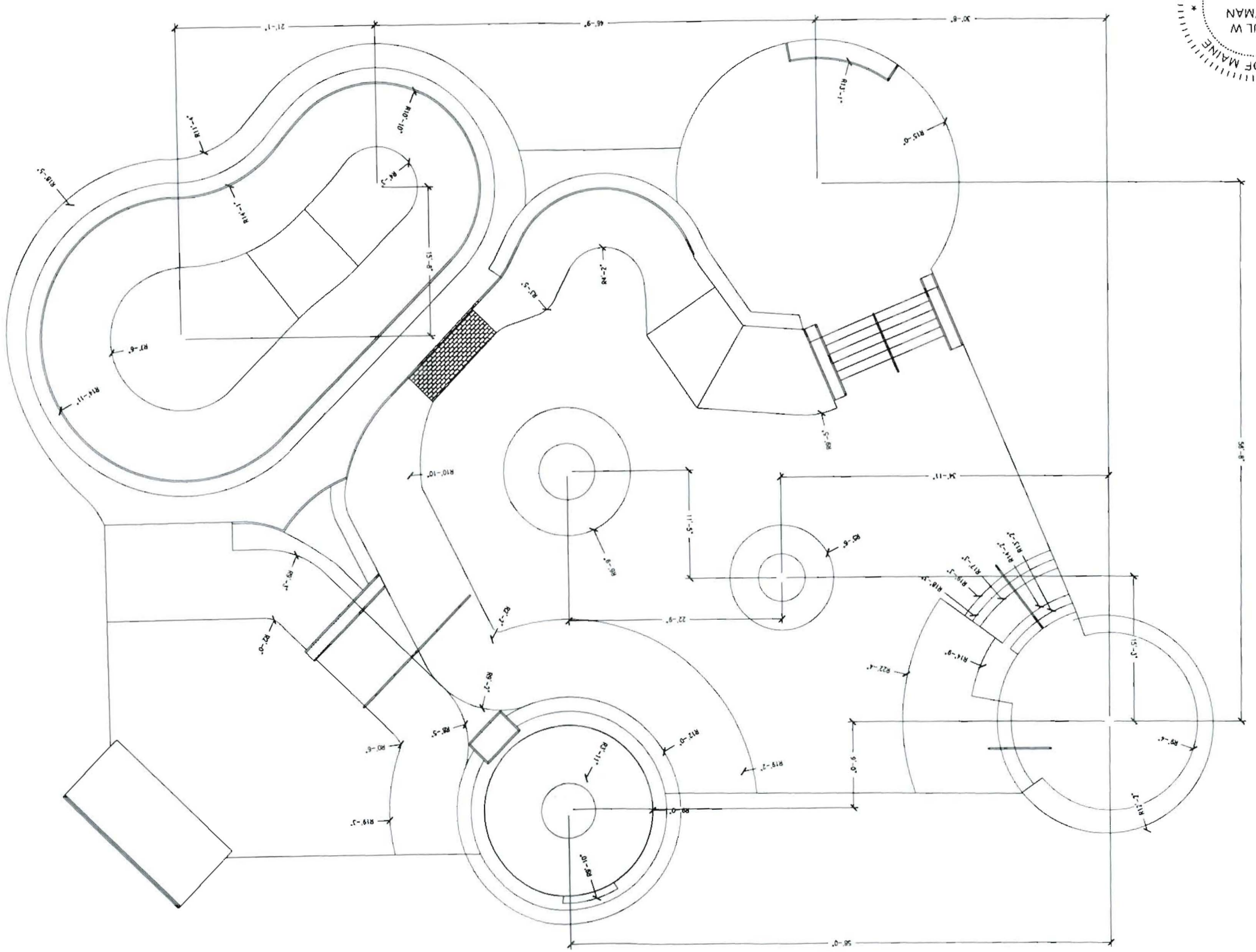
3		
4		

STATE OF MAINE
PAUL W HAYMAN
No 8912
LICENSED
PROFESSIONAL ENGINEER

July 19, 2010

1 SKATEPARK DIMENSIONS
Scale: 3/16"=1'-0"



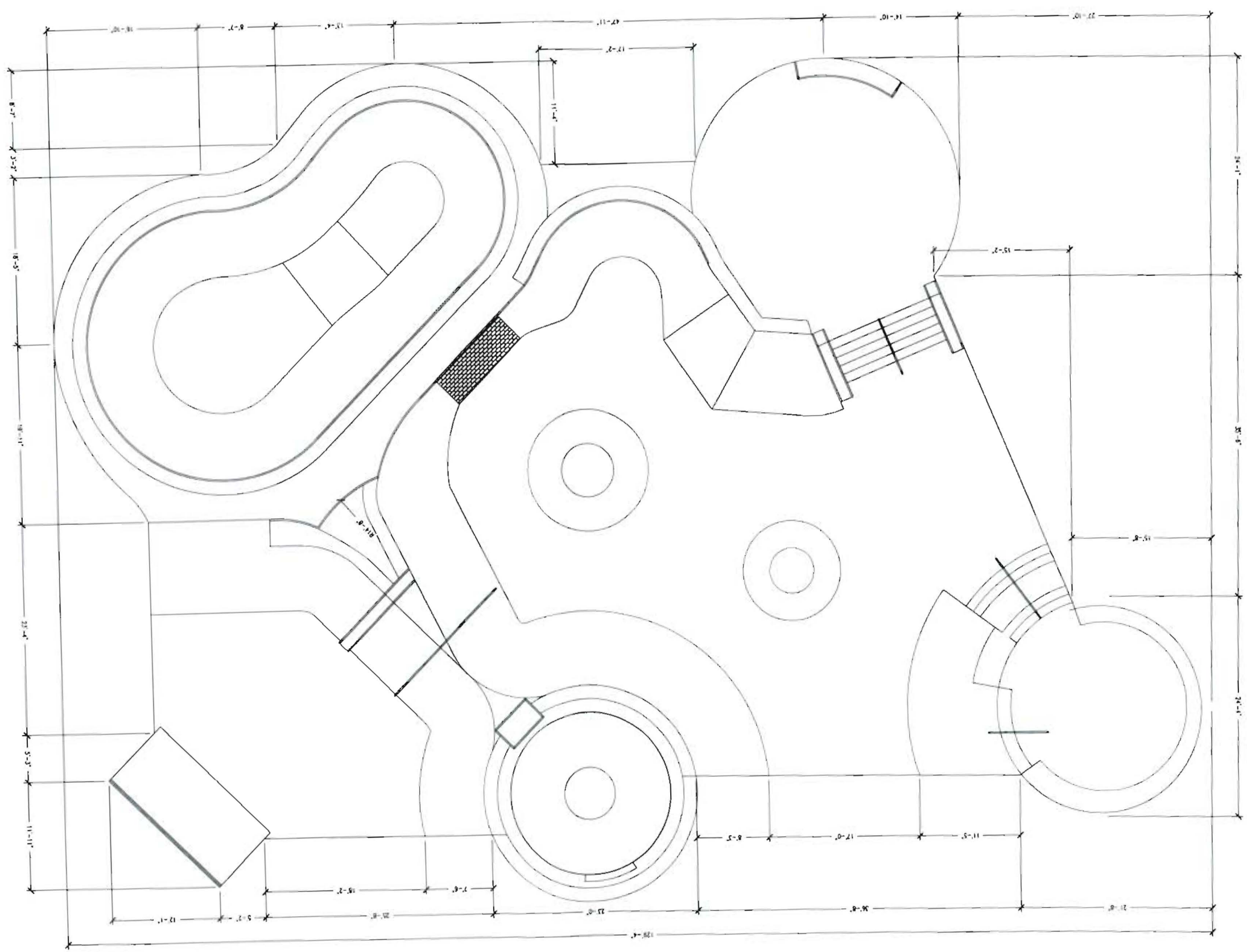
SKATEPARK DIMENSIONS

July 19 2010

PAUL W HAYMAN
No. 8912
LICENSED PROFESSIONAL ENGINEER
STATE OF MAINE

1 SKATEPARK DIMENSIONS
SCALE: 3/16"=1'-0"

N

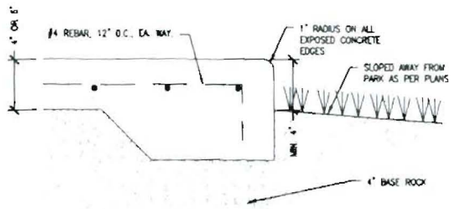


SP-3A

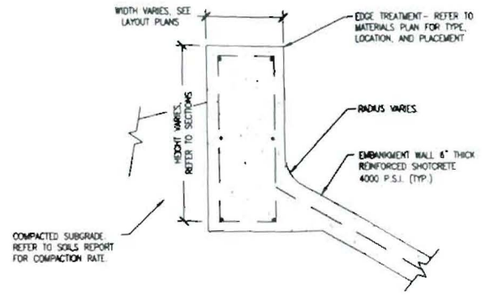
SKATEPARK DIMENSIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

J. NETHKEN
K. LEONE
AS NOTED
9029

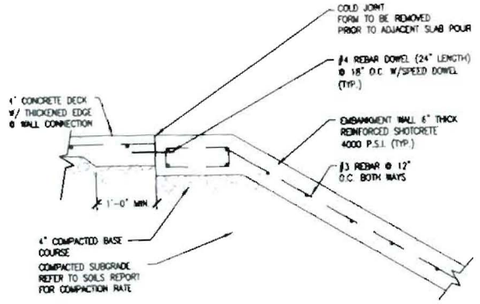
HARDCORE
SKATEPARK CONSTRUCTION



1 CONCRETE PARK EDGE
Scale: NONE



2 EMBANKMENT TO WALL DETAIL
Scale: NONE



3 EMBANKMENT DETAIL
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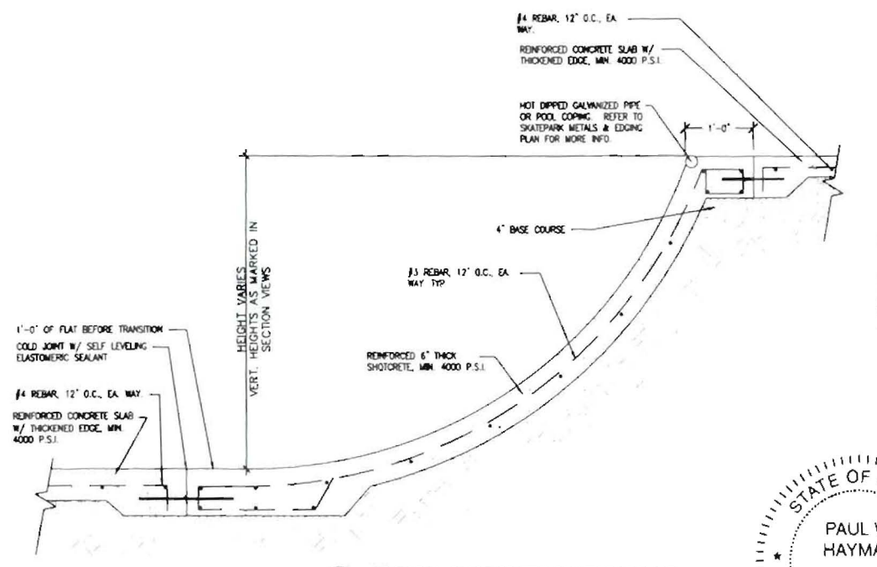
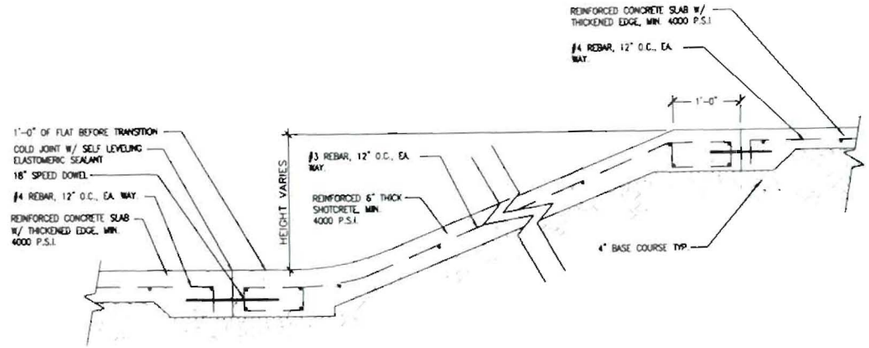


4 TYPICAL SHOTCRETE SKATEPARK QP
Scale: NONE



5 TYPICAL SHOTCRETE SKATEPARK BANK
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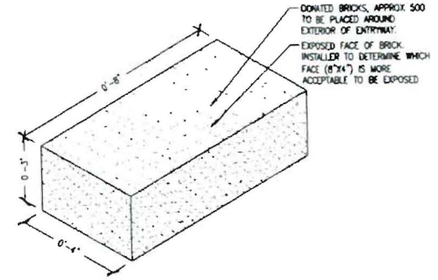

6 STANDARD BRICK
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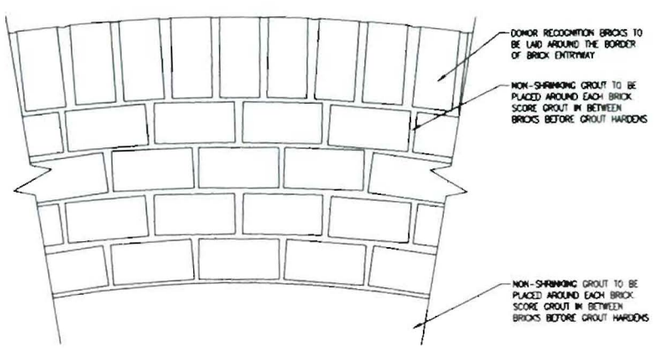

7 BRICK PAVER ENTRYWAY
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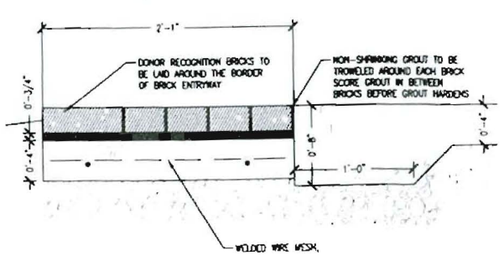

8 BRICK PAVER ENTRYWAY-PROFILE
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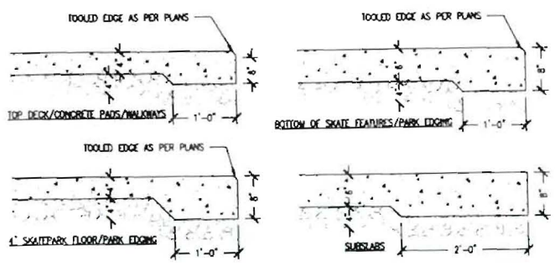

9 SPREAD FOOTING DETAIL
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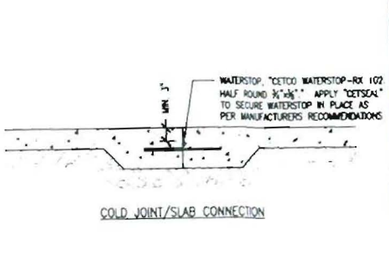


10 WATERSTOP DETAIL
Scale: NONE

DETAILS

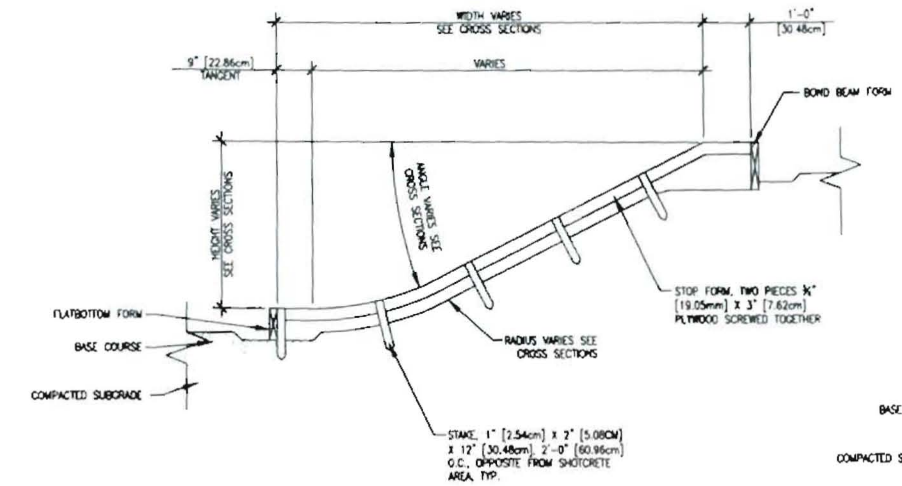
STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED PROFESSIONAL ENGINEER
July 19, 2010

Date	Description
7/1/10	ISSUED FOR CONSTRUCTION

HARDCORE SHOTCRETE SKATEPARKS INC

DETAILS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No.: 9078
Drawing No.: SP-5B



1 STOP FORM-BANK
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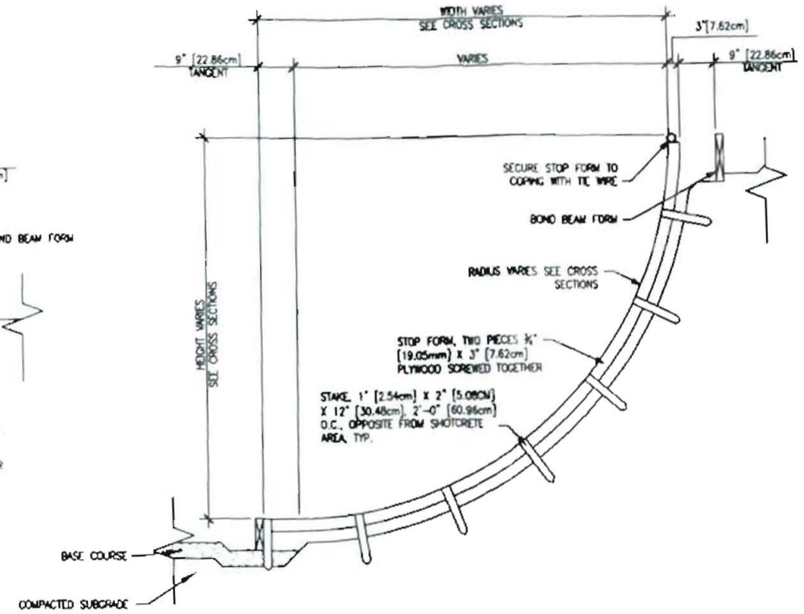
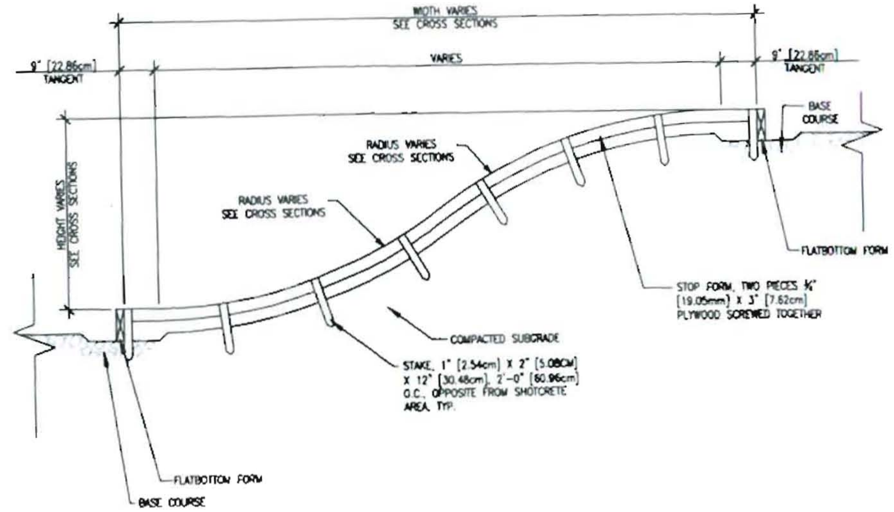
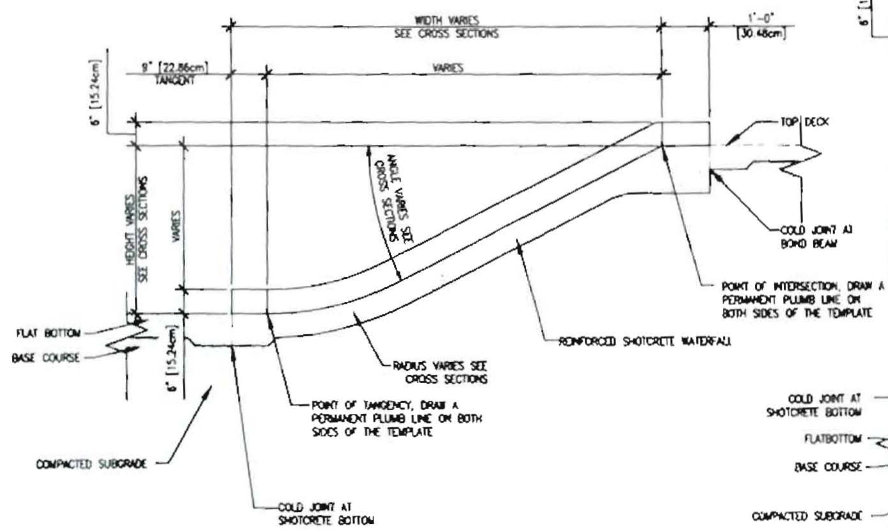


2 STOP FORM-BOWL
Scale NONE



3 STOP FORM-WATERFALL
Scale NONE



4 TEMPLATE-BANK
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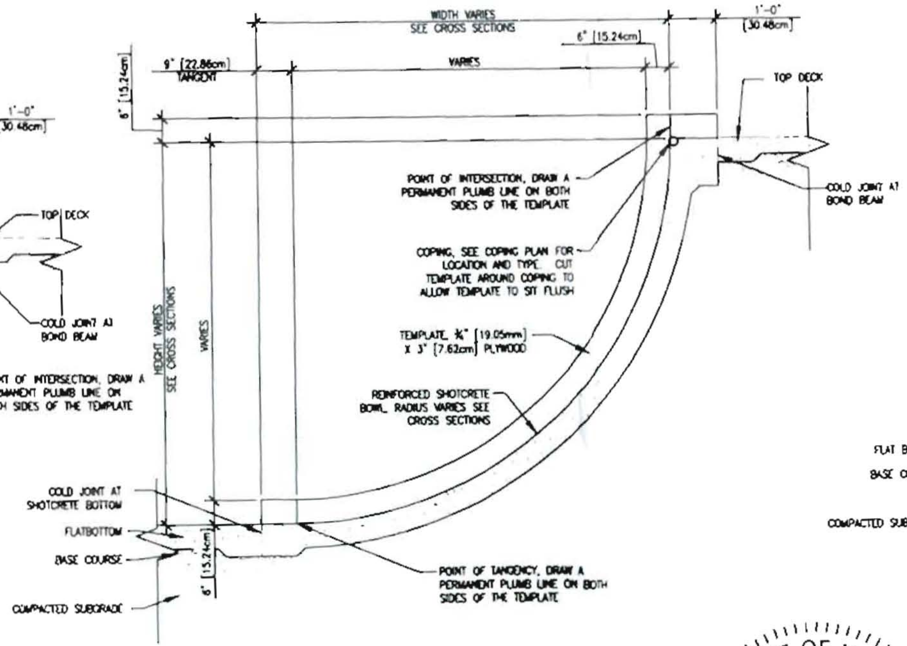
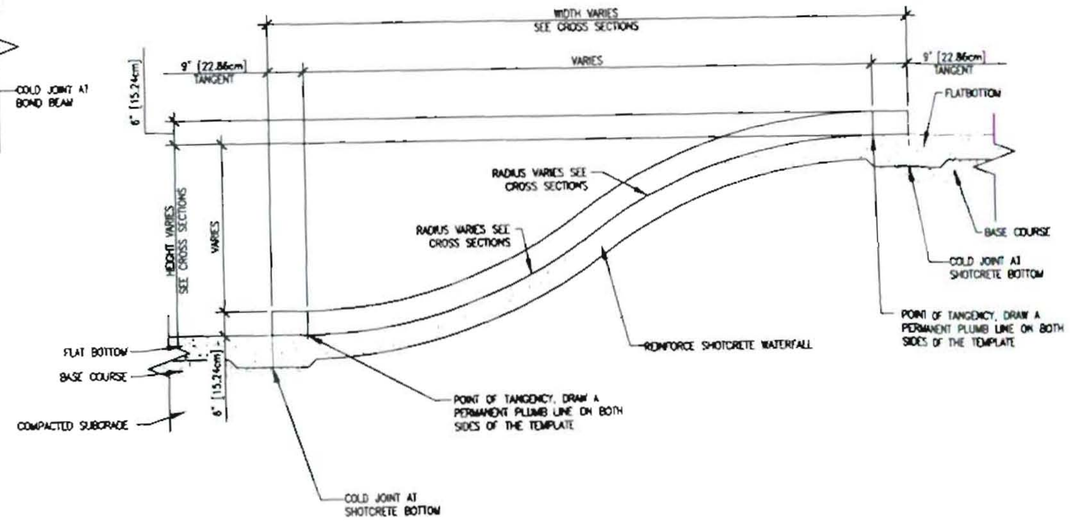


5 TEMPLATE-BOWL
Scale NONE



6 TEMPLATE-WATERFALL
Scale NONE

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED
PROFESSIONAL ENGINEER
July 19, 2010

DETAILS

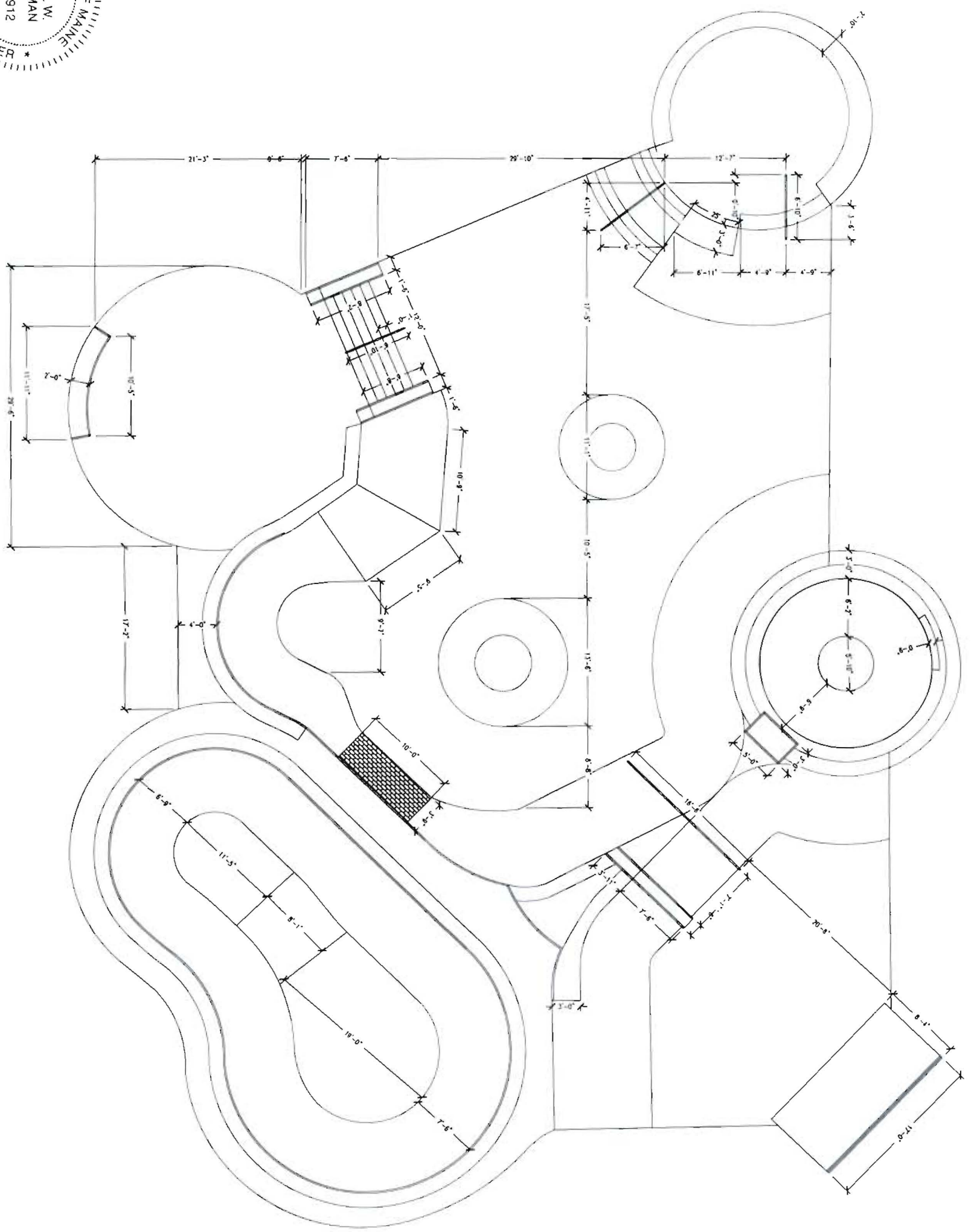
HARDCORE
SHOTCRETE SKATEPARKS INC

DETAILS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No.: 9079
Drawing No.: SP-5c

STATE OF MAINE
PAUL W. HAYMAN
No 8912
LICENSED PROFESSIONAL ENGINEER

July 19, 2010



N

1 SKATEPARK DIMENSIONS

SKATEPARK DIMENSIONS

SKATEPARK DIMENSIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

HARDCORE
SHOTCRETE SKATEPARKS INC
SKATER OWNED/OPERATED SINCE 1981

Rev	Description	Date
1	ISSUE FOR CONSTRUCTION	07/19/10
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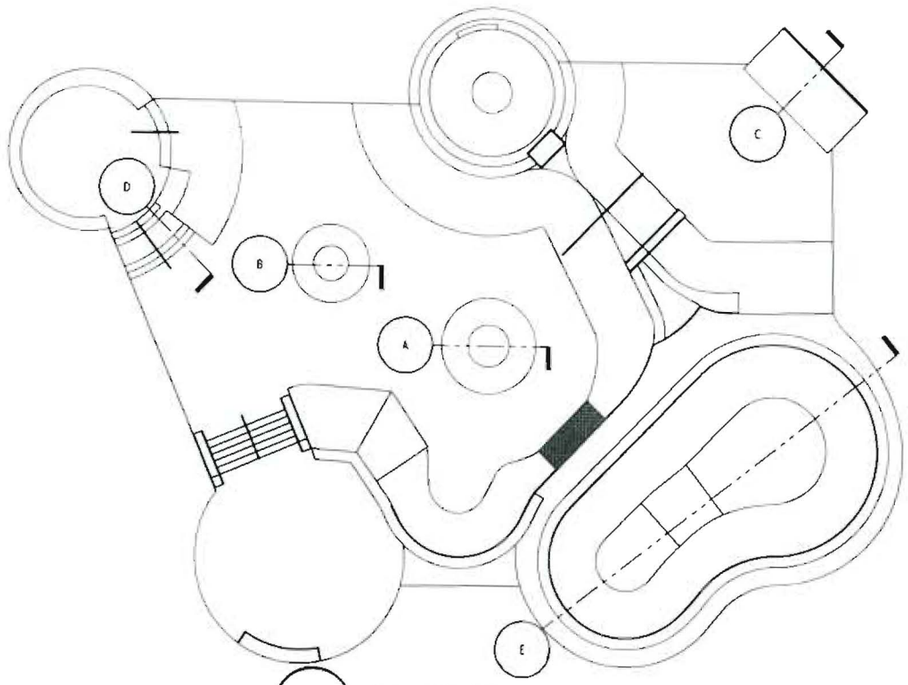
4		

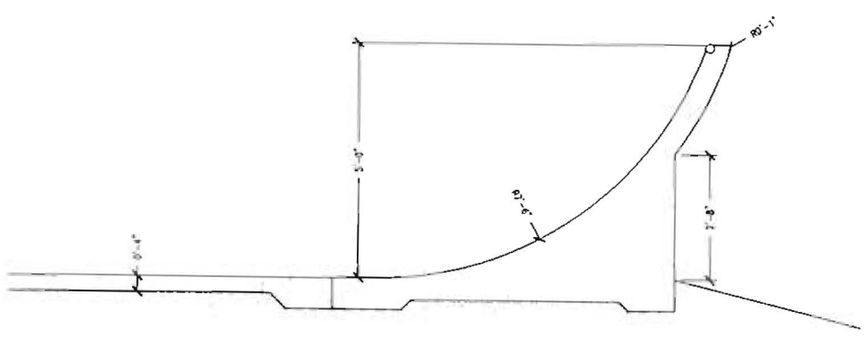
Drawn by: J. HEYWOOD
Approved by: M. LOORE
Scale: AS NOTED
Date: 06/09
Drawing No.: SP-3B



1 SKATEPARK ELEVATIONS
Scale: NONE

A SKATEPARK ELEVATIONS
Scale: NONE

B SKATEPARK ELEVATIONS
Scale: NONE



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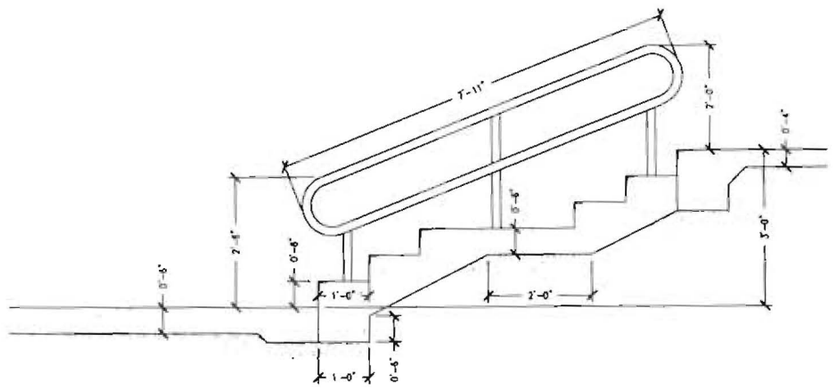

D SKATEPARK ELEVATIONS
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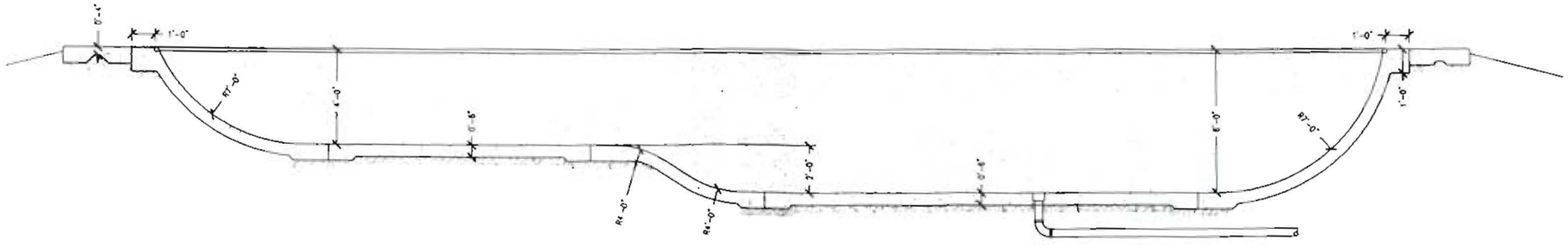


E SKATEPARK ELEVATIONS
Scale: NONE

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED PROFESSIONAL ENGINEER

July 19, 2010

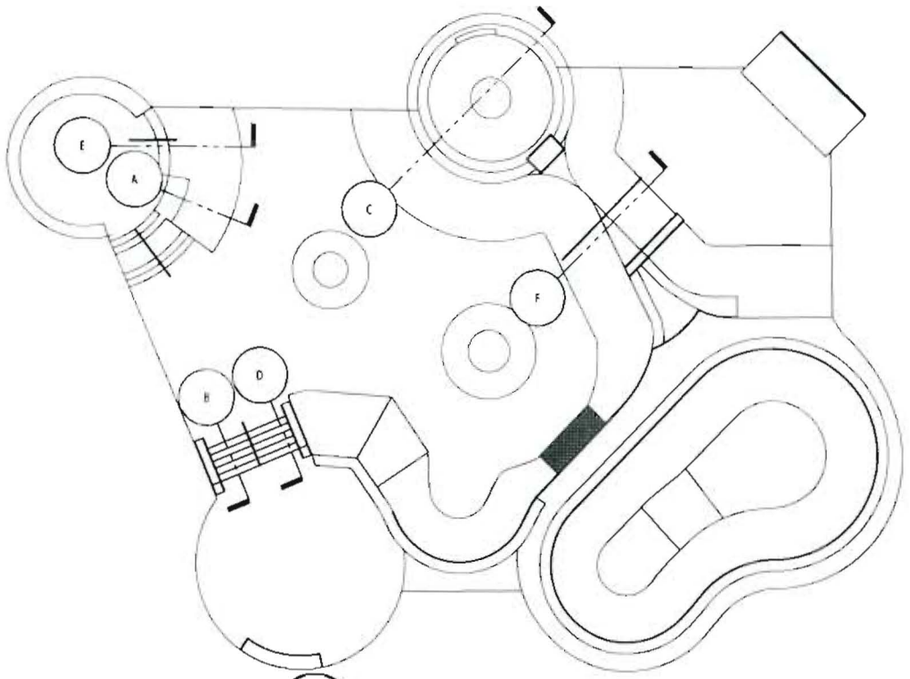
SKATEPARK ELEVATIONS

HARDCORE
SHOTCRETE SKATEPARKS INC

SKATEPARK ELEVATIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

J. HETHMON
M. LEONE
AS NOTED
8078

SP-4



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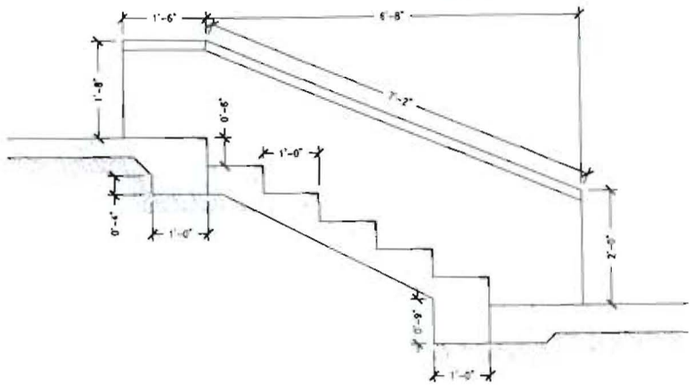

B SKATEPARK ELEVATIONS
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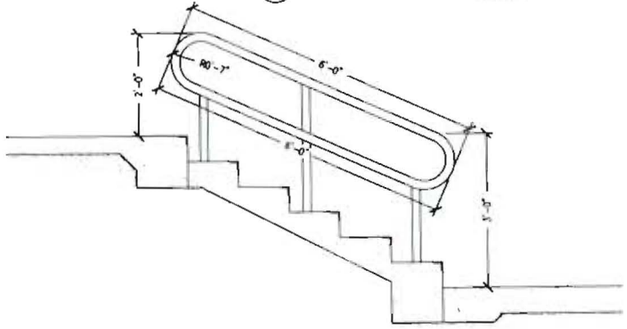

D SKATEPARK ELEVATIONS
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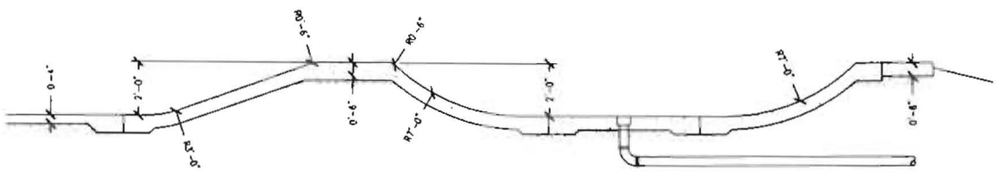

C SKATEPARK ELEVATIONS
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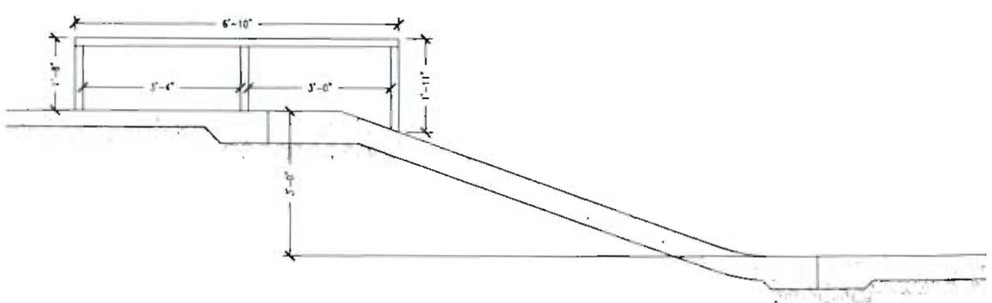

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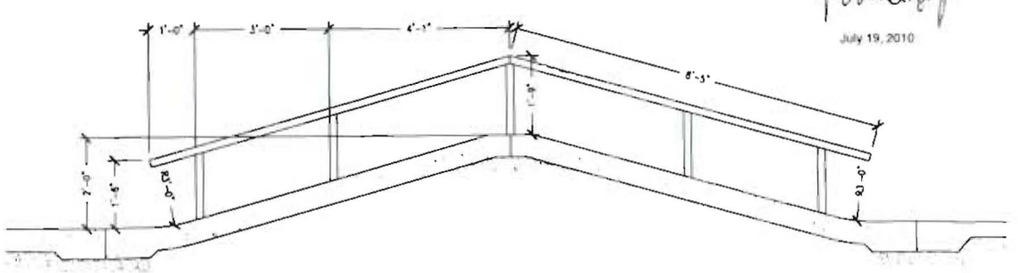


F SKATEPARK ELEVATIONS
Scale: NONE

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
LICENSED PROFESSIONAL ENGINEER
July 19, 2010

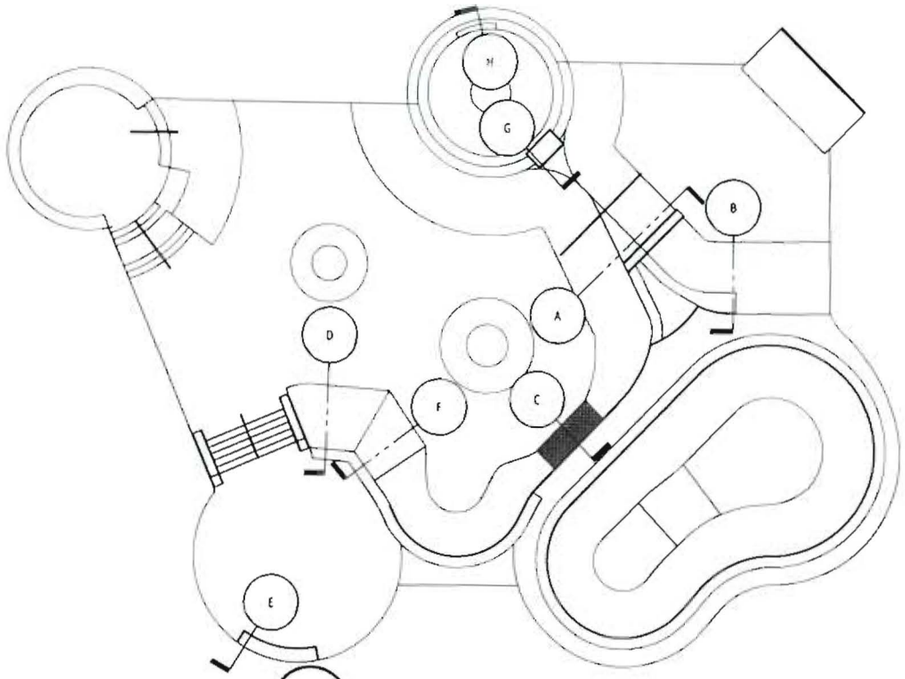
SKATEPARK ELEVATIONS

HARDCORE
SHOTCRETE SKATEPARKS INC

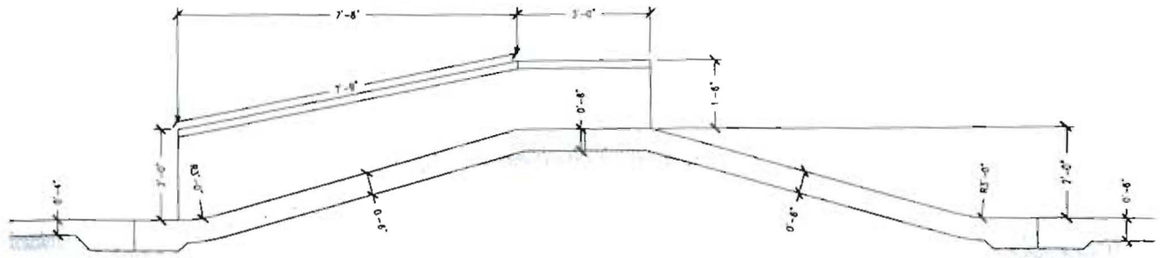
SKATEPARK ELEVATIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

J. HEYMON
M. LEONE
AS NOTED
9079

SP-4A



1 SKATEPARK ELEVATIONS
Scale: NONE



A SKATEPARK ELEVATIONS
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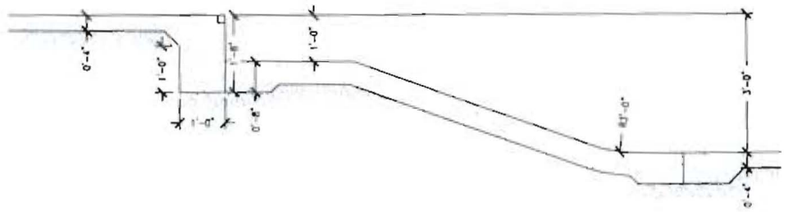
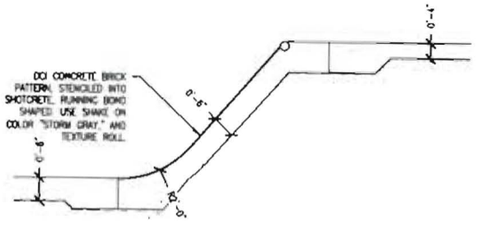
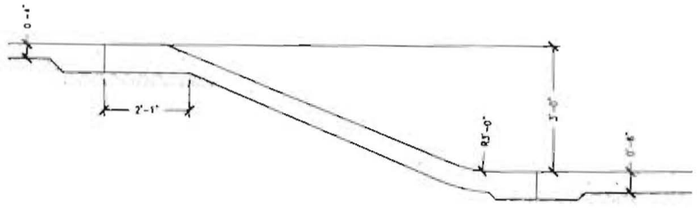


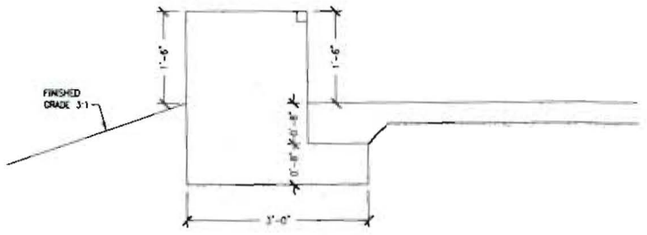
B SKATEPARK ELEVATIONS
Scale: NONE



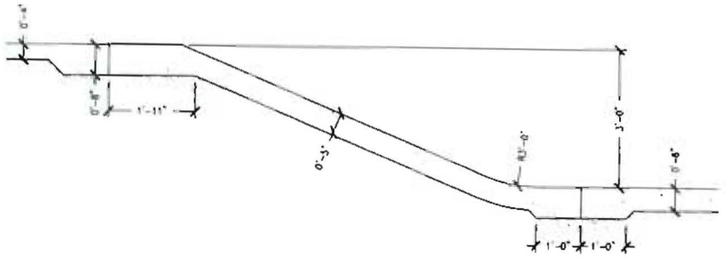
C SKATEPARK ELEVATIONS
Scale: NONE



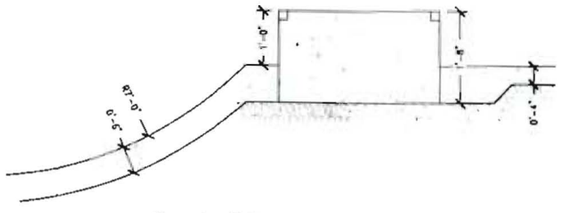
D SKATEPARK ELEVATIONS
Scale: NONE



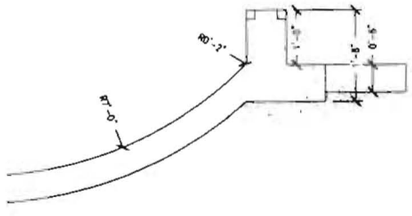
E SKATEPARK ELEVATIONS
Scale: NONE



F SKATEPARK ELEVATIONS
Scale: NONE



G SKATEPARK ELEVATIONS
Scale: NONE



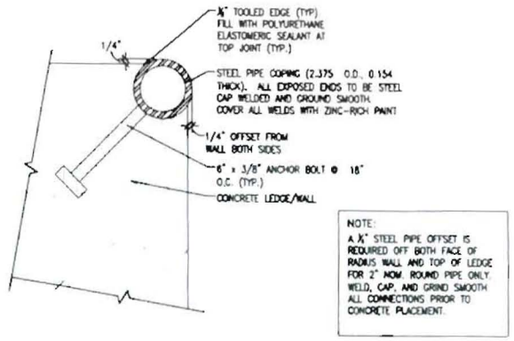
H SKATEPARK ELEVATIONS
Scale: NONE

HARDCORE
SHOTCRETE SKATEPARKS INC

SKATEPARK ELEVATIONS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

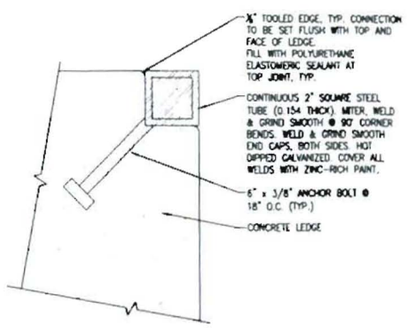
J. HEYMON
M. LEONE
AS NOTED
9078

SP-4B



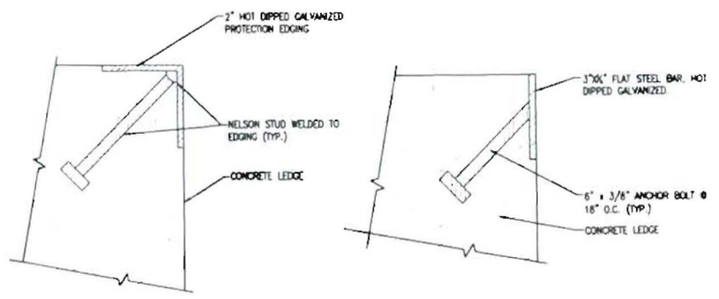
1 2" ROUND STEEL PIPE EDGING

Scale: NONE



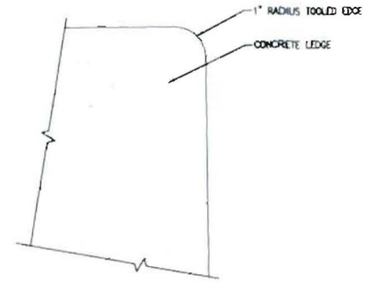
2 2" SQUARE STEEL PIPE EDGING

Scale: NONE



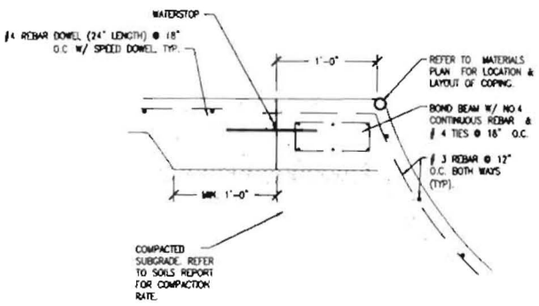
3 STEEL PLATE EDGING-BENT & ANGLE

Scale: NONE



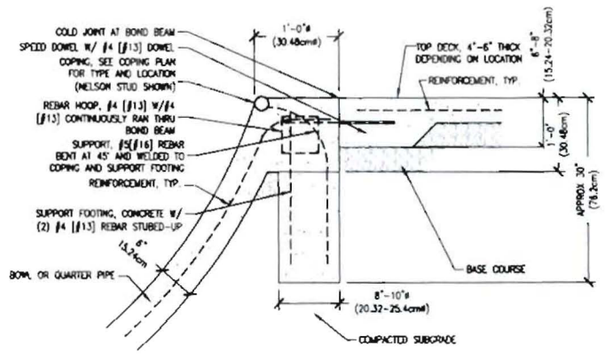
4 EXPOSED CONCRETE EDGE

Scale: NONE



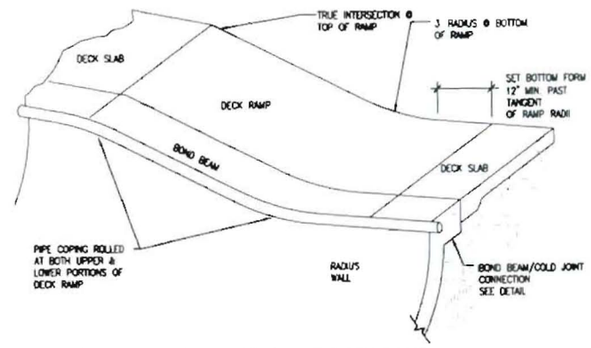
5 BOND BEAM/KEY JOINT CONNECTION

Scale: NONE



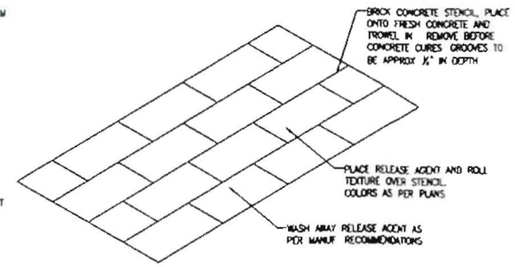
6 COPING CONSTRUCTION SUPPORT

Scale: NONE



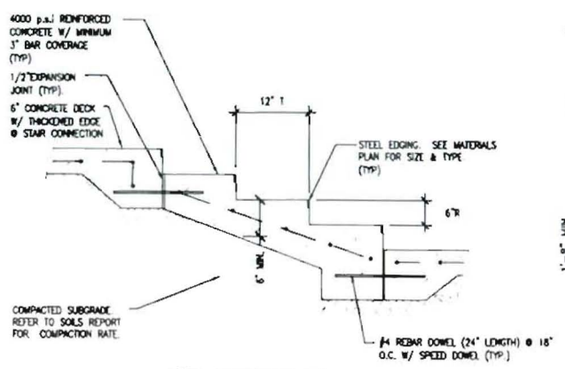
7 COPING ELEVATION AT DECK RAMP

Scale: NONE



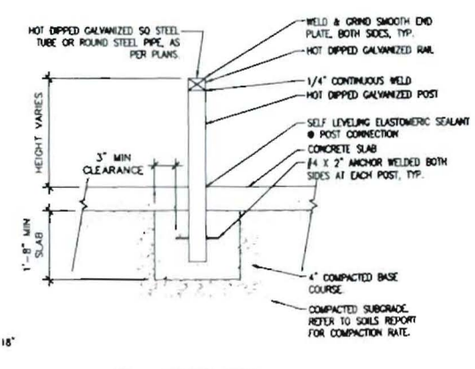
8 CONCRETE STENCIL

Scale: NONE



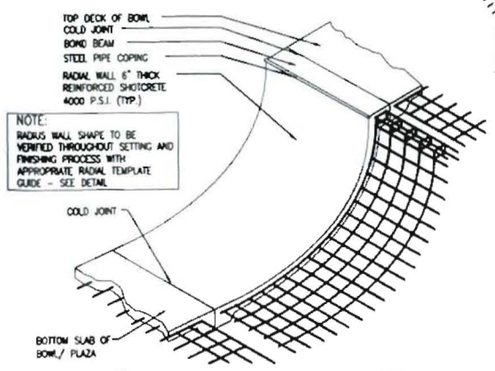
9 STAIR DETAIL

Scale: NONE



10 GRIND RAIL

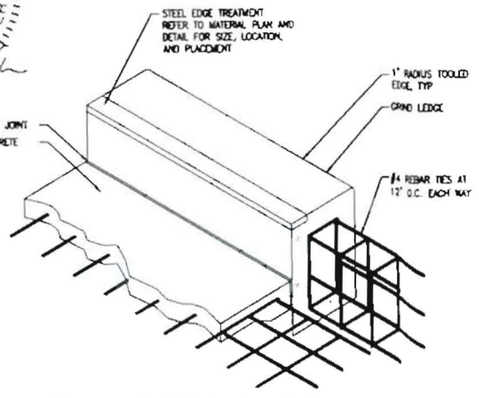
Scale: NONE



11 TYP. RADIAL WALL PROFILE

Scale: NONE

STATE OF MAINE
PAUL W. HAYMAN
No. 8912
PROFESSIONAL ENGINEER
LICENSED
July 19, 2010



12 TYP. GRIND LEDGE PROFILE

Scale: NONE

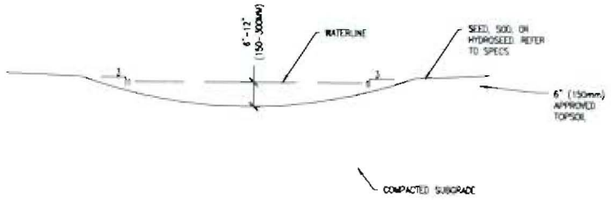
DETAILS

REV	DESCRIPTION	DATE
1	ISSUE FOR CONSTRUCTION	07/19/10
2		
3		
4		

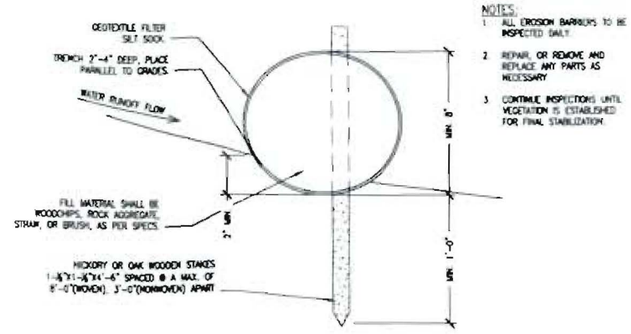
HARDCORE SKATEPARKS INC
CREATIVE CONCRETE SOLUTIONS SINCE 1991

DETAILS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

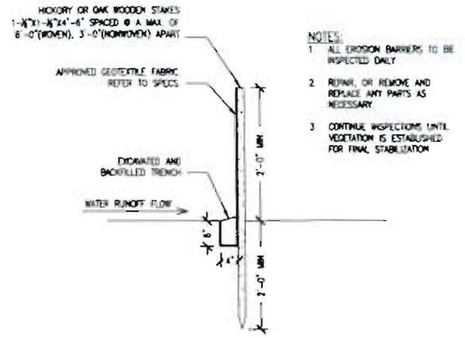
Drawn By: J. HETHMON
Approved By: M. LEONE
Scale: AS NOTED
Project No.: 9078
Drawing No.: SP-5



1 TYP. TURF SWALE
Scale: NONE



2 SILT SOCK BARRIER
Scale: NONE



3 SILT FENCE
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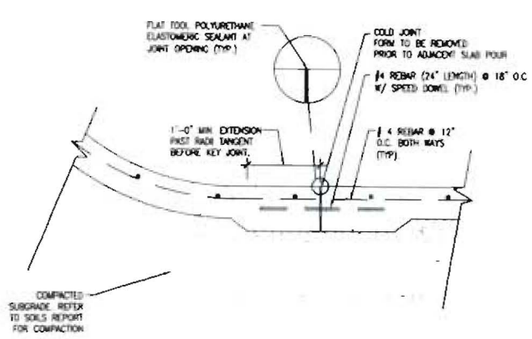
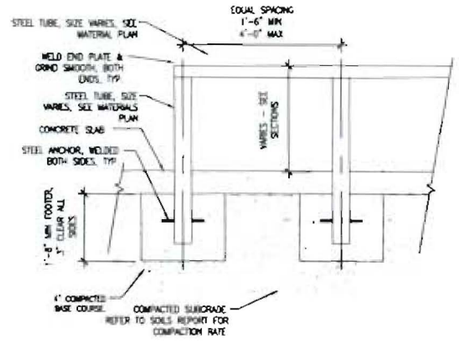
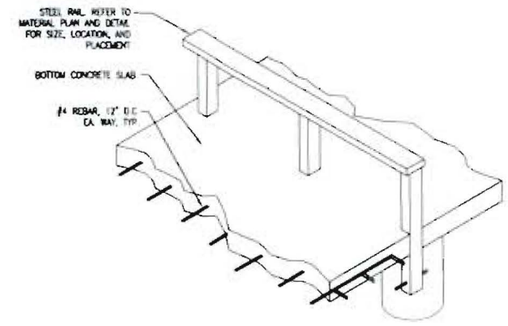


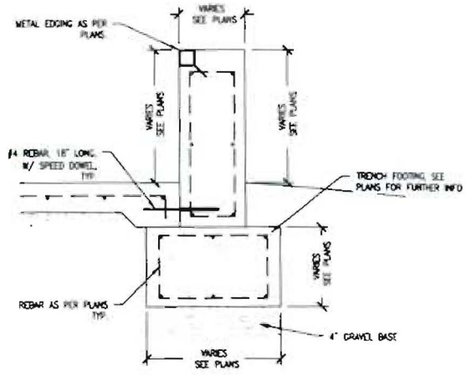
4 KEY JOINT/SLAB CONNECTION
Scale: NONE



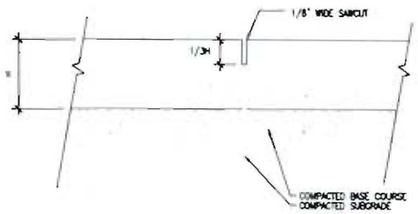
5 TYP. RAIL & FOOTING DETAIL
Scale: NONE



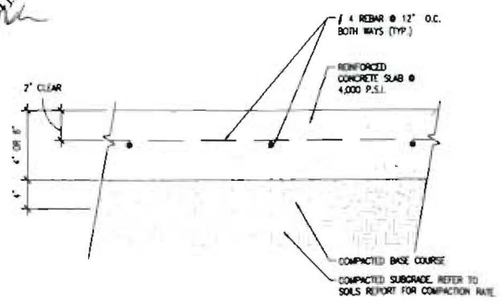
6 TYP. RAIL & FOOTING PROFILE
Scale: NONE



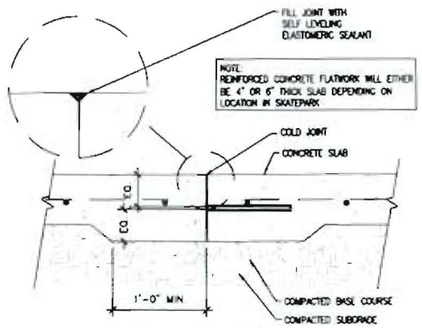
7 TRENCH FOOTING DETAIL
Scale: NONE



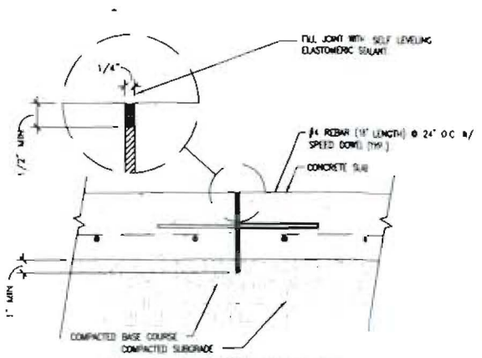
8 1/8" SAW-CUT JOINT
Scale: NONE



9 BOTTOM CONCRETE SLAB
Scale: NONE



10 COLD JOINT
Scale: NONE



11 1/4" EXPANSION JOINT
Scale: NONE

STATE OF MAINE
PAUL W.
HAYMAN
No. 8912
LICENSED
PROFESSIONAL ENGINEER
July 19, 2010

DETAILS

HARDCORE
CONCRETE SKATEPARKS LLC
DESIGN CONSTRUCTION SINCE 2007

DETAILS
DOUGHTRY PARK SKATEPARK
PORTLAND, ME

J. HETHMON
M. LEONE
AS NOTED
9078

SP-5A

Comments Submitted 9/8/10

also will be new app with new HTE # so keep for that

City of Portland
Development Review Application
Planning Division Transmittal form

Application Number: 10-79900022 **Application Date:** 8-3-10 **Further requested info rec'd 9.7.2010**

Project Name: SKATE PARK

Address: Douglass St **CBL:** 066 - A-002-001

Project Description: Skatepark; Doughty Field, Douglass Street; City of Portland, Hardcore Shotcrete Skateparks, Applicant.

Zoning: ~~R5~~ ROS

Other Reviews Required:

Review Type: MINOR SITE PLAN

Applicant:
Mark Leone
601 McKinley Avenue
Joplin Mo 64801

Applicant:
Sally Deluca
134 Congress Street
Portland Me 04101

Distribution List:

☐ Planner	Jean Fraser	☐ Parking	John Peverada
☒ ZoningAdministrator	Marge Schmuckal	☐ Design Review	Alex Jaegerman
☐ Traffic	Tom Errico	☐ Corporation Counsel	Danielle West-Chuhta
☐ Stormwater	Dan Goyette	☐ Sanitary Sewer	John Emerson
☐ Fire Department	Keith Gautreau	☐ Inspections	Tammy Munson
☐ City Arborist	Jeff Tarling	☐ Historic Preservation	Deb Andrews
☐ Engineering	David Margolis-Pineo	☐ Outside Agency	
		☐ DRC Coordinator	Phil DiPierro

Info circulated and MEETING with applicant (not all reviewers): **September 8, 2010**

Final Comments needed by: **September 15, 2010**

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

WOODARD &CURRAN

Date September 3, 2010

Jean Fraser, Planner
City of Portland Planning Office
389 Congress Street
Portland, ME 04101

Re: Dougherty Field Improvements Level II Site Plan Application

Dear Jean:

On behalf of the City of Portland, we submit seven (7) copies of the Level II Site Plan Application for the Dougherty Field Improvements project, with supporting documentation, to be used in Planning Staff review.

These documents were prepared in accordance with Chapter 14, Land Use Code or Ordinances of the City of Portland, Maine and meet the applicable sections of the City of Portland Technical Manual adopted May 11, 2010.

The proposed project involves improvements to Dougherty Field including realignment and revitalization of existing ball fields; new backstop and removable fencing for the ball fields; new stone dust walking paths throughout the park; redevelopment of the St. James Street parking lot; new playground equipment; and landscape improvements. The project also includes the construction of a new skate park in the location of the existing tennis courts by Hardcore Shotcrete Skateparks, Inc. Construction of the skate park by Hardcore is anticipated to begin and be completed in the fall of 2010. Construction of all other improvements is anticipated to begin in the fall or spring and be completed in the spring and summer of 2011.

We look forward to working with your office on this project. Please do not hesitate to contact Woodard & Curran if you have any questions or comments.

Sincerely,

WOODARD & CURRAN INC.

David Senus, PE
Project Manager

DAS/MDL
20393.65

Enclosure(s)

cc: Ethan Owens, Sally Deluca, Troy Moon; City of Portland

STATE OF MAINE
DAVID A. SENUS
No. 10791
LICENSED PROFESSIONAL ENGINEER

RECEIVED
SEP 7 2010
City of Portland
Planning Division

9/8/10

Development Review Application
PORTLAND, MAINE
Planning and Urban Development Department
Planning Division and Planning Board

PROJECT NAME: *Dougherty Field Improvements*

PROPOSED DEVELOPMENT ADDRESS:

Between Douglass Street and St. James Street

PROJECT DESCRIPTION:

Improvements to Dougherty Field include realignment and rehabilitation of existing baseball and softball fields; parking lot redevelopment; sidewalk installation; landscaping improvements; skate park construction; and playground installation.

CHART/BLOCK/LOT: *066-A-002, 078-B-007, 079-B-001, 080-L-001*

PRELIMINARY PLAN _____
FINAL PLAN *X*

CONTACT INFORMATION:

APPLICANT		**PROPERTY OWNER**	
Name:	*Ethan Owens, City of Portland*	**Name:**	*City of Portland*
Address:	*134 Congress Street*	**Address:**	*389 Congress Street*
	Portland, Maine		*Portland, Maine*
Zip Code:	*04101*	**Zip Code:**	*04101*
Work #:	*207.874.8936*	**Work #:**	
Cell #:		**Cell #:**	
Fax #:	*207.756.8279*	**Fax #:**	
Home:		**Home:**	
E-mail:	*eowens@portlandmaine.gov*	**E-mail:**	

BILLING ADDRESS

Name:
Address:
Zip:
Work #:
Cell #:
Fax #:
Home:
E-mail:

**It should be noted that application fees are not applicable because Dougherty Field is a City of Portland project.*

~As applicable, please include additional contact information on the next page~

AGENT/REPRESENTATIVE

Name: David Senus, Woodard & Curran
Address: 41 Hutchins Drive
Portland, Maine
Zip Code: 04101
Work #: 207.774.2112
Cell #:
Fax #: 207.774.6635
Home:
E-mail: dsenus@woodardcurran.com

ENGINEER

Name: David Senus, Woodard & Curran
Address: 41 Hutchins Drive
Portland, Maine
Zip Code: 04101
Work #: 207.774.2112
Cell #:
Fax #: 207.774.6635
Home:
E-mail: dsenus@woodardcurran.com

LANDSCAPE ARCHITECT

Name: Regina S. Leonard
Address: 29 Bridge Street
Topsham, Maine
Zip Code: 04086
Work #: 207.450.9700
Cell #:
Fax #: 800.606.4306
Home:
E-mail: regina@rsldesign.com

CONSULTANT

Name:
Address:
Zip Code:
Work #:
Cell #:
Fax #:
Home:
E-mail:

SURVEYOR

Name:
Address:
Zip Code:
Work #:
Cell #:
Fax #:
Home:
E-mail:

ATTORNEY

Name:
Address:
Zip Code:
Work #:
Cell #:
Fax #:
Home:
E-mail:

PROJECT DATA

The following information is required where applicable, in order complete the application

Total Site Area	846,064	sq. ft.
Proposed Total Disturbed Area of the Site	578,800*	sq. ft.

*Most of area for realignment of ball fields

(If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland)

IMPERVIOUS SURFACE AREA

Proposed Total Paved Area	12,840	sq. ft.
Existing Total Impervious Area	32,330	sq. ft.
Proposed Total Impervious Area	35,305	sq. ft.
Proposed Impervious Net Change	2,975	sq. ft.

BUILDING AREA

Existing Building Footprint	N/A	sq. ft.
Proposed Building Footprint	N/A	sq. ft.
Proposed Building Footprint Net change	N/A	sq. ft.
Existing Total Building Floor Area	N/A	sq. ft.
Proposed Total Building Floor Area	N/A	sq. ft.
Proposed Building Floor Area Net Change	N/A	sq. ft.
New Building	NO	(yes or no)

ZONING

Existing	ROS
Proposed, if applicable	ROS

LAND USE

Existing	RECREATIONAL
Proposed	RECREATIONAL

RESIDENTIAL, IF APPLICABLE

Proposed Number of Affordable Housing Units	N/A
Proposed Number of Residential Units to be Demolished	N/A
Existing Number of Residential Units	N/A
Proposed Number of Residential Units	N/A
Subdivision, Proposed Number of Lots	N/A

PARKING SPACES

Existing Number of Parking Spaces	Undefined
Proposed Number of Parking Spaces	24
Number of Handicapped Parking Spaces	2
Proposed Total Parking Spaces	24

BICYCLE PARKING SPACES

Existing Number of Bicycle Parking Spaces	0
Proposed Number of Bicycle Parking Spaces	16
Total Bicycle Parking Spaces	16

ESTIMATED COST OF PROJECT

$240,000 (Skate Park Only)
$375,000 (All other improvements)

Please answer the following with a Yes/No response on all that apply to the proposed development

Institutional	NO	Design Review	NO	
Parking Lot	YES	Flood Plain Review	NO	
Manufacturing	NO	Historic Preservation	NO	
Office	NO	Housing Replacement	NO	
Residential	NO	14-403 Street Review	NO	
Retail/Business	NO	Shoreland	NO	
Warehouse	NO	Site Location	NO	
Single Family Dwelling	NO	Stormwater Quality	NO	
2 Family Dwelling	NO	Traffic Movement	NO	
Multi-Family Dwelling	NO	Zoning Variance	NO	(or date)
B-3 Ped Activity Review	NO	Historic Dist./Landmark	NO	
Change of Use	NO	Off Site Parking	NO	

APPLICATION FEES:

Check all reviews that apply. Payment may be made in cash or check to the City of Portland.

Level II Development* ___ Less than 10,000 sq. ft. ($400.00) ___ After-the-fact Review ($1,000.00 plus applicable application fee) **It should be noted that application fees are not applicable because Dougherty Field is a City of Portland project.*	**Plan Amendments** ___ Planning Staff Review ($250) ___ Planning Board Review ($500) **Subdivision** ___ Subdivision ($500) + amount of lots____ ($25/lot) $_____ + (applicable + Major site plan fee)
Level III Development ___ Under 50,000 sq. ft. ($500) ___ 50,000 - 100,000 sq. ft. ($1,000) ___ Parking Lots over 100 spaces ($1,000) ___ 100,000 - 200,000 sq. ft. ($2,000) ___ 200,000 - 300,000 sq. ft. ($3,000) ___ Over 300,000 sq. ft. ($5,000) ___ Parking lots over 100 spaces ($1,000) ___ After-the-fact Review ($1,000 plus applicable application fee)	**Other Reviews** ___ Site Location of Development ($3,000) (except for residential projects which shall be $200 per lot_____) ___ Traffic Movement ($1,000) ___ Stormwater Quality ($250) ___ Section 14-403 Review ($400 + $25/lot) ___ Other_____

LEVEL II AND LEVEL III REVIEW APPLICATION SUBMISSION

Submissions shall include seven (7) packets with folded plans containing the following materials:

1. Seven (7) full size site plans that must be folded.
2. Seven (7) copies of all written materials as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
5. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 100 feet.
6. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
7. Copy of the checklist completed for the proposal listing the material contained in the submitted application.
8. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist (page 7) for a detailed list of submittal requirements.
Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site: www.portlandmaine.gov Copies of the ordinances may be purchased through the Planning Division.

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 Planning Authority and Code Enforcement'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.

This application is for a Site Plan review only. A Performance Guarantee, Inspection Fee, Building Permit Application and associated fees will be required prior to construction.

Signature of Applicant:	**Date:** 9/3/2010

Please refer to Article V, Site Plan of the City of Portland Land Use Code for detailed information concerning the City's site plan review process, thresholds and standards. Should you have any questions regarding the submittal requirements or any other aspect of the site plan review process, please contact the Planning Division.

City of Portland Planning Division
389 Congress Street
Portland, Maine 04101
(207) 874-8719
www.portlandmaine.gov

Office Hours:
Unless noted, office hours are
Monday thru Friday
8:00 a.m. – 4:30 p.m.

General Submittal Requirements – Level II and Level III Site Plan

Preliminary Plan Phase (if elected by applicant)

Applicant Checklist	Planner Checklist	Number of Copies	Submittal Requirement
✓	☐	7	Completed application form
N/A	☐	1	Application fees
✓	☐	7	Written description of project
✓	☐	7	Evidence of right, title and interest.
✓	☐	7	Copies of required State and/or Federal permits.
✓	☐	7	Written assessment of zoning.
✓	☐	7	Written description of existing and proposed easements or other burdens.
N/A	☐	7	Written requests for waivers from individual site plan and/or technical standards, where applicable.
N/A	☐	7	Traffic analysis (may be preliminary, in nature, during the preliminary plan phase).
✓	☐	7	Written summary of significant natural features located on the site.
✓	☐	7	Written summary of project's consistency with related city master plans.

Final Plan Phase (including items listed above if no preliminary plan review)

Applicant Checklist	Planner Checklist	Number of Copies	Submittal Requirement
✓	☐	1	Evidence of financial and technical capacity.
N/A	☐	1	Evidence of utilities' capacity to serve the development.
N/A	☐	1	Written summary of fire safety (referencing NFPA fire code and Section 3 of the City of Portland Technical Manual).
✓	☐	1	Construction management plan.
N/A	☐	1	Traffic Plan (if development will (1) generate 100 or more PCE or (2) generate 25 or more PCE and is located on an arterial, within 1/2 mile of a high crash location, and/or within ¼ mile of an intersection identified in a previous traffic study as a failing intersection).
✓	☐	1	Stormwater management plan.
✓	☐	1	Written summary of solid waste generation and proposed management of solid waste.
✓	☐	1	Written assessment of conformity with applicable design standards.
N/A	☐	1	Manufacturer's verification that HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Site Plans and Boundary Survey Requirements – Level II and Level III Site Plan

Preliminary Plan Phase (if elected by applicant)			
Applicant Checklist	**Planner Checklist**	**Number of Copies**	**Submittal Requirement**
✓	☐	7	Boundary Survey meeting the requirements of Section 13 of the City of Portland Technical Manual.
✓	☐	7	
✓	☐		▪ *Existing and proposed structures with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).*
✓	☐		▪ *Location of adjacent streets and intersections and approximate location of structures on abutting properties..*
✓	☐		▪ *Proposed site access and circulation.*
✓	☐		▪ *Proposed grading and contours.*
✓	☐		▪ *Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways.*
✓	☐		▪ *Preliminary landscape plan including existing vegetation to be preserved, proposed site landscaping and street trees.*
✓	☐		▪ *Existing and proposed utilities (preliminary layout).*
✓	☐		▪ *Preliminary infrastructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modifications, utility connections, transit infrastructure, roadway improvements).*
✓	☐		▪ *Preliminary stormwater management and erosion control plan.*
N/A	☐		▪ *Existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b) 1. of the Land Use Code).*
N/A	☐		▪ *Proposed alterations to and protection measures for significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code).*
✓	☐		▪ *Existing and proposed easements or public or private rights of way.*

Final Plan Phase			
✓	☐	7	
✓	☐		▪ *Existing and proposed structures on the site with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone).*
✓	☐		▪ *Location of adjacent streets and intersections and approximate location of structures on abutting properties.*
✓	☐		▪ *Proposed site access and circulation.*
✓	☐		▪ *Proposed grading and contours.*
✓	☐		▪ *Location and dimension of existing and proposed paved areas including all parking areas and vehicle, bicycle and pedestrian access ways. Proposed curb lines must be shown.*
N/A	☐		▪ *Proposed loading and servicing areas, including applicable turning templates for delivery vehicles*

N/A	☐	▪ *Proposed snow storage areas or snow removal plan.*
✓	☐	▪ *Proposed trash and recycling facilities.*
✓	☐	▪ *Londscope plan including existing vegetation to be preserved, proposed site landscaping and street trees.*
✓	☐	▪ *Existing and proposed utilities.*
✓	☐	▪ *Locotion and detoils of proposed infrostructure improvements (e.g. - curb and sidewalk improvements, roadway intersection modificotions, utility connections, public tronsit infrastructure, roadway improvements).*
N/A	☐	▪ *Proposed septic system, if not connecting to municipol sewer. (Portland Waste Water Application included in this application)*
N/A	☐	▪ *Proposed finish floor elevation (FFE).*
N/A	☐	▪ *Exterior building elevation(s) (showing all 4 sides).*
✓	☐	▪ *Proposed stormwater management and erosion controls.*
N/A	☐	▪ *Exterior lighting plan, including street lighting improvements..*
✓	☐	▪ *Proposed signage.*
N/A	☐	▪ *Identification of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significont wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code). Wetlands must be delineated.*
N/A	☐	▪ *Proposed alterations to and protection measures for of existing significant natural features located on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important naturol feotures listed in Section 14-526 (b)1. of the Lond Use Code).*
✓	☐	▪ *Total area and limits of proposed land disturbance.*
✓	☐	▪ *Soil type and location of test pits and borings.*
N/A	☐	▪ *Details of proposed pier rehabilitation (Shoreland areas only).*
N/A	☐	▪ *Proposed snow storage areas or method of snow removal.*
✓	☐	▪ *Existing and proposed easements or public or private rights of way.*

Written Statement for Dougberty Field Improvements Site Plan Application

City of Portland

Written description of project:
Dougherty Field Improvements includes realignment of existing high school baseball and softball fields; providing new backstop fencing for high school baseball and softball fields; removal of existing outfield fencing from two little league fields and providing removable outfield fencing; removal and redevelopment of existing St. James Street parking lot; providing new bituminous sidewalks throughout park; providing new landscaping; and constructing new concrete skate park.

Evidence of right, title and interest:
See Appendix A for property deeds.

Copies of required state and/or federal permits:
See Appendix B for Stormwater Permit By Rule (to be filed)

Written assessment of zoning:
1. Property is located in ROS Zone (Recreation Open Space)
2. Parcel Acreage: 19.4 Acres
3. Regulations:

§14-157 Space & Bulk Requirements	Required	Provided
(a) Minimum Front Yard	25 Feet	N/A - no proposed buildings
(b) Minimum Rear Yard	25 Feet	N/A – no proposed buildings
(c) Minimum Side Yard	12 Feet	N/A – no proposed buildings
(d) Minimum Lot Size	2 Acres	19.4 Acres
(e) Maximum Building Height	45 Feet	N/A – no proposed buildings
(f) Maximum Coverage of Lot	25%	10%
(g) Maximum Floor Area Ration	0.5	N/A – no proposed buildings

Written description of existing and proposed easements or other burdens:
No proposed easements. Refer to deeds and boundary survey contained in Appendix A for existing easements.

Written requests for waivers from individual site plan and/or technical standards, where applicable:
Not Applicable

Traffic analysis:
Not Applicable – no changes to existing traffic pattern

Written summary of significant natural features located on the site:
Not Applicable – no natural features on site. Existing developed park land.

Written summary of project's consistency with related city master plans:
The proposed Dougherty Field improvements are based on the Dougherty Field Master Plan approved by the City Council. This project implements elements of Phases 1, 2 and 3 of the Master Plan. The proposed improvements breakdown into the following phases of the Master Plan:

Phase 1: Sports field realignment and revitalization, walking path improvements and landscape improvements.
Phase 2: St James Street parking lot redevelopment, new bituminous sidewalk and landscape improvements.
Phase 3: New playground equipment, walking paths and landscape improvements.

The skate park was integrated into the Dougherty Field Master Plan but not included in the construction phasing. A Request for Proposal was issued by the City, and the final design, permitting and construction of the skate park will be completed by Hardcore Shotcrete Skateparks, Inc.

Evidence of financial and technical capacity:
Funding has been allocated by the City of Portland for the proposed Dougherty Field Improvement project. The funding approved for design, permitting and construction of Phase 1 of the Dougherty Field Master Plan is $376,663. The funding approved for design, permitting and construction of Phase 2 and elements of Phase 3 is $109,006. The City Council allocated $75,000 in capital funds for the skate park. These funds, in addition to the money fundraised by the Skate Park Committee, totals $240,000 for the skate park design, permitting and construction.

Woodard & Curran and Regina S. Leonard Landscape Architecture have the technical expertise and capacity to appropriately serve the City of Portland during the Dougherty Field Improvement project design and permitting process. We have attached an overall profile of the firm as well as an overview of our Civil Engineering services in addition to a resume and qualifications for Regina S. Leonard Landscape Architecture, see Appendix C.

Evidence of utilities capacity to serve the development:
Not Applicable – no proposed buildings

Written summary of fire safety:
Not Applicable – no proposed buildings

Construction Management Plan:
Construction for the Dougherty Field Improvements will be completed by three separate crews; Hardcore Shotcrete Skateparks, Inc; City or Portland Construction Company crew; and Contractors selected through the public bid process.

Hardcore Shotcrete Skateparks, Inc anticipates starting and completing construction of the skate park in fall 2010.

City of Portland Construction Company crews anticipate starting and completing realignment of the existing baseball and softball fields, redevelopment of the St James Street parking lot, and installation of new sidewalks and landscaping in the spring and summer of 2011 (portions of work potentially as early as Fall 2010).

Bid documents will be developed for ball fields fencing and playground equipment and will be publicly bid in spring of 2011. The winning contractors are anticipated to start and complete construction in the spring and summer of 2011.

Traffic Plan:
Not Applicable – no changes to existing traffic pattern

Stormwater Management Plan:
See Appendix D for Stormwater Management Plan

Written summary of solid waste generation and proposed management of solid waste:
Construction Debris: During construction, any soils excavated will be reused on site as part of the grading and site improvements around the skate park. Refer to recommendations for soils management contained in the letter from the City of Portland to Maine DEP dated January 9, 2001 and report by Peterson-Rabasca dated January 2, 2001 (Appendix E).

Materials demolished and removed from the site will be recycled to the greatest extent possible. The materials to be recycled include, but are not limited to fencing; concrete and asphalt. Any remaining construction debris will be brought to the Riverside Transfer Station.

Municipal Waste: The proposed improvements to the baseball and softball field will not increase the amount of daily solid waste generated at the site. Any existing waste receptacles removed during construction will be returned upon completion. Two new waste receptacles are proposed on site, one adjacent to the new skate park and one adjacent to the new playground (see Landscape Plan). Maintenance of the proposed waste receptacles will become part of the regular maintenance of Dougherty Field by the City's park crews.

Written assessment of conformity with applicable design standards:
Dougherty Field Improvements have been designed in conformance with the City of Portland's Technical Manual and Land Use Code.

Manufacturer's verification that HVAC and manufacturing equipment meets applicable state and federal emissions requirements:
Not Applicable – no proposed buildings

Appendix A

Property Deeds

CITY OF PORTLAND, GRANTEE

J. Hopkins Smith — 1815 - 84

to — Warranty

City of Portland

Beginning at a stake on the southerly side of a street sixty (60) feet wide defined and agreed upon in partition of the Smith and Brown farm so-called, of which plan and report of Commissioners is recorded in Cumberland County Registry of Deeds in Book 958, Page 83, said street extending westerly from St James Street to Douglass Street and said stake being at the westerly corner of a lot of land of Portland Gas Company on the southerly side of said street; thence westerly by said street about seven-hundred seven (707) feet to a point within one-hundred six and five-tenths (106.5) feet of Douglass Street and to the northeasterly corner of land St. John Smith and J. B. Brown conveyed to George L. Hodgdon July 6, 1865; thence southerly by said Hodgdon lot and by land, said Smith and Brown conveyed to G. W. Burnham, June 17, 1865, a total distance of about one-hundred and forty-one and five-tenths (141.5) feet; thence easterly by rear of lots fronting on Congress Street as now or formerly shown by an old fence line indicating what was formerly known as the division line between the City of Portland and the City of Deering about seven-hundred twelve (712) feet to a stone monument at the southwesterly corner of a lot of land owned by the Portland Gass Light Company on the southerly side of said street above mentioned, said monument being located by a right angle to said street from the stake at the point of beginning of this description and a distance of about ninety-five (95) feet from said stake; thence northeasterly about ninety-five (95) feet to the point of beginning.

Being lot "L" as shown on said plan and the 6th parcel conveyed by deed of Henry St. John Smith, et als, to J. Hopkins Smith dated September 11, 1916, and recorded in said Registry of Deeds in Book 975, Page 407.

Together with all my right title and interest in and to said street sixty (60) feet wide.

March 27, 1946 — J. Hopkins Smith

March 27, 1946

April 8, 1946

CITY OF PORTLAND, GRANTEE

Helen S. Beyer 1667-158

To Warranty

City of Portland

One-half in common and undivided in the following described real estate situated in said City of Portland, namely:

Lots I and J on a "plan of property in Portland, Maine belonging to the J. B. Brown & Sons Corporation and the Heirs of St. John Smith" incorporated in the Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958, at Pages 83 to 99, together with all my rights, title and interest in and to any land covered by proposed streets delineated on said plan and which lie within the boundaries of the lots above named, and which lie between Lots C and K and Lots C and D on said plan.

Also all the right, title and interest of the Grantor in and to the land marked Douglass Street between Congress Street and Brighton Ave, so-called, as delineated on a "plan of property in Portland Maine belonging to the J. B. Brown & Sons Corporation and the Heirs of St. John Smith" said plan being a part of Partition Proceedings recorded in the Cumberland County Registry of Deeds, Book 958, Pages 83 to 99. This conveyance of land marked Douglass Street is made upon the express condition that such land hereby conveyed shall be used only as a public street, as delineated on the aforesaid plan.

Helen S. Beyer
Widow

November 29, 1941

November 29, 1941

January 28, 1942

CITY OF PORTLAND, GRANTEE

J. B. Brown & Sons 1573 - 98

to Warranty

City of Portland

A certain lot or parcel of land situated northerly of Congress Street and easterly of Douglass Street, in said City of Portland, and bounded and described as follows:

Beginning at a point in the northerly side line of a proposed Street running easterly from Douglass Street to the Right of Way of the Portland Gas Light Company as shown on a plan of property of J. B. Brown & Sons and the heirs of St. John Smith, recorded in the Cumberland County Registry of Deeds in Book 958 at Pages 83 to 99, (said northerly side line ~~xx~~ intersecting the easterly side line of said Douglass Street two hundred seventy-one and thirty-two hundredths (271.32) feet northerly along said easterly side line from the northerly side line of Congress Street aforesaid), which point is one hundred (100) feet easterly along said northerly side line of said proposed street from the easterly side line of Douglass Street aforesaid; thence running northeasterly parallel with said easterly side line of said Douglass Street seven hundred and six (706) feet, more or less, to the point of intersection with the westerly side line of another proposed street, shown on said plan, which said second proposed street runs from said Douglass Street southerly to the first mentioned proposed street; thence southerly along the said westerly side line of said second proposed street a distance of nine hundred eighty (980) feet, more or less, to the point of intersection with the northerly side line of said first proposed street; thence easterly along said northerly side line of said first proposed street to the point of beginning, being a triangular lot of land shown on said plan and marked "C to J. B. Brown & Sons" on said plan, containing two hundred twenty-two thousand, eight hundred fifty-seven (222,857) square feet, more or less, and being the lot now used by said City of Portland, in part as a dump.

J. B. Brown & Sons
By Harold Lee Berry and
Phillip G. Clifford

February 20, 1939

February 20, 1939

March 15, 1939

C I T Y O F P O R T L A N D, G R A N T E E

Nancy Smith Saltonstall
(formerly Nancy Smith) of Boston

1667-157

Warranty

To

City of Portland

One-quarter in common and undivided in the following described real estate situated in said City of Portland, namely:

Lots I and J on a "plan of property in Portland, Maine belonging to the J. B. Brown & Sons, Corporation and the Heirs of St. John Smith," incorporated in the Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958, at Pages 83 to 99, together with all my right and interest in and to any land covered by proposed streets delineated on said plan and which lie within the boundaries of the lots above named, and which lie between Lots C and K and Lots C and D on said plan.

Reference is made to deed of William Andros Barron, Jr., Trustee to Nancy Smith and Henry St. John Smith, Jr. dated August 31, 1936, recorded in said Registry in Book 1508, Page 83.

Also all the right, title and interest of the Grantor in and to the land marked Douglass Street between Congress Street and Brighton Ave, so-called, as delineated on a "plan of property in Portland Maine belonging to the J. B. Brown & Sons Corporation and the Heirs of St. John Smith," said plan being a part of Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958 at Pages 83 to 99. This conveyance of land marked Douglass Street is made upon the express condition that such land hereby conveyed shall be used only as a public street, as delineated on the aforesaid plan.

Nancy Smith Saltonstall

Leverett Saltonstall Jr.

January 5, 1942

January 5, 1942

January 28, 1942

CITY OF PORTLAND, GRANTEE

Constance W. Smith, of Groton, Mass., Guardian of Henry St. John Smith, Jr., of Cape Elizabeth

1663-425

Guardian's Deed

to

City of Portland

One-quarter in common and undivided in the following described real estate situated in said City of Portland, namely:

Lots I and J on a "plan of property in Portland, Me. belonging to the J. B. Brown & Sons, Corp. and the Heirs of St. John Smith" incorporated in the Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958, at Pages 83 to 99, together with all right, title and interest of said Henry St. John Smith, Jr, in and to any land covered by proposed streets delineated on said plan and which lie within the boundaries of the lots above named, and which lie between Lots C and K and Lots C and D on said plan.

Reference is made to deed of William Andros Barron, Jr., Trustee to Nancy Smith and Henry St. John Smith, Jr., dated Aug. 31, 1936, recorded in said Registry in Book 1508, Page 83.

Also all the right, title and interest of said Henry St. John Smith, Jr. in and to the land, marked Douglass St. between Congress St. and Brighton Ave., so-called, as delineated on a "plan of property in Portland, Me. belonging to the J. B. Brown & Sons Corp. and the Heirs of St. John Smith," said plan being a part of Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958 at Pages 83 to 99.

This conveyance of land marked Douglass St. is made upon the express condition that such land hereby conveyed shall be used only as a public street, as delineated on the aforesaid plan.

Constance W. Smith,
Guardian.

January 26, 1942
January 26, 1942
January 28, 1942

C I T Y O F P O R T L A N D, G R A N T E E

J. B. Brown & Sons — 1659-6

To — Warranty

City of Portland — $ 2,100.00

Lots B. D. and E all being marked "To J.B.Brown & Sons" on a "plan of property in Portland, Maine belonging to the J. B. Brown & Sons and Heirs of St. John Smith" incorporated in Partition Proceedings recorded in Cumberland County Registry of Deeds in Book 958 at Pages 83 to 99, together with all the Grantors right, title and interest in and to any land covered by proposed streets delineated on said plan and which lie within the boundaries of the lots above enumerated, and which lie between lots C and K and lots C and D on said plan.

J. B. Brown & Sons
by Herold Lee Berry, Pres.
Philip G. Clifford, Treas.

November 4, 1941

November 4, 1941

November 7, 1941

CITY OF PORTLAND, GRANTEE

Landon P. Marvin
Executor of the Will of
St. John Smith

1813 - 154

Executors

To

City of Portland

Beginning at a stake on the southerly side of a street sixty (60) feet wide defined and agreed upon in partition of the Smith and Brown farm so-called , of which plan and report of Commissioners is recorded in Cumberland County Registry of Deeds in Book 958, Page 83, said street extending westerly from St. James Street to Douglass Street and said stake being at the westerly corner of a lot of land of Portland Gas Company on the southerly side of said street; thence westerly by said street about seven-hundred seven (707) feet to a point within one-hundred six and five-tenths (106.5) feet of Douglass Street and to the northeasterly corner of land St. John Smith and J. B. Brown conveyed to George L. Hodgdon July 6, 1865; thence southerly by said Hodgdon lot and by land, said Smith and Brown conveyed to G. W. Burnham, June 17, 1865, a total distance of about one-hundred and forty-one and five-tenths (141.5) feet; thence easterly by rear of lots fronting on Congress Street as now or formerly shown by an old fence line indicating what was formerly known as the division line between the City of Portland and the City of Deering about seven-hundred twelve (712) feet to a stone monument at the southwesterly corner of a lot of land owned by the Portland Gas Light Company on the southerly side of said street above mentioned, said monument being located by a right angle to said street from the stake at the point of beginning of this description and a distance of about ninety-five (95) feet from said stake; thence northeasterly about ninety-five (95) feet to the point of beginning.

Being lot "L" as shown on said plan and the 6th parcel conveyed by deed of Henry St. John Smith, et als, to J. Hopkins Smith dated September 11, 1916, and recorded in said Registry of Deeds in Book 975, Page 407.

Together with all my right title and interest in and to said street sixty (60) feet wide.

March 21, 1946

March 21, 1946

April 8, 1946

Langdon P. Marvin
Executor of the Will of
St. John Smith

C I T Y O F P O R T L A N D, G R A N T E E

St. John Smith of New York
and James Hopkins Smith (formerly
known as James Hopkins Smith, Jr)
of Falmouth

1667 - 159

Warranty

To

City of Portland

The following described real estate situated in said Portland, namely:

Lot K on a"plan of property in Portland Maine belonging to the J. B. Brown & Sons Corporation and the Heirs of St. John Smith" incorporated in the Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958, at Pages 83 to 99, together with all our right, title and interest in and to any land covered by proposed streets delineated on said plan and which lie within the boundaries of the lot above named, and which lie between Lots C and K and Lots C and D on said plan.

Said Grantors are devisees under the last will and testament of James Hopkins Smith, late of said Falmouth, deceased.

Also all the right, title and interest of the Grantors in and to the land marked Douglass Street between Congress Street and Brighton Avenue so-called, as delineated on a"plan of property in Portland, Maine belonging to the J. B. Brown & Sons Corporation and the Heirs of St. John Smith", said plan being a part of Partition Proceedings recorded in the Cumberland County Registry of Deeds in Book 958 at Pages 83 to 99.

This conveyance of land marked Douglass Street is made upon the express condition that such land hereby conveyed shall be used only as a public street, as delineated on the aforesaid plan.

St. John Smith

James Hopkins Smith

November 29, 1941

November 29, 1941

January 28, 1942

Appendix B

Stormwater Permit By Rule

1. [illegible] Applicant:	Ethan Owens, Athletics Facility Manager City of Portland	5. [illegible]	David Senus, P.E. Project Manager Woodard & Curran
2. [illegible]	134 Congress Street Portland, Maine 04101	6. [illegible]	41 Hutchins Drive Portland, Maine 04101
3. [illegible]	207.874.8936	7. [illegible]	207.774.2112
4. [illegible]	207.756.8279	8. [illegible]	207.774.6635
9. [illegible]	Between Douglass Street and St. James Street	10. [illegible]	Portland
		11. [illegible]	Cumberland

12. [illegible]	☐ Yes ☑ No

13. [illegible]	☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming ☐ River, stream or brook ☐ Urban impaired stream ☐ Freshwater wetland ☑ Coastal wetland ☐ Wellhead of public water supply	14. [illegible]	☑ Total # of 3.2 acres OR ☐ Total # of ______ square feet
		15. [illegible]	☑ Total # of 0.07 acres OR ☐ Total # of ______ square feet

16. [illegible]	☐ Yes ☑ No	17. Is this activity part of a larger project?	☐ Yes ☑ No
18. [illegible]	Back Cove	19. [illegible]	N/A

20. [illegible]	Dougherty Field Improvements include realignment of ball fields, installation of new ball field fencing, replacement of existing parking lot, installation of new sidewalks and landscaping, installation of new playground equipment, and construction of new skate park.

21. [illegible]	☐ ______ square feet OR ☐ 19.4 acres	UTM Northing, if known:	Unknown	UTM Easting, if known:	Unknown

22. [illegible]	Book#: 1663 Page#: 425 1667 157-159 1659 6 1573 98 1813 154 1815 84	23. Map and Lot Numbers:	Map #: 066 078 079 080	Lot #: A-002 B-007 B-001 L-001

24. [illegible]	N/A	25. [illegible]	☐ Yes ☑ No	[illegible]	☐ Yes ☐ No
26. [illegible]	☐ Yes ☑ No	If yes, prior application [illegible]	N/A	27. [illegible]	N/A

28. [illegible]	☐ Yes→ ☑ No	[illegible]	N/A

29. [illegible]	From Southern DEP Office, head southwest on Canco Road. Turn left at Read Street. Turn right at Ocean Ave. Turn left at Forest Ave. Turn right at Dartmouth Street. Turn right at Brighton Ave. Turn left on Douglass Street. Dougherty Field will be on the left.

30. [illegible]

☑ This form (signed and dated) ☑ Fee	☐ Dept. of Inland Fisheries and Wildlife Approval (if in Essential Habitat)	☑ Photos of Area ☑ ESC Plan ☑ Location Map ☑ Site Plan	**For Renewal of an individual Stormwater permit <u>only</u>:** ☐ This form (signed and dated) ☐ Copy of original stormwater permit ☐ Fee

Does the agent have an interest in this project? If yes, what is the interest?	

CERTIFICATIONS/SIGNATURES

Applicant's Statement:

I am applying for a Stormwater PBR and have attached the required PBR submissions. I have read the requirements set forth in this form that my project satisfy the applicable stormwater management standards. I authorize staff of State and local government having jurisdiction over this activity to access the project site for the purpose of determining compliance with the rules.

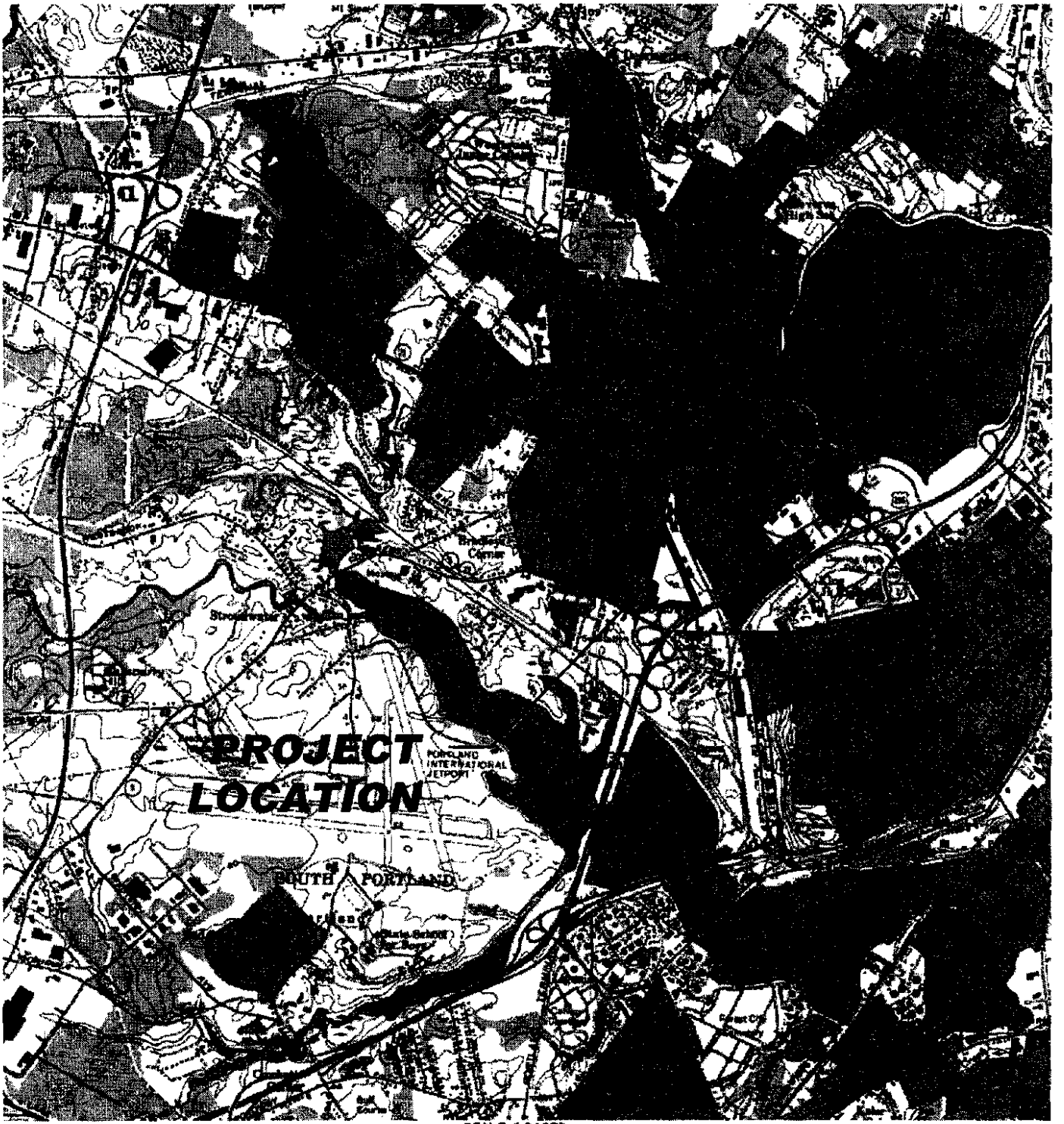
Signed _____ Date _____

Notice of Intent to Comply with Maine Construction General Permit	**With this Stormwater PBR notification form and my signature below, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit. I have read and will comply with all of the MCGP standards. In addition, I will file a Notice of Termination (NOT) within 20 days of project completion.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed**_____**Date:**_____

TO BE SUBMITTED PRIOR TO CONSTRUCTION

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PORTLAND WEST QUADRANGLE
MAINE -CUMBERLAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NEAR PORTLAND 15' QUADRANGLE



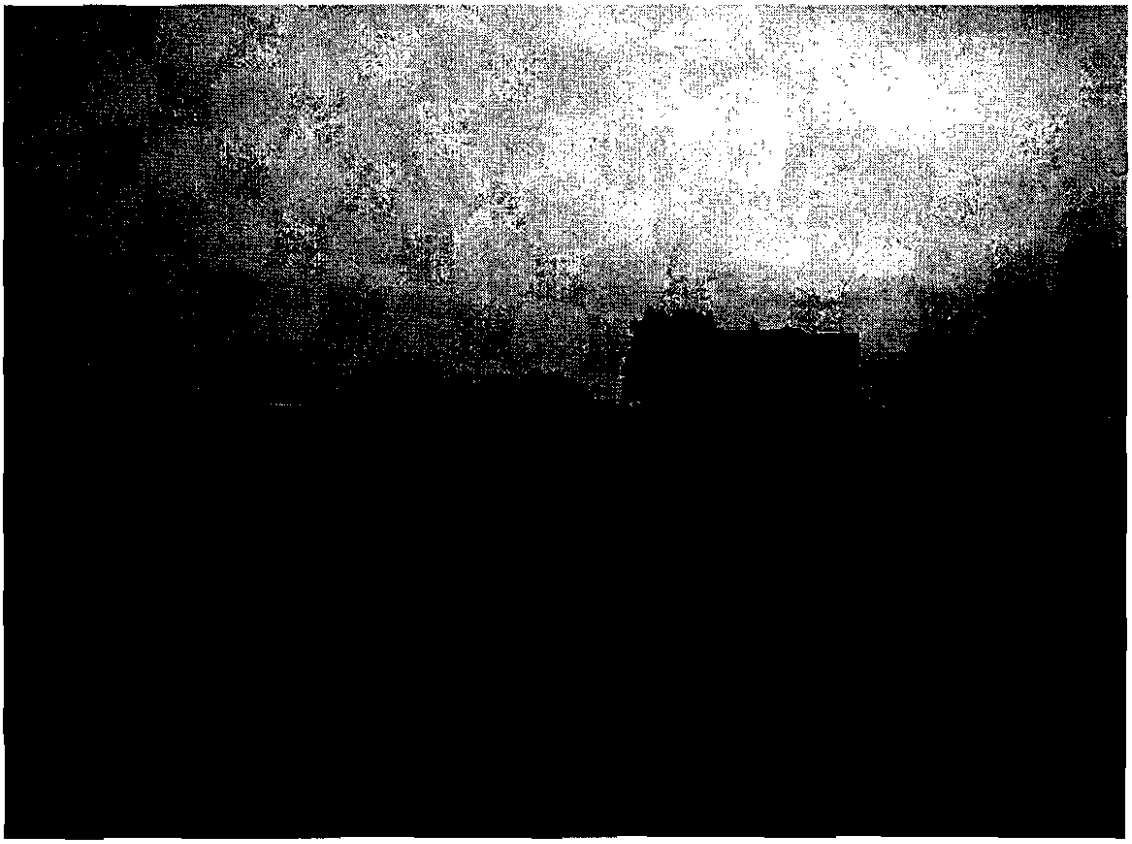
SCALE 1:24000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE NORMAL RANGE OF TIDE IS APPROXIMATELY 9.0 FEET

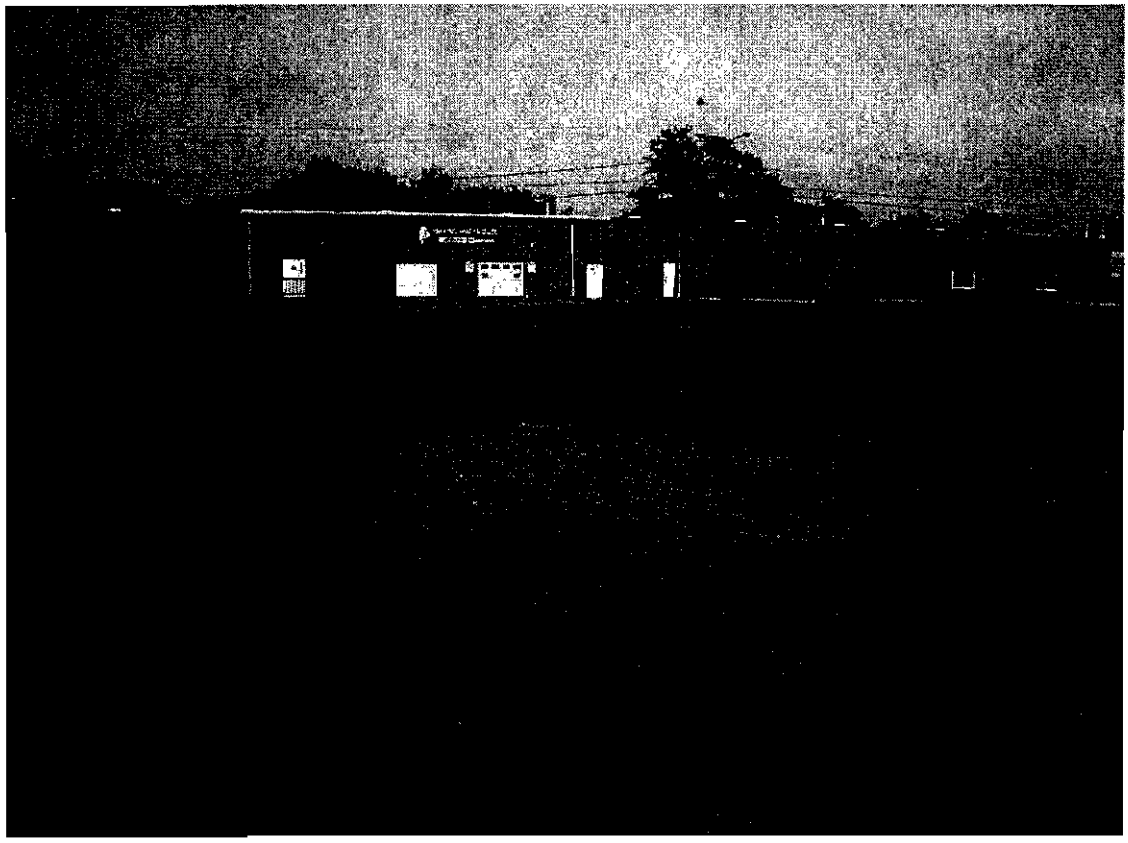
WOODARD & CURRAN 41 Hutchins Drive PORTLAND, ME 04102 800.426.4262 | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	DOUGHERTY FIELD LOCATION MAP	CITY OF PORTLAND PORTLAND, MAINE	JOB NO: 2039336.65 DATE: SEPT 2019 SCALE: NOTED
	DESIGNED BY: N/A | CHECKED BY: DAS DRAWN BY: MDL | Field Location Map.dwg	DOUGHERTY FIELD IMPROVEMENTS	MAP-1

Doughtery Field Photo: Existing ball fields to be realigned



Dougherty Field Photo: Existing ball fields along Douglass Street

Dougherty Field Photo: Proposed location of skate park

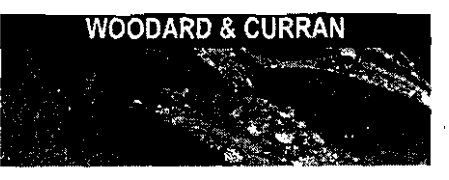


Dougherty Field Photo: St. James Steet parking lot (to the right)

Appendix C

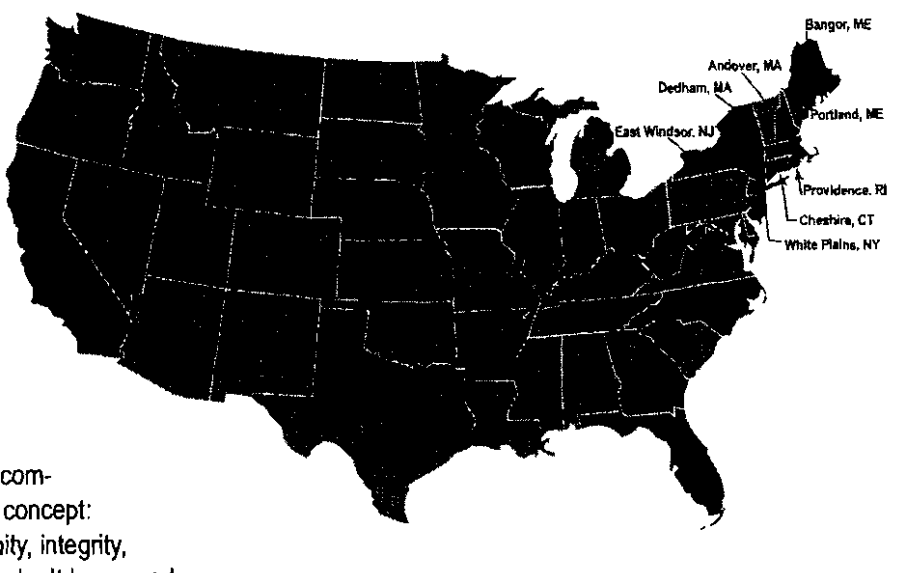
Technical Capacity

PROFILE OF THE FIRM



Woodard & Curran is a 550-person, integrated engineering, science, and operations company. Privately held and steadily growing, we serve public and private clients locally and nationwide.

From our environmental roots to the range of consulting, engineering, and operations expertise we provide today, we work for a diverse clientele - including municipalities, the energy industry, food & beverage manufacturers, colleges and universities, and the real estate community.



Woodard & Curran operates 10 offices in the locations noted above, as well as treatment facilities in the states that appear in orange.

Talented people are at the heart of our firm. Our company was founded in 1979 on a simple business concept: provide an enjoyable place to work with opportunity, integrity, and commitment, and we will attract talented people. It happened. At the heart of our company are people who are experts in their fields and passionate about what they do, showing a level of commitment and integrity that drive results for our clients. You experience this power every day in our actions, our solutions, and our promises kept.

Commitment evident in personal approach

Our commitment is reflected in the personal attention, collaborative resources, and dedication to results that we devote to each project. We assign the right people with the right expertise to the job, and provide clients with easy accessibility to senior experts.

Our work is characterized by responsiveness, resourcefulness, and willingness to do what it takes to get the job done properly. Examples range from helping communities garner state and federal funding for wastewater treatment system improvement to managing a multi-vendor manufacturing project through a major snowstorm and getting production lines up and running. We are expert at navigating the complexities of environmental regulations and have been involved in transforming many brownfields sites into marketable properties. In defining moments like these, it is commitment that brings our clients results.

Operating with integrity

Our integrity impacts our decision-making at all junctures of our work — from the openness of our communication to the fairness of our prices to placing your interests above our pocketbook. We hire people who share our values of honesty, respect, and fairness and who want to do the right thing. They, in turn, treat everyone — our people, our clients, regulators, and stakeholders — respectfully and honestly.

Full-service firm with multidisciplined staff

Our integrity and commitment are matched only by the depth of our expertise. Our staff are specialists in their fields, offering in-depth understanding of cutting-edge technology, astute problem-solving, multidisciplinary engineering, and expert regulatory guidance. The firm has received numerous honors and awards, and we have ranked among *Engineering News Record's* top 100 environmental firms every year since 2000.

Services to the public sector

We have been serving cities, towns, and state governments for over 30 years. Today, we offer services beginning with studies, concept, and design on through construction and operations to address our clients' solid waste, wastewater, water, stormwater, and civil engineering needs.

These projects often incorporate hydrogeology, Geographic Information Services, and instrumentation and controls. We also offer strong capabilities in health, safety, and security, including vulnerability assessments of public water supplies, emergency planning, and environmental sustainability.

Services to the private sector

Woodard & Curran provides a range of environmental engineering, science, and operations support to companies in the bottled water, pulp & paper, automotive, food processing, pharmaceuticals, electronics, and metals forging industries, as well as to hospitals, colleges and universities, and law firms.

While the range of clients we serve has grown, our work has always been characterized by long-term relationships. Typical projects include compliance and permitting; process and infrastructure improvements; corrective and remedial action; expert witness/litigation support; air quality; and environmental information management. Our private-sector clients also benefit from our services in health, safety, and security, and environmental sustainability.

Operations and Management

Woodard & Curran operates nearly 50 water, wastewater, and groundwater treatment facilities across the U.S. Our O&M specialists focus on contract operations and other O&M assignments for water, wastewater, groundwater, and solid waste facilities.

We design flexible, expandable solutions that keep operations efficient, maximize existing assets, and conserve costs. Our projects have ranged from quick, hard-hitting operational and training assignments to comprehensive plant evaluations and process control improvements to full contract operations.

Woodard & Curran's Services Offered

Civil and environmental engineering
- wastewater engineering
- civil engineering
- water supply
- solid waste management
- Design-build contracting

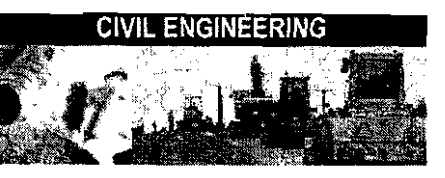
Environmental management consulting
- expert witness
- environmental information systems
- compliance
- health, safety, and security
- sustainability

Industrial engineering
- food and beverage manufacturing and source infrastructure
- electrical, instrumentation, and controls
- industrial wastewater
- process engineering

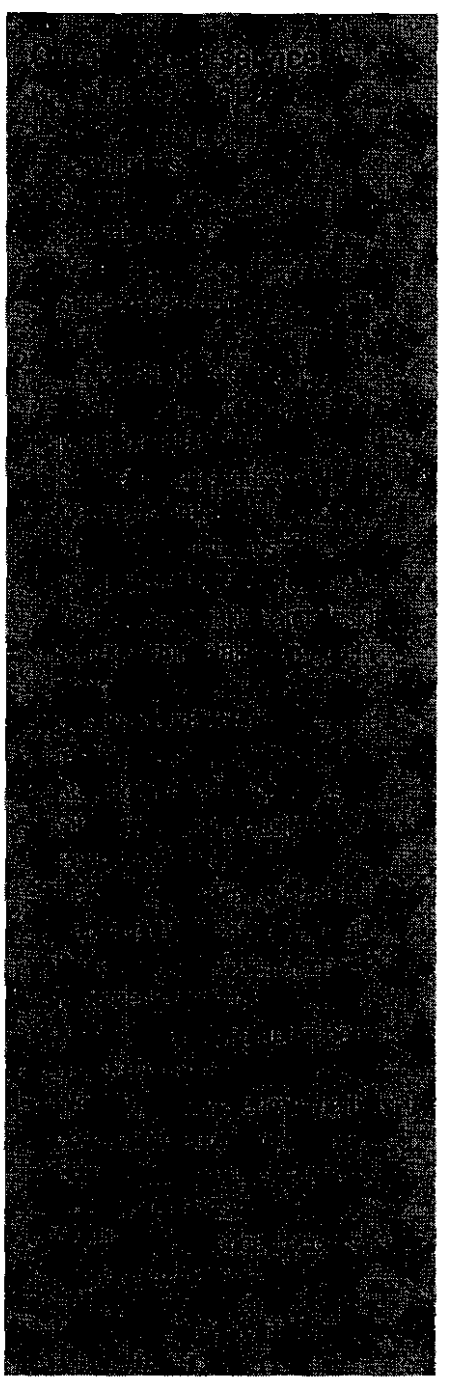
Corrective action and real estate services
- due diligence
- site investigation and remediation
- risk assessment
- real estate development
- environmental ecology
- civil/site engineering and permitting

Operations and management
- contract operations
- water & wastewater treatment
- water reclamation
- groundwater remediation
- training services
- health and safety

CIVIL ENGINEERING



Since 1979, Woodard & Curran has worked with municipalities to provide civil engineering services that support the process engineering, solid waste, hazardous waste, water, and wastewater services communities require. Whether acting as a municipality's general engineer or working with a community on a project-specific basis, our civil engineers provide the services and experience to assure that all needs are met.



On schedule and within budget: a long history

One critical factor in meeting our clients' needs is the ability to complete projects on schedule and within budget. Our engineers spend the time necessary to develop accurate cost and construction estimates, and keep up to date on funding and regulatory changes and any potential impacts they could have on a project. Woodard & Curran enjoys a long history of completing projects on budget and on time.

Focus on the coast: waterfront development and marine engineering

Master planning and design services for waterfront development projects put the talents of our engineers and designers to good use. Woodard & Curran has also worked on a number of municipal pier projects, including designing and overseeing the construction of the first municipal pier application of fiber-reinforced-polymer (FRP-gluelam), a material that significantly reduces construction and maintenance costs.

Meeting the needs of educational institutions

Reconfiguring a school to meet fluctuating enrollment, requirements such as the Americans with Disabilities Act guidelines, current technology needs, and maintaining overall facility integrity are significant challenges that all school systems face. With a wide range of experience, Woodard & Curran's civil engineers can meet a school system's unique needs.

Brownfield redevelopment: reclaiming land for communities

Brownfields – sites that once housed manufacturing plants, military bases, or other significant developments – must be developed carefully because of their real or perceived threat of environmental contamination. Our experienced staff can thoroughly assess a site, develop a plan to prevent further contamination, safely clean up a site, and develop a plan for reuse.

Regina S. Leonard
landscape architecture
& design

PROFILE

Regina Leonard is a landscape architect and Maine native. Her landscape architecture and design practice, located in Topsham, Maine, offers a diverse range of site planning and design services in both the public and private sector. Ms. Leonard's experience includes streetscape and downtown master planning, site redevelopment projects, as well as design and planning for public parks, trails, civic facilities and institutional sites throughout New England.

Ms. Leonard's background as a public sector landscape architect lends a unique perspective to her practice. She understands the inherent complexities of civic-scale projects and has demonstrated experience working with communities and interest groups toward common goals. Her past and recent work is strongly based in municipal settings and includes a range of services from conceptual level design through project implementation. Her current work includes downtown and park revitalization planning for the Town of Milo; waterfront redevelopment planning in Northeast Harbor; master planning for Mill Creek Park in South Portland, and numerous parks and trails projects for the City of Portland.

Ms. Leonard holds a Bachelor of Science degree in Landscape Horticulture from the University of Maine and a Masters degree in Landscape Architecture from the University of Massachusetts at Amherst. She serves on the Board of Trustees of the Maine Olmsted Alliance for Parks and Landscapes, a non-profit organization dedicated to the preservation, protection and revitalization of Maine's historic designed landscapes. Ms. Leonard is registered with the State of Maine and is professionally certified by the Council of Landscape Architecture Registration Board. She is also a member of the American Society of Landscape Architects and its local Boston Chapter.

EDUCATION

Master of Landscape Architecture, University of Massachusetts Amherst, May 2000. Thesis: "The Historic Vernacular Landscape of the Porter-Phelps-Huntington Property, 1652-to present: a Farmstead Spanning Three Centuries."
Bachelor of Science: Landscape Horticulture, University of Maine, Orono, Maine. Degree in Landscape Horticulture with a concentration in Landscape Design, 1995
Studies in Fine Art, Portland School of Art, Portland, Maine: 1986, 1988-89, 1999
Cornell Site Engineering Workshop, June 2004
Continuing Education in landscape architecture through seminars, conferences, lectures and workshops

PROFESSIONAL AFFILIATIONS

State of Maine, License # LAR3123
Council of Landscape Architectural Registration Board, Record/Certification #1998
Maine Olmsted Alliance for Parks and Landscapes, Board of Trustees, since 2002
American Society of Landscape Architects
Boston Society of Landscape Architects
Maine Society of Landscape Architects

29 Bridge Street Topsham, Maine 04086 Tel. 207.450.9700 Regina@rsldesign.com

TEACHING, RESEARCH, & PUBLICATIONS

Teaching

Landscape Design Study Program, Certified Instructor, Garden Club Federation of America, 2007 - present
Plant Materials: University of Massachusetts, LARP Dept., Amherst, MA, 1995-1998.
Landscape Design: University of Maine, Orono, Maine, 1995
Landscape Graphics: University of Maine, Orono, Maine, 1994-1995

Research & Publications

Managing Editor, Maine Olmsted Alliance for Parks & Landscapes Journal, 2006 - 2007
The Camden Public Library Grounds, Amphitheater and Harbor Park Revisited, MOAPL Journal, S07
Investigating Maine's Coastal Cemeteries, MOAPL Journal (MOAPL)I, S05
Planning Tomorrow's Burial Grounds, MOAPL Journal, S05
Mill River Watershed Partnership, Springfield Conservation Commission, 1996-1997, Program Development
Tree Survey and Database, Amesbury, Massachusetts, 1995-1996

PROFESSIONAL & PEER REFERENCES

Tom Civiello, Manager; Parks and Open Space Division; Portland, Maine; tel. 207-874-8801
Robert Hamblen, City Planner; Saco, Maine; tel. 207-282-3487
Noel Musson, Land Use Planner, CES, Inc., Southwest Harbor, Maine; tel. 207-244-0062
Alan Holt, Architect & Planner, Community Design Studio, Portland, Maine; tel. 207-761-7236

SELECTED PROJECTS

Communities & Downtowns

Canal Street Streetscape Improvements, *Lewiston, Maine*
Downtown Planning Study & Revitalization Plan, *Livermore Falls, Maine*
Downtown Revitalization Project, *Milo, Maine*
Downtown Urban Design Guidelines, *Lewiston, Maine*
Old High School Redevelopment Study, *Brunswick, Maine*
Lincoln Street Corridor Enhancement; *Lewiston, Maine*
Lisbon Street Streetscape Improvements, *Lewiston, Maine*
Main Street Art Wall Project, *Auburn, Maine*
Main Street Streetscape Master Plan, *Lewiston, Maine*
Main Street, Chestnut to Middle Street Block Improvements, *Lewiston, Maine*
Mitchell Field Master Plan, *Harpswell, Maine*
Municipal Complex Master Plan, *Portsmouth, New Hampshire*
Northeast Harbor Waterfront Master Plan, *Northeast Harbor, Maine*
Park Street Streetscape Master Plan, *Lewiston, Maine*
Reiche School Master Plan Charette, *Portland, Maine*
Vienna Town Hall Master Plan, *Vienna, Maine*

Parks, Playgrounds, Plazas & Trails

Baxter Elementary School Playground, *Portland, Maine*
Bayside Community Park, *Portland, Maine*
Bridge to Bridge Trail Project, *Topsham, Maine*
Deering Oaks Park Playspace, *Portland, Maine*
Dougherty Field Recreational Facility Master Plan, *Portland, Maine*
Dougherty Field Phase One Improvements, Portland, *Maine*
East End Community Playground, *Portland, Maine*
Eastern Promenade Trail Improvements, *Portland, Maine*
Eastern Promenade Street Tree Recommendations, *Portland, Maine*
Franklin Pasture Bike Path, *Lewiston, Maine*
Fort Allen Park Planting Plan, *Portland, Maine*
Fort Allen Trail Plan, *Portland, Maine*
Fort Sumner Park Rehabilitation Plan, *Portland, Maine*

Gateway Park Planting Plan, *Lewiston, Maine*
Hall School Boulder Garden, *Portland, Maine*
Hislop Park Master Plan & Phase One Improvements, *Portsrhouth, New Hampshire*
Loring Memorial Trail, *Portland, Maine*
John F. Kennedy School Playground, *Biddeford, Maine*
Lower Fort Sumner Park & Trail Improvements, *Portland, Maine*
Maple Haven Park Master Plan, *Portsmouth, New Hampshire*
Peirce Island East End Trails Project; *Portsmouth, New Hampshire*
Peppermint Park Revitalization Plan, *Portland, Maine*
Prentiss Park Master Plan, *Saco, Maine*
Riverton Schoolyard Greening Project, *Portland, Maine*
Tate-Tyng Playground Improvements, Portland, Maine
Taylor Street Park Improvements, *Portland, Maine*
Sohier Park Site Improvements Plan; *York, Maine*
Veterans' Park Improvements, *Milo, Maine*

Civic/Institutional/Historic
Amherst College Landscape Improvements & Plantings, *Amherst, Massachusetts*
Brooks Estate Historic Plant Inventory & Planting Plan, *Medford, Massachusetts*
Children's Study Home Site Plan, *Springfield, Massachusetts*
French Hall Site Improvements, University of Massachusetts, *Amherst, Massachusetts*
Frederick Harris Elementary School Memorial Garden, *Springfield, Massachusetts*
Governor Baxter School for the Deaf
Joshua Chamberlain Statue Project, *Brunswick, Maine*
Mayor Baxter Woods Master Plan, *Portland, Maine*
Municipal Complex Master Plan, *Portsmouth, New Hampshire*
Rondileau Campus Center, Bridgewater State College, *Bridgewater, Massachusetts*
Restoration of the Sunken Garden at The Elms, *Newport, Rhode Island*
Soujoumer Truth Memorial, *Florence, Massachusetts*
Stevens Estate at Osgood Hill, Historic Plant Inventory, *North Andover, Massachusetts*
Touchstone School Master Plan, *Grafton, Massachusetts*
Union College Circulation, Open Space & Parking Study, *Schenectady, New York*
University of Southern Maine Arts Campus, *Gorham, Maine*
University of Southern Maine Exeter Street Enhancement; *Portland, Maine*
Ventfort Hall, Historic Plantings Assessment, *Lenox, Massachusetts*

Cemetery Preservation & Master Planning
Evergreen Cemetery Rehabilitation of the Historic Ponds, *Portland, Maine*
First Parish Cemetery Upper Woodlands Burial Area; *York, Maine*
Hillside Cemetery Preservation Plan, *North Adams, Massachusetts*
Melvin Memorial & Chestnut Ridge Preservation Plan, Sleepy Hollow Cemetery, *Concord, Massachusetts*
Old Common & Burial Ground Rehabilitation Plan, *Marlborough, Massachusetts*
Temple Beth El Memorial Park Master Plan, *Portland, Maine*
West Cemetery Preservation Plan, *Amherst, Massachusetts*
Winthrop Street Cemetery, Plantings Assessment & Recommendations, *Provincetown, Massachusetts*

Land Use & Environmental Planning & Permitting
Anchorage Embankment Restoration Landscape Plan, *Ogunquit, Maine*
Capisic Park Restoration Plan, *Portland, Maine*
City of Saco Landscape Plan Reviews, *Saco, Maine*
Clifton Street Drainage Improvements, Filtration Plantings, *Portland, Maine*
Jacob's Ladder Trail Vegetation Management Plan, *Lee, Massachusetts*
Long Creek Watershed Filtration Plantings, *South Portland, Maine*
Wetland Restoration Planting Plan, *Buxton, Maine*
West Side Sewer Interceptor Project, *Portland, Maine*

Appendix D

Stormwater Management Plan

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

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T 207.774.2112
F 207.774.6635

MEMORANDUM

WOODARD &CURRAN

TO: Jean Fraser, Planner
FROM: David Senus, P.E.
DATE: September 3, 2010
RE: Stormwater Analysis for Dougherty Field Improvement Project in Portland, Maine

---

Woodard & Curran has analyzed the stormwater drainage of the Dougherty Field Improvements project, located in Portland, Maine, as part of the Level II Site Plan Application submission to the City of Portland. The following memo summarizes the existing drainage, proposed drainage infrastructure, and the results of our stormwater modeling. A HydroCAD model and Post-development Stormwater Plan of the site is attached.

The property is located between Douglass Street and St. James Street. Approximately 15-acres of the site is currently used as athletic fields with relatively flat slopes. The proposed realignment of the existing softball and baseball fields will not greatly affect the existing grading and drainage patterns, therefore these areas were not included in the stormwater analysis.

Overall, the project proposes a net increase in impervious area of approximately 3,000 sq ft. This considers the proposed trail network (stone dust & paved), skate park and expanded parking lot area, offset by the removal of the tennis court area. This small overall increase in impervious area spread across the 15 acre park site does not present a concern for a significant increase in runoff as a result of the project. We prepared a post development stormwater model to evaluate the flow that will enter the Edwards Street Sewer Interceptor, and not as a means of comparing pre and post conditions, an exercise which would require a broader and more detailed stormwater model which we felt to be unnecessary given the minor overall change to impervious area across the park.

The stormwater analysis focused on the area surrounding and including the new concrete skate park and redeveloped parking lot along St. James Street. The existing drainage infrastructure in this area consists of two 12-inch culverts, which discharge onto the adjacent Maine Department of Transportation (MDOT) property, and a field inlet, which connects to the Edwards Street Combined Sewer Interceptor.

The proposed drainage infrastructure includes seven area drains and one catch basin located at low spots surrounding the skate park. The area drains and catch basin are interconnected with 10-inch diameter SDR-35 pipe, the City of Portland's standard minimum pipe size for stormwater infrastructure. The proposed drainage infrastructure will tie into an existing buried manhole located along the property line between Dougherty Field and the MDOT property. The existing manhole is part of the Edwards Street Interceptor, which flows into the Old Almshouse Sewer. During high flow events, the overflow in the Edwards Street Interceptor and Old Almshouse Sewer discharges into Back Cove by way of the Preble Street Outfall (CSO 017). Initial discussions with John Emerson, City of Portland Wastewater Facilities Coordinator, indicated that the Edwards Street sewer interceptor had capacity to accept the project's drainage.

The proposed drainage improvements also include three small underdrain soil filters surrounding drain basins DB4, DB6 and catch basin CB1. These proposed soil filters will provide stormwater quality treatment and detain small volumes of runoff during storm events.

The site can be divided into eight subcatchment areas surrounding the skate park, each draining to a proposed drainage structure, and two small subcatchment areas within the skate park. The percentage of impervious surface area in each subcatchment ranges from 2.31% to 38.82%, excluding the two subcatchments within the skate park, which are 100% impervious. Impervious surfaces within the

subcatchment areas include bituminous pavement and sidewalk, skate park concrete and stone dust walking paths.

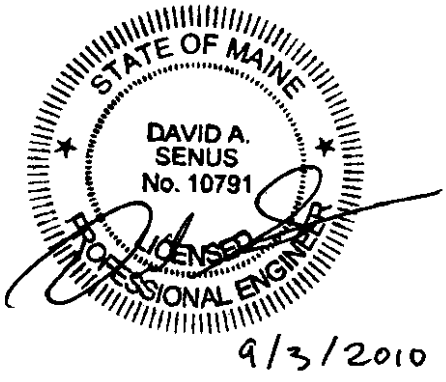
The time of concentration (Tc) was determined for each subcatchment area. The Tc represents the time for water to flow from the most hydrologically remote point in the subcatchment area to the subcatchment outlet. The Tc paths were broken down into sheet flow and shallow concentrated flow segments based on TR55 criteria. The paths and the resulting Tc times are shown on the attached Post-Development stormwater plan.

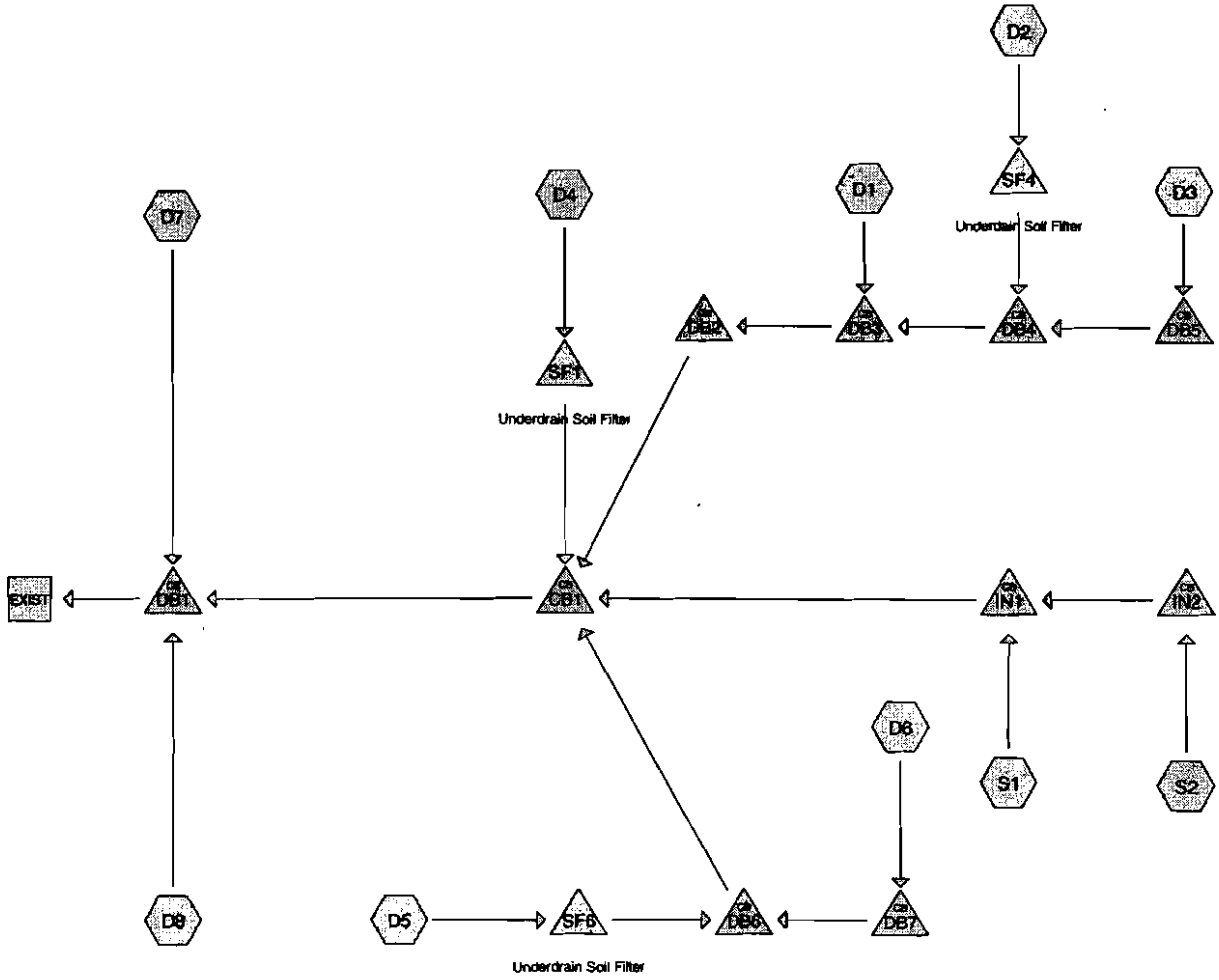
Using the subcatchment areas and Tc values, Woodard & Curran created a HydroCAD model of the Post-development condition. Peak flow rates were calculated for storms with a 2-year, 10-year, and 25-year return frequency. The following table provides a summary of the HydroCAD model's peak flow rates:

Table 1: Peak Flow Rates

Discharge Point	Storm Return Frequencies		
	2-year	10-year	25-year
Edwards Street Interceptor Manhole	2.59 cfs	6.57 cfs	8.18 cfs

The post development stormwater model indicates that some minor surface ponding will occur at the designed low points due to conveyance restrictions in the 10" pipe, most notably during the 10 and 25 year events. This ponding was less than a foot above the structure rim grades and will be adequately contained in the designed low points. Given the nature of the site, a park area, we felt that minor ponding during the larger rain events is acceptable as it does not pose a risk to infrastructure and it restricts flowrate of discharge into the Edwards Street Interceptor.





Subcat Reach Pond Link

Drainage Diagram for 2010.08.31 Dougherty Field
Prepared by Woodard & Curran, Printed 9/2/2010

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.297	74	>75% Grass cover, Good, HSG C (D1,D2,D3,D4,D5,D6,D7,D8)
0.478	98	Paved parking & roofs (D1,D2,D3,D4,D5,D6,D7,D8,S1,S2)
2.775		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.297	HSG C	D1, D2, D3, D4, D5, D6, D7, D8
0.000	HSG D	
0.478	Other	D1, D2, D3, D4, D5, D6, D7, D8, S1, S2
2.775		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment D1: Runoff Area=35,719 sf 2.31% Impervious Runoff Depth>0.87"
Flow Length=275' Tc=11.4 min CN=75 Runoff=0.72 cfs 0.060 af

Subcatchment D2: Runoff Area=15,289 sf 35.29% Impervious Runoff Depth>1.27"
Flow Length=370' Slope=0.0100 '/' Tc=14.3 min CN=82 Runoff=0.43 cfs 0.037 af

Subcatchment D3: Runoff Area=6,144 sf 11.23% Impervious Runoff Depth>0.98"
Flow Length=95' Tc=8.0 min CN=77 Runoff=0.16 cfs 0.012 af

Subcatchment D4: Runoff Area=5,360 sf 38.82% Impervious Runoff Depth>1.34"
Flow Length=60' Tc=5.4 min CN=83 Runoff=0.21 cfs 0.014 af

Subcatchment D5: Runoff Area=19,309 sf 32.67% Impervious Runoff Depth>1.28"
Flow Length=335' Tc=2.4 min CN=82 Runoff=0.78 cfs 0.047 af

Subcatchment D6: Runoff Area=10,624 sf 31.10% Impervious Runoff Depth>1.21"
Flow Length=95' Tc=5.6 min CN=81 Runoff=0.37 cfs 0.025 af

Subcatchment D7: Runoff Area=15,051 sf 7.27% Impervious Runoff Depth>0.93"
Flow Length=240' Tc=4.2 min CN=76 Runoff=0.41 cfs 0.027 af

Subcatchment D8: Runoff Area=12,730 sf 3.85% Impervious Runoff Depth>0.87"
Flow Length=290' Tc=13.2 min CN=75 Runoff=0.24 cfs 0.021 af

Subcatchment S1: Runoff Area=383 sf 100.00% Impervious Runoff Depth>2.59"
Flow Length=30' Slope=0.0700 '/' Tc=0.1 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment S2: Runoff Area=256 sf 100.00% Impervious Runoff Depth>2.59"
Flow Length=10' Slope=0.2000 '/' Tc=0.0 min CN=98 Runoff=0.02 cfs 0.001 af

Reach EXIST: Inflow=2.59 cfs 0.220 af
Outflow=2.59 cfs 0.220 af

Pond CB1: Peak Elev=27.05' Inflow=1.98 cfs 0.172 af
10.0" x 100.0' Culvert Outflow=1.98 cfs 0.172 af

Pond DB1: Peak Elev=22.11' Inflow=2.59 cfs 0.220 af
10.0" x 4.0' Culvert Outflow=2.59 cfs 0.220 af

Pond DB2: Peak Elev=26.95' Inflow=1.18 cfs 0.098 af
10.0" x 86.0' Culvert Outflow=1.18 cfs 0.098 af

Pond DB3: Peak Elev=27.29' Inflow=1.18 cfs 0.098 af
10.0" x 127.0' Culvert Outflow=1.18 cfs 0.098 af

Pond DB4: Peak Elev=27.19' Inflow=0.45 cfs 0.039 af
10.0" x 47.0' Culvert Outflow=0.45 cfs 0.039 af

Pond DB5: Peak Elev=27.27' Inflow=0.16 cfs 0.012 af
10.0" x 65.0' Culvert Outflow=0.16 cfs 0.012 af

Pond DB6: Peak Elev=28.64' Inflow=0.92 cfs 0.062 af
10.0" x 114.0' Culvert Outflow=0.92 cfs 0.062 af

Pond DB7: Peak Elev=28.60' Inflow=0.37 cfs 0.025 af
10.0" x 42.0' Culvert Outflow=0.37 cfs 0.025 af

Pond IN1: Peak Elev=27.15' Inflow=0.05 cfs 0.003 af
6.0" x 100.0' Culvert Outflow=0.05 cfs 0.003 af

Pond IN2: Peak Elev=30.09' Inflow=0.02 cfs 0.001 af
6.0" x 65.0' Culvert Outflow=0.02 cfs 0.001 af

Pond SF1: Underdrain Soil Filter Peak Elev=30.02' Storage=161 cf Inflow=0.21 cfs 0.014 af
Primary=0.01 cfs 0.008 af Secondary=0.03 cfs 0.000 af Outflow=0.04 cfs 0.008 af

Pond SF4: Underdain Soil Filter Peak Elev=30.06' Storage=221 cf Inflow=0.43 cfs 0.037 af
Primary=0.03 cfs 0.019 af Secondary=0.29 cfs 0.008 af Outflow=0.33 cfs 0.027 af

Pond SF6: Underdrain Soil Filter Peak Elev=30.59' Storage=599 cf Inflow=0.78 cfs 0.047 af
Primary=0.03 cfs 0.016 af Secondary=0.54 cfs 0.021 af Outflow=0.56 cfs 0.037 af

Total Runoff Area = 2.775 ac Runoff Volume = 0.245 af Average Runoff Depth = 1.06"
82.77% Pervious = 2.297 ac 17.23% Impervious = 0.478 ac

Summary for Subcatchment D1:

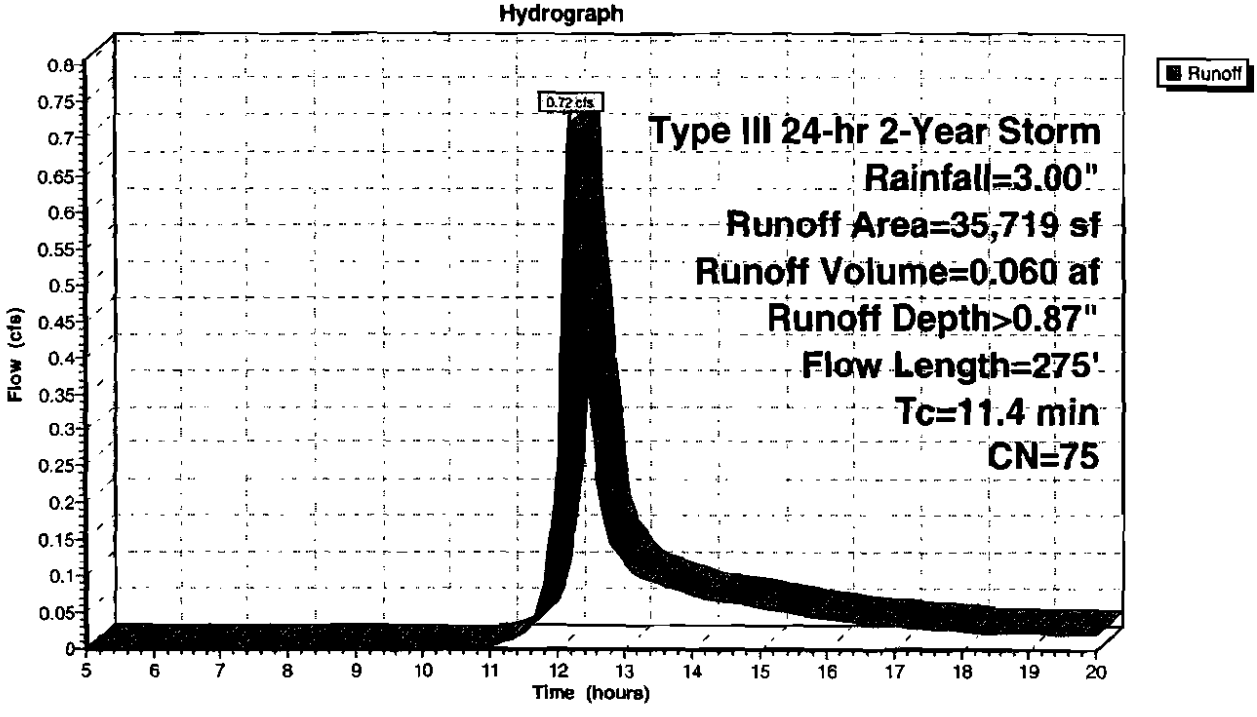
Runoff = 0.72 cfs @ 12.17 hrs, Volume= 0.060 af, Depth> 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
34,895	74	>75% Grass cover, Good, HSG C
824	98	Paved parking & roofs
35,719	75	Weighted Average
34,895		Pervious Area
824		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	65	0.1200	0.31		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
3.7	35	0.0300	0.16		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
4.2	175	0.0100	0.70		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
11.4	275	Total			

Subcatchment D1:



Summary for Subcatchment D2:

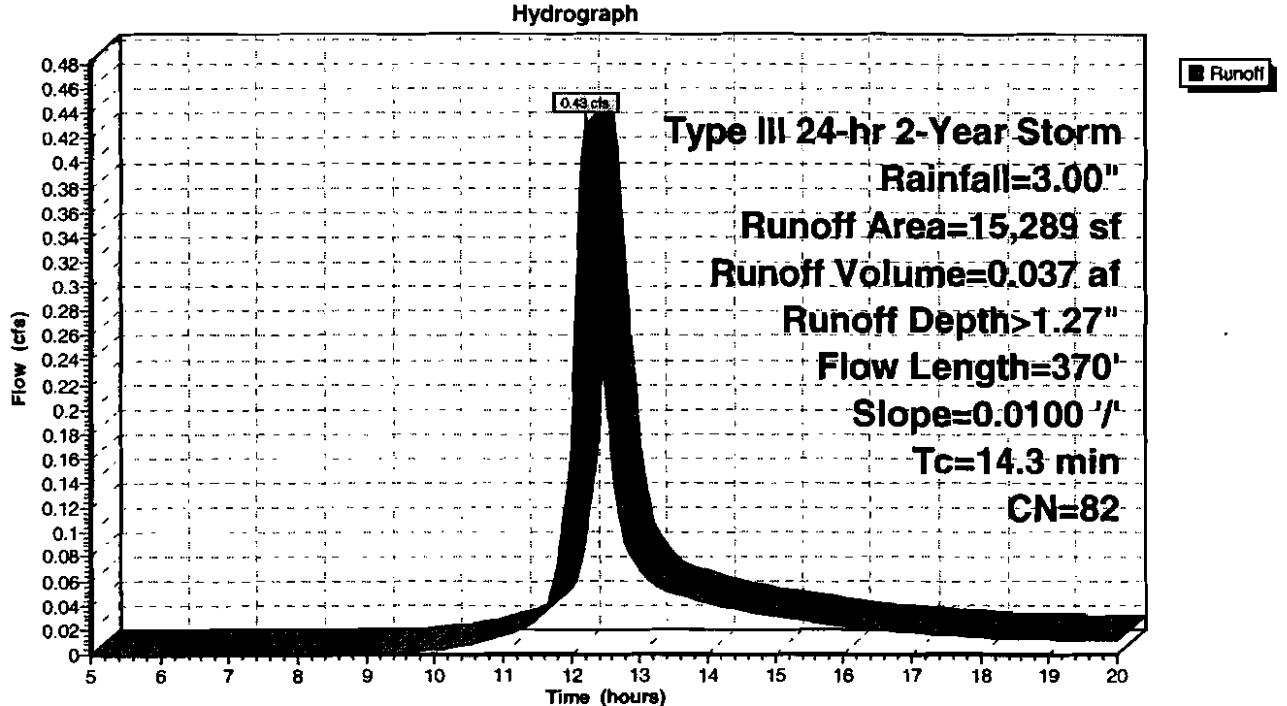
Runoff = 0.43 cfs @ 12.21 hrs, Volume= 0.037 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
9,894	74	>75% Grass cover, Good, HSG C
5,395	98	Paved parking & roofs
15,289	82	Weighted Average
9,894		Pervious Area
5,395		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	40	0.0100	0.10		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
7.9	330	0.0100	0.70		**Shallow Concentrated Flow, B to C** Short Grass Pasture Kv= 7.0 fps
14.3	370	Total			

Subcatchment D2:



Summary for Subcatchment D3:

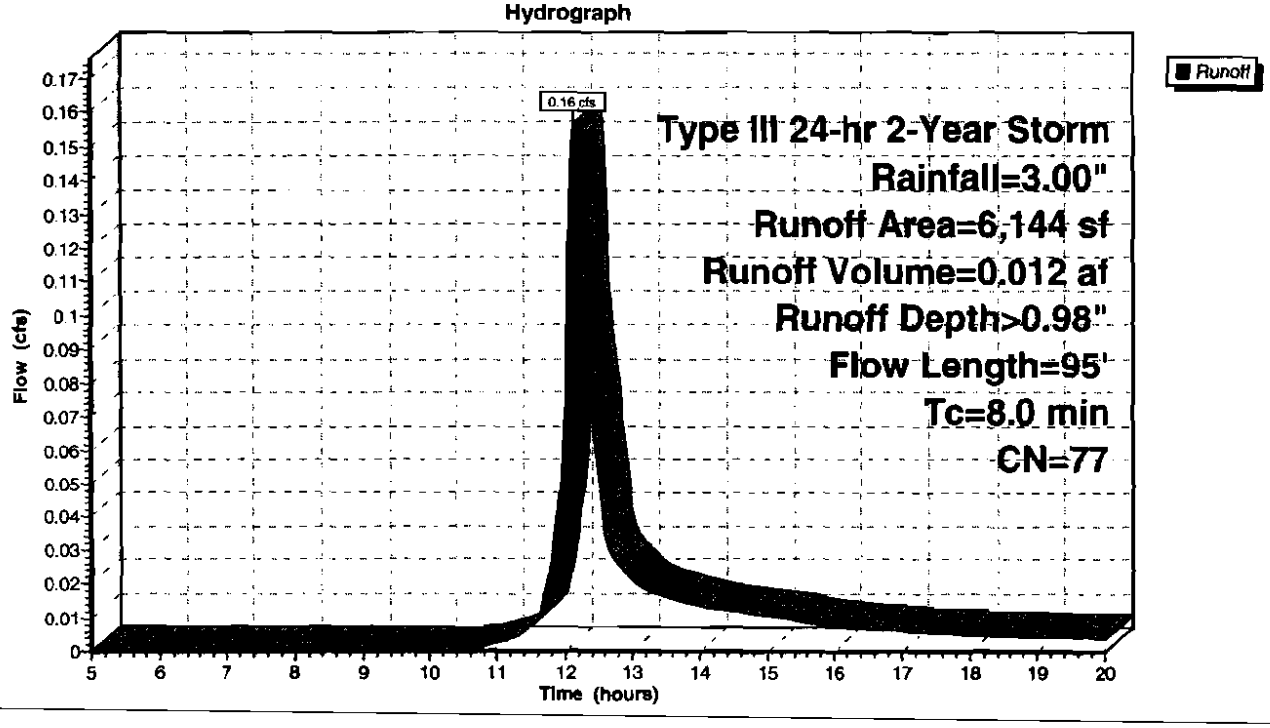
Runoff = 0.16 cfs @ 12.12 hrs, Volume= 0.012 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
5,454	74	>75% Grass cover, Good, HSG C
690	98	Paved parking & roofs
6,144	77	Weighted Average
5,454		Pervious Area
690		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	55	0.1200	0.30		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
4.9	40	0.0200	0.14		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
8.0	95	Total			

Subcatchment D3:



Summary for Subcatchment D4:

[49] Hint: Tc<2dt may require smaller dt

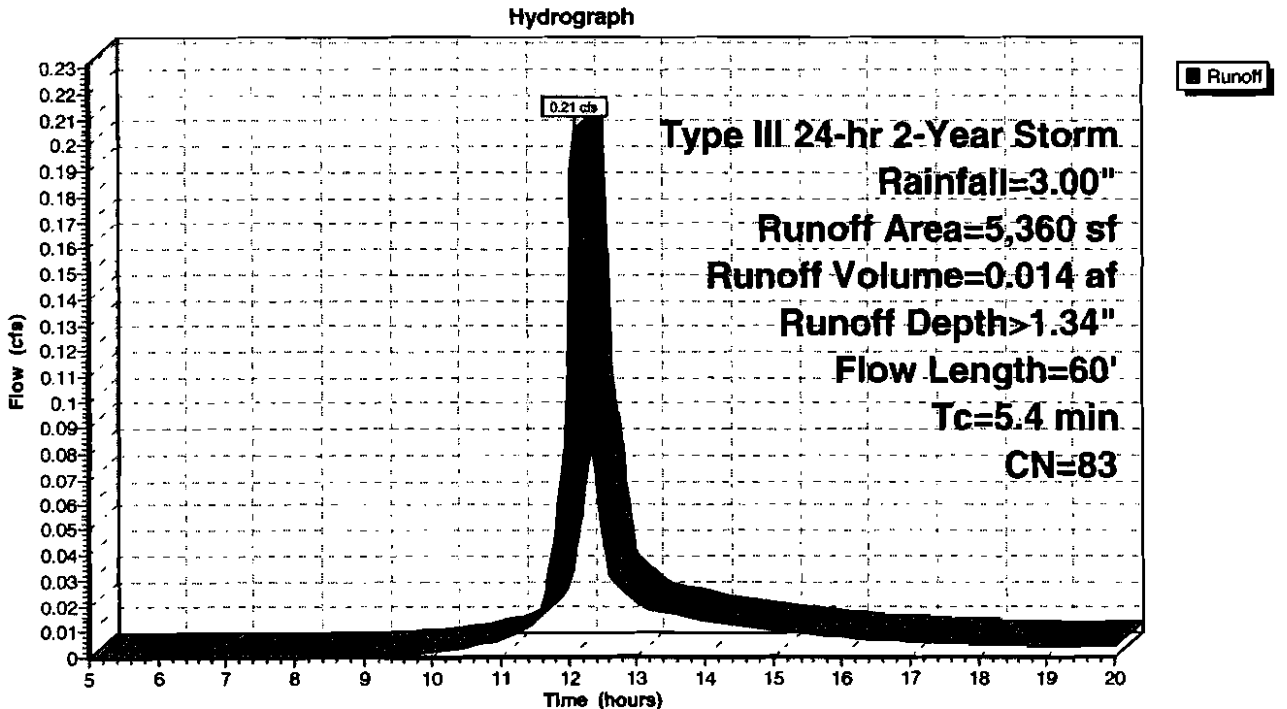
Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 1.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
3,279	74	>75% Grass cover, Good, HSG C
2,081	98	Paved parking & roofs
5,360	83	Weighted Average
3,279		Pervious Area
2,081		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	33	0.0450	0.18		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
2.4	27	0.0550	0.19		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
5.4	60	Total			

Subcatchment D4:



Summary for Subcatchment D5:

[49] Hint: Tc<2dt may require smaller dt

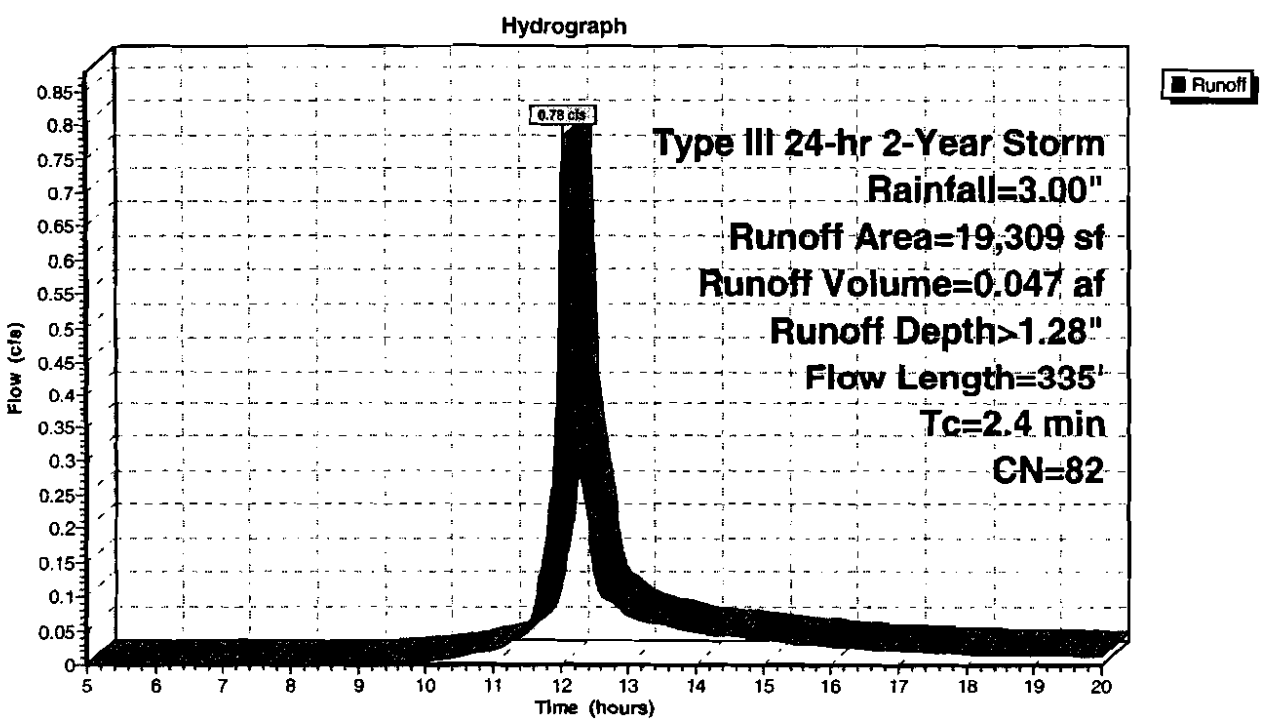
Runoff = 0.78 cfs @ 12.05 hrs, Volume= 0.047 af, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
13,000	74	>75% Grass cover, Good, HSG C
6,309	98	Paved parking & roofs
19,309	82	Weighted Average
13,000		Pervious Area
6,309		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.01		**Sheet Flow, A to B** Smooth surfaces n= 0.011 P2= 3.00"
0.8	145	0.0200	2.87		**Shallow Concentrated Flow, B to C** Paved Kv= 20.3 fps
1.2	165	0.0500	2.24		**Shallow Concentrated Flow, C to D** Nearly Bare & Untilled Kv= 10.0 fps
2.4	335	Total			

Subcatchment D5:



Summary for Subcatchment D6:

[49] Hint: Tc<2dt may require smaller dt

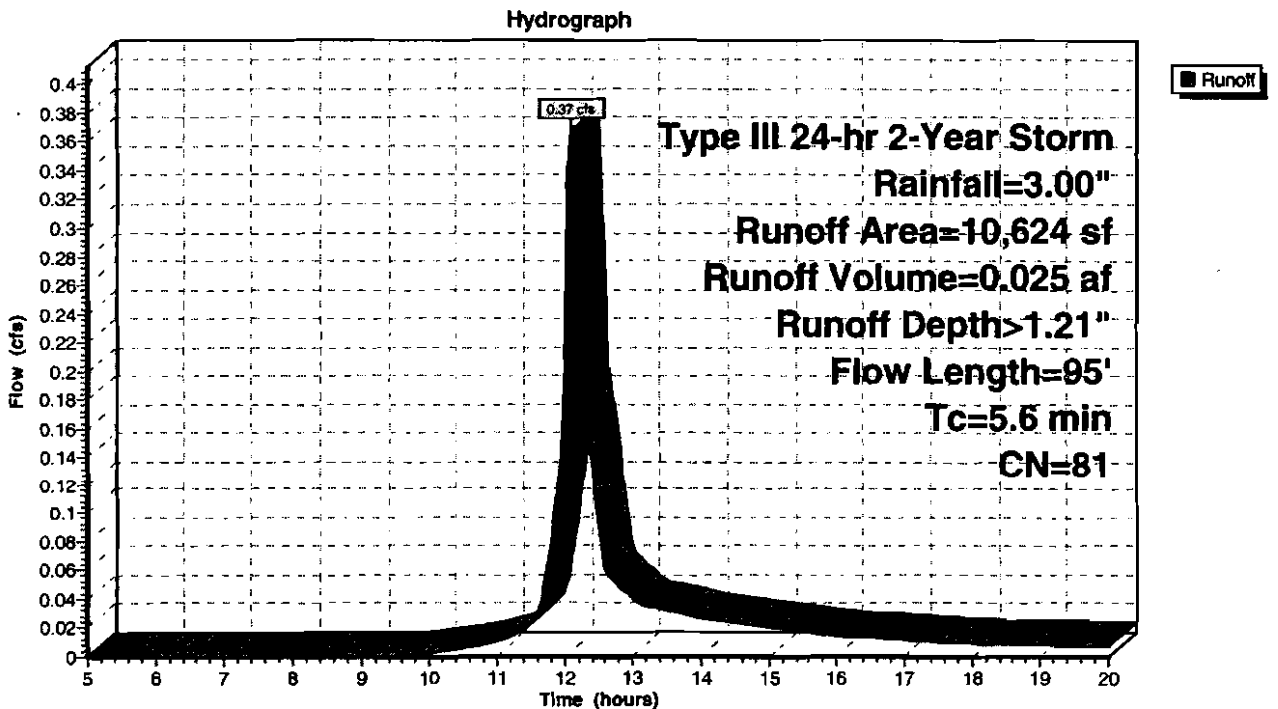
Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
7,320	74	>75% Grass cover, Good, HSG C
3,304	98	Paved parking & roofs
10,624	81	Weighted Average
7,320		Pervious Area
3,304		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	45	0.0200	1.14		**Sheet Flow, A to B** Smooth surfaces n= 0.011 P2= 3.00"
4.9	50	0.0300	0.17		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
5.6	95	Total			

Subcatchment D6:



Summary for Subcatchment D7:

[49] Hint: Tc<2dt may require smaller dt

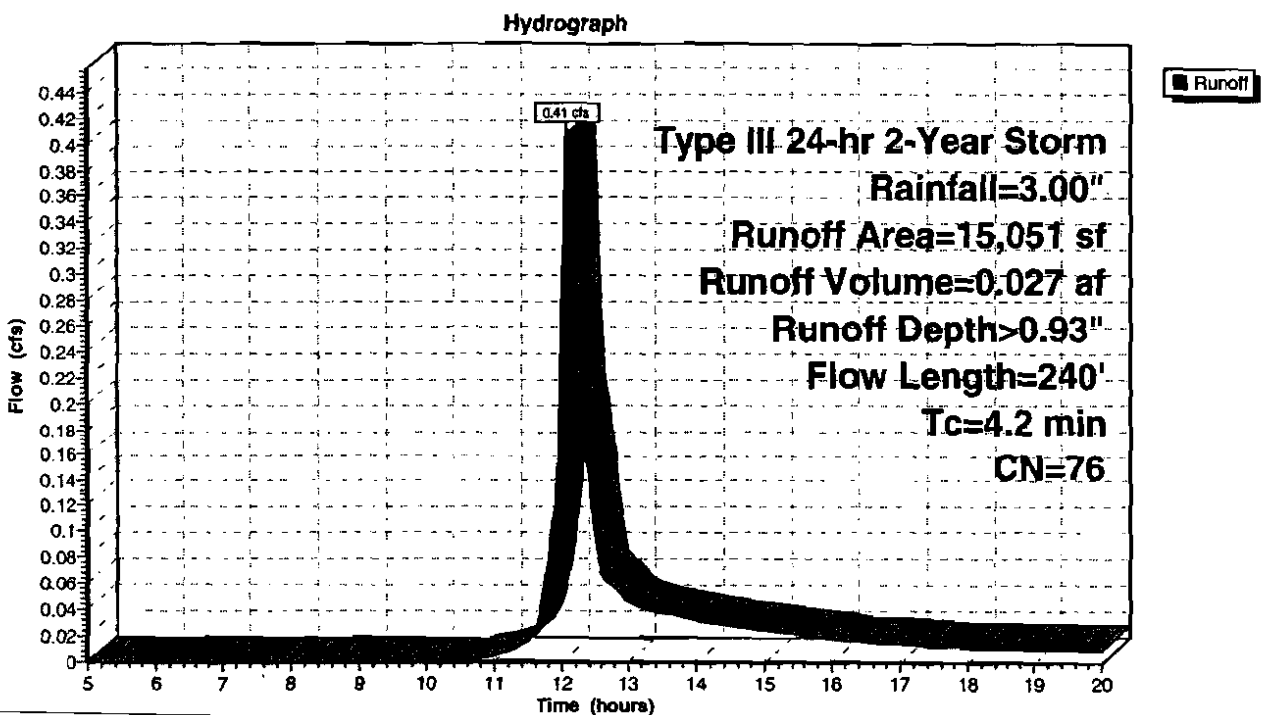
Runoff = 0.41 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 0.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
13,957	74	>75% Grass cover, Good, HSG C
1,094	98	Paved parking & roofs
15,051	76	Weighted Average
13,957		Pervious Area
1,094		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	25	0.1200	0.26		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
2.6	215	0.0400	1.40		**Shallow Concentrated Flow, B to C** Short Grass Pasture Kv= 7.0 fps
4.2	240	Total			

Subcatchment D7:



Summary for Subcatchment D8:

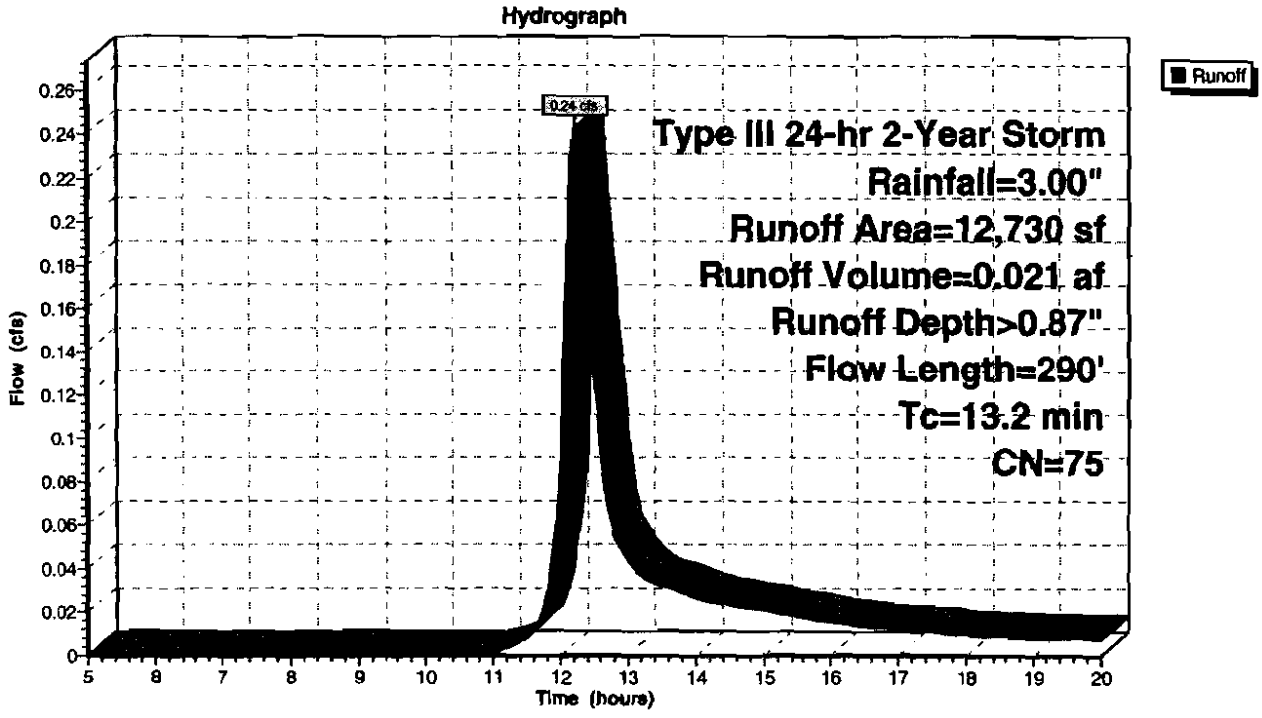
Runoff = 0.24 cfs @ 12.20 hrs, Volume= 0.021 af, Depth> 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
12,240	74	>75% Grass cover, Good, HSG C
490	98	Paved parking & roofs
12,730	75	Weighted Average
12,240		Pervious Area
490		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0100	0.11		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
3.3	50	0.0800	0.25		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	50	0.0050	3.36	1.83	**Circular Channel (pipe), D to E** Diam= 10.0" Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011 Concrete pipe, straight & clean
0.8	40	0.0147	0.85		**Shallow Concentrated Flow, E to F** Short Grass Pasture Kv= 7.0 fps
13.2	290	Total			

Subcatchment D8:



Summary for Subcatchment S1:

[49] Hint: Tc<2dt may require smaller dt

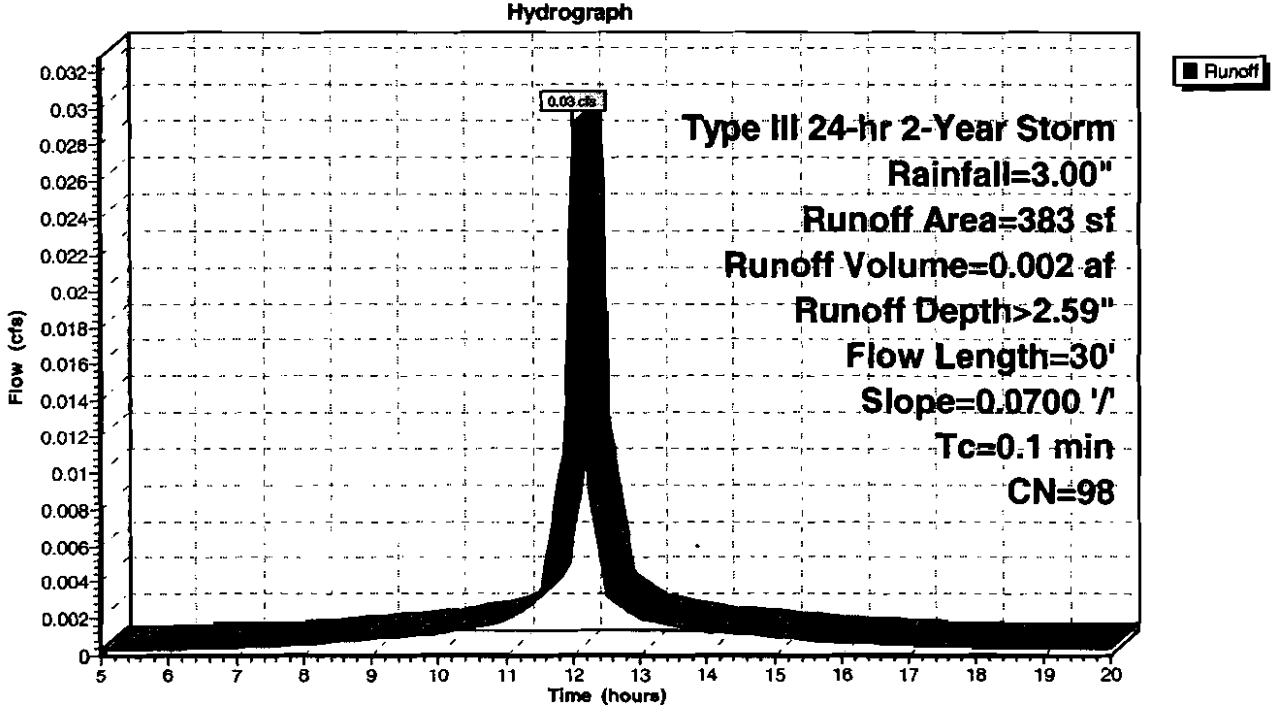
Runoff = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
383	98	Paved parking & roofs
383		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	30	0.0700	5.37		**Shallow Concentrated Flow, A to B** Paved Kv= 20.3 fps

Subcatchment S1:



Summary for Subcatchment S2:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

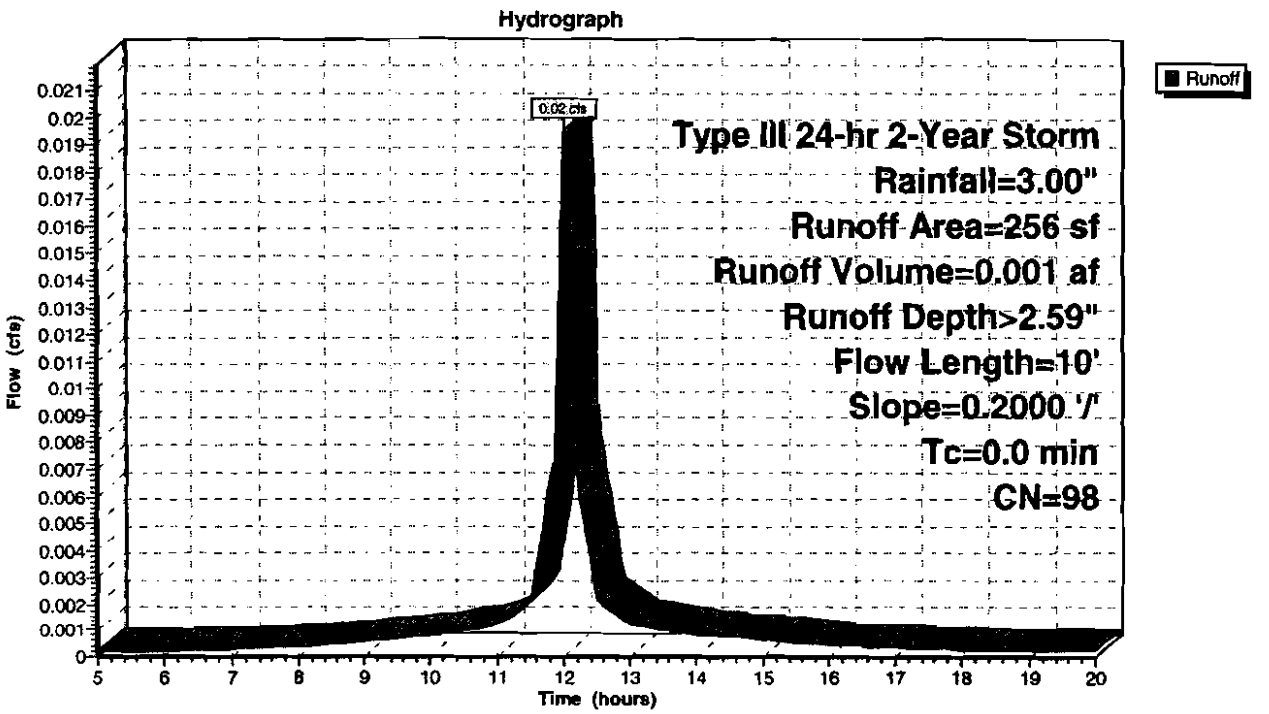
Runoff = 0.02 cfs @ 12.00 hrs, Volume= 0.001 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Rainfall=3.00"

Area (sf)	CN	Description
256	98	Paved parking & roofs
256		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.2000	9.08		**Shallow Concentrated Flow, A to B** Paved Kv= 20.3 fps

Subcatchment S2:



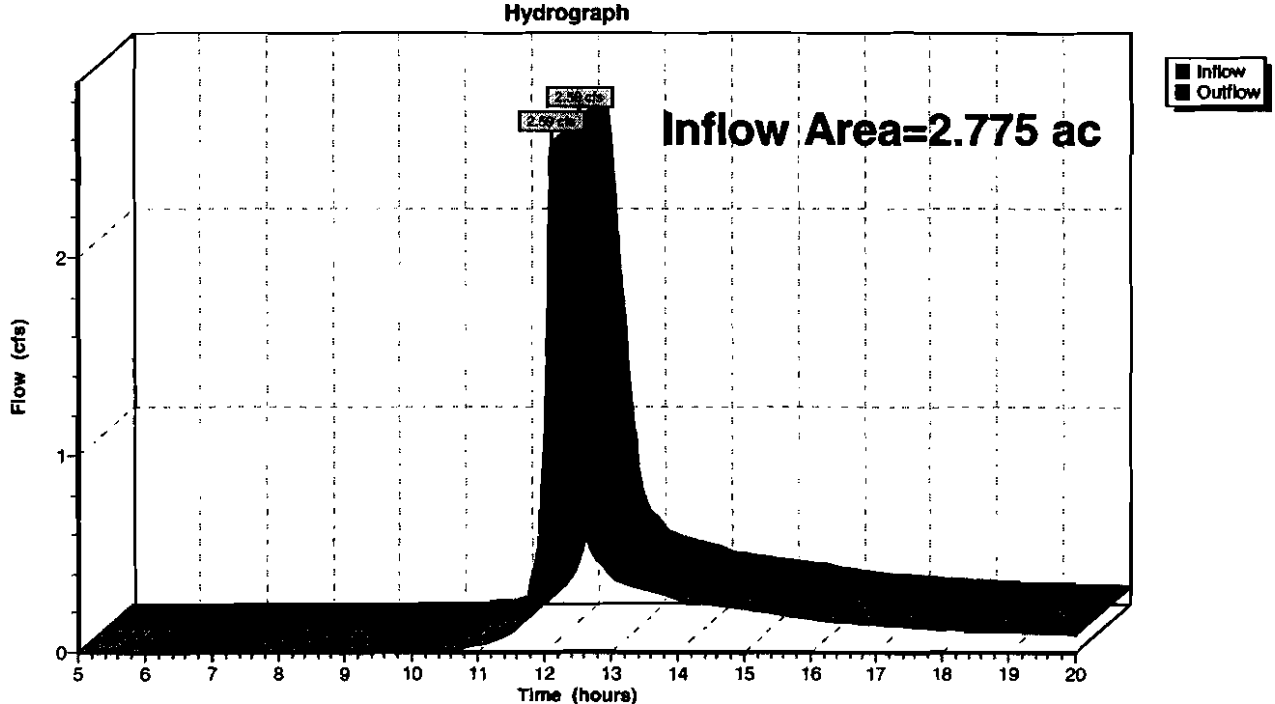
Summary for Reach EXIST:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.775 ac, 17.23% Impervious, Inflow Depth > 0.95" for 2-Year Storm event
Inflow = 2.59 cfs @ 12.12 hrs, Volume= 0.220 af
Outflow = 2.59 cfs @ 12.12 hrs, Volume= 0.220 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach EXIST:



Summary for Pond CB1:

[57] Hint: Peaked at 27.05' (Flood elevation advised)
[81] Warning: Exceeded Pond DB2 by 0.15' @ 12.10 hrs
[79] Warning: Submerged Pond IN1 Primary device # 1 INLET by 0.04'

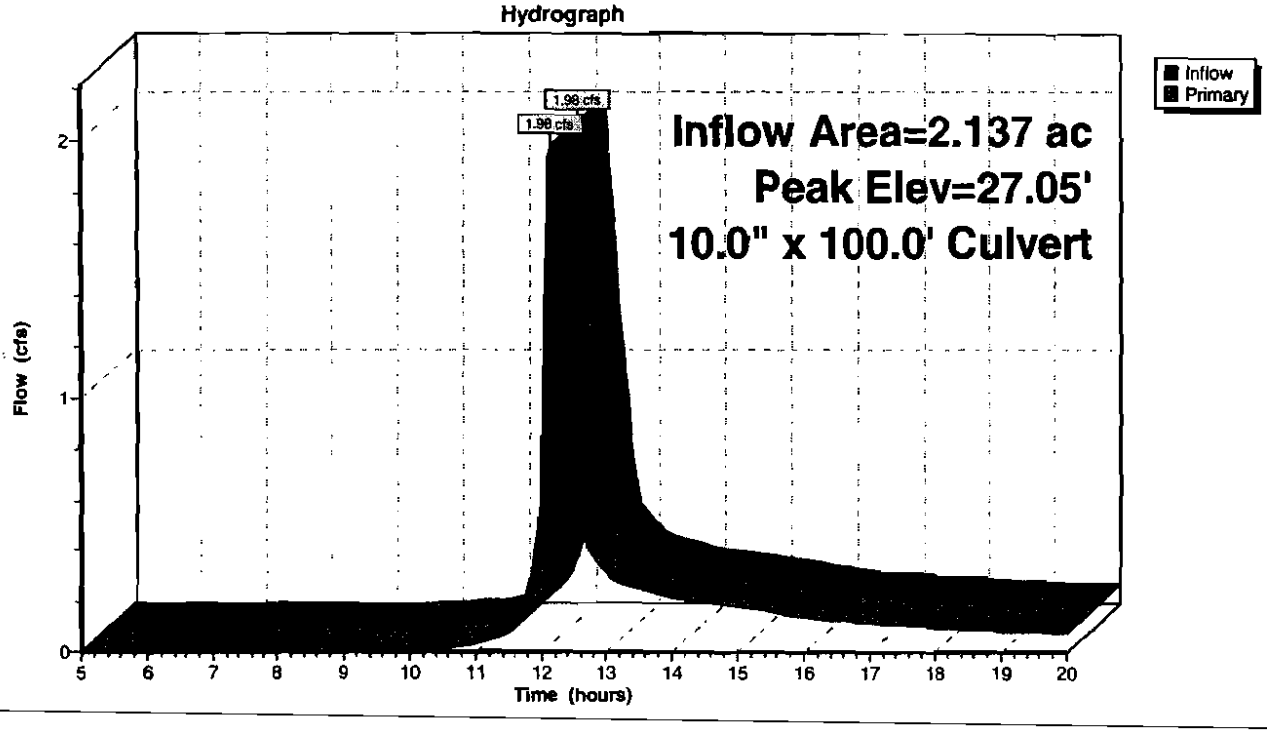
Inflow Area = 2.137 ac, 20.67% Impervious, Inflow Depth > 0.96" for 2-Year Storm event
Inflow = 1.98 cfs @ 12.14 hrs, Volume= 0.172 af
Outflow = 1.98 cfs @ 12.14 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 1.98 cfs @ 12.14 hrs, Volume= 0.172 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.05' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	25.72'	**10.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 20.26' S= 0.0546 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=1.96 cfs @ 12.14 hrs HW=27.03' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.96 cfs @ 3.60 fps)

Pond CB1:



Summary for Pond DB1:

[57] Hint: Peaked at 22.11' (Flood elevation advised)
[79] Warning: Submerged Pond CB1 Primary device # 1 OUTLET by 1.76'

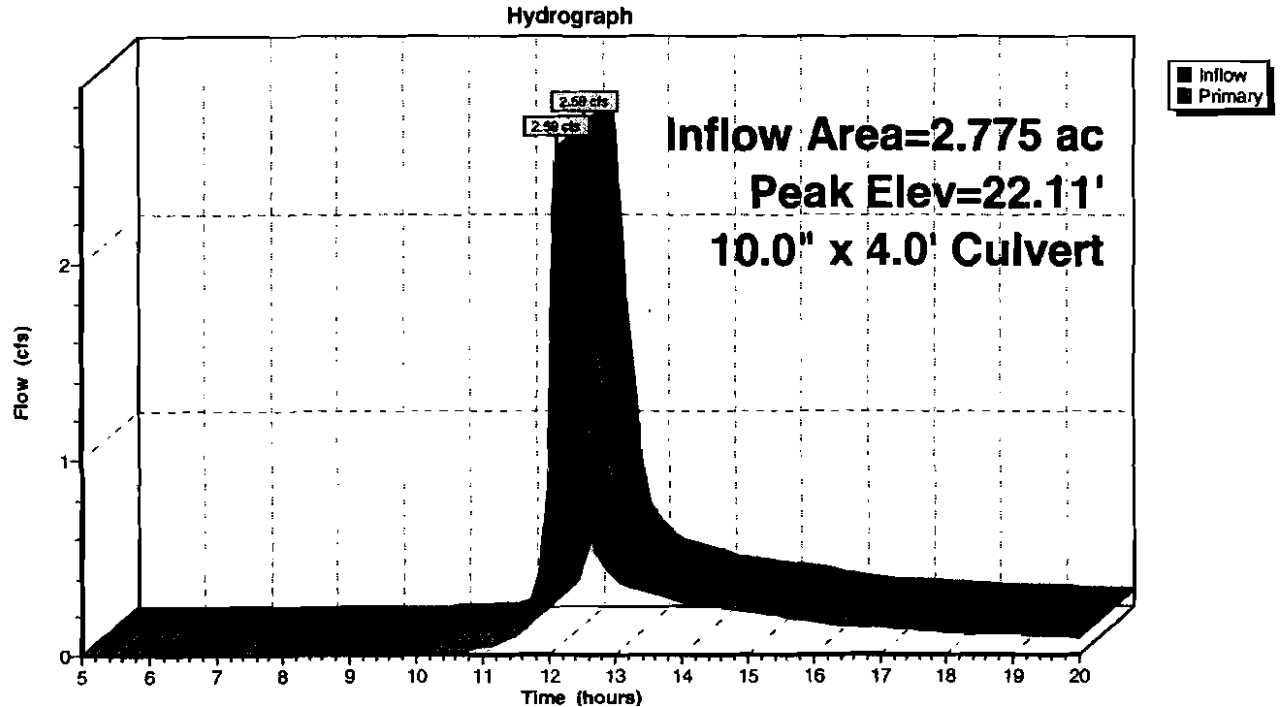
Inflow Area =	2.775 ac,	17.23% Impervious,	Inflow Depth >	0.95" for 2-Year Storm event
Inflow =	2.59 cfs @	12.12 hrs, Volume=	0.220 af	
Outflow =	2.59 cfs @	12.12 hrs, Volume=	0.220 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.59 cfs @	12.12 hrs, Volume=	0.220 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 22.11' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.16'	**10.0" x 4.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 20.12' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=2.49 cfs @ 12.12 hrs HW=22.01' (Free Discharge)
↳**1=Culvert** (Inlet Controls 2.49 cfs @ 4.56 fps)

Pond DB1:



Summary for Pond DB2:

[79] Warning: Submerged Pond DB3 Primary device # 1 INLET by 0.43'

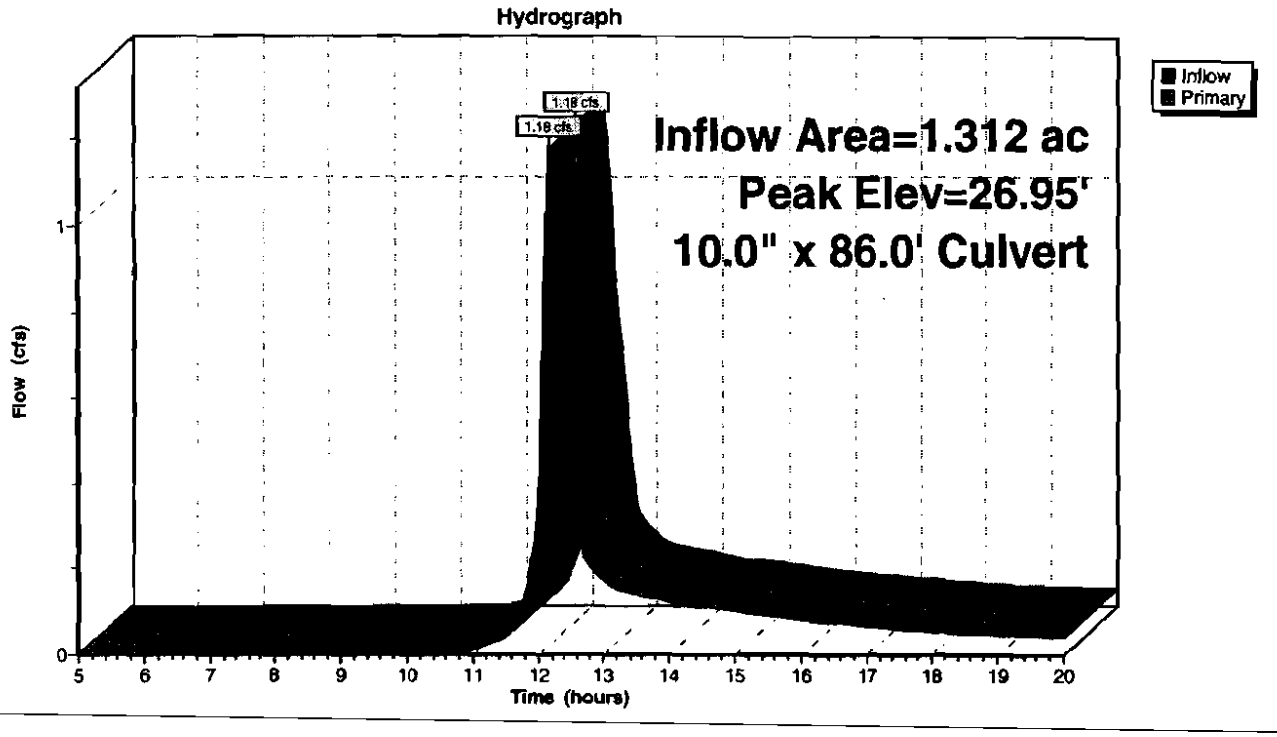
Inflow Area = 1.312 ac, 12.09% Impervious, Inflow Depth > 0.90" for 2-Year Storm event
Inflow = 1.18 cfs @ 12.17 hrs, Volume= 0.098 af
Outflow = 1.18 cfs @ 12.17 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.17 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 26.95' @ 12.17 hrs
Flood Elev= 32.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.16'	**10.0" x 86.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 25.92' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=1.15 cfs @ 12.17 hrs HW=26.94' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.15 cfs @ 2.82 fps)

Pond DB2:



Summary for Pond DB3:

[81] Warning: Exceeded Pond DB4 by 0.09' @ 12.15 hrs

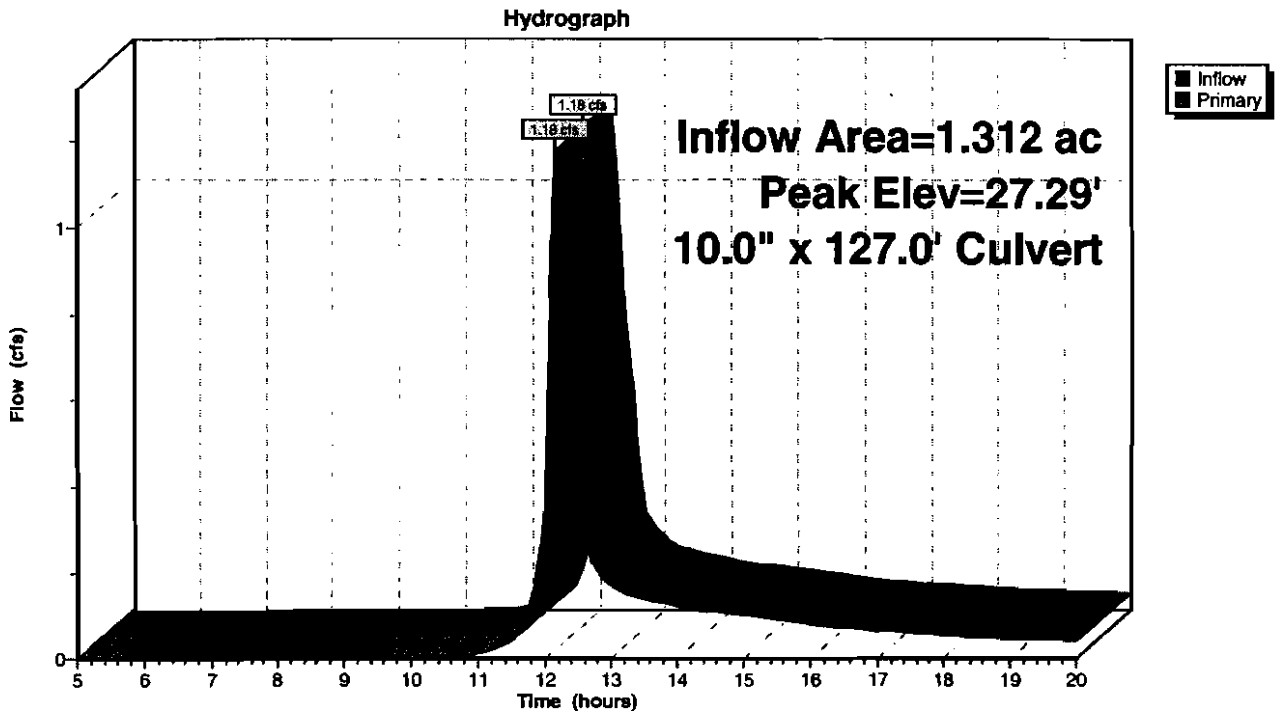
Inflow Area = 1.312 ac, 12.09% Impervious, Inflow Depth > 0.90" for 2-Year Storm event
Inflow = 1.18 cfs @ 12.17 hrs, Volume= 0.098 af
Outflow = 1.18 cfs @ 12.17 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.17 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.29' @ 12.17 hrs
Flood Elev= 29.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.51'	**10.0" x 127.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.15' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=1.15 cfs @ 12.17 hrs HW=27.28' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.15 cfs @ 2.87 fps)

Pond DB3:



Summary for Pond DB4:

[79] Warning: Submerged Pond DB5 Primary device # 1 INLET by 0.17'
[79] Warning: Submerged Pond SF4 Primary device # 1 OUTLET by 0.02'

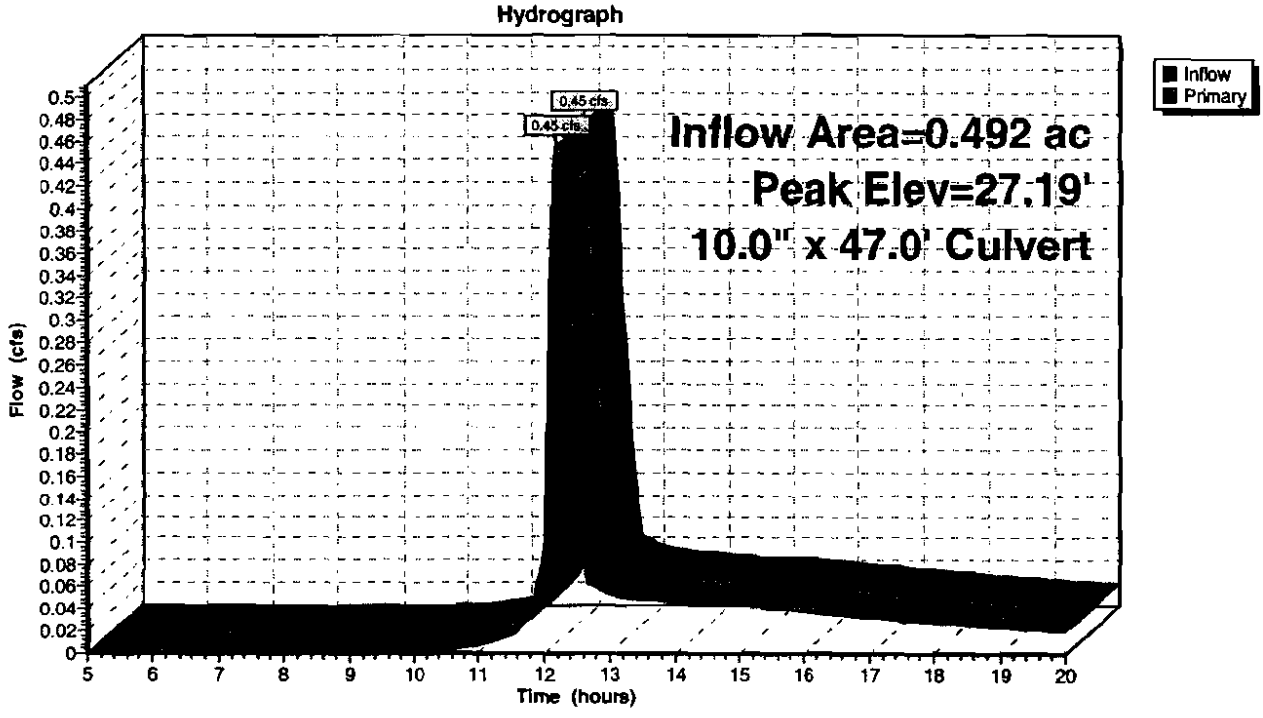
Inflow Area = 0.492 ac, 28.39% Impervious, Inflow Depth > 0.94" for 2-Year Storm event
Inflow = 0.45 cfs @ 12.18 hrs, Volume= 0.039 af
Outflow = 0.45 cfs @ 12.18 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.18 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.19' @ 12.18 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.74'	**10.0" x 47.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.61' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.45 cfs @ 12.18 hrs HW=27.19' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.45 cfs @ 2.19 fps)

Pond DB4:



Summary for Pond DB5:

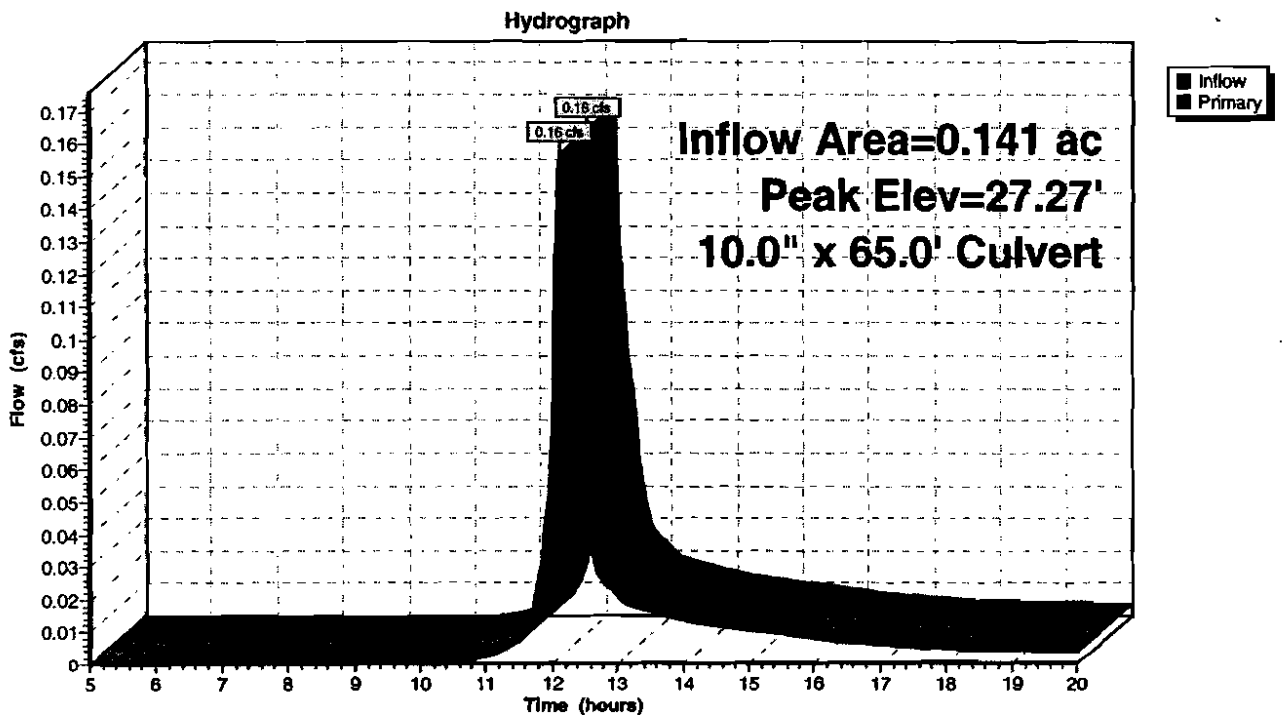
Inflow Area = 0.141 ac, 11.23% Impervious, Inflow Depth > 0.98" for 2-Year Storm event
Inflow = 0.16 cfs @ 12.12 hrs, Volume= 0.012 af
Outflow = 0.16 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.12 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.27' @ 12.12 hrs
Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.02'	**10.0" x 65.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.84' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.15 cfs @ 12.12 hrs HW=27.27' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.15 cfs @ 1.68 fps)

Pond DB5:



Summary for Pond DB6:

[81] Warning: Exceeded Pond DB7 by 0.04' @ 12.10 hrs
[79] Warning: Submerged Pond SF6 Primary device # 1 INLET by 0.73'

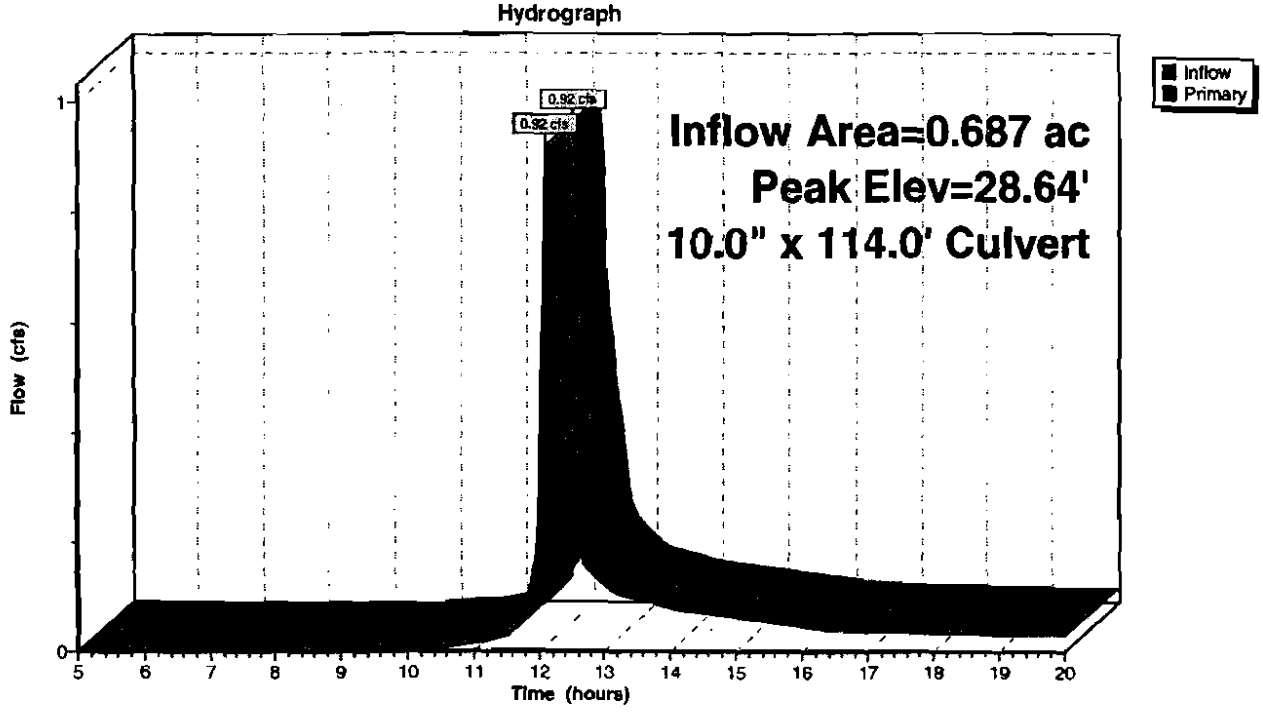
Inflow Area = 0.687 ac, 32.12% Impervious, Inflow Depth > 1.08" for 2-Year Storm event
Inflow = 0.92 cfs @ 12.11 hrs, Volume= 0.062 af
Outflow = 0.92 cfs @ 12.11 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Primary = 0.92 cfs @ 12.11 hrs, Volume= 0.062 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 28.64' @ 12.11 hrs
Flood Elev= 30.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.98'	**10.0" x 114.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.66' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.88 cfs @ 12.11 hrs HW=28.62' (Free Discharge)
1=Culvert (Barrel Controls 0.88 cfs @ 2.68 fps)

Pond DB6:



Summary for Pond DB7:

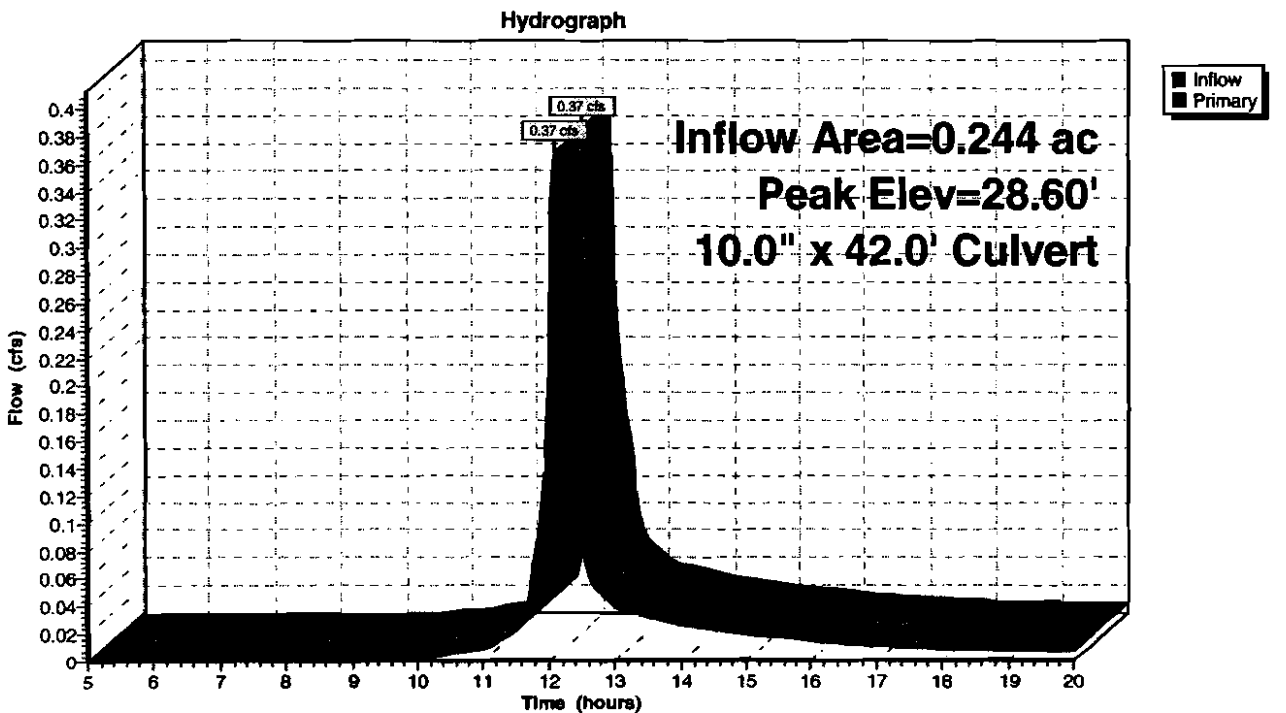
Inflow Area = 0.244 ac, 31.10% Impervious, Inflow Depth > 1.21" for 2-Year Storm event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.025 af
Outflow = 0.37 cfs @ 12.09 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 28.60' @ 12.09 hrs
Flood Elev= 29.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.20'	**10.0" x 42.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 28.08' S= 0.0029 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.36 cfs @ 12.09 hrs HW=28.59' (Free Discharge)
↑**1=Culvert** (Barrel Controls 0.36 cfs @ 2.07 fps)

Pond DB7:



Summary for Pond IN1:

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond IN2 Primary device # 1 OUTLET by 0.15'

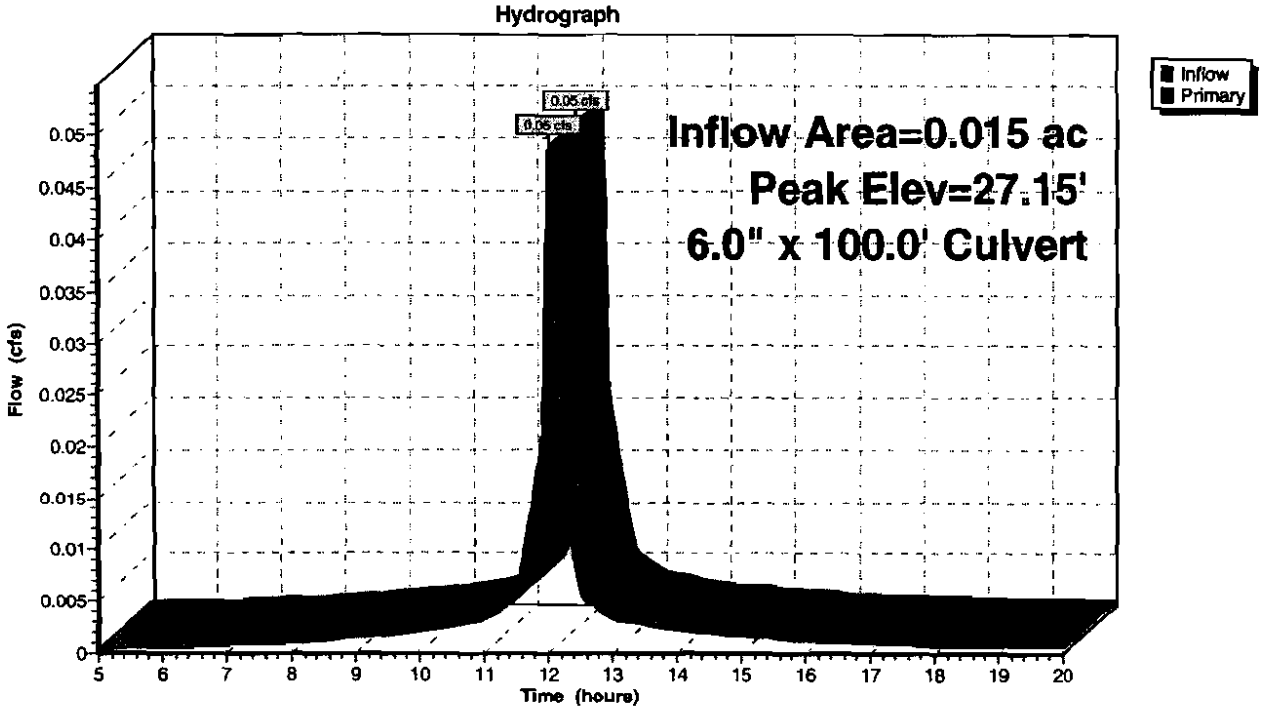
Inflow Area = 0.015 ac,100.00% Impervious, Inflow Depth > 2.59" for 2-Year Storm event
Inflow = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af
Outflow = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.15' @ 12.00 hrs
Flood Elev= 28.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.00'	**6.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.50' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.05 cfs @ 12.00 hrs HW=27.15' (Free Discharge)
1=Culvert (Inlet Controls 0.05 cfs @ 1.02 fps)

Pond IN1:



Summary for Pond IN2:

[82] Warning: Early inflow requires earlier time span

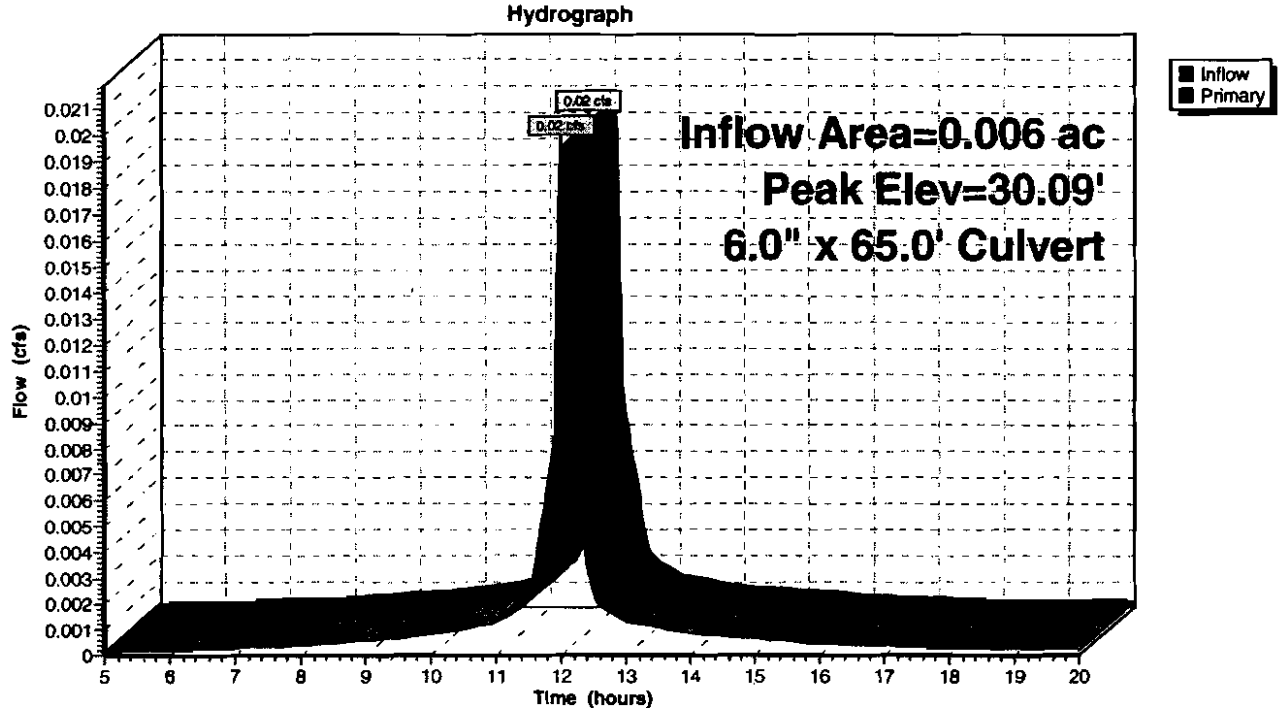
Inflow Area = 0.006 ac,100.00% Impervious, Inflow Depth > 2.59" for 2-Year Storm event
Inflow = 0.02 cfs @ 12.00 hrs, Volume= 0.001 af
Outflow = 0.02 cfs @ 12.00 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.00 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.09' @ 12.00 hrs
Flood Elev= 31.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.00'	**6.0" x 65.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.00' S= 0.0462 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.02 cfs @ 12.00 hrs HW=30.09' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.02 cfs @ 0.81 fps)

Pond IN2:



Summary for Pond SF1: Underdrain Soil Filter

[93] Warning: Storage range exceeded by 0.02'
[58] Hint: Peaked 0.02' above defined flood level

Inflow Area =	0.123 ac,	38.82% Impervious,	Inflow Depth >	1.34" for 2-Year Storm event
Inflow =	0.21 cfs @	12.09 hrs, Volume=	0.014 af	
Outflow =	0.04 cfs @	12.10 hrs, Volume=	0.008 af,	Atten= 79%, Lag= 0.9 min
Primary =	0.01 cfs @	12.10 hrs, Volume=	0.008 af	
Secondary =	0.03 cfs @	12.10 hrs, Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.02' @ 12.12 hrs Surf.Area= 451 sf Storage= 161 cf
Flood Elev= 30.00' Surf.Area= 451 sf Storage= 161 cf

Plug-Flow detention time= 201.0 min calculated for 0.008 af (59% of inflow)
Center-of-Mass det. time= 123.5 min (921.5 - 798.0)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

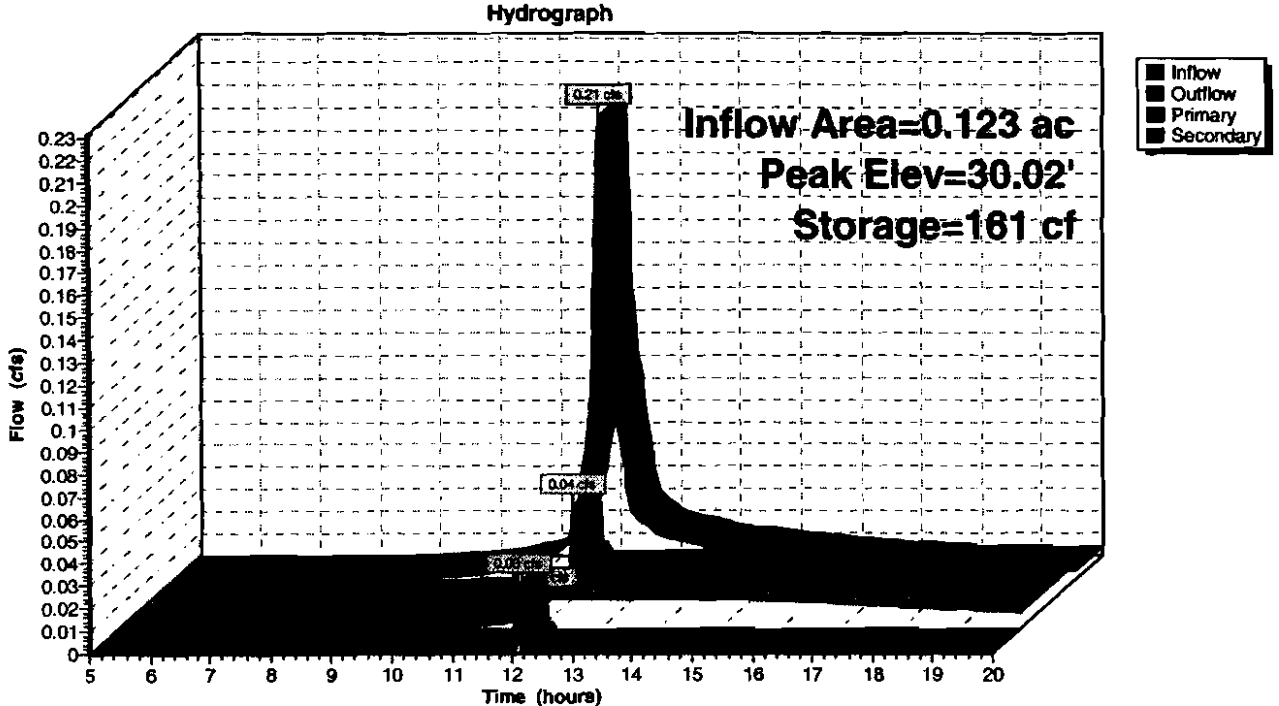
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.50	209	48.1	0	0	209
30.00	451	90.0	161	161	671

Device	Routing	Invert	Outlet Devices
#1	Primary	27.23'	**6.0" x 12.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.17' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	29.50'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 209 sf
#3	Secondary	30.00'	**48.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.01 cfs @ 12.10 hrs HW=30.01' (Free Discharge)
↑—**1=Culvert** (Passes 0.01 cfs of 1.19 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.03 cfs @ 12.10 hrs HW=30.01' (Free Discharge)
↑—**3=Orifice/Grate** (Weir Controls 0.03 cfs @ 0.29 fps)

Pond SF1: Underdrain Soil Filter



Summary for Pond SF4: Underdain Soil Filter

[93] Warning: Storage range exceeded by 0.06'
[58] Hint: Peaked 0.06' above defined flood level

Inflow Area =	0.351 ac,	35.29% Impervious,	Inflow Depth >	1.27" for 2-Year Storm event
Inflow =	0.43 cfs @	12.21 hrs, Volume=	0.037 af	
Outflow =	0.33 cfs @	12.21 hrs, Volume=	0.027 af,	Atten= 24%, Lag= 0.0 min
Primary =	0.03 cfs @	12.10 hrs, Volume=	0.019 af	
Secondary =	0.29 cfs @	12.21 hrs, Volume=	0.008 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.06' @ 12.21 hrs Surf.Area= 766 sf Storage= 221 cf
Flood Elev= 30.00' Surf.Area= 766 sf Storage= 221 cf

Plug-Flow detention time= 123.8 min calculated for 0.027 af (72% of inflow)
Center-of-Mass det. time= 60.3 min (867.9 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	221 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

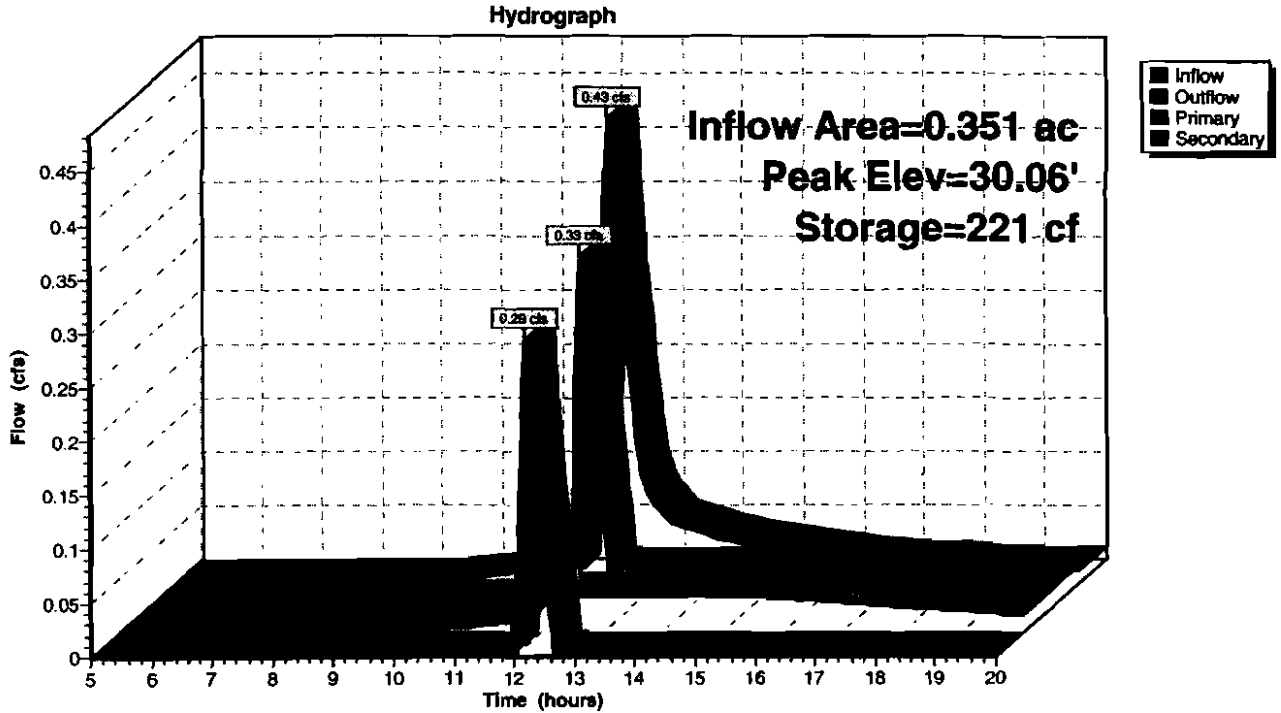
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.50	185	44.5	0	0	185
30.00	766	121.2	221	221	1,197

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	**6.0" x 5.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.17' S= 0.0060 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	29.50'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 185 sf
#3	Secondary	30.00'	**24.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.03 cfs @ 12.10 hrs HW=30.04' (Free Discharge)
↑—**1=Culvert** (Passes 0.03 cfs of 1.20 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=0.29 cfs @ 12.21 hrs HW=30.06' (Free Discharge)
↑—**3=Orifice/Grate** (Weir Controls 0.29 cfs @ 0.79 fps)

Pond SF4: Underdain Soil Filter



Summary for Pond SF6: Underdrain Soil Filter

[58] Hint: Peaked 0.09' above defined flood level

Inflow Area = 0.443 ac, 32.67% Impervious, Inflow Depth > 1.28" for 2-Year Storm event
Inflow = 0.78 cfs @ 12.05 hrs, Volume= 0.047 af
Outflow = 0.56 cfs @ 12.12 hrs, Volume= 0.037 af, Atten= 28%, Lag= 4.4 min
Primary = 0.03 cfs @ 12.12 hrs, Volume= 0.016 af
Secondary = 0.54 cfs @ 12.12 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.59' @ 12.12 hrs Surf.Area= 1,273 sf Storage= 599 cf
Flood Elev= 30.50' Surf.Area= 1,192 sf Storage= 490 cf

Plug-Flow detention time= 100.2 min calculated for 0.037 af (79% of inflow)
Center-of-Mass det. time= 44.8 min (843.1 - 798.3)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	1,206 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

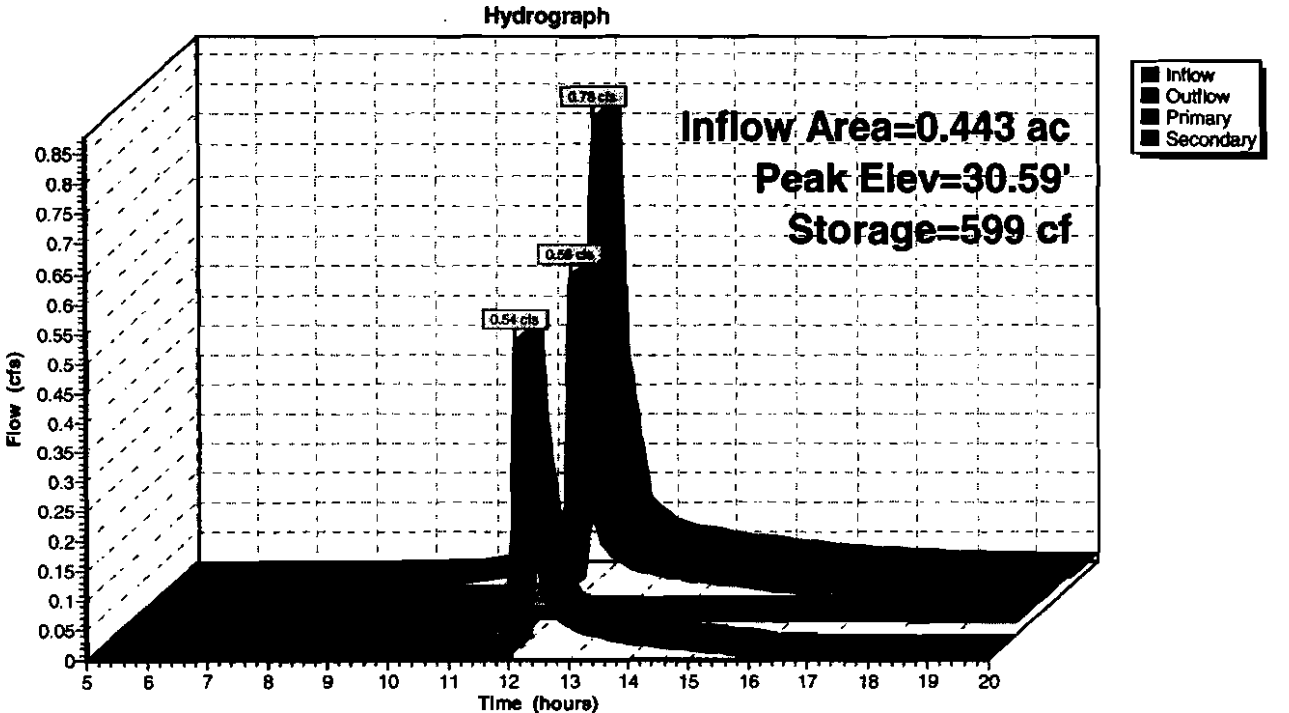
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.00	781	155.0	0	0	781
31.00	1,689	213.0	1,206	1,206	2,489

Device	Routing	Invert	Outlet Devices
#1	Primary	27.91'	**6.0" x 47.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.67' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	30.00'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 781 sf
#3	Secondary	30.50'	**24.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.03 cfs @ 12.12 hrs HW=30.58' (Free Discharge)
└─**1=Culvert** (Passes 0.03 cfs of 1.16 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=0.50 cfs @ 12.12 hrs HW=30.58' (Free Discharge)
└─**3=Orifice/Grate** (Weir Controls 0.50 cfs @ 0.95 fps)

Pond SF6: Underdrain Soil Filter



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment D1: Runoff Area=35,719 sf 2.31% Impervious Runoff Depth>2.04"
Flow Length=275' Tc=11.4 min CN=75 Runoff=1.75 cfs 0.139 af

Subcatchment D2: Runoff Area=15,289 sf 35.29% Impervious Runoff Depth>2.62"
Flow Length=370' Slope=0.0100 '/' Tc=14.3 min CN=82 Runoff=0.89 cfs 0.077 af

Subcatchment D3: Runoff Area=6,144 sf 11.23% Impervious Runoff Depth>2.20"
Flow Length=95' Tc=8.0 min CN=77 Runoff=0.36 cfs 0.026 af

Subcatchment D4: Runoff Area=5,360 sf 38.82% Impervious Runoff Depth>2.72"
Flow Length=60' Tc=5.4 min CN=83 Runoff=0.41 cfs 0.028 af

Subcatchment D5: Runoff Area=19,309 sf 32.67% Impervious Runoff Depth>2.63"
Flow Length=335' Tc=2.4 min CN=82 Runoff=1.60 cfs 0.097 af

Subcatchment D6: Runoff Area=10,624 sf 31.10% Impervious Runoff Depth>2.54"
Flow Length=95' Tc=5.6 min CN=81 Runoff=0.77 cfs 0.052 af

Subcatchment D7: Runoff Area=15,051 sf 7.27% Impervious Runoff Depth>2.13"
Flow Length=240' Tc=4.2 min CN=76 Runoff=0.96 cfs 0.061 af

Subcatchment D8: Runoff Area=12,730 sf 3.85% Impervious Runoff Depth>2.04"
Flow Length=290' Tc=13.2 min CN=75 Runoff=0.59 cfs 0.050 af

Subcatchment S1: Runoff Area=383 sf 100.00% Impervious Runoff Depth>4.15"
Flow Length=30' Slope=0.0700 '/' Tc=0.1 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment S2: Runoff Area=256 sf 100.00% Impervious Runoff Depth>4.15"
Flow Length=10' Slope=0.2000 '/' Tc=0.0 min CN=98 Runoff=0.03 cfs 0.002 af

Reach EXIST: Inflow=6.57 cfs 0.541 af
Outflow=6.57 cfs 0.541 af

Pond CB1: Peak Elev=32.52' Inflow=5.24 cfs 0.430 af
10.0" x 100.0' Culvert Outflow=5.24 cfs 0.430 af

Pond DB1: Peak Elev=30.62' Inflow=6.57 cfs 0.541 af
10.0" x 4.0' Culvert Outflow=6.57 cfs 0.541 af

Pond DB2: Peak Elev=28.67' Inflow=3.00 cfs 0.254 af
10.0" x 86.0' Culvert Outflow=3.00 cfs 0.254 af

Pond DB3: Peak Elev=29.28' Inflow=3.00 cfs 0.254 af
10.0" x 127.0' Culvert Outflow=3.00 cfs 0.254 af

Pond DB4: Peak Elev=27.58' Inflow=1.25 cfs 0.114 af
10.0" x 47.0' Culvert Outflow=1.25 cfs 0.114 af

Pond DB5: Peak Elev=27.41' Inflow=0.36 cfs 0.026 af
10.0" x 65.0' Culvert Outflow=0.36 cfs 0.026 af

Pond DB6: Peak Elev=29.65' Inflow=2.20 cfs 0.138 af
10.0" x 114.0' Culvert Outflow=2.20 cfs 0.138 af

Pond DB7: Peak Elev=28.81' Inflow=0.77 cfs 0.052 af
10.0" x 42.0' Culvert Outflow=0.77 cfs 0.052 af

Pond IN1: Peak Elev=27.19' Inflow=0.08 cfs 0.005 af
6.0" x 100.0' Culvert Outflow=0.08 cfs 0.005 af

Pond IN2: Peak Elev=30.11' Inflow=0.03 cfs 0.002 af
6.0" x 65.0' Culvert Outflow=0.03 cfs 0.002 af

Pond SF1: Underdrain Soil Filter Peak Elev=30.05' Storage=161 cf Inflow=0.41 cfs 0.028 af
Primary=0.01 cfs 0.010 af Secondary=0.47 cfs 0.023 af Outflow=0.49 cfs 0.033 af

Pond SF4: Underdain Soil Filter Peak Elev=30.13' Storage=221 cf Inflow=0.89 cfs 0.077 af
Primary=0.03 cfs 0.025 af Secondary=0.91 cfs 0.064 af Outflow=0.95 cfs 0.088 af

Pond SF6: Underdrain Soil Filter Peak Elev=30.67' Storage=703 cf Inflow=1.60 cfs 0.097 af
Primary=0.03 cfs 0.019 af Secondary=1.41 cfs 0.068 af Outflow=1.44 cfs 0.086 af

Total Runoff Area = 2.775 ac Runoff Volume = 0.535 af Average Runoff Depth = 2.31"
82.77% Pervious = 2.297 ac 17.23% Impervious = 0.478 ac

Summary for Subcatchment D1:

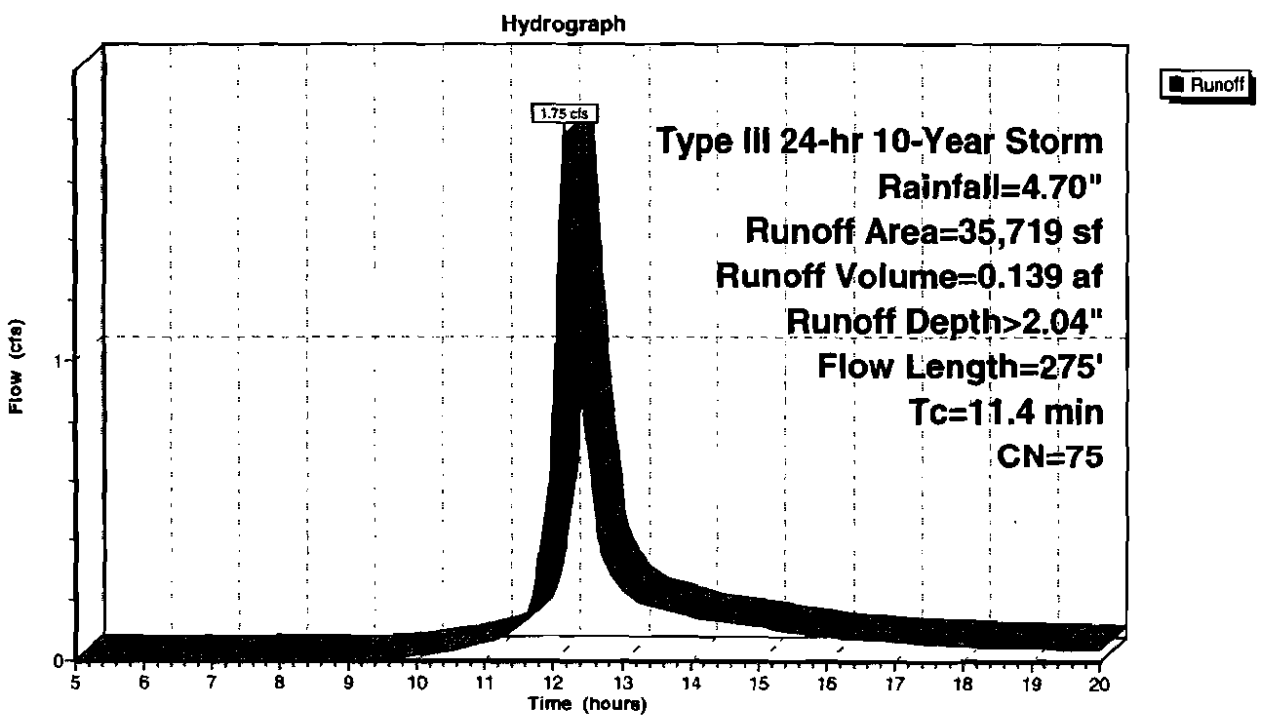
Runoff = 1.75 cfs @ 12.16 hrs, Volume= 0.139 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
34,895	74	>75% Grass cover, Good, HSG C
824	98	Paved parking & roofs
35,719	75	Weighted Average
34,895		Pervious Area
824		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	65	0.1200	0.31		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
3.7	35	0.0300	0.16		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
4.2	175	0.0100	0.70		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
11.4	275	Total			

Subcatchment D1:



Summary for Subcatchment D2:

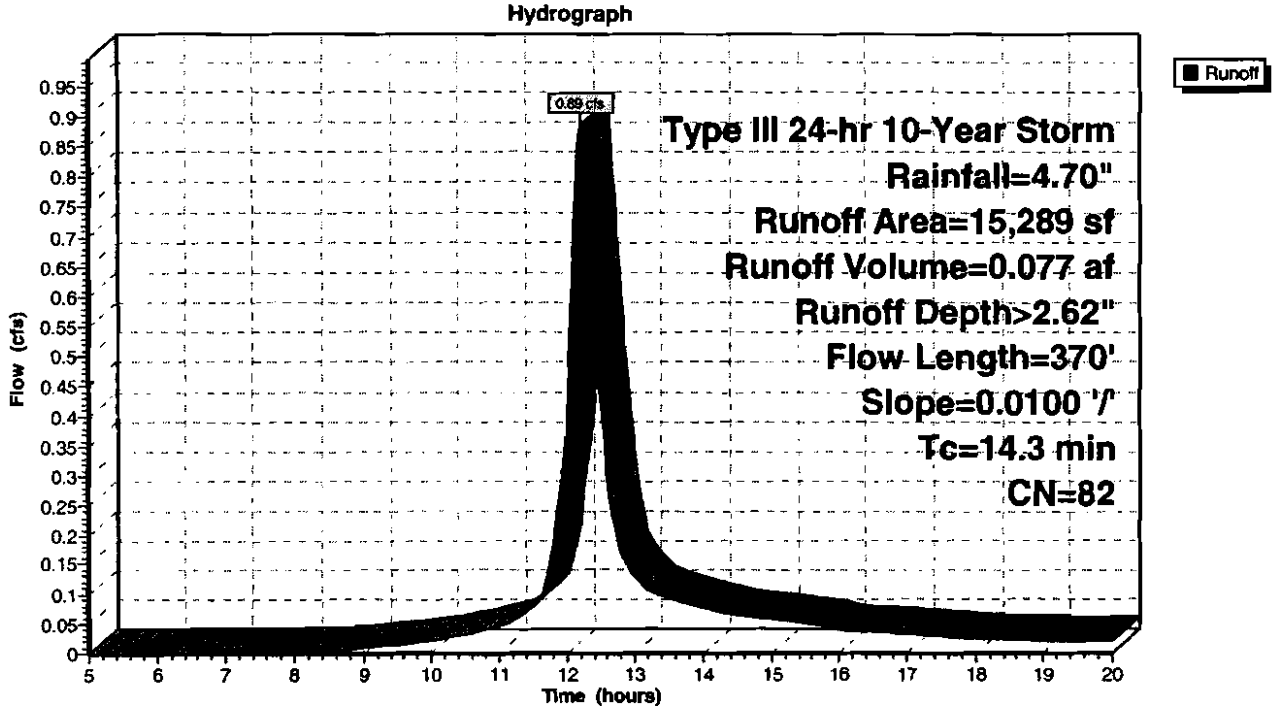
Runoff = 0.89 cfs @ 12.20 hrs, Volume= 0.077 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
9,894	74	>75% Grass cover, Good, HSG C
5,395	98	Paved parking & roofs
15,289	82	Weighted Average
9,894		Pervious Area
5,395		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	40	0.0100	0.10		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
7.9	330	0.0100	0.70		**Shallow Concentrated Flow, B to C** Short Grass Pasture Kv= 7.0 fps
14.3	370	Total			

Subcatchment D2:



Summary for Subcatchment D3:

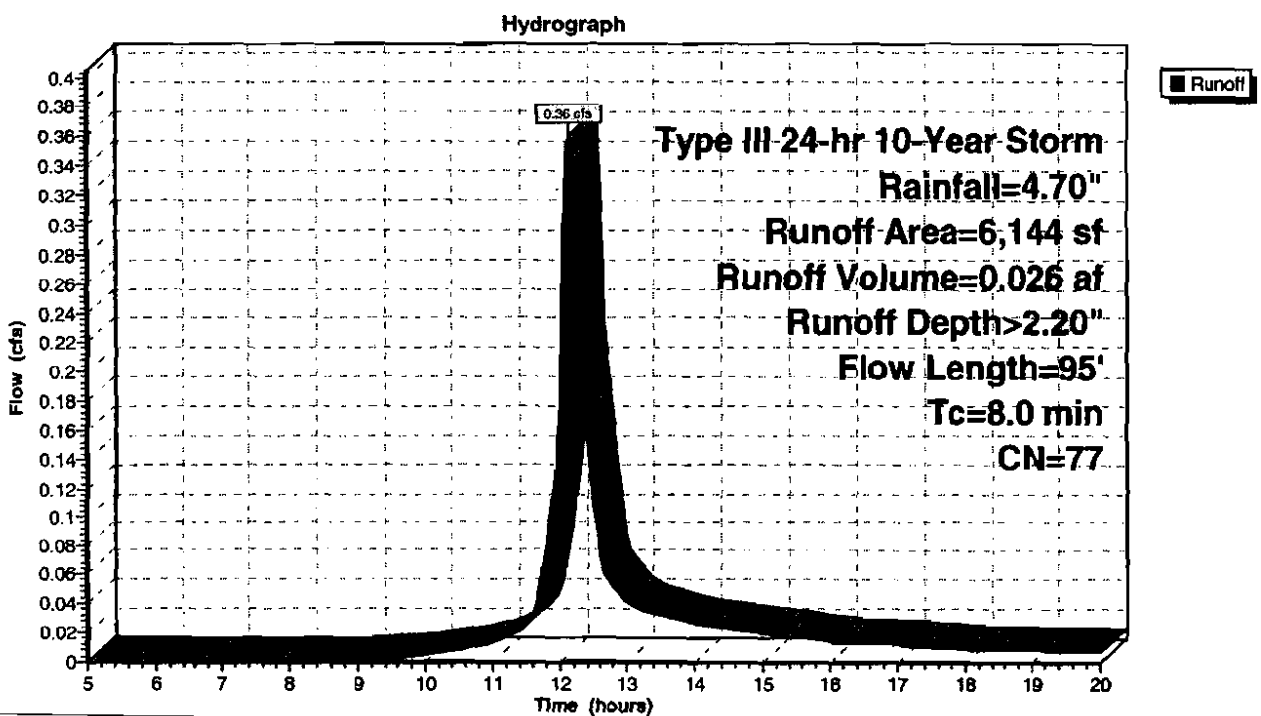
Runoff = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af, Depth> 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
5,454	74	>75% Grass cover, Good, HSG C
690	98	Paved parking & roofs
6,144	77	Weighted Average
5,454		Pervious Area
690		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	55	0.1200	0.30		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
4.9	40	0.0200	0.14		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
8.0	95	Total			

Subcatchment D3:



Summary for Subcatchment D4:

[49] Hint: Tc<2dt may require smaller dt

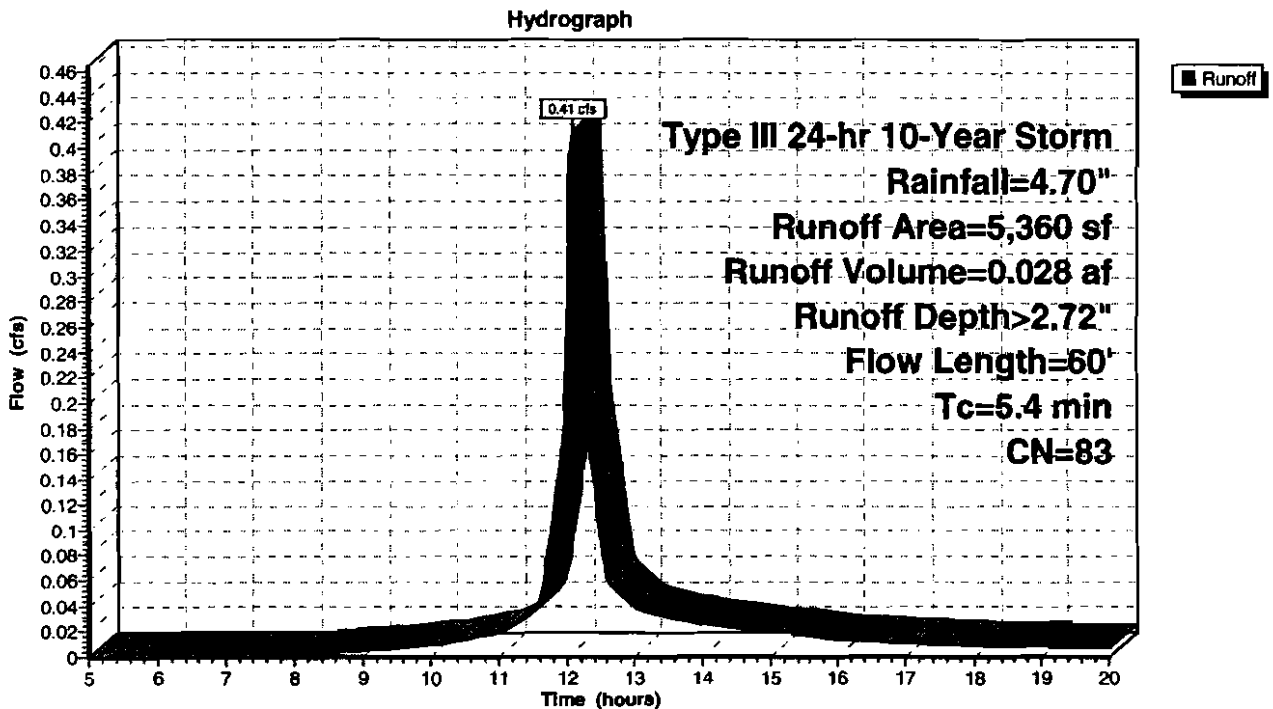
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.028 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
3,279	74	>75% Grass cover, Good, HSG C
2,081	98	Paved parking & roofs
5,360	83	Weighted Average
3,279		Pervious Area
2,081		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	33	0.0450	0.18		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
2.4	27	0.0550	0.19		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
5.4	60	Total			

Subcatchment D4:



Summary for Subcatchment D5:

[49] Hint: Tc<2dt may require smaller dt

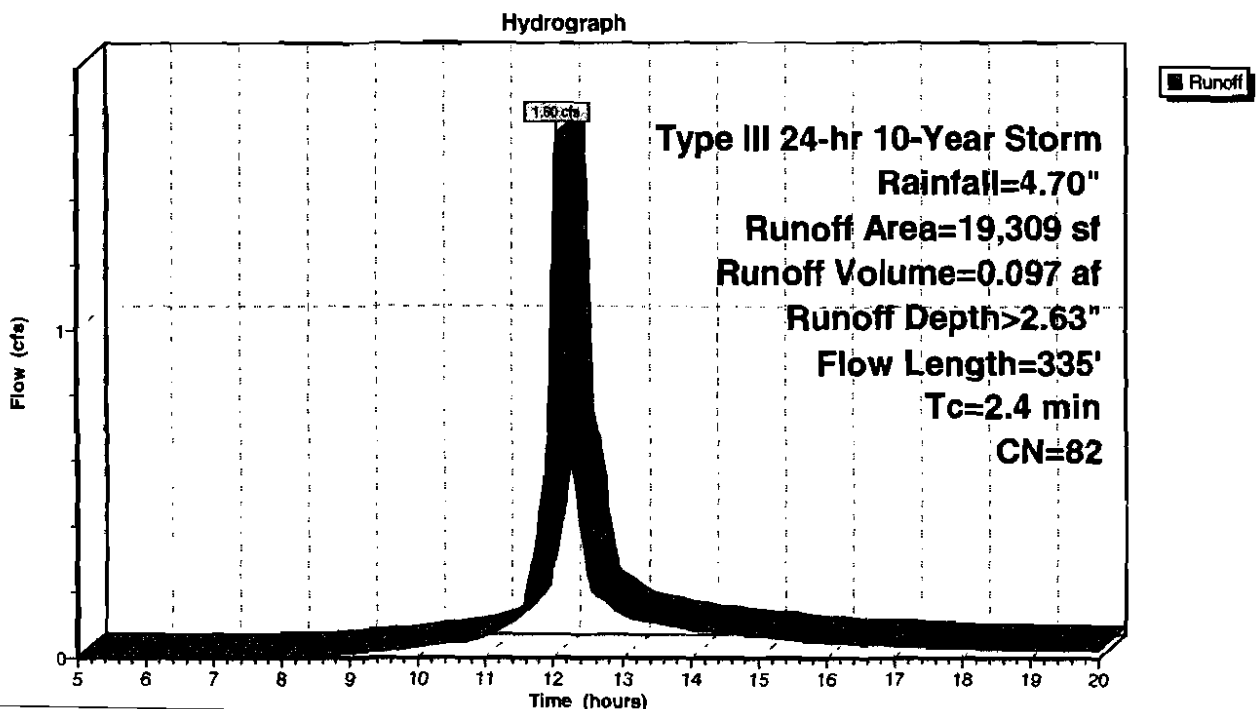
Runoff = 1.60 cfs @ 12.04 hrs, Volume= 0.097 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
13,000	74	>75% Grass cover, Good, HSG C
6,309	98	Paved parking & roofs
19,309	82	Weighted Average
13,000		Pervious Area
6,309		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.01		**Sheet Flow, A to B** Smooth surfaces n= 0.011 P2= 3.00"
0.8	145	0.0200	2.87		**Shallow Concentrated Flow, B to C** Paved Kv= 20.3 fps
1.2	165	0.0500	2.24		**Shallow Concentrated Flow, C to D** Nearly Bare & Untilled Kv= 10.0 fps
2.4	335	Total			

Subcatchment D5:



Summary for Subcatchment D6:

[49] Hint: Tc<2dt may require smaller dt

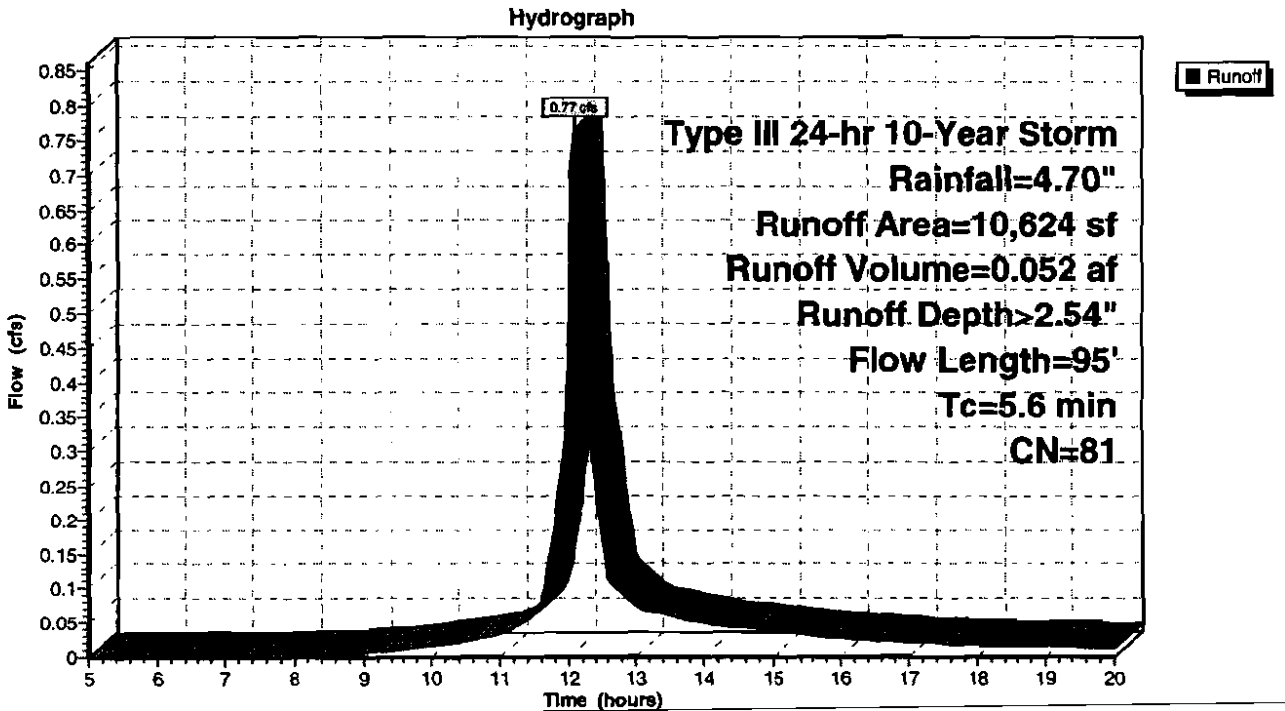
Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
7,320	74	>75% Grass cover, Good, HSG C
3,304	98	Paved parking & roofs
10,624	81	Weighted Average
7,320		Pervious Area
3,304		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	45	0.0200	1.14		**Sheet Flow, A to B** Smooth surfaces n= 0.011 P2= 3.00"
4.9	50	0.0300	0.17		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
5.6	95	Total			

Subcatchment D6:



Summary for Subcatchment D7:

[49] Hint: Tc<2dt may require smaller dt

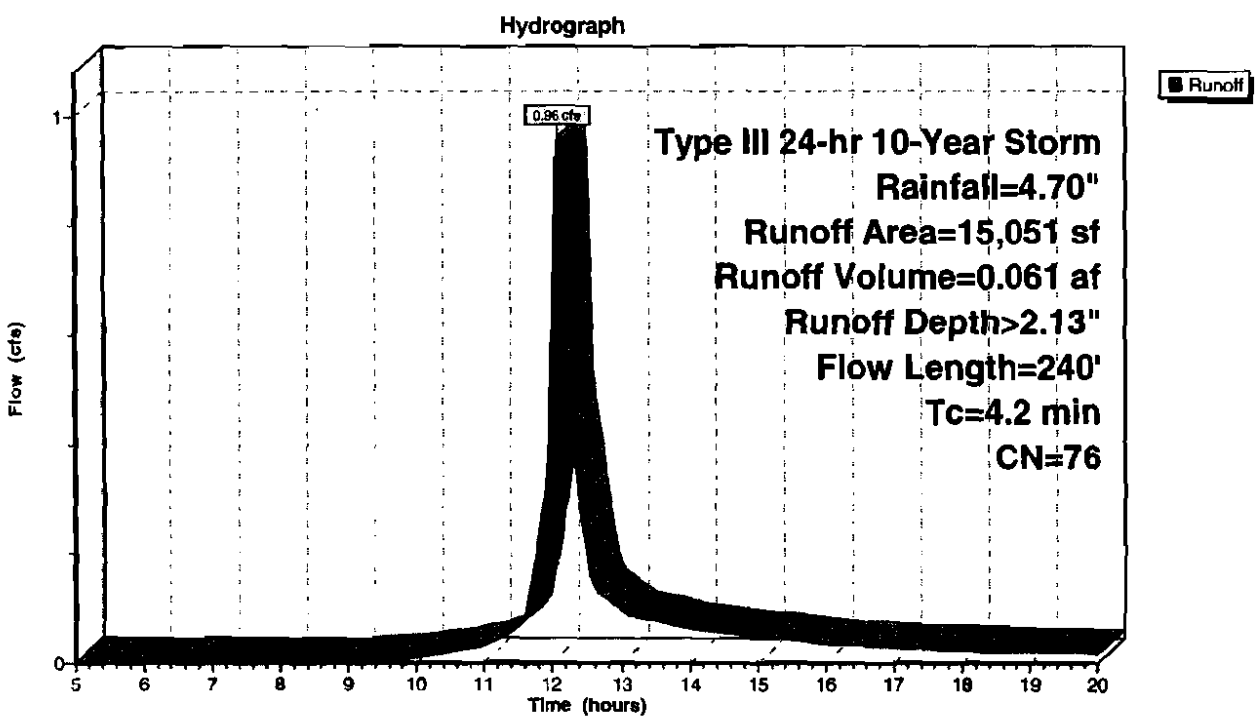
Runoff = 0.96 cfs @ 12.07 hrs, Volume= 0.061 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
13,957	74	>75% Grass cover, Good, HSG C
1,094	98	Paved parking & roofs
15,051	76	Weighted Average
13,957		Pervious Area
1,094		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	25	0.1200	0.26		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
2.6	215	0.0400	1.40		**Shallow Concentrated Flow, B to C** Short Grass Pasture Kv= 7.0 fps
4.2	240	Total			

Subcatchment D7:



Summary for Subcatchment D8:

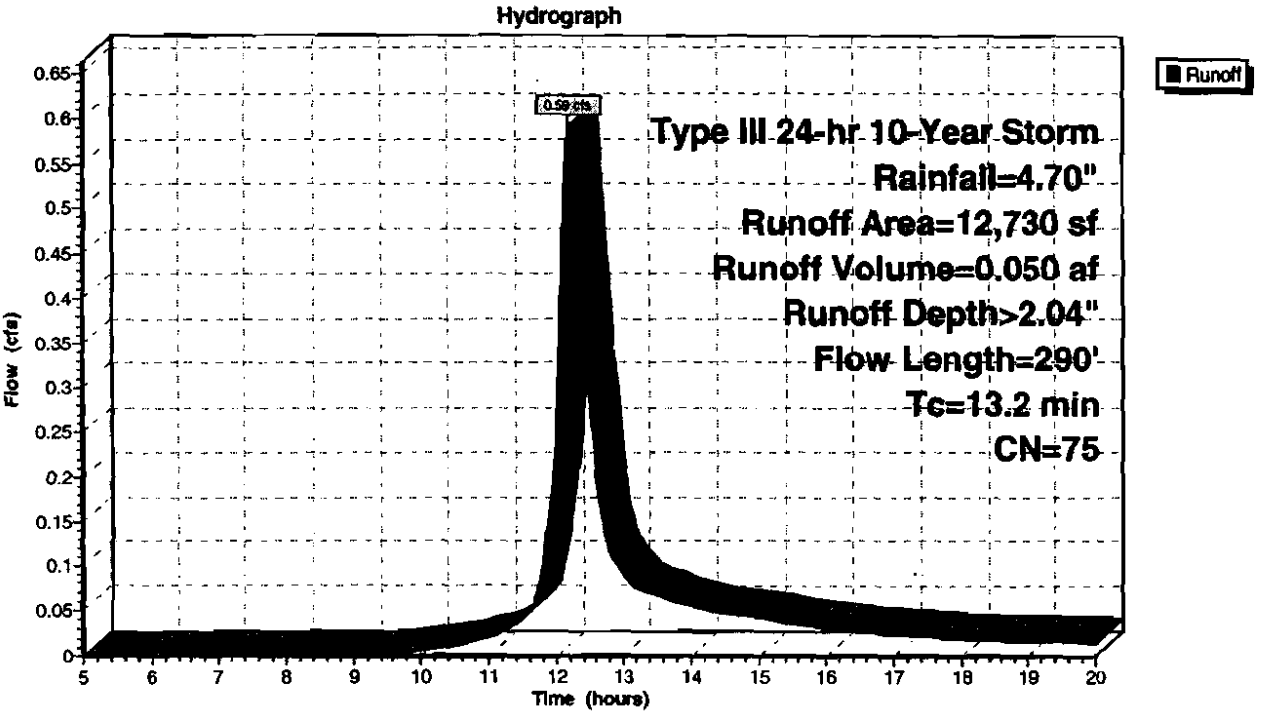
Runoff = 0.59 cfs @ 12.19 hrs, Volume= 0.050 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
12,240	74	>75% Grass cover, Good, HSG C
490	98	Paved parking & roofs
12,730	75	Weighted Average
12,240		Pervious Area
490		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0100	0.11		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
3.3	50	0.0800	0.25		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	50	0.0050	3.36	1.83	**Circular Channel (pipe), D to E** Diam= 10.0" Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011 Concrete pipe, straight & clean
0.8	40	0.0147	0.85		**Shallow Concentrated Flow, E to F** Short Grass Pasture Kv= 7.0 fps
13.2	290	Total			

Subcatchment D8:



Summary for Subcatchment S1:

[49] Hint: Tc<2dt may require smaller dt

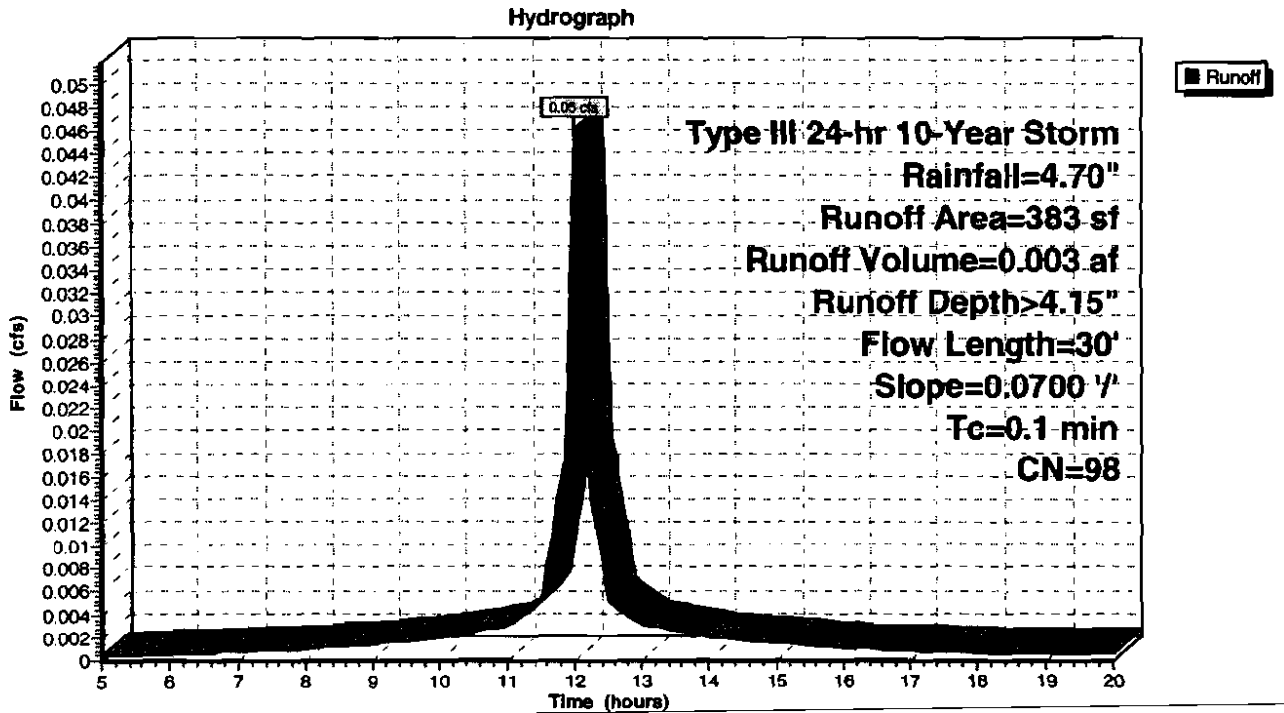
Runoff = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af, Depth> 4.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
383	98	Paved parking & roofs
383		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	30	0.0700	5.37		**Shallow Concentrated Flow, A to B** Paved Kv= 20.3 fps

Subcatchment S1:



Summary for Subcatchment S2:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

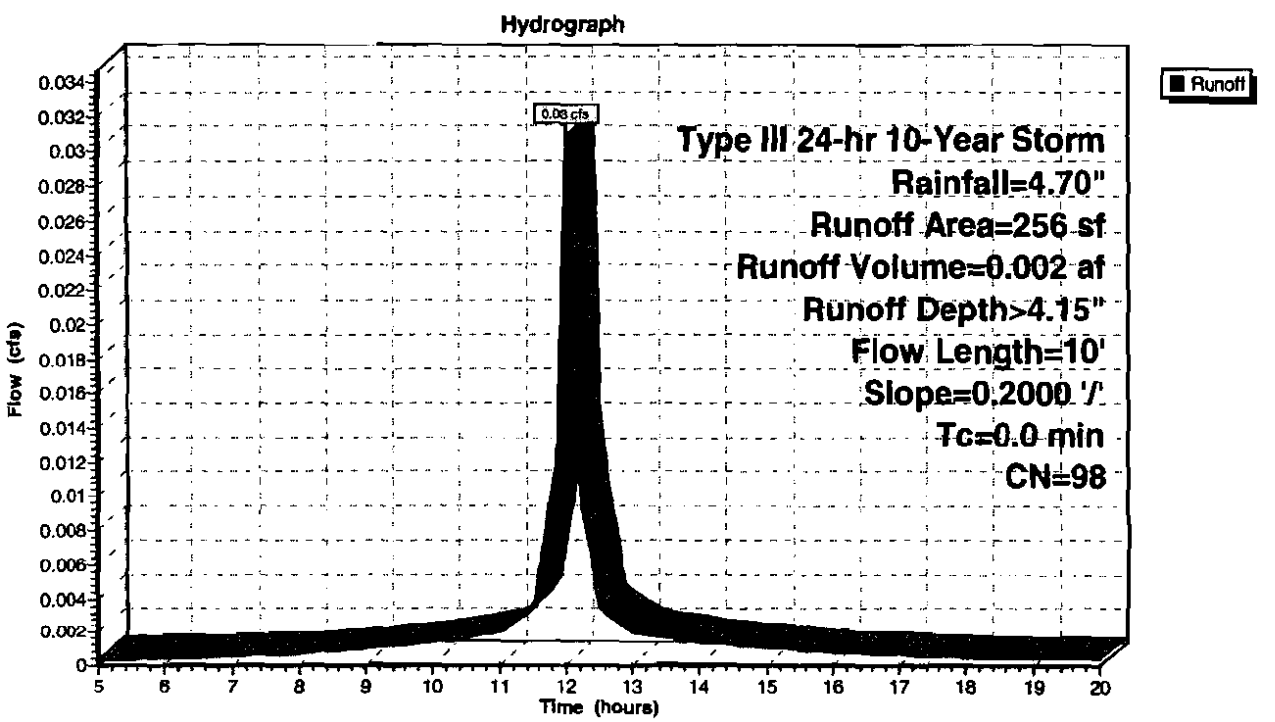
Runoff = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af, Depth> 4.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Storm Rainfall=4.70"

Area (sf)	CN	Description
256	98	Paved parking & roofs
256		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.2000	9.08		**Shallow Concentrated Flow, A to B** Paved Kv= 20.3 fps

Subcatchment S2:



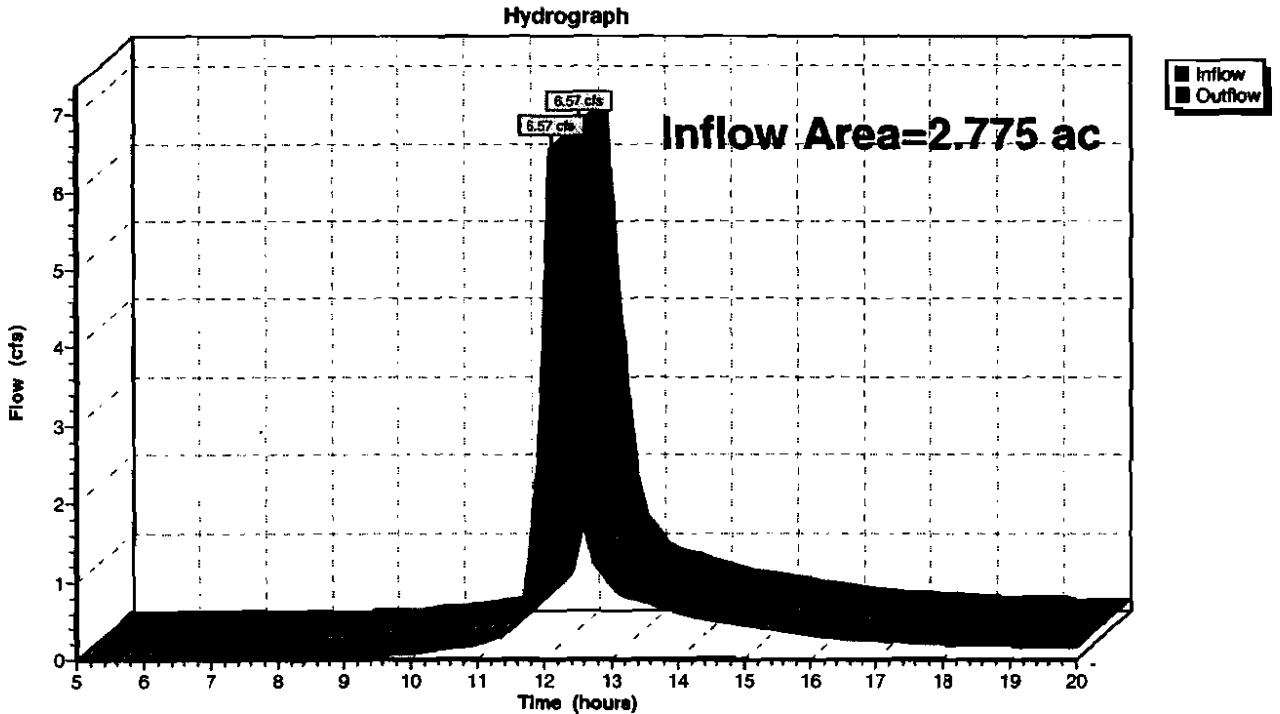
Summary for Reach EXIST:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.775 ac, 17.23% Impervious, Inflow Depth > 2.34" for 10-Year Storm event
Inflow = 6.57 cfs @ 12.11 hrs, Volume= 0.541 af
Outflow = 6.57 cfs @ 12.11 hrs, Volume= 0.541 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach EXIST:



Summary for Pond CB1:

[57] Hint: Peaked at 32.52' (Flood elevation advised)
[81] Warning: Exceeded Pond DB2 by 4.32' @ 12.10 hrs
[81] Warning: Exceeded Pond DB6 by 2.91' @ 12.15 hrs
[81] Warning: Exceeded Pond IN1 by 5.33' @ 12.10 hrs
[81] Warning: Exceeded Pond SF1 by 2.41' @ 12.10 hrs
[81] Warning: Exceeded Pond SF1 by 2.41' @ 12.10 hrs

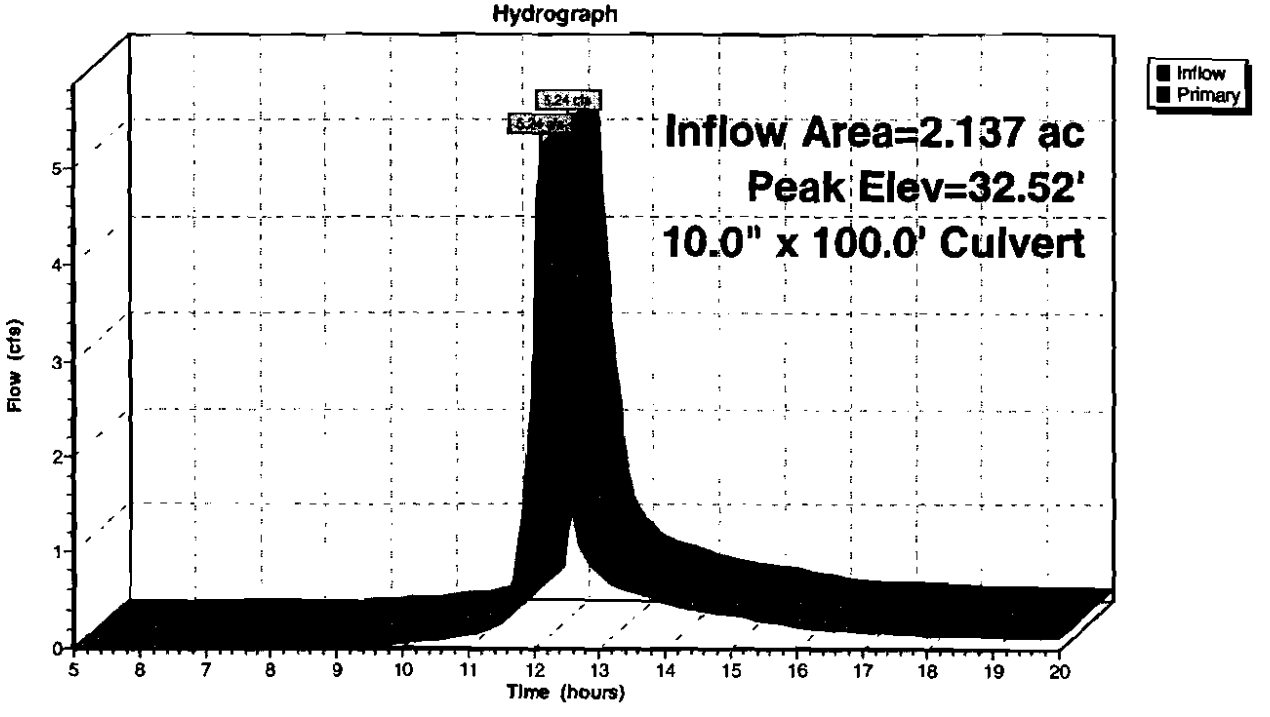
Inflow Area =	2.137 ac, 20.67% Impervious, Inflow Depth > 2.41" for 10-Year Storm event			
Inflow	=	5.24 cfs @ 12.11 hrs, Volume=	0.430 af	
Outflow	=	5.24 cfs @ 12.11 hrs, Volume=	0.430 af, Atten= 0%, Lag= 0.0 min	
Primary	=	5.24 cfs @ 12.11 hrs, Volume=	0.430 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 32.52' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	25.72'	**10.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 20.26' S= 0.0546 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=5.16 cfs @ 12.11 hrs HW=32.33' (Free Discharge)
↳**1=Culvert** (Inlet Controls 5.16 cfs @ 9.46 fps)

Pond CB1:



Summary for Pond DB1:

[57] Hint: Peaked at 30.62' (Flood elevation advised)
[79] Warning: Submerged Pond CB1 Primary device # 1 INLET by 4.86'

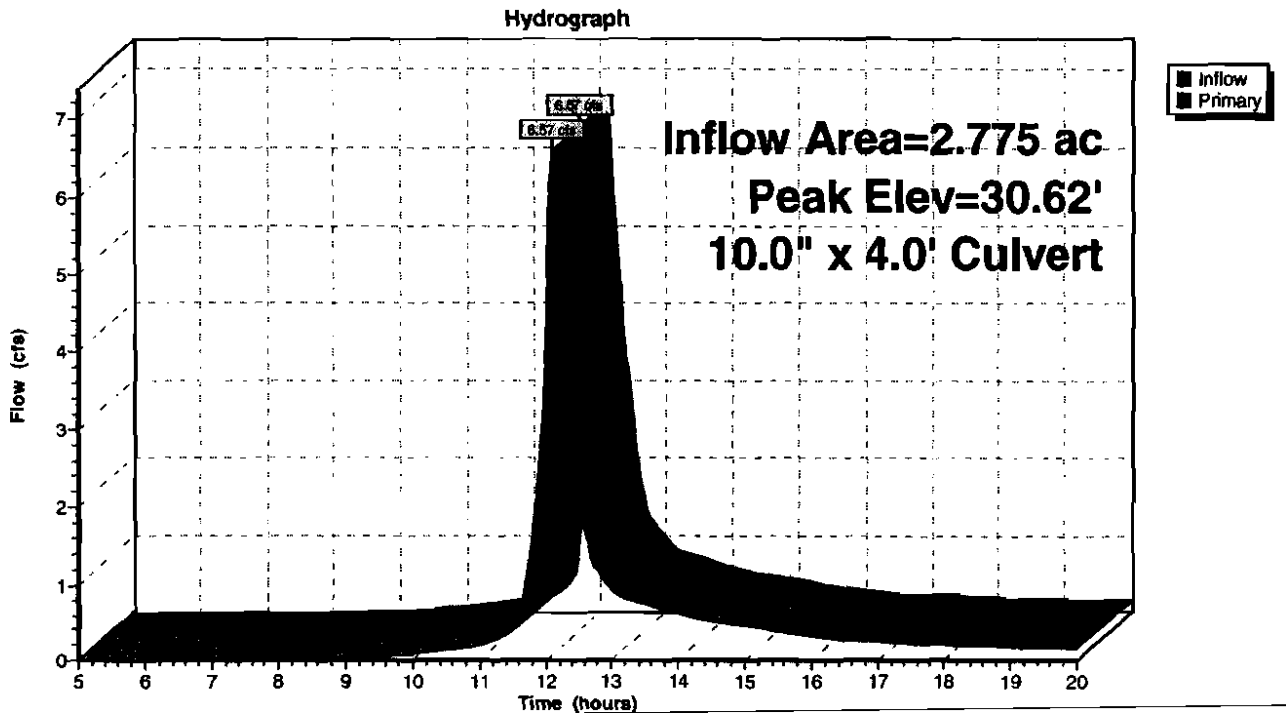
Inflow Area = 2.775 ac, 17.23% Impervious, Inflow Depth > 2.34" for 10-Year Storm event
Inflow = 6.57 cfs @ 12.11 hrs, Volume= 0.541 af
Outflow = 6.57 cfs @ 12.11 hrs, Volume= 0.541 af, Atten= 0%, Lag= 0.0 min
Primary = 6.57 cfs @ 12.11 hrs, Volume= 0.541 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.62' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.16'	**10.0" x 4.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 20.12' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=6.50 cfs @ 12.11 hrs HW=30.41' (Free Discharge)
1=Culvert (Inlet Controls 6.50 cfs @ 11.92 fps)

Pond DB1:



Summary for Pond DB2:

[79] Warning: Submerged Pond DB3 Primary device # 1 INLET by 2.13'

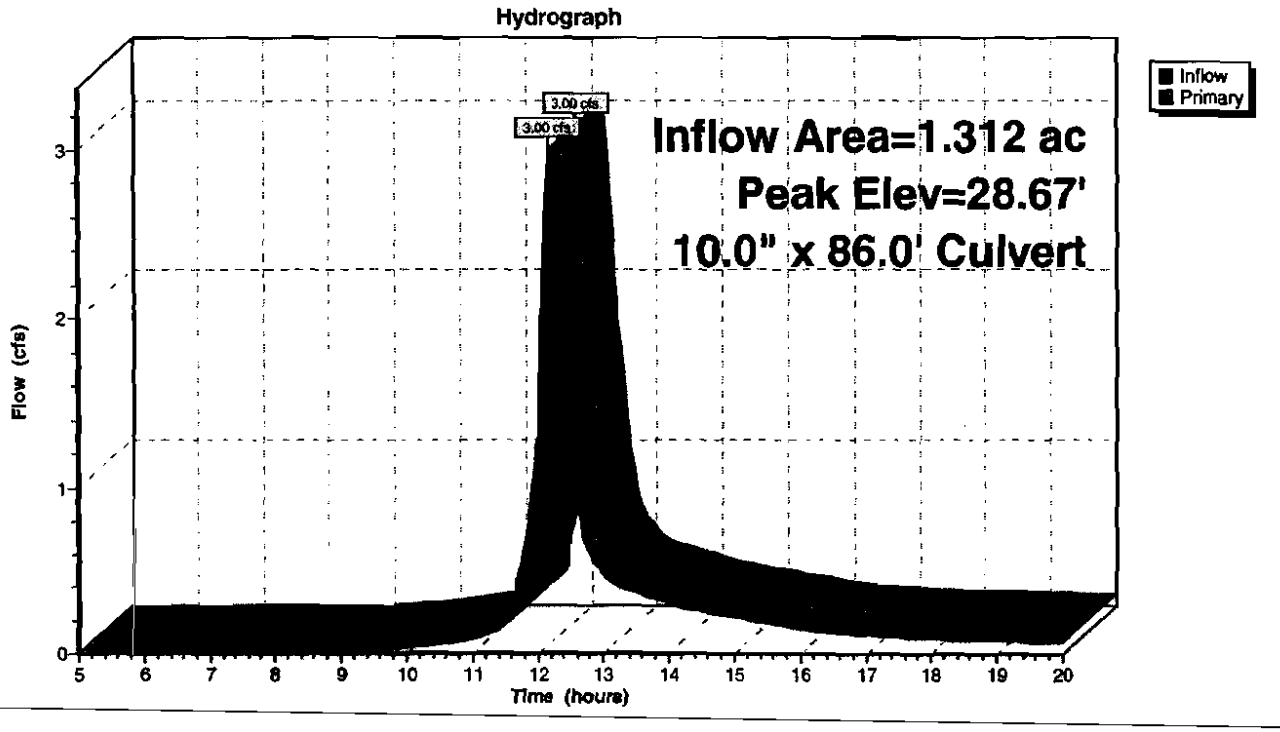
Inflow Area = 1.312 ac, 12.09% Impervious, Inflow Depth > 2.32" for 10-Year Storm event
Inflow = 3.00 cfs @ 12.17 hrs, Volume= 0.254 af
Outflow = 3.00 cfs @ 12.17 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 3.00 cfs @ 12.17 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 28.67' @ 12.17 hrs
Flood Elev= 32.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.16'	**10.0" x 86.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 25.92' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=2.95 cfs @ 12.17 hrs HW=28.60' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.95 cfs @ 5.40 fps)

Pond DB2:



Summary for Pond DB3:

[81] Warning: Exceeded Pond DB4 by 1.68' @ 12.15 hrs

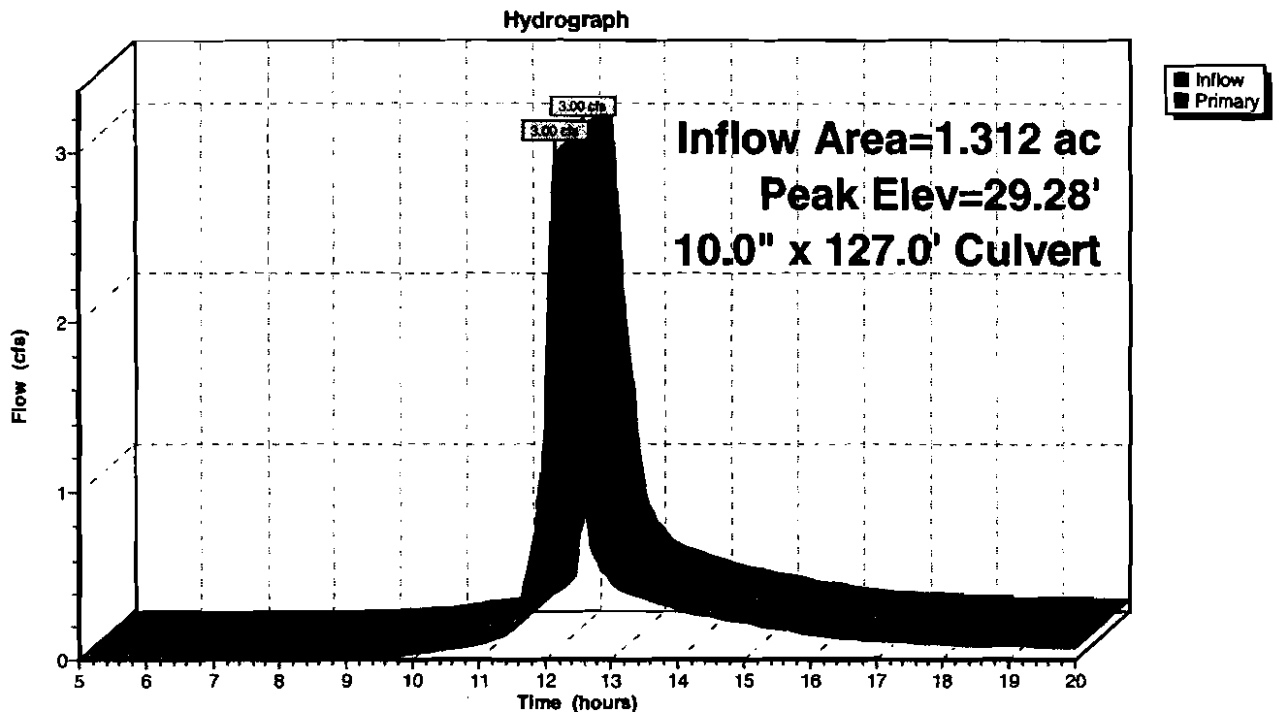
Inflow Area = 1.312 ac, 12.09% Impervious, Inflow Depth > 2.32" for 10-Year Storm event
Inflow = 3.00 cfs @ 12.17 hrs, Volume= 0.254 af
Outflow = 3.00 cfs @ 12.17 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 3.00 cfs @ 12.17 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 29.28' @ 12.17 hrs
Flood Elev= 29.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.51'	**10.0" x 127.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.15' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=2.95 cfs @ 12.17 hrs HW=29.21' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.95 cfs @ 5.40 fps)

Pond DB3:



Summary for Pond DB4:

[81] Warning: Exceeded Pond DB5 by 0.21' @ 12.20 hrs
[79] Warning: Submerged Pond SF4 Primary device # 1 INLET by 0.38'

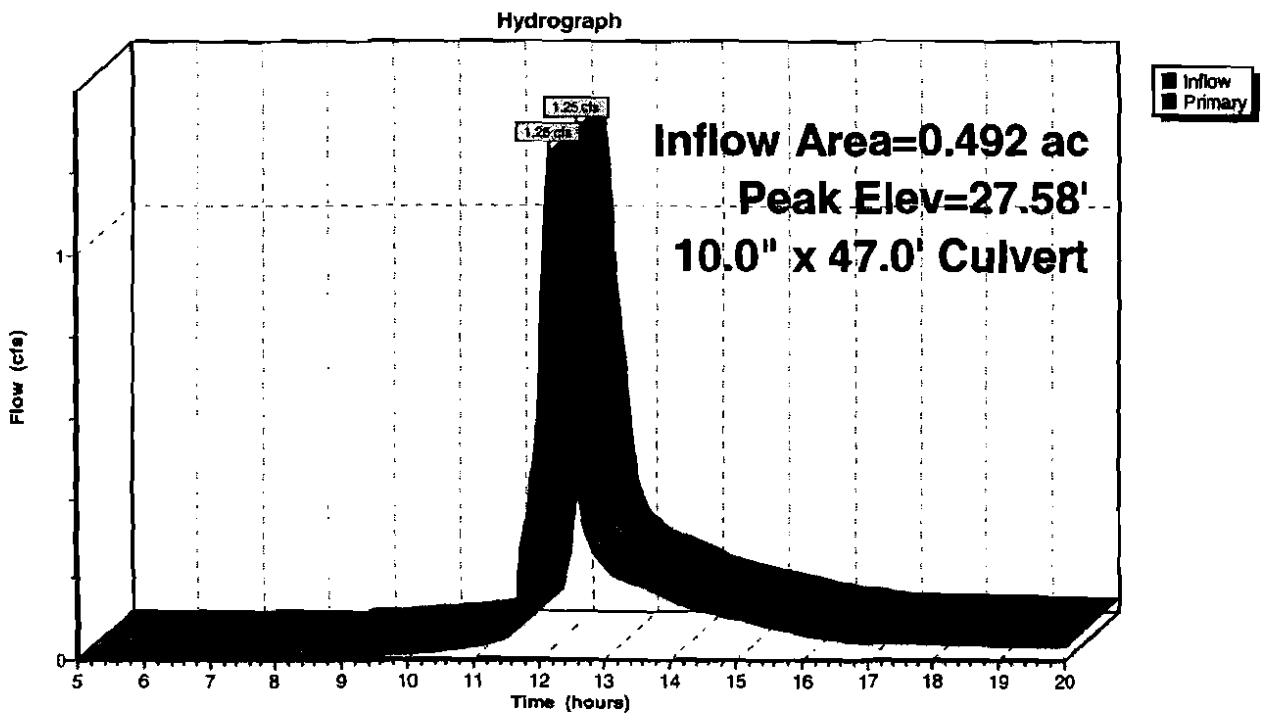
Inflow Area = 0.492 ac, 28.39% Impervious, Inflow Depth > 2.79" for 10-Year Storm event
Inflow = 1.25 cfs @ 12.17 hrs, Volume= 0.114 af
Outflow = 1.25 cfs @ 12.17 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.25 cfs @ 12.17 hrs, Volume= 0.114 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.58' @ 12.17 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.74'	**10.0" x 47.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.61' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=1.23 cfs @ 12.17 hrs HW=27.57' (Free Discharge)
└─1=**Culvert** (Barrel Controls 1.23 cfs @ 2.81 fps)

Pond DB4:



Summary for Pond DB5:

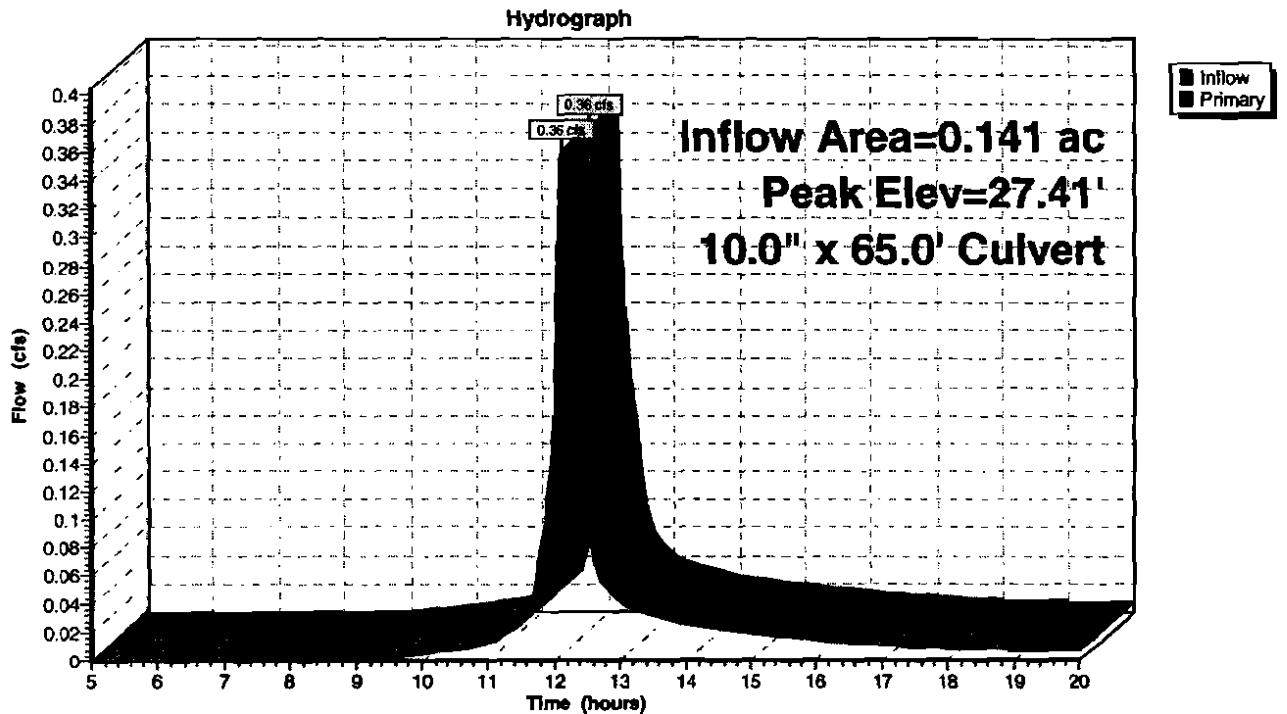
Inflow Area = 0.141 ac, 11.23% Impervious, Inflow Depth > 2.20" for 10-Year Storm event
Inflow = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af
Outflow = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.41' @ 12.12 hrs
Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.02'	**10.0" x 65.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.84' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.35 cfs @ 12.12 hrs HW=27.41' (Free Discharge)
↳**1=Culvert** (Barrel Controls 0.35 cfs @ 2.09 fps)

Pond DB5:



Summary for Pond DB6:

[81] Warning: Exceeded Pond DB7 by 0.80' @ 12.05 hrs
[79] Warning: Submerged Pond SF6 Primary device # 1 INLET by 1.67'

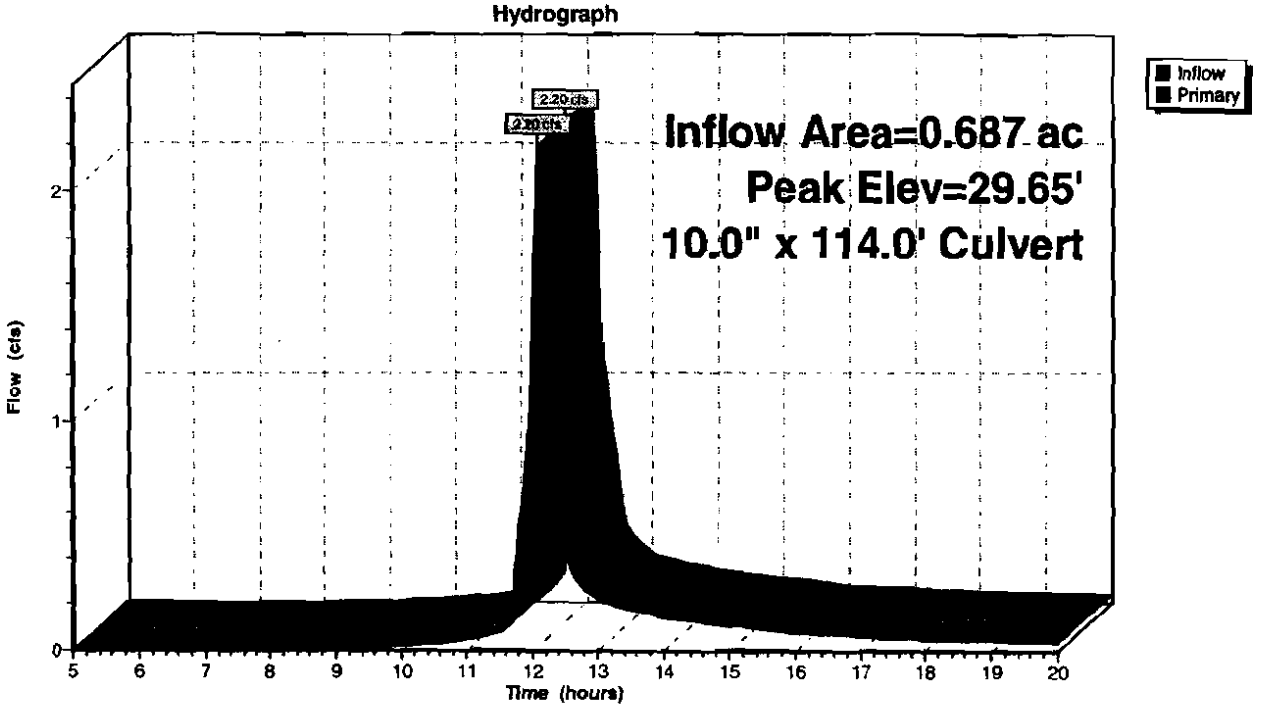
Inflow Area = 0.687 ac, 32.12% Impervious, Inflow Depth > 2.40" for 10-Year Storm event
Inflow = 2.20 cfs @ 12.07 hrs, Volume= 0.138 af
Outflow = 2.20 cfs @ 12.07 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min
Primary = 2.20 cfs @ 12.07 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 29.65' @ 12.07 hrs
Flood Elev= 30.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.98'	**10.0" x 114.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.66' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=2.12 cfs @ 12.07 hrs HW=29.57' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.12 cfs @ 3.89 fps)

Pond DB6:



Summary for Pond DB7:

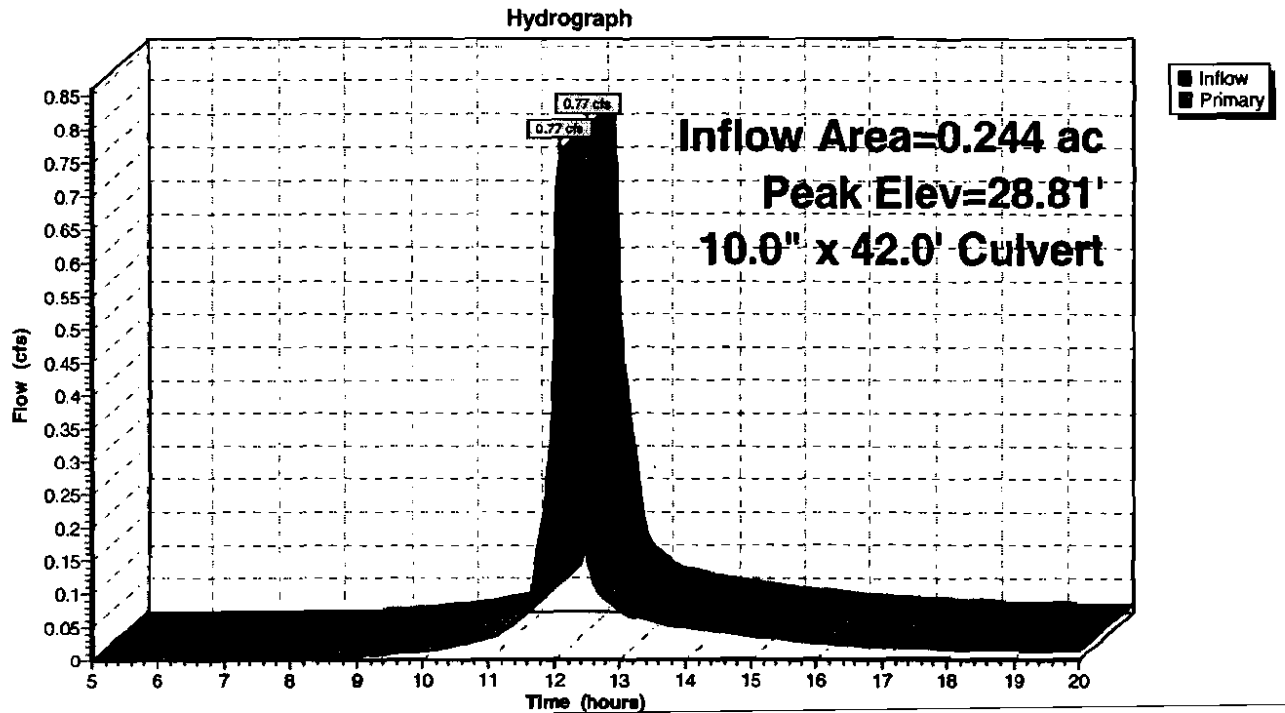
Inflow Area = 0.244 ac, 31.10% Impervious, Inflow Depth > 2.54" for 10-Year Storm event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.052 af
Outflow = 0.77 cfs @ 12.09 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.09 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 28.81' @ 12.09 hrs
Flood Elev= 29.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.20'	**10.0" x 42.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 28.08' S= 0.0029 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.75 cfs @ 12.09 hrs HW=28.80' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.75 cfs @ 2.48 fps)

Pond DB7:



Summary for Pond IN1:

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond IN2 Primary device # 1 OUTLET by 0.19'

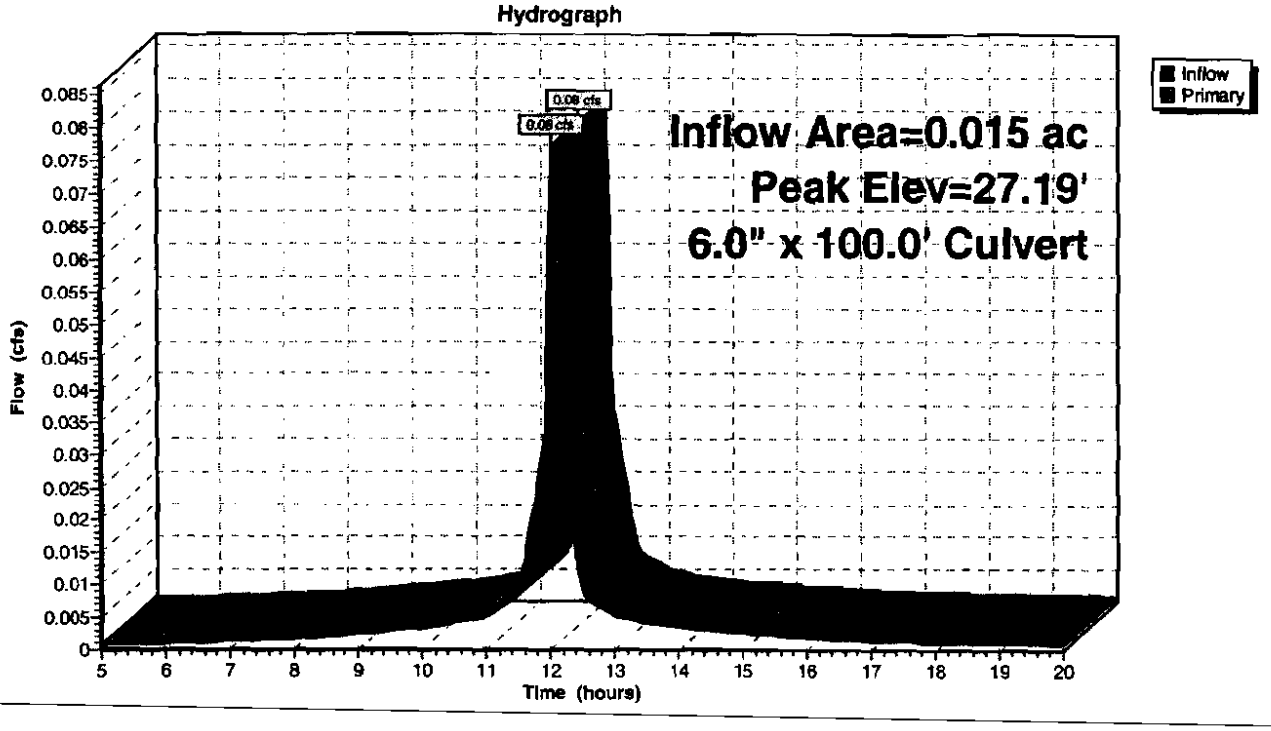
Inflow Area = 0.015 ac,100.00% Impervious, Inflow Depth > 4.15" for 10-Year Storm event
Inflow = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af
Outflow = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.19' @ 12.00 hrs
Flood Elev= 28.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.00'	**6.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.50' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.08 cfs @ 12.00 hrs HW=27.19' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.08 cfs @ 1.16 fps)

Pond IN1:



Summary for Pond IN2:

[82] Warning: Early inflow requires earlier time span

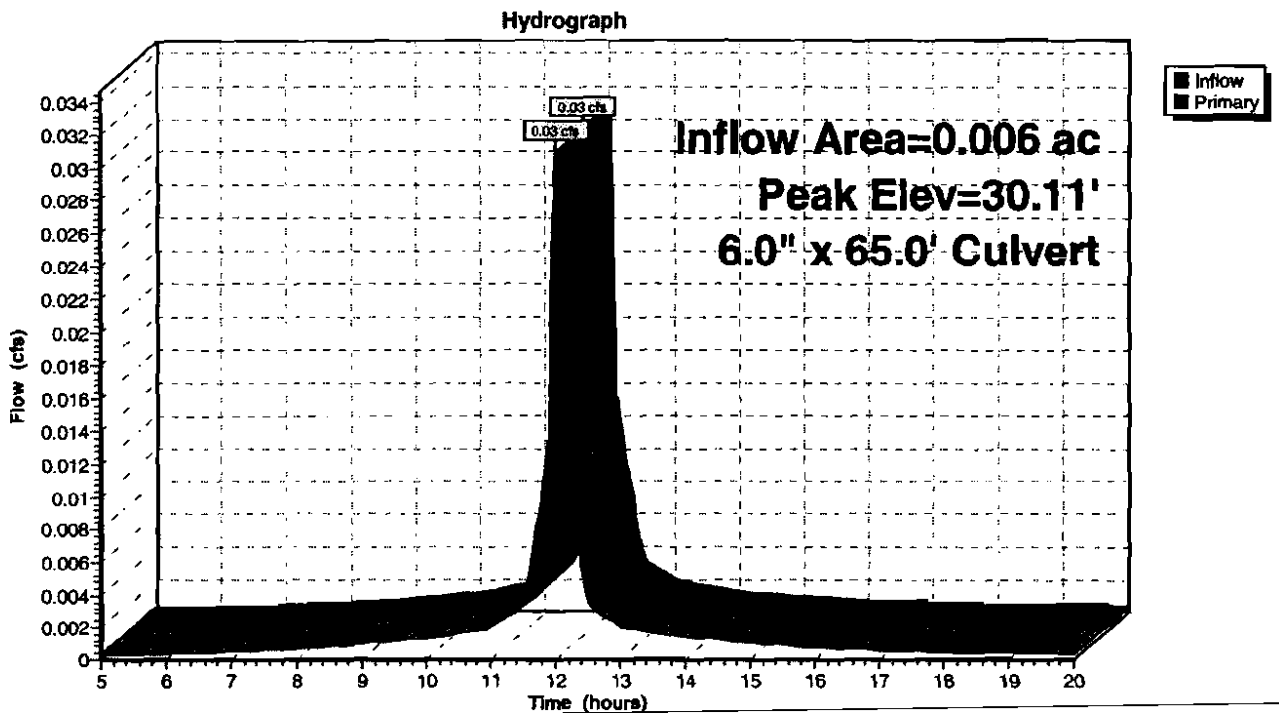
Inflow Area = 0.006 ac,100.00% Impervious, Inflow Depth > 4.15" for 10-Year Storm event
Inflow = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.11' @ 12.00 hrs
Flood Elev= 31.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.00'	**6.0" x 65.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.00' S= 0.0462 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.03 cfs @ 12.00 hrs HW=30.11' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.03 cfs @ 0.91 fps)

Pond IN2:



Summary for Pond SF1: Underdrain Soil Filter

[93] Warning: Storage range exceeded by 0.05'
[58] Hint: Peaked 0.05' above defined flood level
[88] Warning: Qout>Qin may require Finer Routing>1

Inflow Area = 0.123 ac, 38.82% Impervious, Inflow Depth > 2.72" for 10-Year Storm event
Inflow = 0.41 cfs @ 12.08 hrs, Volume= 0.028 af
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 11.85 hrs, Volume= 0.010 af
Secondary = 0.47 cfs @ 12.08 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.05' @ 12.08 hrs Surf.Area= 451 sf Storage= 161 cf
Flood Elev= 30.00' Surf.Area= 451 sf Storage= 161 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 20.7 min (802.4 - 781.7)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

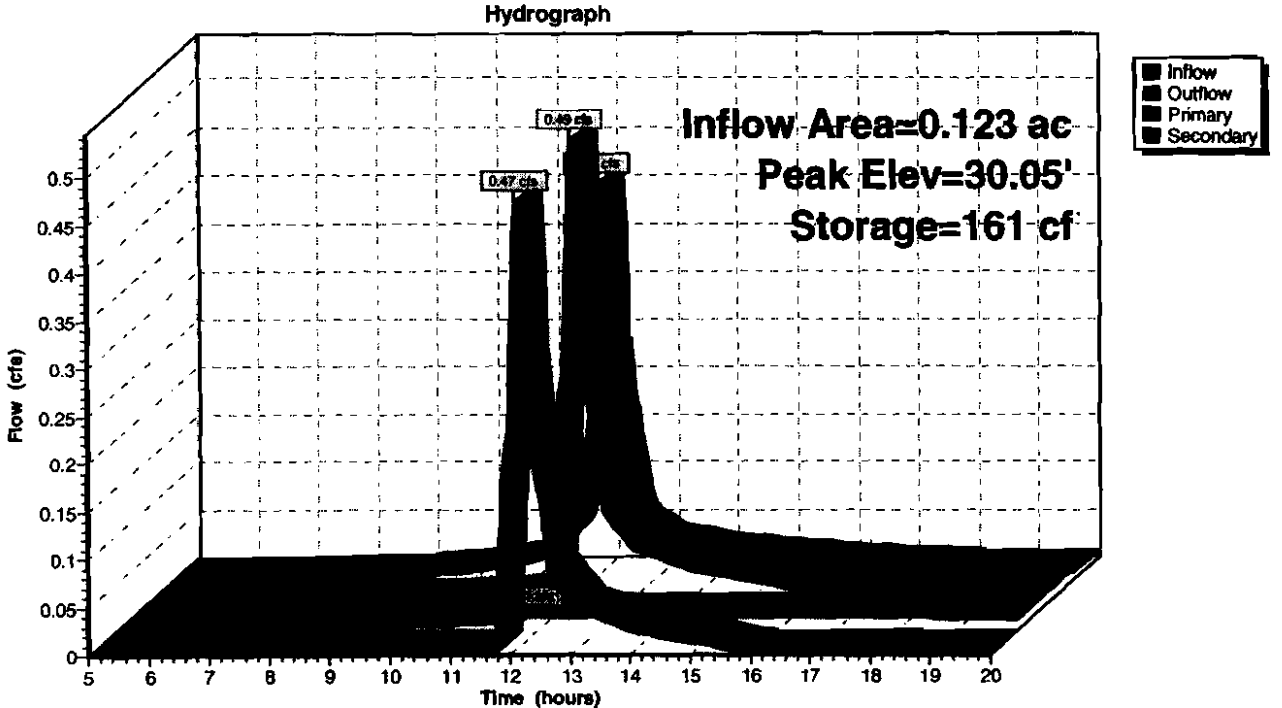
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.50	209	48.1	0	0	209
30.00	451	90.0	161	161	671

Device	Routing	Invert	Outlet Devices
#1	Primary	27.23'	**6.0" x 12.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.17' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	29.50'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 209 sf
#3	Secondary	30.00'	**48.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.01 cfs @ 11.85 hrs HW=30.03' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 1.19 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.46 cfs @ 12.08 hrs HW=30.05' (Free Discharge)
└**3=Orifice/Grate** (Weir Controls 0.46 cfs @ 0.73 fps)

Pond SF1: Underdrain Soil Filter



Summary for Pond SF4: Underdain Soil Filter

[93] Warning: Storage range exceeded by 0.13'
[58] Hint: Peaked 0.13' above defined flood level
[88] Warning: Qout>Qin may require Finer Routing>1

Inflow Area = 0.351 ac, 35.29% Impervious, Inflow Depth > 2.62" for 10-Year Storm event
Inflow = 0.89 cfs @ 12.20 hrs, Volume= 0.077 af
Outflow = 0.95 cfs @ 12.20 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 11.70 hrs, Volume= 0.025 af
Secondary = 0.91 cfs @ 12.20 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.13' @ 12.20 hrs Surf.Area= 766 sf Storage= 221 cf
Flood Elev= 30.00' Surf.Area= 766 sf Storage= 221 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 16.0 min (807.2 - 791.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	221 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

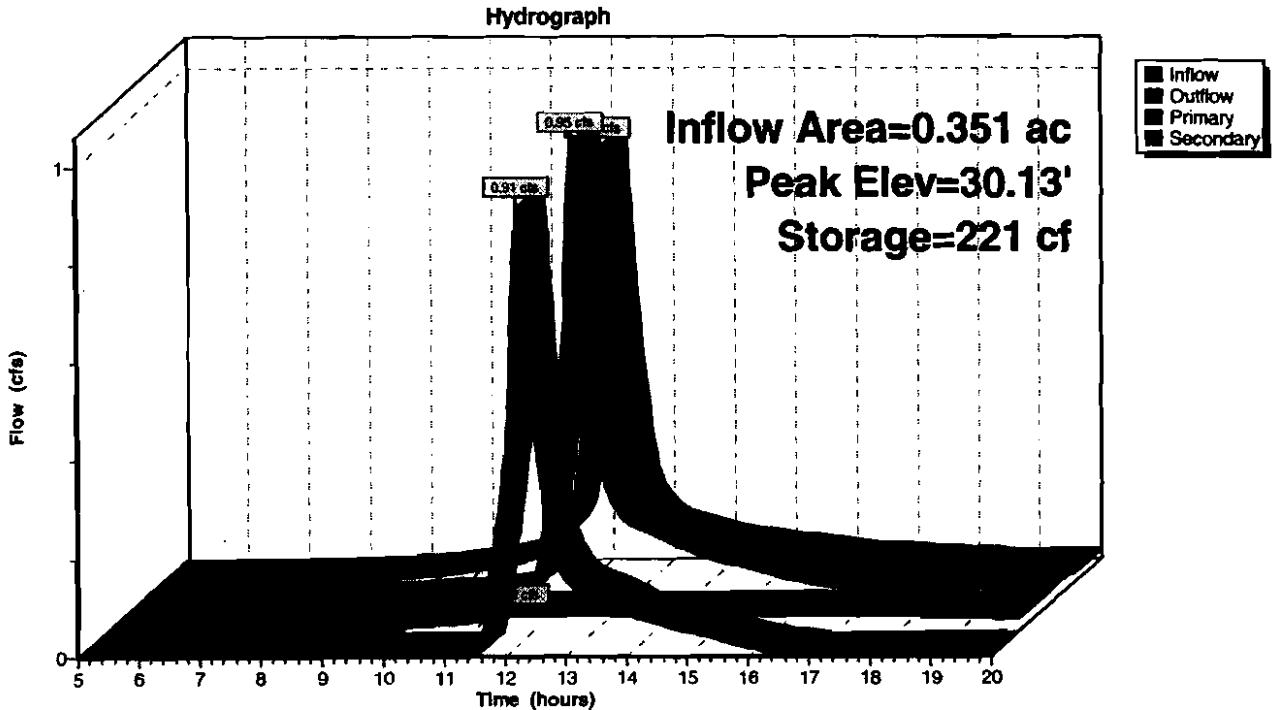
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.50	185	44.5	0	0	185
30.00	766	121.2	221	221	1,197

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	**6.0" x 5.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.17' S= 0.0060 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	29.50'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 185 sf
#3	Secondary	30.00'	**24.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.03 cfs @ 11.70 hrs HW=30.04' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 1.20 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=0.91 cfs @ 12.20 hrs HW=30.13' (Free Discharge)
└**3=Orifice/Grate** (Weir Controls 0.91 cfs @ 1.16 fps)

Pond SF4: Underdain Soil Filter



Summary for Pond SF6: Underdrain Soil Filter

[58] Hint: Peaked 0.17' above defined flood level

Inflow Area =	0.443 ac,	32.67% Impervious,	Inflow Depth >	2.63" for 10-Year Storm event
Inflow =	1.60 cfs @	12.04 hrs, Volume=	0.097 af	
Outflow =	1.44 cfs @	12.07 hrs, Volume=	0.086 af,	Atten= 10%, Lag= 1.5 min
Primary =	0.03 cfs @	12.07 hrs, Volume=	0.019 af	
Secondary =	1.41 cfs @	12.07 hrs, Volume=	0.068 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.67' @ 12.07 hrs Surf.Area= 1,349 sf Storage= 703 cf
Flood Elev= 30.50' Surf.Area= 1,192 sf Storage= 490 cf

Plug-Flow detention time= 58.1 min calculated for 0.086 af (88% of inflow)
Center-of-Mass det. time= 21.6 min (803.3 - 781.8)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	1,206 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

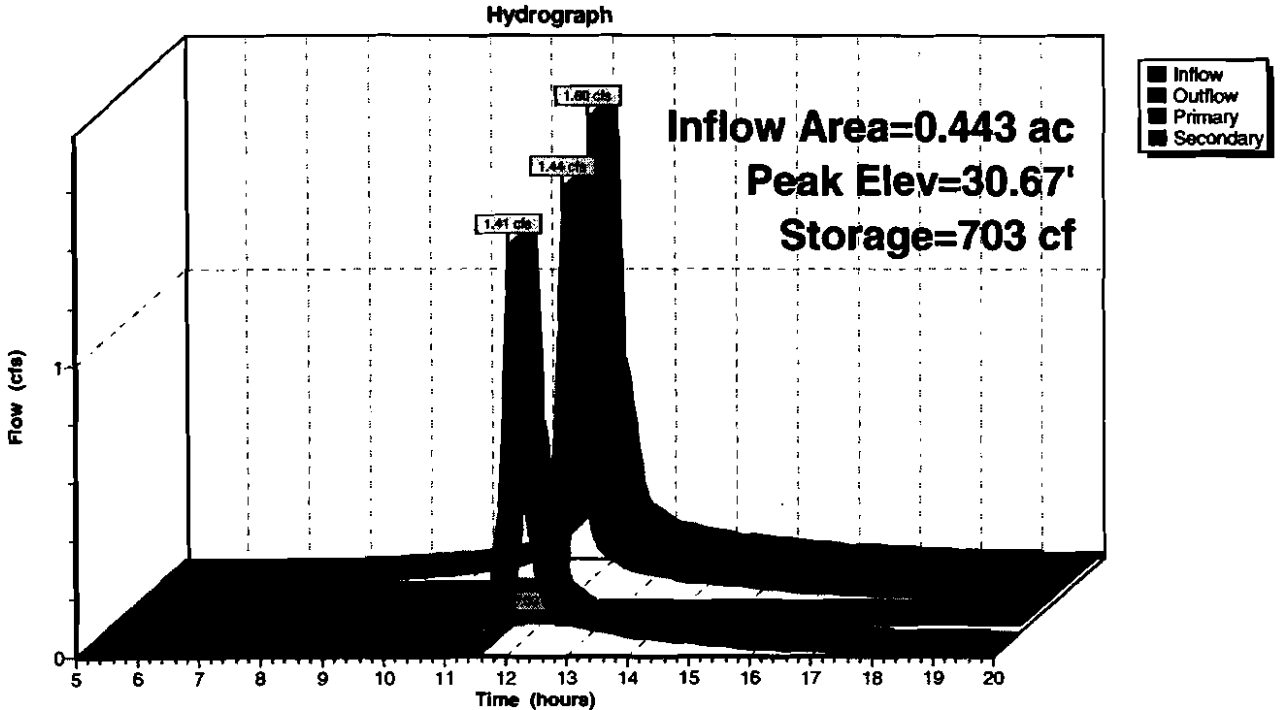
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.00	781	155.0	0	0	781
31.00	1,689	213.0	1,206	1,206	2,489

Device	Routing	Invert	Outlet Devices
#1	Primary	27.91'	**6.0" x 47.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.67' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	30.00'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 781 sf
#3	Secondary	30.50'	**24.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.03 cfs @ 12.07 hrs HW=30.66' (Free Discharge)
↑—**1=Culvert** (Passes 0.03 cfs of 1.18 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=1.36 cfs @ 12.07 hrs HW=30.66' (Free Discharge)
↑—**3=Orifice/Grate** (Weir Controls 1.36 cfs @ 1.32 fps)

Pond SF6: Underdrain Soil Filter



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment D1: Runoff Area=35,719 sf 2.31% Impervious Runoff Depth>2.66"
Flow Length=275' Tc=11.4 min CN=75 Runoff=2.28 cfs 0.181 af

Subcatchment D2: Runoff Area=15,289 sf 35.29% Impervious Runoff Depth>3.30"
Flow Length=370' Slope=0.0100 '/' Tc=14.3 min CN=82 Runoff=1.11 cfs 0.097 af

Subcatchment D3: Runoff Area=6,144 sf 11.23% Impervious Runoff Depth>2.84"
Flow Length=95' Tc=8.0 min CN=77 Runoff=0.46 cfs 0.033 af

Subcatchment D4: Runoff Area=5,360 sf 38.82% Impervious Runoff Depth>3.41"
Flow Length=60' Tc=5.4 min CN=83 Runoff=0.51 cfs 0.035 af

Subcatchment D5: Runoff Area=19,309 sf 32.67% Impervious Runoff Depth>3.32"
Flow Length=335' Tc=2.4 min CN=82 Runoff=2.00 cfs 0.122 af

Subcatchment D6: Runoff Area=10,624 sf 31.10% Impervious Runoff Depth>3.22"
Flow Length=95' Tc=5.6 min CN=81 Runoff=0.97 cfs 0.065 af

Subcatchment D7: Runoff Area=15,051 sf 7.27% Impervious Runoff Depth>2.75"
Flow Length=240' Tc=4.2 min CN=76 Runoff=1.25 cfs 0.079 af

Subcatchment D8: Runoff Area=12,730 sf 3.85% Impervious Runoff Depth>2.65"
Flow Length=290' Tc=13.2 min CN=75 Runoff=0.77 cfs 0.065 af

Subcatchment S1: Runoff Area=383 sf 100.00% Impervious Runoff Depth>4.87"
Flow Length=30' Slope=0.0700 '/' Tc=0.1 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment S2: Runoff Area=256 sf 100.00% Impervious Runoff Depth>4.87"
Flow Length=10' Slope=0.2000 '/' Tc=0.0 min CN=98 Runoff=0.04 cfs 0.002 af

Reach EXIST: Inflow=8.18 cfs 0.651 af
Outflow=8.18 cfs 0.651 af

Pond CB1: Peak Elev=35.81' Inflow=6.45 cfs 0.507 af
10.0" x 100.0' Culvert Outflow=6.45 cfs 0.507 af

Pond DB1: Peak Elev=36.15' Inflow=8.18 cfs 0.651 af
10.0" x 4.0' Culvert Outflow=8.18 cfs 0.651 af

Pond DB2: Peak Elev=29.86' Inflow=3.76 cfs 0.298 af
10.0" x 86.0' Culvert Outflow=3.76 cfs 0.298 af

Pond DB3: Peak Elev=30.60' Inflow=3.76 cfs 0.298 af
10.0" x 127.0' Culvert Outflow=3.76 cfs 0.298 af

Pond DB4: Peak Elev=27.70' Inflow=1.48 cfs 0.116 af
10.0" x 47.0' Culvert Outflow=1.48 cfs 0.116 af

Pond DB5: Peak Elev=27.47' Inflow=0.46 cfs 0.033 af
10.0" x 65.0' Culvert Outflow=0.46 cfs 0.033 af

Pond DB6: Peak Elev=30.31' Inflow=2.76 cfs 0.176 af
10.0" x 114.0' Culvert Outflow=2.76 cfs 0.176 af

Pond DB7: Peak Elev=28.91' Inflow=0.97 cfs 0.065 af
10.0" x 42.0' Culvert Outflow=0.97 cfs 0.065 af

Pond IN1: Peak Elev=27.20' Inflow=0.09 cfs 0.006 af
6.0" x 100.0' Culvert Outflow=0.09 cfs 0.006 af

Pond IN2: Peak Elev=30.12' Inflow=0.04 cfs 0.002 af
6.0" x 65.0' Culvert Outflow=0.04 cfs 0.002 af

Pond SF1: Underdrain Soil Filter Peak Elev=30.05' Storage=161 cf Inflow=0.51 cfs 0.035 af
Primary=0.01 cfs 0.011 af Secondary=0.49 cfs 0.016 af Outflow=0.50 cfs 0.027 af

Pond SF4: Underdain Soil Filter Peak Elev=30.14' Storage=221 cf Inflow=1.11 cfs 0.097 af
Primary=0.03 cfs 0.027 af Secondary=1.05 cfs 0.056 af Outflow=1.09 cfs 0.083 af

Pond SF6: Underdrain Soil Filter Peak Elev=30.70' Storage=741 cf Inflow=2.00 cfs 0.122 af
Primary=0.03 cfs 0.020 af Secondary=1.78 cfs 0.091 af Outflow=1.82 cfs 0.111 af

Total Runoff Area = 2.775 ac Runoff Volume = 0.684 af Average Runoff Depth = 2.96"
82.77% Pervious = 2.297 ac 17.23% Impervious = 0.478 ac

Summary for Subcatchment D1:

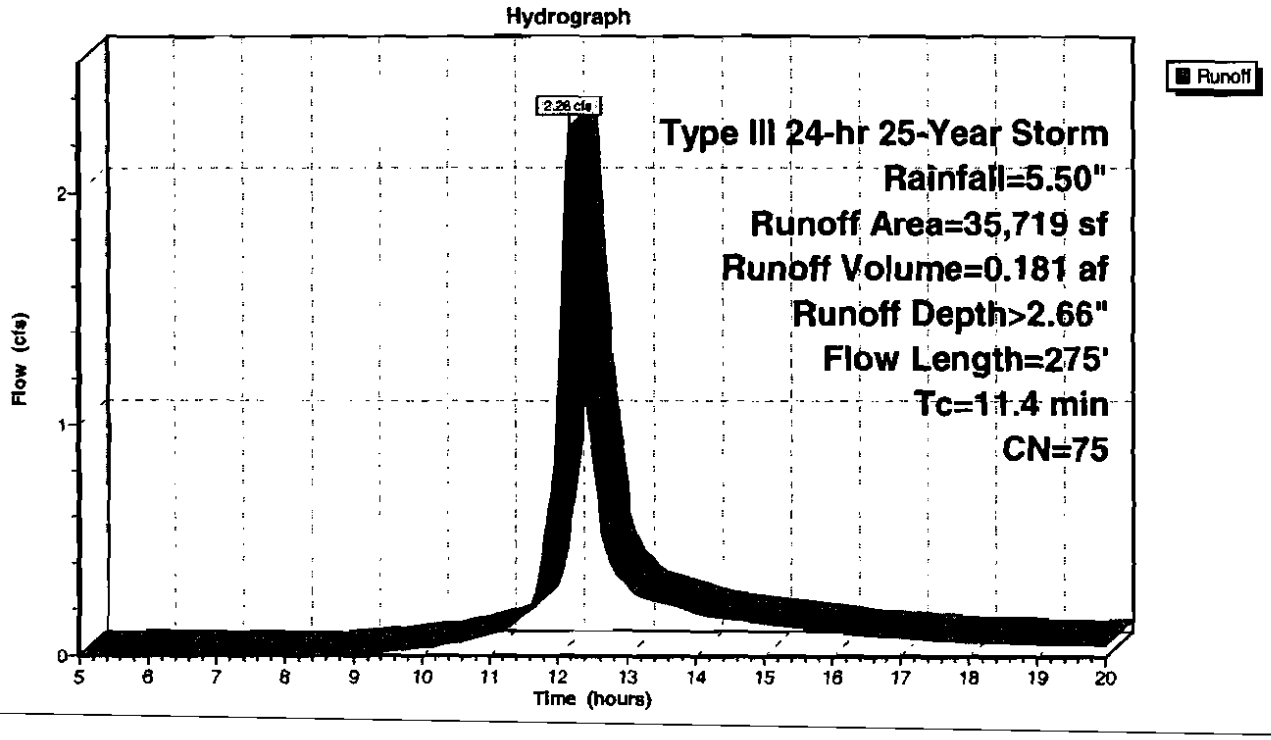
Runoff = 2.28 cfs @ 12.16 hrs, Volume= 0.181 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
34,895	74	>75% Grass cover, Good, HSG C
824	98	Paved parking & roofs
35,719	75	Weighted Average
34,895		Pervious Area
824		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	65	0.1200	0.31		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
3.7	35	0.0300	0.16		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
4.2	175	0.0100	0.70		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
11.4	275	Total			

Subcatchment D1:



Summary for Subcatchment D2:

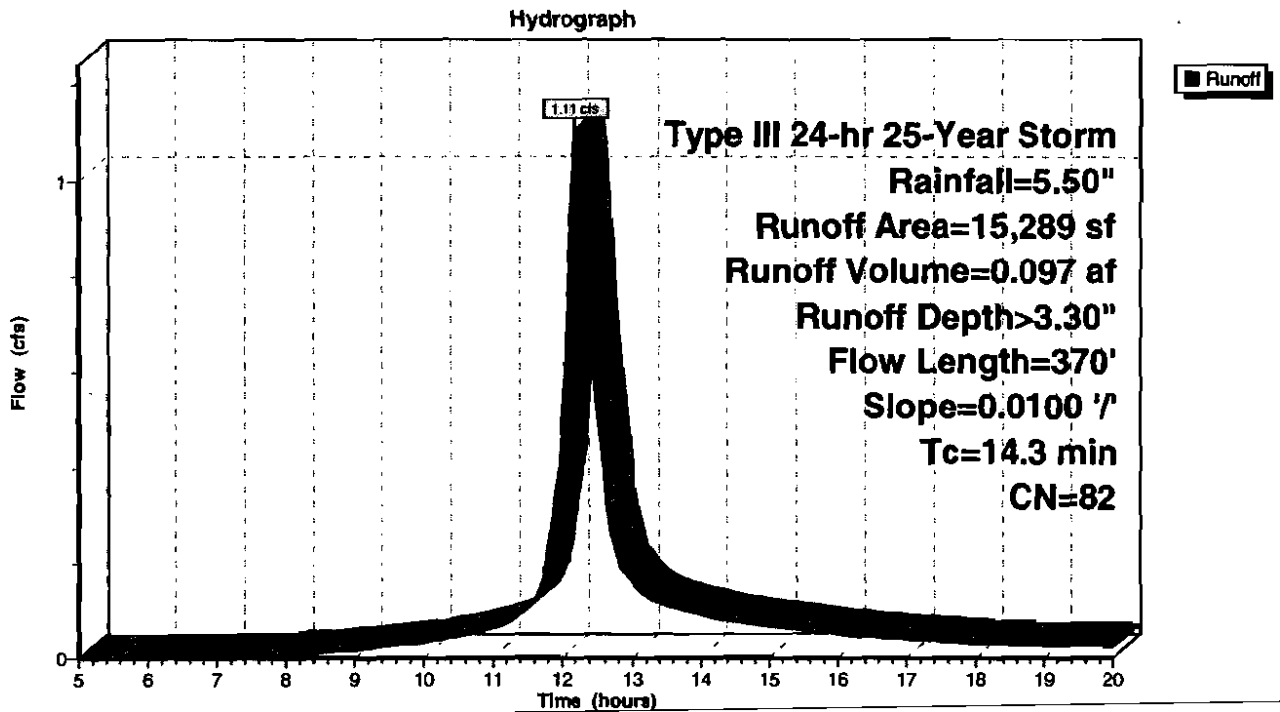
Runoff = 1.11 cfs @ 12.20 hrs, Volume= 0.097 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
9,894	74	>75% Grass cover, Good, HSG C
5,395	98	Paved parking & roofs
15,289	82	Weighted Average
9,894		Pervious Area
5,395		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	40	0.0100	0.10		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
7.9	330	0.0100	0.70		**Shallow Concentrated Flow, B to C** Short Grass Pasture Kv= 7.0 fps
14.3	370	Total			

Subcatchment D2:



Summary for Subcatchment D3:

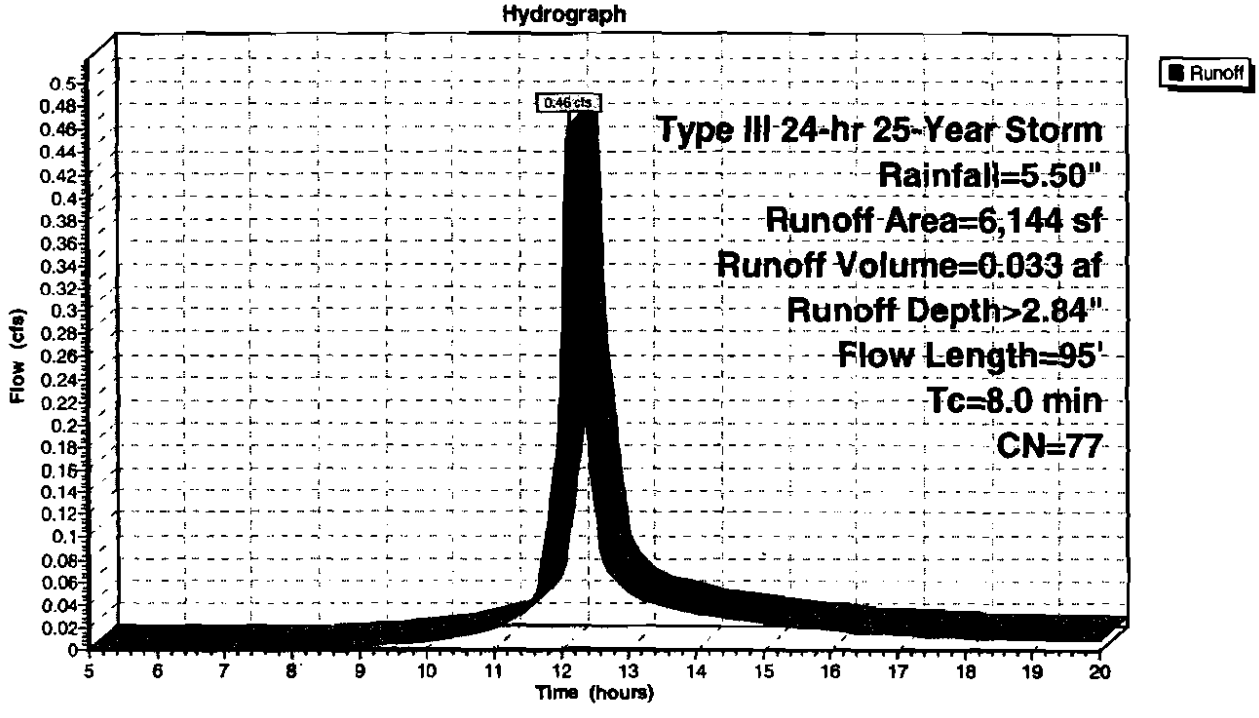
Runoff = 0.46 cfs @ 12.12 hrs, Volume= 0.033 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
5,454	74	>75% Grass cover, Good, HSG C
690	98	Paved parking & roofs
6,144	77	Weighted Average
5,454		Pervious Area
690		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	55	0.1200	0.30		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
4.9	40	0.0200	0.14		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
8.0	95	Total			

Subcatchment D3:



Summary for Subcatchment D4:

[49] Hint: Tc<2dt may require smaller dt

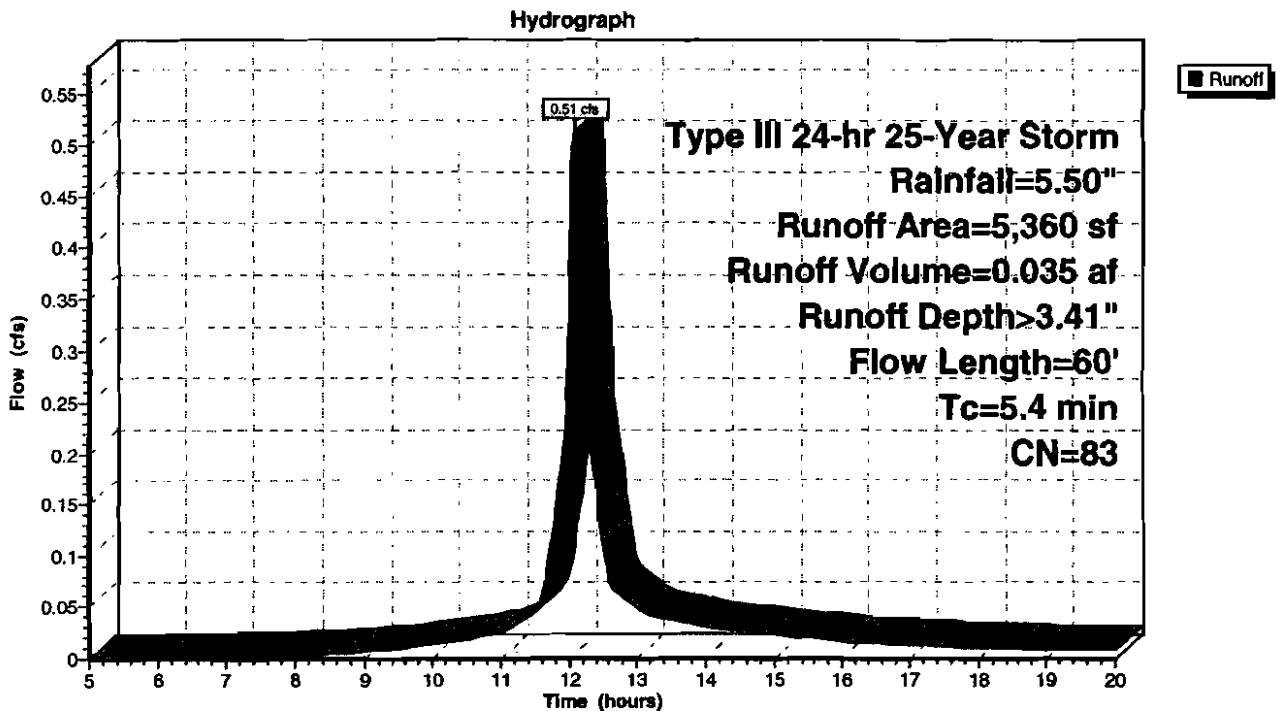
Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.035 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
3,279	74	>75% Grass cover, Good, HSG C
2,081	98	Paved parking & roofs
5,360	83	Weighted Average
3,279		Pervious Area
2,081		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	33	0.0450	0.18		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
2.4	27	0.0550	0.19		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
5.4	60	Total			

Subcatchment D4:



Summary for Subcatchment D5:

[49] Hint: Tc<2dt may require smaller dt

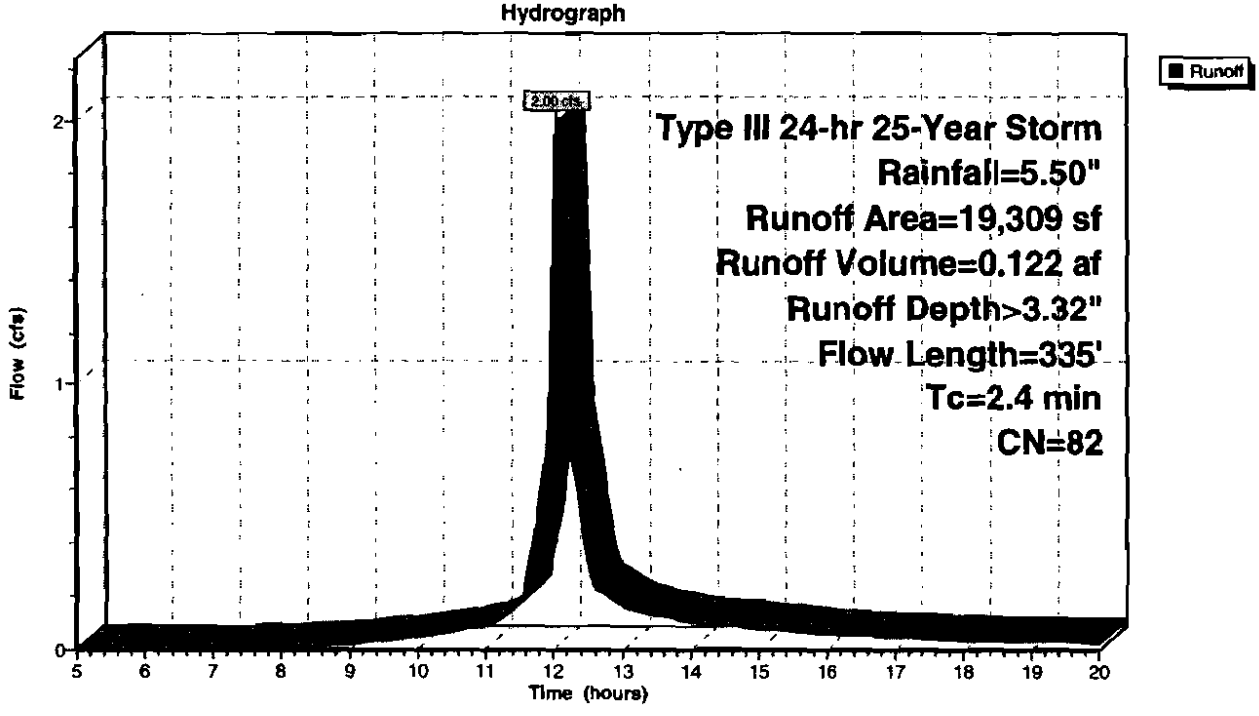
Runoff = 2.00 cfs @ 12.04 hrs, Volume= 0.122 af, Depth> 3.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
13,000	74	>75% Grass cover, Good, HSG C
6,309	98	Paved parking & roofs
19,309	82	Weighted Average
13,000		Pervious Area
6,309		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.01		**Sheet Flow, A to B** Smooth surfaces n= 0.011 P2= 3.00"
0.8	145	0.0200	2.87		**Shallow Concentrated Flow, B to C** Paved Kv= 20.3 fps
1.2	165	0.0500	2.24		**Shallow Concentrated Flow, C to D** Nearly Bare & Untilled Kv= 10.0 fps
2.4	335	Total			

Subcatchment D5:



Summary for Subcatchment D6:

[49] Hint: Tc<2dt may require smaller dt

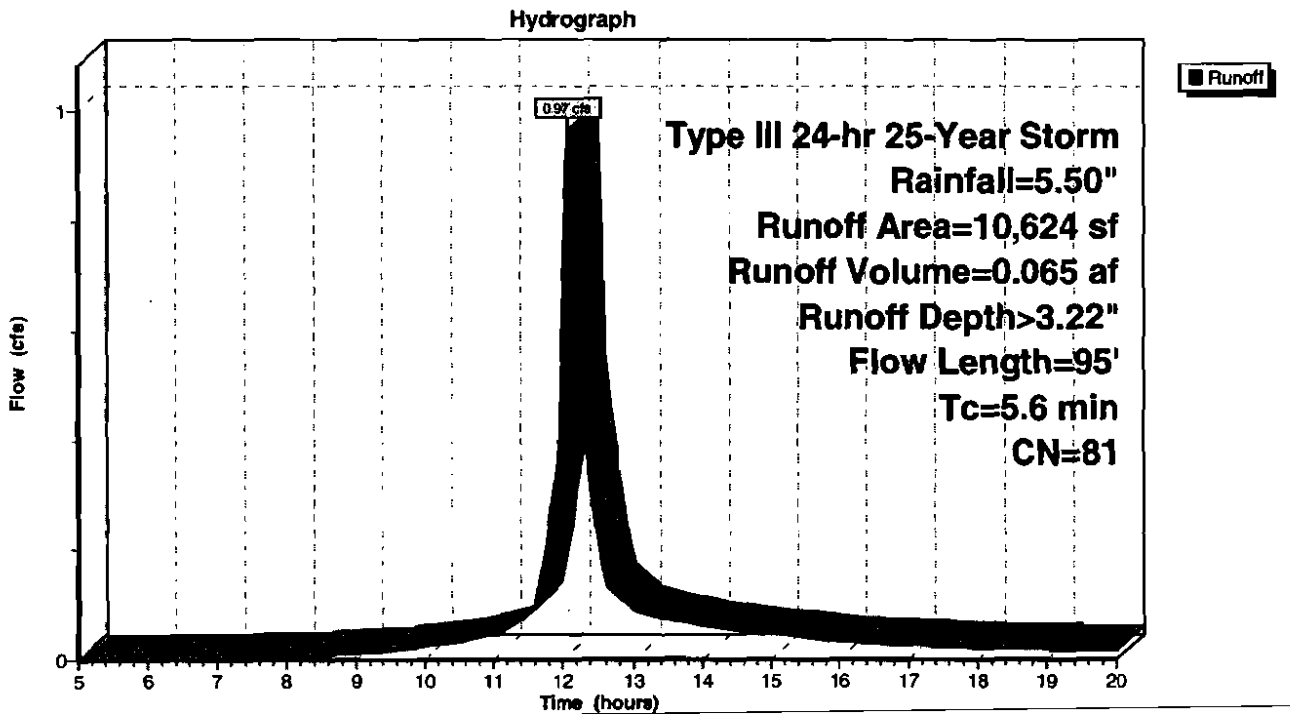
Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.065 af, Depth> 3.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
7,320	74	>75% Grass cover, Good, HSG C
3,304	98	Paved parking & roofs
10,624	81	Weighted Average
7,320		Pervious Area
3,304		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	45	0.0200	1.14		**Sheet Flow, A to B** Smooth surfaces n= 0.011 P2= 3.00"
4.9	50	0.0300	0.17		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
5.6	95	Total			

Subcatchment D6:



Summary for Subcatchment D7:

[49] Hint: Tc<2dt may require smaller dt

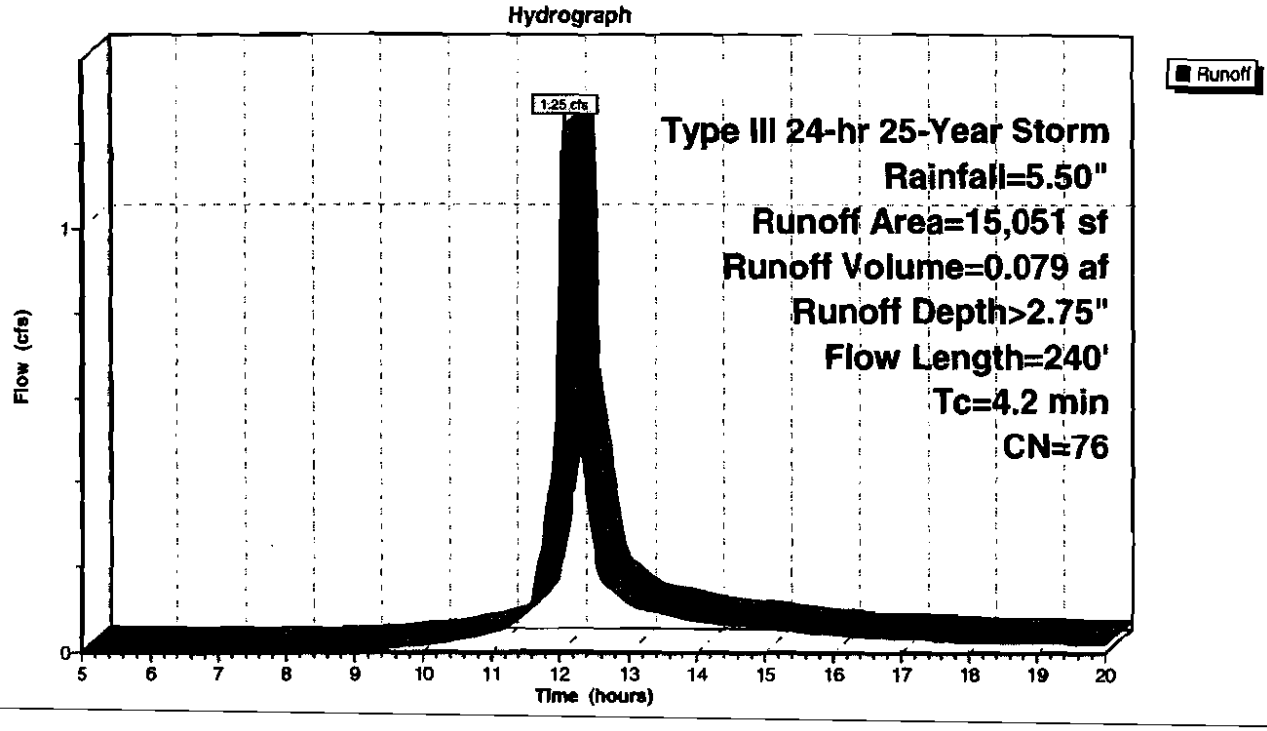
Runoff = 1.25 cfs @ 12.07 hrs, Volume= 0.079 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
13,957	74	>75% Grass cover, Good, HSG C
1,094	98	Paved parking & roofs
15,051	76	Weighted Average
13,957		Pervious Area
1,094		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	25	0.1200	0.26		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
2.6	215	0.0400	1.40		**Shallow Concentrated Flow, B to C** Short Grass Pasture Kv= 7.0 fps
4.2	240	Total			

Subcatchment D7:



Summary for Subcatchment D8:

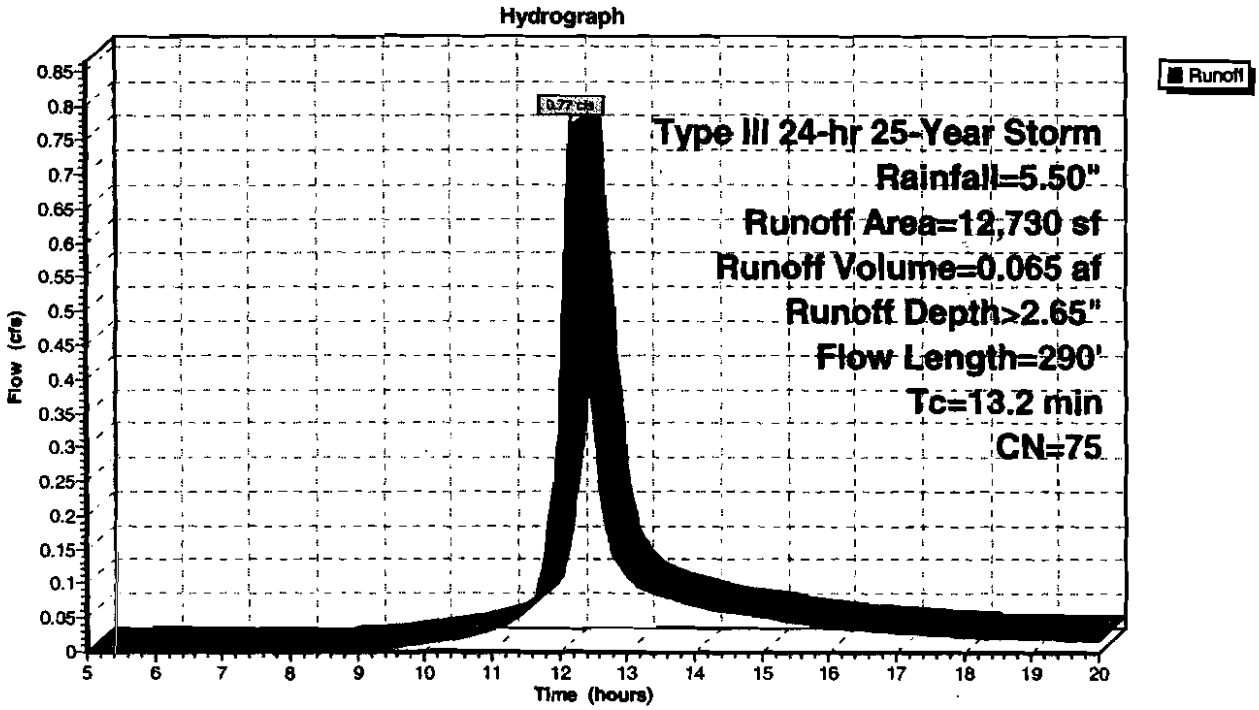
Runoff = 0.77 cfs @ 12.19 hrs, Volume= 0.065 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
12,240	74	>75% Grass cover, Good, HSG C
490	98	Paved parking & roofs
12,730	75	Weighted Average
12,240		Pervious Area
490		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0100	0.11		**Sheet Flow, A to B** Grass: Short n= 0.150 P2= 3.00"
3.3	50	0.0800	0.25		**Sheet Flow, B to C** Grass: Short n= 0.150 P2= 3.00"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, C to D** Short Grass Pasture Kv= 7.0 fps
0.2	50	0.0050	3.36	1.83	**Circular Channel (pipe), D to E** Diam= 10.0" Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.011 Concrete pipe, straight & clean
0.8	40	0.0147	0.85		**Shallow Concentrated Flow, E to F** Short Grass Pasture Kv= 7.0 fps
13.2	290	Total			

Subcatchment D8:



Summary for Subcatchment S1:

[49] Hint: Tc<2dt may require smaller dt

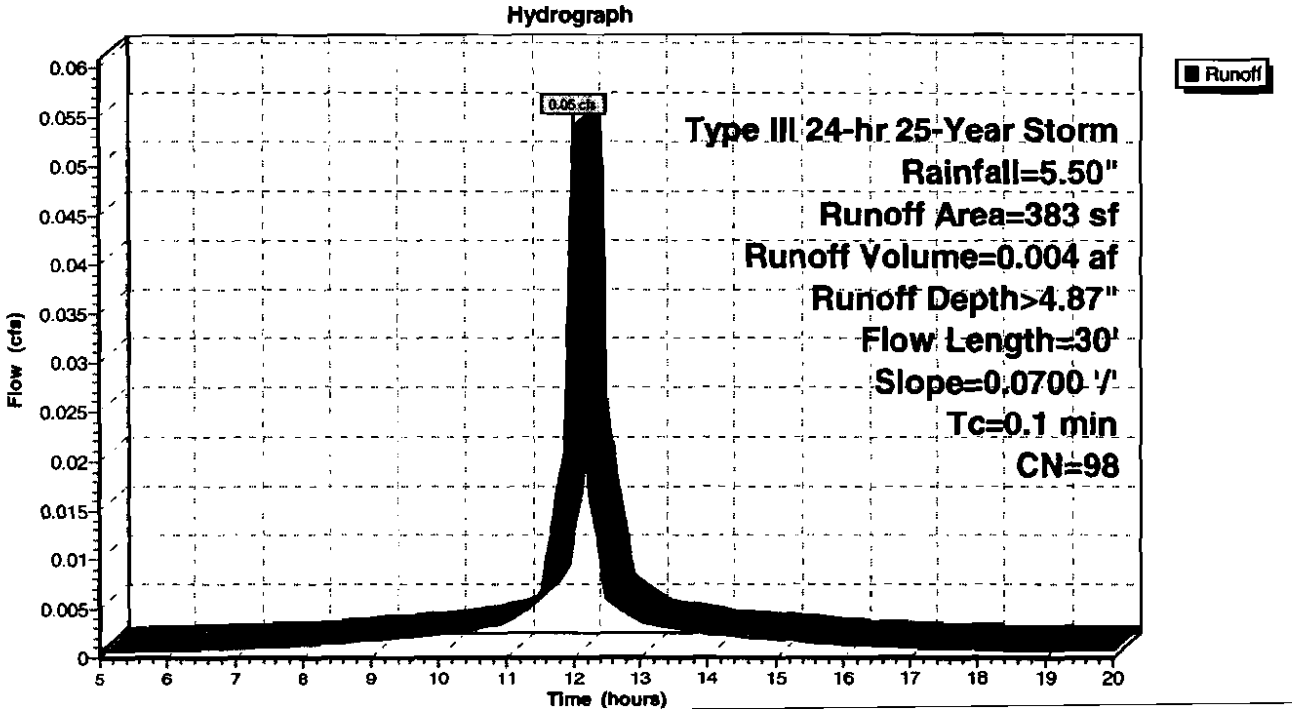
Runoff = 0.05 cfs @ 12.00 hrs, Volume= 0.004 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
383	98	Paved parking & roofs
383		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	30	0.0700	5.37		**Shallow Concentrated Flow, A to B** Paved Kv= 20.3 fps

Subcatchment S1:



Summary for Subcatchment S2:

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

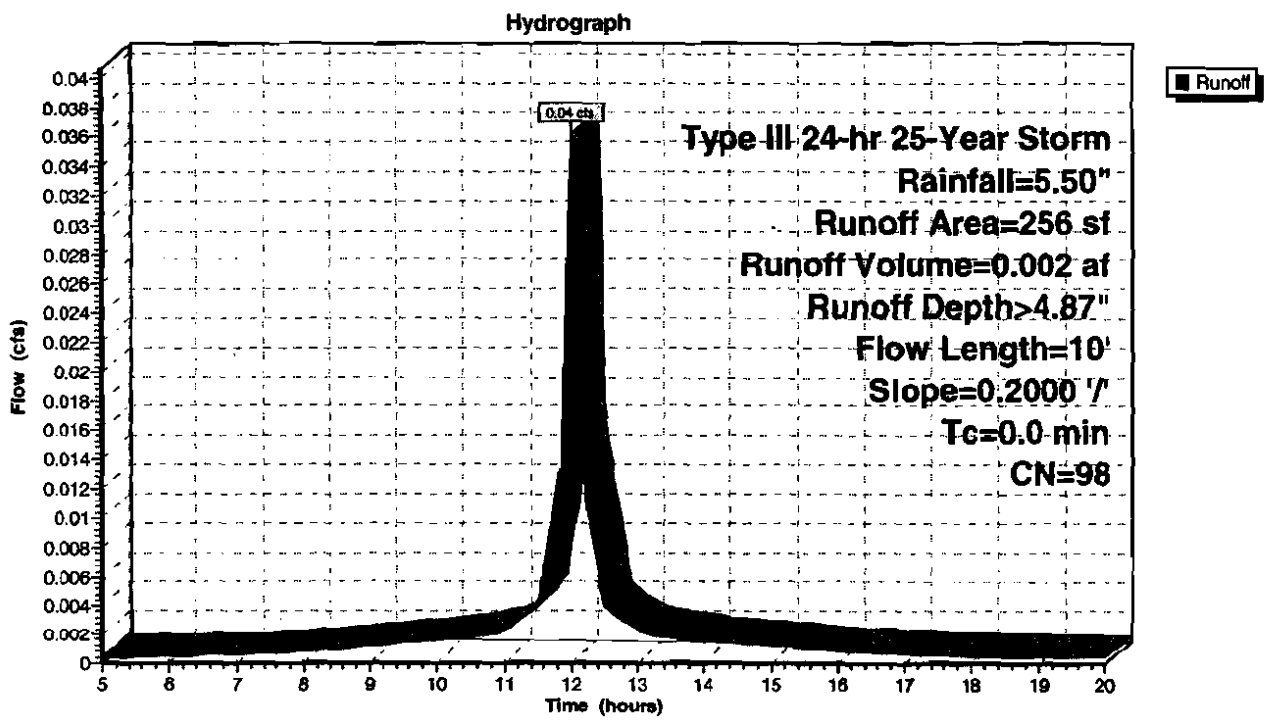
Runoff = 0.04 cfs @ 12.00 hrs, Volume= 0.002 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Rainfall=5.50"

Area (sf)	CN	Description
256	98	Paved parking & roofs
256		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.2000	9.08		**Shallow Concentrated Flow, A to B** Paved Kv= 20.3 fps

Subcatchment S2:



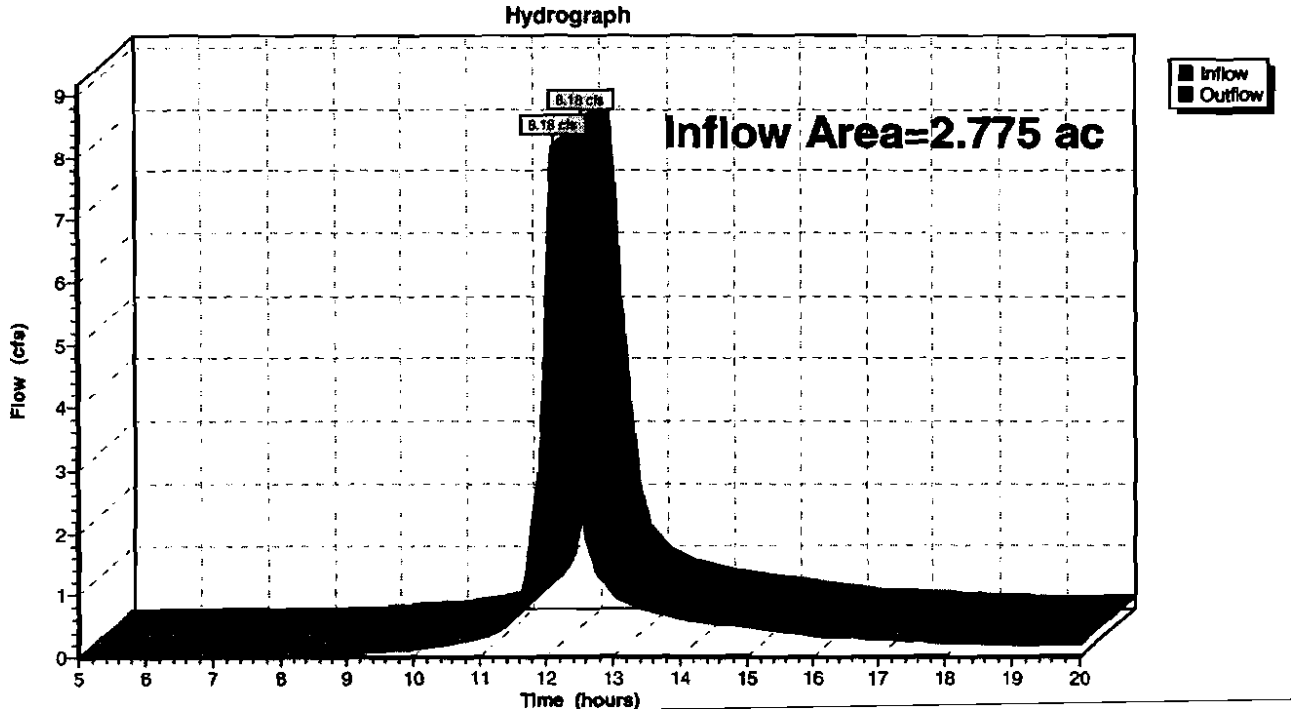
Summary for Reach EXIST:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.775 ac, 17.23% Impervious, Inflow Depth > 2.82" for 25-Year Storm event
Inflow = 8.18 cfs @ 12.11 hrs, Volume= 0.651 af
Outflow = 8.18 cfs @ 12.11 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach EXIST:



Summary for Pond CB1:

[57] Hint: Peaked at 35.81' (Flood elevation advised)
[81] Warning: Exceeded Pond DB2 by 6.69' @ 12.10 hrs
[81] Warning: Exceeded Pond DB6 by 5.58' @ 12.10 hrs
[81] Warning: Exceeded Pond IN1 by 8.60' @ 12.10 hrs
[81] Warning: Exceeded Pond SF1 by 5.69' @ 12.10 hrs
[81] Warning: Exceeded Pond SF1 by 5.69' @ 12.10 hrs

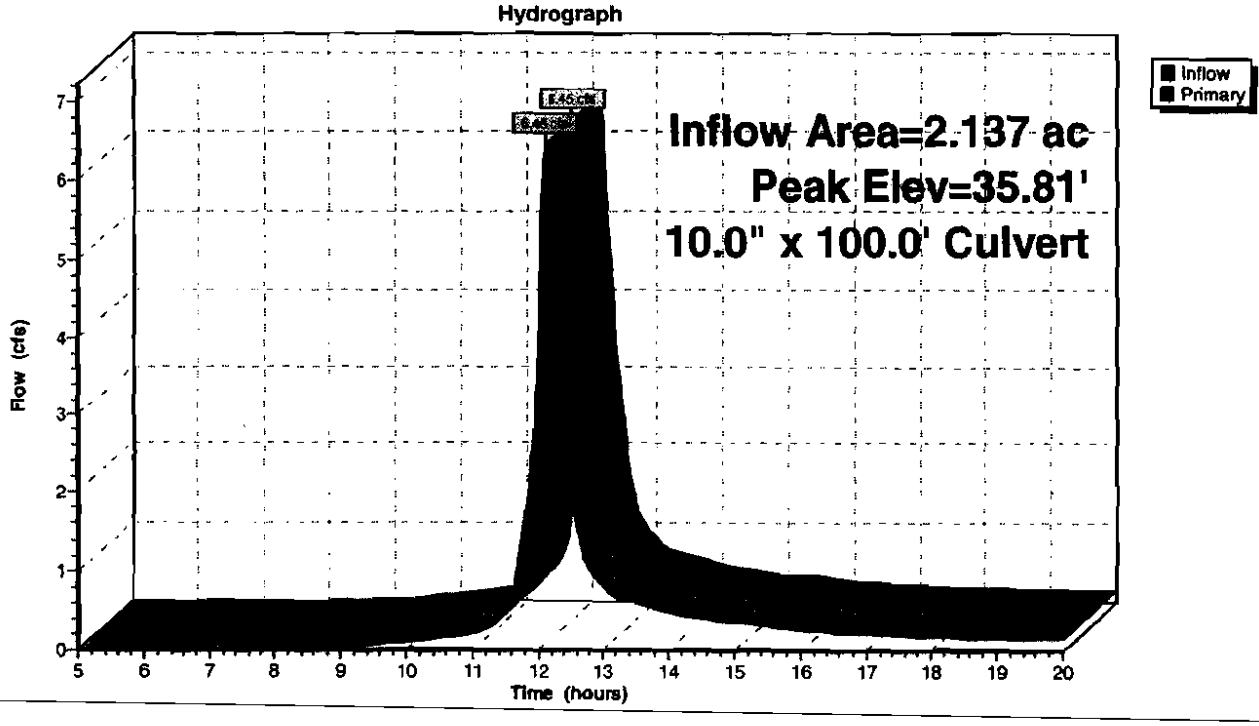
Inflow Area = 2.137 ac, 20.67% Impervious, Inflow Depth > 2.85" for 25-Year Storm event
Inflow = 6.45 cfs @ 12.11 hrs, Volume= 0.507 af
Outflow = 6.45 cfs @ 12.11 hrs, Volume= 0.507 af, Atten= 0%, Lag= 0.0 min
Primary = 6.45 cfs @ 12.11 hrs, Volume= 0.507 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 35.81' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	25.72'	**10.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 20.26' S= 0.0546 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=6.36 cfs @ 12.11 hrs HW=35.54' (Free Discharge)
└**1=Culvert** (Inlet Controls 6.36 cfs @ 11.66 fps)

Pond CB1:



Summary for Pond DB1:

[57] Hint: Peaked at 36.15' (Flood elevation advised)
[81] Warning: Exceeded Pond CB1 by 0.37' @ 12.10 hrs

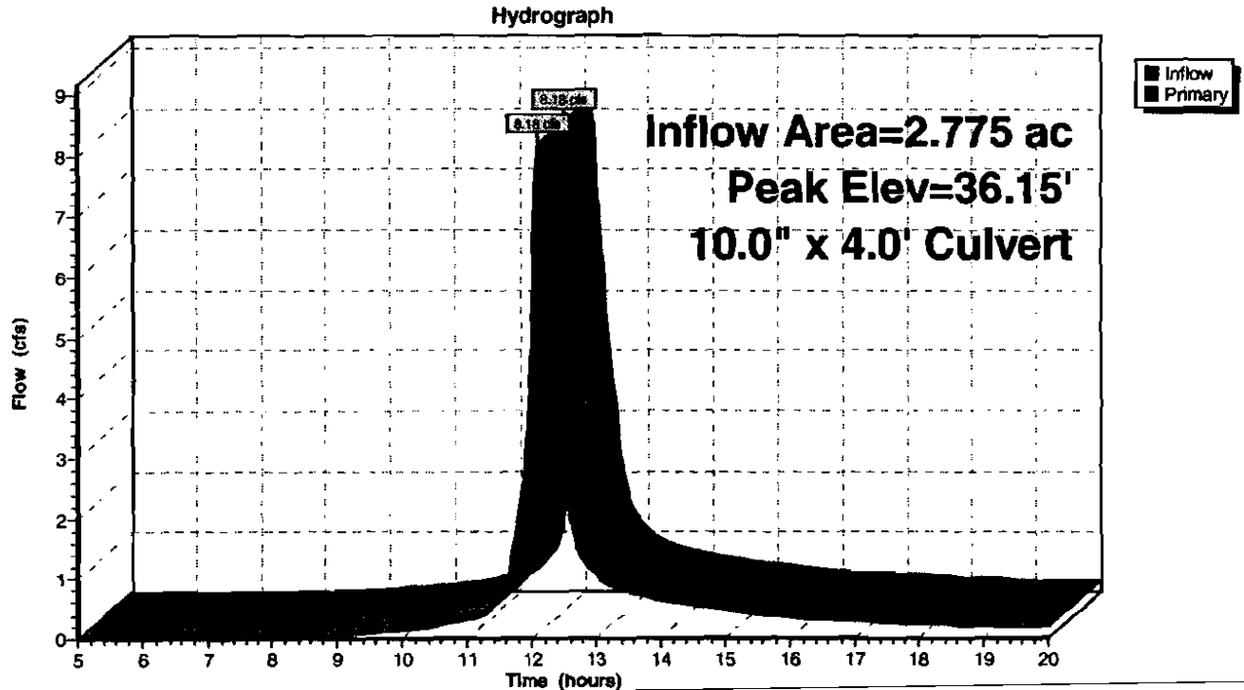
Inflow Area = 2.775 ac, 17.23% Impervious, Inflow Depth > 2.82" for 25-Year Storm event
Inflow = 8.18 cfs @ 12.11 hrs, Volume= 0.651 af
Outflow = 8.18 cfs @ 12.11 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min
Primary = 8.18 cfs @ 12.11 hrs, Volume= 0.651 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 36.15' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.16'	**10.0" x 4.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 20.12' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=8.11 cfs @ 12.11 hrs HW=35.86' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.11 cfs @ 14.86 fps)

Pond DB1:



Summary for Pond DB2:

[79] Warning: Submerged Pond DB3 Primary device # 1 INLET by 3.31'

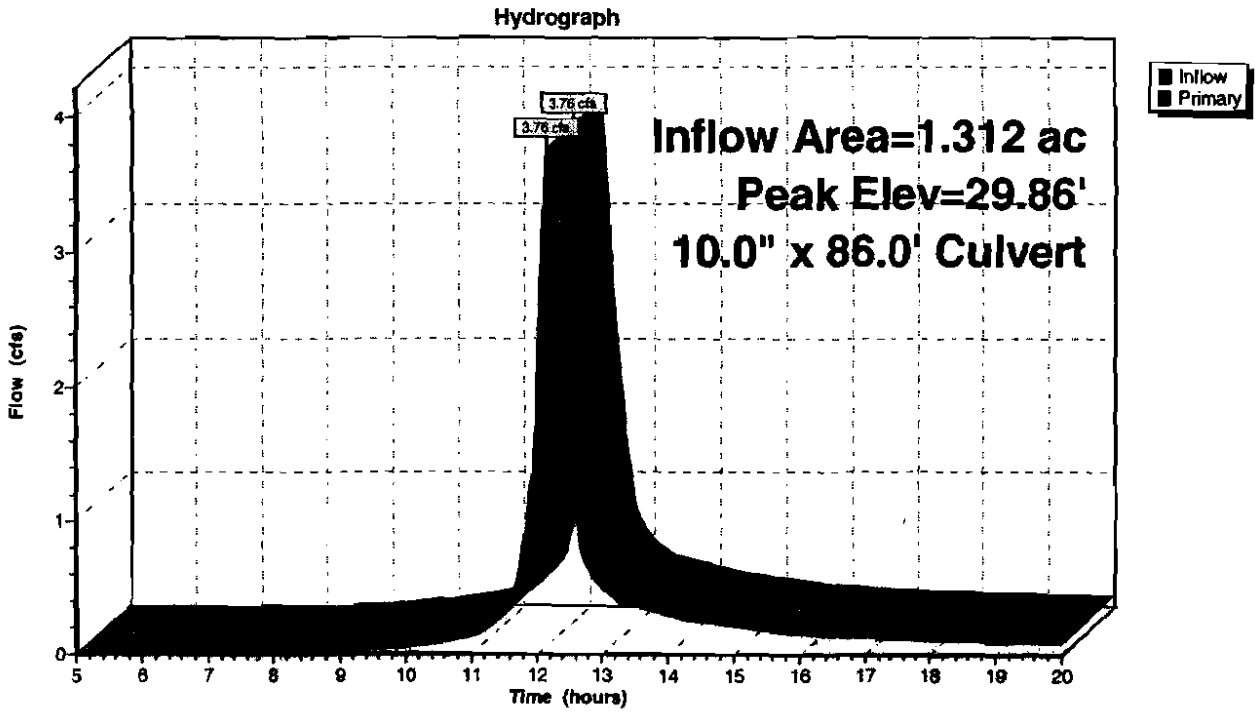
Inflow Area = 1.312 ac, 12.09% Impervious, Inflow Depth > 2.72" for 25-Year Storm event
Inflow = 3.76 cfs @ 12.16 hrs, Volume= 0.298 af
Outflow = 3.76 cfs @ 12.16 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min
Primary = 3.76 cfs @ 12.16 hrs, Volume= 0.298 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 29.86' @ 12.16 hrs
Flood Elev= 32.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.16'	**10.0" x 86.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 25.92' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=3.70 cfs @ 12.16 hrs HW=29.76' (Free Discharge)
1=Culvert (Inlet Controls 3.70 cfs @ 6.78 fps)

Pond DB2:



Summary for Pond DB3:

[58] Hint: Peaked 0.85' above defined flood level
[81] Warning: Exceeded Pond DB4 by 2.86' @ 12.15 hrs

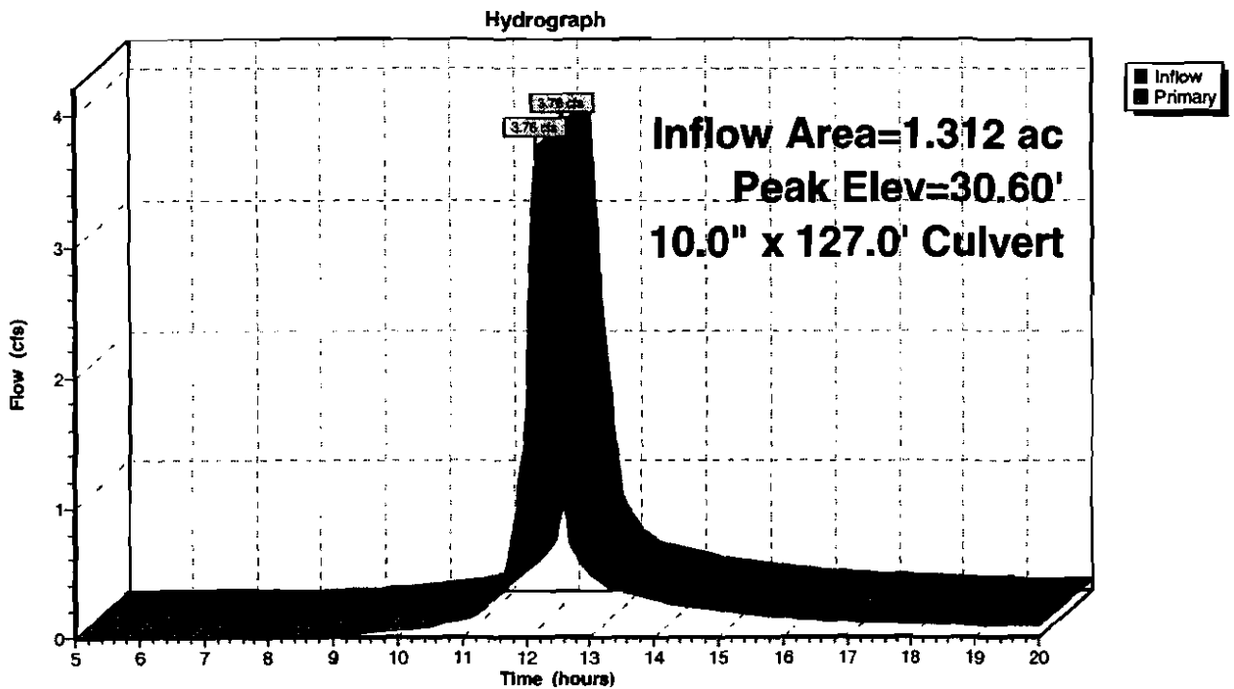
Inflow Area =	1.312 ac,	12.09% Impervious,	Inflow Depth >	2.72" for 25-Year Storm event
Inflow =	3.76 cfs @	12.16 hrs, Volume=	0.298 af	
Outflow =	3.76 cfs @	12.16 hrs, Volume=	0.298 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.76 cfs @	12.16 hrs, Volume=	0.298 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.60' @ 12.16 hrs
Flood Elev= 29.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.51'	**10.0" x 127.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.15' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=3.70 cfs @ 12.16 hrs HW=30.49' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.70 cfs @ 6.78 fps)

Pond DB3:



Summary for Pond DB4:

[81] Warning: Exceeded Pond DB5 by 0.28' @ 12.20 hrs
[79] Warning: Submerged Pond SF4 Primary device # 1 INLET by 0.50'

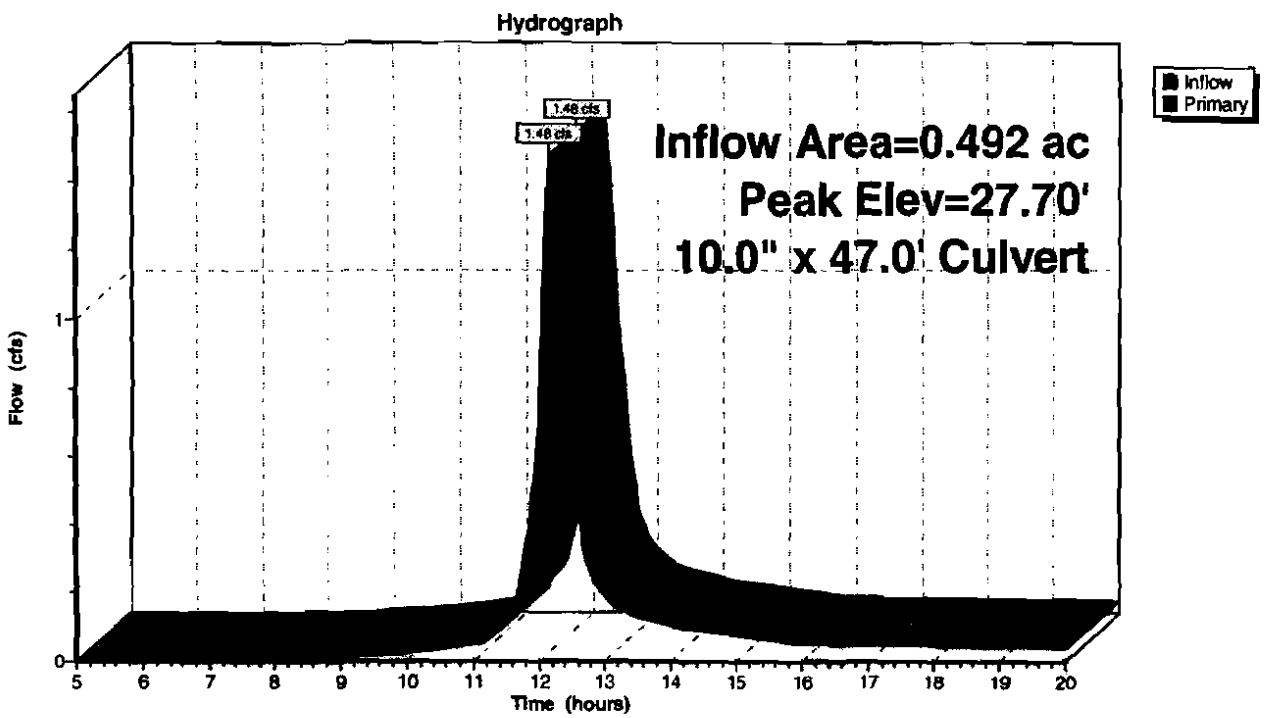
Inflow Area = 0.492 ac, 28.39% Impervious, Inflow Depth > 2.83" for 25-Year Storm event
Inflow = 1.48 cfs @ 12.17 hrs, Volume= 0.116 af
Outflow = 1.48 cfs @ 12.17 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.17 hrs, Volume= 0.116 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.70' @ 12.17 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.74'	**10.0" x 47.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.61' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=1.45 cfs @ 12.17 hrs HW=27.69' (Free Discharge)
↳**1=Culvert** (Barrel Controls 1.45 cfs @ 2.93 fps)

Pond DB4:



Summary for Pond DB5:

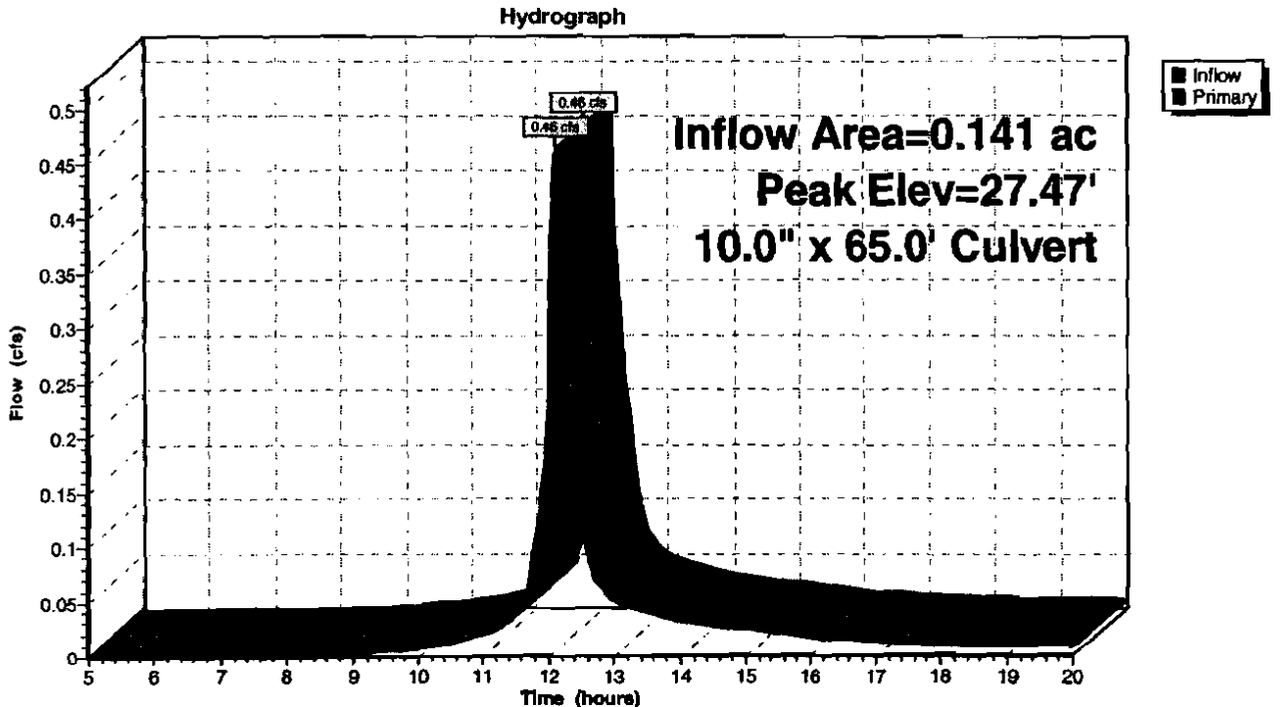
Inflow Area = 0.141 ac, 11.23% Impervious, Inflow Depth > 2.84" for 25-Year Storm event
Inflow = 0.46 cfs @ 12.12 hrs, Volume= 0.033 af
Outflow = 0.46 cfs @ 12.12 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.12 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.47' @ 12.12 hrs
Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.02'	**10.0" x 65.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.84' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.45 cfs @ 12.12 hrs HW=27.46' (Free Discharge)
1=Culvert (Barrel Controls 0.45 cfs @ 2.22 fps)

Pond DB5:



Summary for Pond DB6:

[81] Warning: Exceeded Pond DB7 by 1.35' @ 12.05 hrs
[79] Warning: Submerged Pond SF6 Primary device # 1 INLET by 2.32'

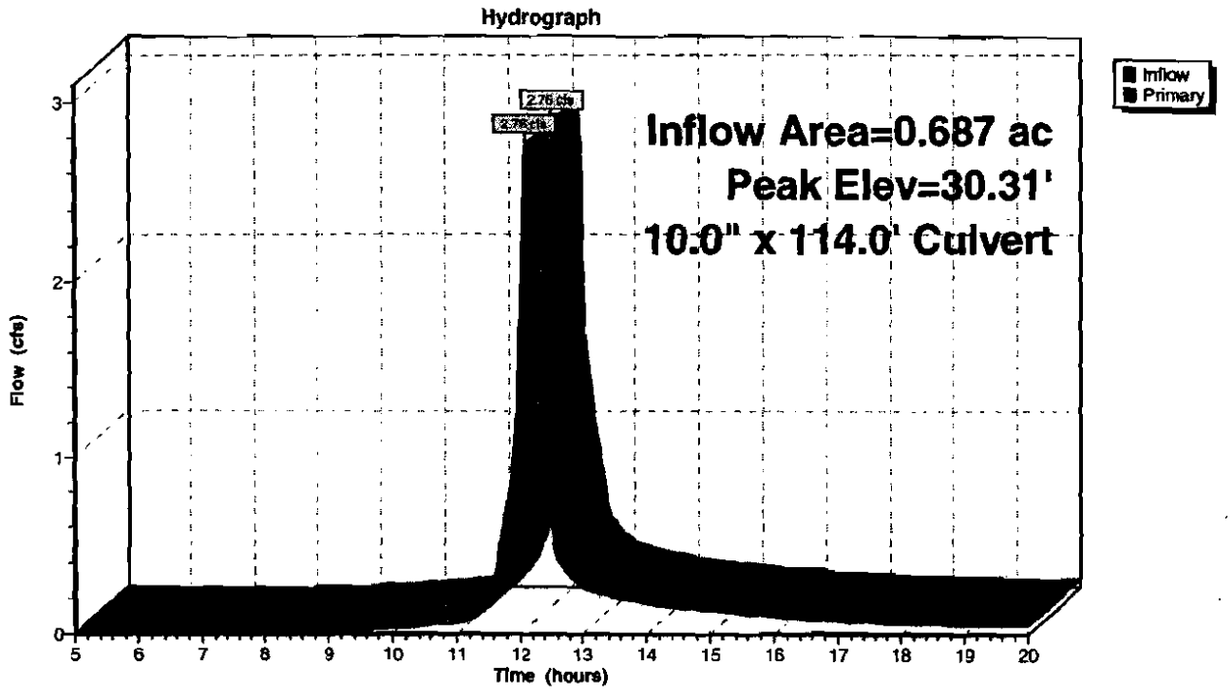
Inflow Area = 0.687 ac, 32.12% Impervious, Inflow Depth > 3.08" for 25-Year Storm event
Inflow = 2.76 cfs @ 12.07 hrs, Volume= 0.176 af
Outflow = 2.76 cfs @ 12.07 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 2.76 cfs @ 12.07 hrs, Volume= 0.176 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.31' @ 12.07 hrs
Flood Elev= 30.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.98'	**10.0" x 114.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.66' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=2.66 cfs @ 12.07 hrs HW=30.20' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.66 cfs @ 4.88 fps)

Pond DB6:



Summary for Pond DB7:

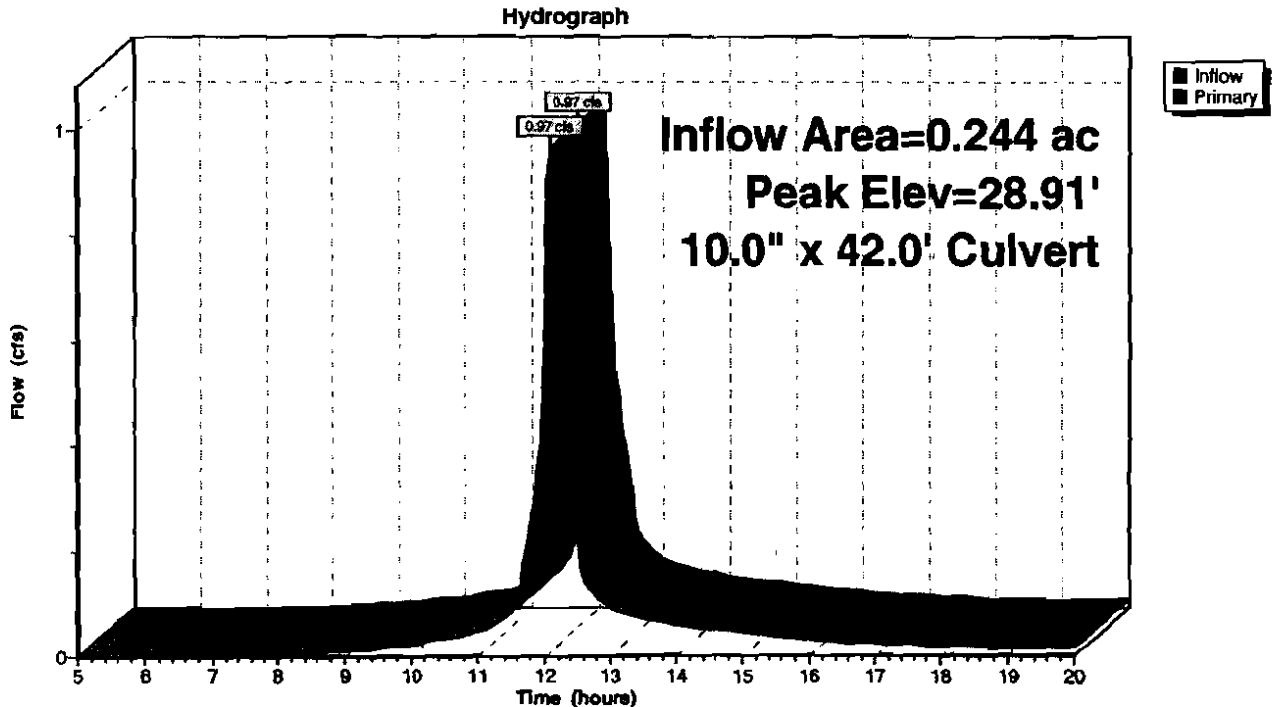
Inflow Area = 0.244 ac, 31.10% Impervious, Inflow Depth > 3.22" for 25-Year Storm event
Inflow = 0.97 cfs @ 12.09 hrs, Volume= 0.065 af
Outflow = 0.97 cfs @ 12.09 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.09 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 28.91' @ 12.09 hrs
Flood Elev= 29.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.20'	**10.0" x 42.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 28.08' S= 0.0029 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.94 cfs @ 12.09 hrs HW=28.89' (Free Discharge)
↑**1=Culvert** (Barrel Controls 0.94 cfs @ 2.62 fps)

Pond DB7:



Summary for Pond IN1:

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond IN2 Primary device # 1 OUTLET by 0.20'

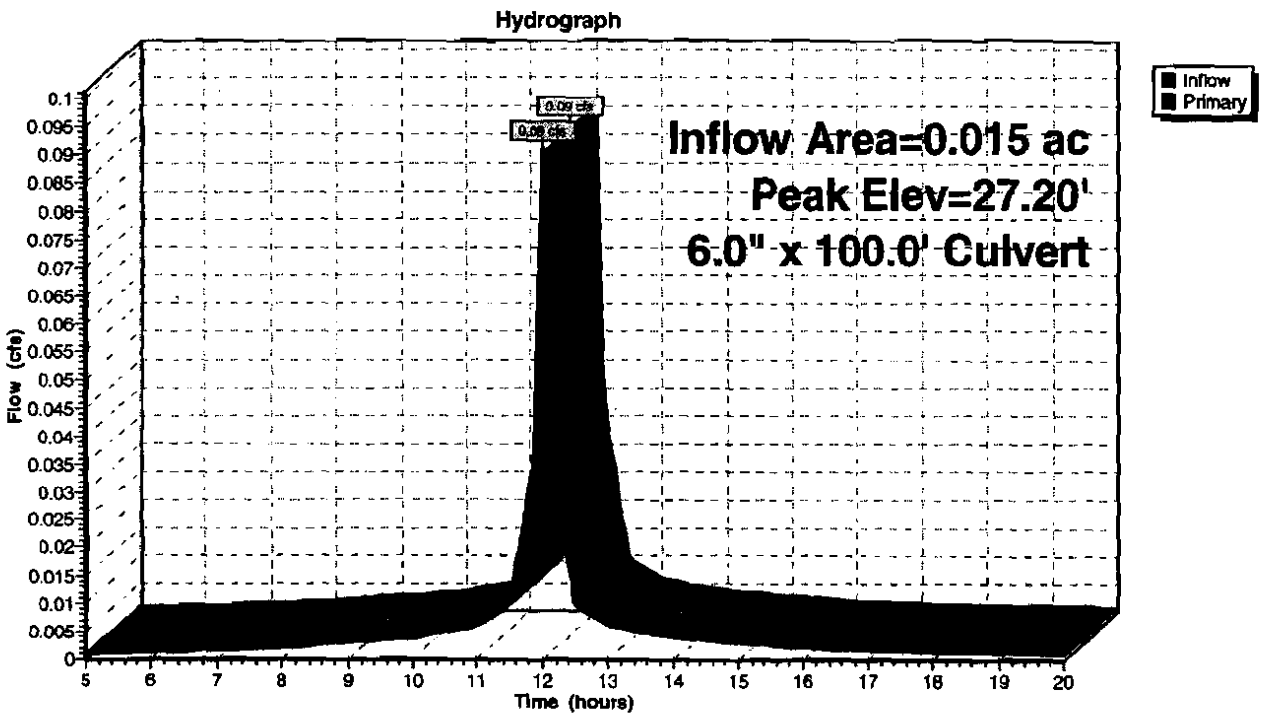
Inflow Area = 0.015 ac,100.00% Impervious, Inflow Depth > 4.87" for 25-Year Storm event
Inflow = 0.09 cfs @ 12.00 hrs, Volume= 0.006 af
Outflow = 0.09 cfs @ 12.00 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.00 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 27.20' @ 12.00 hrs
Flood Elev= 28.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	27.00'	**6.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 26.50' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.09 cfs @ 12.00 hrs HW=27.20' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.09 cfs @ 1.21 fps)

Pond IN1:



Summary for Pond IN2:

[82] Warning: Early inflow requires earlier time span

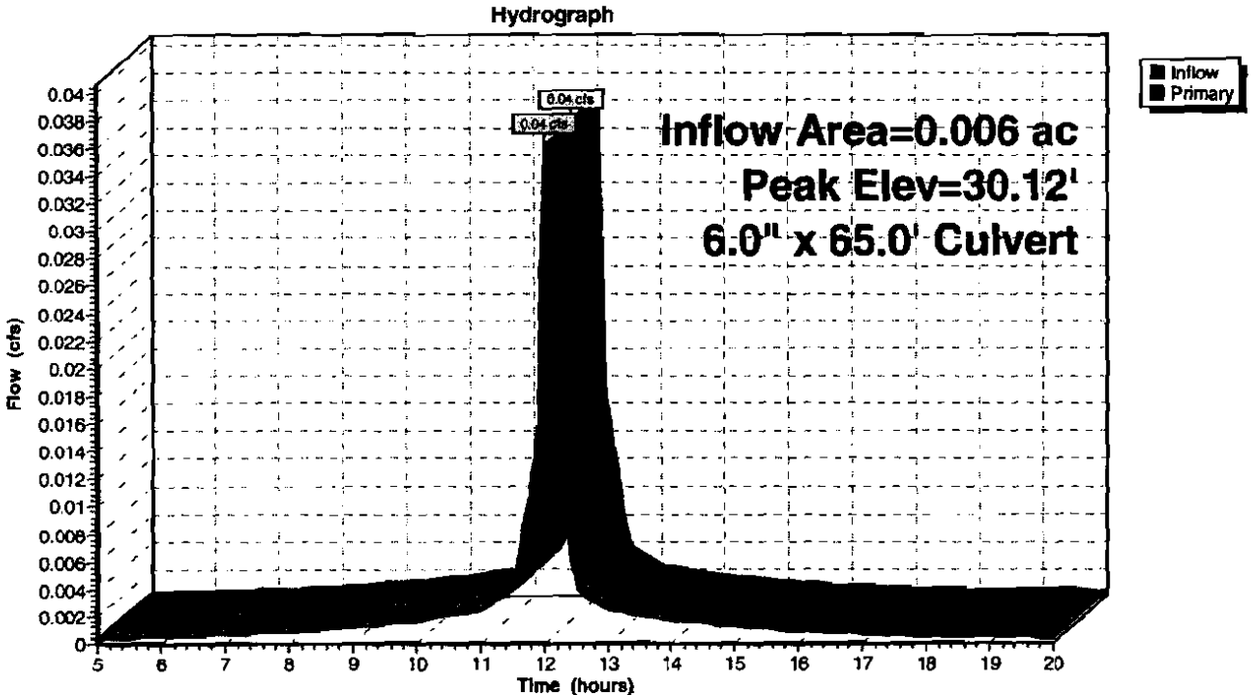
Inflow Area = 0.006 ac,100.00% Impervious, Inflow Depth > 4.87" for 25-Year Storm event
Inflow = 0.04 cfs @ 12.00 hrs, Volume= 0.002 af
Outflow = 0.04 cfs @ 12.00 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.00 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 30.12' @ 12.00 hrs
Flood Elev= 31.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.00'	**6.0" x 65.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.00' S= 0.0462 '/' Cc= 0.900 n= 0.010 PVC, smooth interior

Primary OutFlow Max=0.04 cfs @ 12.00 hrs HW=30.12' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.04 cfs @ 0.95 fps)

Pond IN2:



Summary for Pond SF1: Underdrain Soil Filter

[93] Warning: Storage range exceeded by 0.05'
[58] Hint: Peaked 0.05' above defined flood level

Inflow Area = 0.123 ac, 38.82% Impervious, Inflow Depth > 3.41" for 25-Year Storm event
Inflow = 0.51 cfs @ 12.08 hrs, Volume= 0.035 af
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 0.027 af, Atten= 3%, Lag= 0.0 min
Primary = 0.01 cfs @ 11.70 hrs, Volume= 0.011 af
Secondary = 0.49 cfs @ 12.08 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.05' @ 12.08 hrs Surf.Area= 451 sf Storage= 161 cf
Flood Elev= 30.00' Surf.Area= 451 sf Storage= 161 cf

Plug-Flow detention time= 78.9 min calculated for 0.027 af (77% of inflow)
Center-of-Mass det. time= 22.4 min (798.8 - 776.4)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

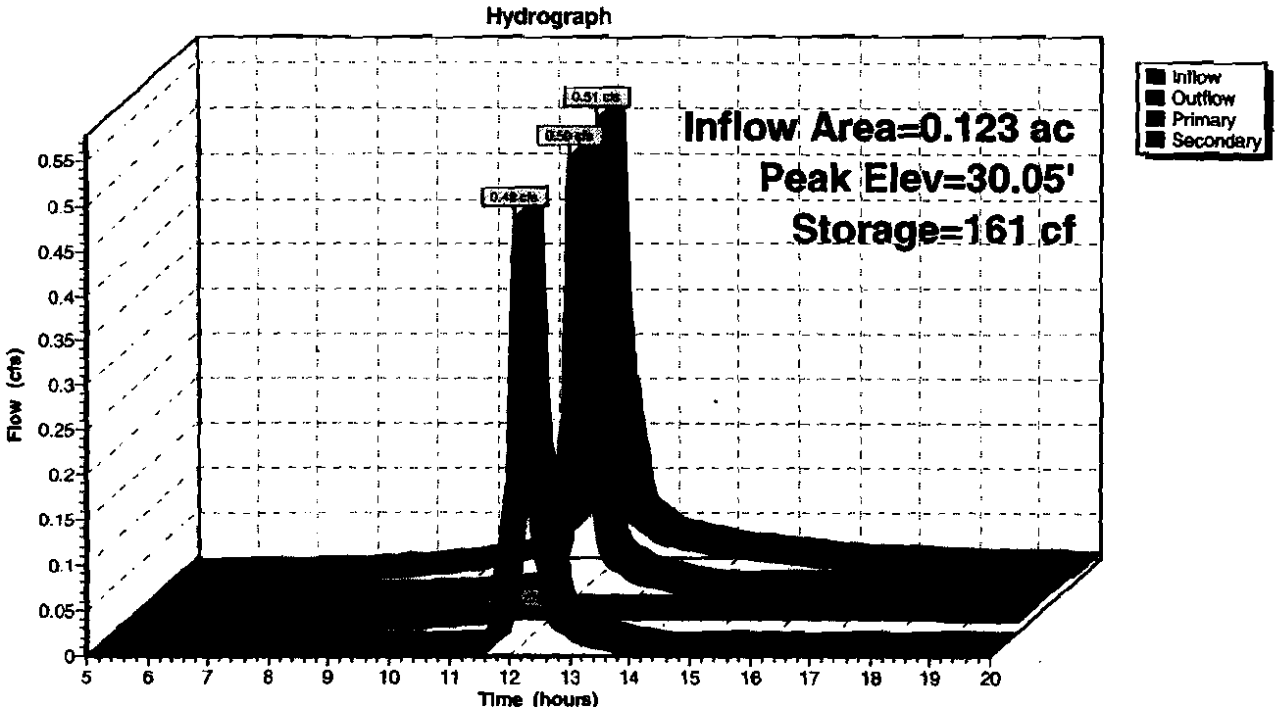
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.50	209	48.1	0	0	209
30.00	451	90.0	161	161	671

Device	Routing	Invert	Outlet Devices
#1	Primary	27.23'	**6.0" x 12.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.17' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	29.50'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 209 sf
#3	Secondary	30.00'	**48.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.01 cfs @ 11.70 hrs HW=30.01' (Free Discharge)
↑—**1=Culvert** (Passes 0.01 cfs of 1.19 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.47 cfs @ 12.08 hrs HW=30.05' (Free Discharge)
↑—**3=Orifice/Grate** (Weir Controls 0.47 cfs @ 0.74 fps)

Pond SF1: Underdrain Soil Filter



Summary for Pond SF4: Underdain Soil Filter

[93] Warning: Storage range exceeded by 0.14'
[58] Hint: Peaked 0.14' above defined flood level

Inflow Area = 0.351 ac, 35.29% Impervious, Inflow Depth > 3.30" for 25-Year Storm event
Inflow = 1.11 cfs @ 12.20 hrs, Volume= 0.097 af
Outflow = 1.09 cfs @ 12.20 hrs, Volume= 0.083 af, Atten= 2%, Lag= 0.0 min
Primary = 0.03 cfs @ 11.35 hrs, Volume= 0.027 af
Secondary = 1.05 cfs @ 12.20 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.14' @ 12.20 hrs Surf.Area= 766 sf Storage= 221 cf
Flood Elev= 30.00' Surf.Area= 766 sf Storage= 221 cf

Plug-Flow detention time= 49.4 min calculated for 0.083 af (85% of inflow)
Center-of-Mass det. time= 8.4 min (794.3 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	29.50'	221 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

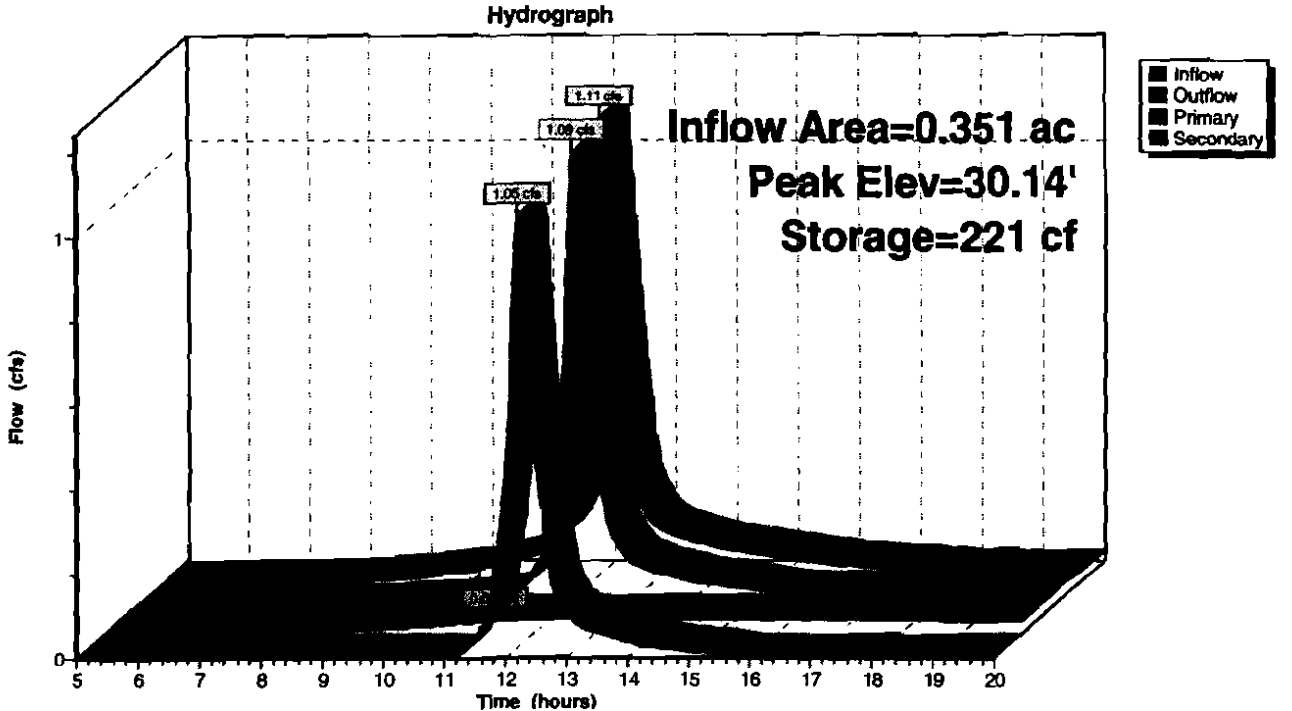
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
29.50	185	44.5	0	0	185
30.00	766	121.2	221	221	1,197

Device	Routing	Invert	Outlet Devices
#1	Primary	27.20'	**6.0" x 5.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.17' S= 0.0060 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	29.50'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 185 sf
#3	Secondary	30.00'	**24.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.03 cfs @ 11.35 hrs HW=30.01' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 1.20 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=1.05 cfs @ 12.20 hrs HW=30.14' (Free Discharge)
└**3=Orifice/Grate** (Weir Controls 1.05 cfs @ 1.21 fps)

Pond SF4: Underdain Soil Filter



Summary for Pond SF6: Underdrain Soil Filter

[58] Hint: Peaked 0.20' above defined flood level

Inflow Area = 0.443 ac, 32.67% Impervious, Inflow Depth > 3.32" for 25-Year Storm event
Inflow = 2.00 cfs @ 12.04 hrs, Volume= 0.122 af
Outflow = 1.82 cfs @ 12.07 hrs, Volume= 0.111 af, Atten= 9%, Lag= 1.4 min
Primary = 0.03 cfs @ 12.07 hrs, Volume= 0.020 af
Secondary = 1.78 cfs @ 12.07 hrs, Volume= 0.091 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 30.70' @ 12.07 hrs Surf.Area= 1,377 sf Storage= 741 cf
Flood Elev= 30.50' Surf.Area= 1,192 sf Storage= 490 cf

Plug-Flow detention time= 50.7 min calculated for 0.111 af (91% of inflow)
Center-of-Mass det. time= 19.8 min (796.2 - 776.3)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	1,206 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
30.00	781	155.0	0	0	781
31.00	1,689	213.0	1,206	1,206	2,489

Device	Routing	Invert	Outlet Devices
#1	Primary	27.91'	**6.0" x 47.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 27.67' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	30.00'	**2.410 in/hr Exfiltration over Horizontal area above invert** Excluded Horizontal area = 781 sf
#3	Secondary	30.50'	**24.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.03 cfs @ 12.07 hrs HW=30.69' (Free Discharge)
└**1=Culvert** (Passes 0.03 cfs of 1.19 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=1.72 cfs @ 12.07 hrs HW=30.69' (Free Discharge)
└**3=Orifice/Grate** (Weir Controls 1.72 cfs @ 1.43 fps)

Dana Souza
Director

Robert B. Ganley
City Manager

CITY OF PORTLAND
Parks & Recreation Department

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Recreation Administrator

Carol McClure
Operations Manager

Donn Mathews
Parks Coordinator

Jeff Tarling
City Arborist

Christopher DiMatteo
Landscape Architect

James E. Kelley
Principal Financial Officer

Cemetery Coordinator
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Coordinator

Sally DeLuca
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Safety Coordinator

David Venditti
Portland Ice Arena
774-8553

Riverside Municipal
Golf Course 797-3524

Dan Brown
P.D.D. Coordinator

Reiche Community
Center 874-8873

Riverton Community
Center 874-8455

Cummings Community
Center 874-8870

Peaks Island Community
Center 766-2970

January 9, 2001

Mr. Randy McMullin
Maine Department of Environmental Protection
312 Canco Road
Portland, ME 04103

RE: Dougherty Field - Master Plan

Dear Mr. McMullin:

Please review the enclosed project summary of the proposed improvements at Dougherty Field. This summary, prepared by our consultant Peterson-Rabasca Geoengineers, is being forwarded in response to our December 14, 2000 meeting.

The proposed improvements are being planned in direct response to the deteriorating condition of these facilities and the growing demand for athletic facilities. Local residents and area athletic program leaders participated in the planning process for the reconstruction of this facility and endorse the proposed improvements.

The subsurface investigations conducted on this site show that the existing conditions are not appreciably different from other park properties in the City of Portland, and our Department is prepared to utilize appropriate construction methods in handling any exposed ash materials.

If you have any questions please feel free to contact me at 874-8793 or by email at *sch@ci.portland.me.us*.

Sincerely,

Stephan C. Howick

Enc.

cc.
Gloria Thomas, Portland Parks and Recreation
Christopher DiMatteo, Portland Parks and Recreation

PETERSON-RABASCA
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317 Main Street
Yarmouth, Maine 04096
Tel. (207) 846-4220
Fax: (207) 846-4348

January 2, 2001
File 10021

Mr. Randy McMullin
Maine Department of Environmental Protection
Southern Maine Division
312 Canco Road
Portland, ME 04103

Re: Dougherty Field Improvements
Portland, Maine

Dear Mr. McMullin

This purpose of this letter is to summarize the general scope of the proposed improvements to Dougherty Field currently proposed by the City of Portland Parks and Recreation Department. During our meeting with you on December 14, 2000, Stephan Howick and I outlined the scope of the proposed improvements to the park site and the findings from the subsurface investigation and testing at the site.

We understand that the existing park site, which is located over the former St. James Street Landfill, is exempt from the Solid Waste Management Rules, since it was in existence and closed prior to October 3, 1973. We also understand that under the Rules, no alteration of those facilities may occur unless such alterations are deemed minor alterations, that in the MeDEP's judgment will not have a potential to impact the environment, public health or welfare, or to create a nuisance. Such minor alterations would not require a license amendment or minor revision application.

1.0 Project Description

The City of Portland, Parks and Recreation Department is preparing a Master Plan for improvements to the Dougherty Field Park site. The site is approximately 12 acres and is located in an area bound by Douglass Street on the west, St. James Street on the east and Interstate 295 and the West Elementary School on the South as shown on Figure 1. The site currently consists of athletic fields including: three baseball fields, one soccer/football field, one field hockey field, four abandoned tennis courts, two T-ball fields and a Community Pool. The site has an existing underdrain and sprinkler system The current layout of the fields is shown on Figure 2.

The topography is relatively flat across most of the site. On the east side along St. James Street, the topography slopes from a topographic high of about elevation 40, to about elevation 32 within about 50 feet of the street. The remainder of the site is flat and slopes generally east toward Douglas Street. Water currently ponds at several locations following rainfall.

Proposed Master Plan Improvements:

The proposed master planning will re-arrange and re-orient the athletic fields and tennis courts into a more efficient use. The proposed structural changes will be to improve the site runoff drainage by raising the site grade on the east side of the site next to St James Street by 2 to 4 feet, and slightly lowering the grade along Douglas Street by 1 to 1.5 feet. The desired final slope across the site will be about 2 percent.

The proposed layout of the new fields and courts is shown on Figure 3. Final grades are not shown on this plan. The tennis courts will be moved from the southern end of the site to the northern end, just south of the existing pool. The pool will remain as is, however a small wading pool will be added to the east side between St. James street and the existing pool.

The majority of the work will involve reconstruction and re-grading of the athletic fields. The typical turf section will consist of 6-inches of topsoil, 6-inches of drainage sand, and a series of new underdrains. The underdrain spacing has not been selected at this time, however they are expected to be 2 to 4 feet below the final grade.

2.0 Historical Site Use and Subsurface Conditions

Historical Site Use:

As part of our investigation we obtained topographic plans from the late 1800s, and 1950s, as well as aerial photographs taken in 1953 and 1964. Based on this historical data and additional information from an investigation by Sebago Techniques related to the West Elementary School, and information summarized by the Parks and Recreation Department in their Project Scope dated August 11, 2000, the site history is summarized as follows:

1. The earliest data available indicates that in 1876 the site contained no buildings and a 1882 map shows the Smith and Brown farm occupied the site. Topographic contours of the site were obtained from the City of Portland survey archives for conditions in the late 1890s. Comparing these contours with the existing contours shows an apparent low swale running from Douglas Street in a southeasterly direction toward what is now the I-295 off ramp for Congress Street Westbound. The center of the swale appears to be in the approximate location of the two sewer lines running across the site. The plan also shows that the ground surface on the eastern and northern portions of the site was higher than the present elevation by 12 to 14 feet.
2. In the early 1900s (1909 to 1914), the site was occupied by the SB Densmore and Melvin Hamblet brick manufacturers. Based on anecdotal information, we understand that the brick company excavated the site clay and used it to manufacture bricks. Specific details as to the extent of the excavation made by the brick company are not available. It is evident that the brick company excavated soils to at least the current grade. Evidence from the aerial photographs (as discussed in Item 5 below) indicates that the excavation extended below the existing grades
3. The site was used as a municipal landfill from the 1920s through the 1940s. There was no information available as to the nature of the waste disposed at the site except that noted in a Sebago

Techniques report indicating the landfill material consisted of "loose black sand and gravel mixed with brick, glass, slag, coal ash, metal, pottery, etc." Based on the documented methane levels in the report, it is also apparent that some type of organic waste is also present primarily in the vicinity of the West Elementary school. Anecdotal information indicates that this waste was likely from the former farm that occupied the site, and the organic waste was from manure and waste milk.

4. Aerial photographs taken in 1953 and 1964 were obtained from James W Sewall Company in Old Town. The 1953 photo is at a much smaller scale and is difficult to interpret, however it definitely shows topography lower than the St. James Street elevation in what appears to be a series of terraces rising in elevation to the north. The site in 1953 appears to be grass covered. The West Elementary School had not been constructed at this time.

   More detail is available on the 1964 photograph. This photograph shows on-going filling occurring to the south. The working face of the side slope (at the approximate southern boundary of the current Park site) is estimated to be 15 to 20 feet high. The municipal pool is evident on the north corner of the site and baseball field is evident on the north. We estimate that the amount of filling that occurred between 1953 and 1964 ranged from about 0 to 4 feet in the vicinity of the pool and proposed tennis courts, about 5 feet in the central portion of the site and reaching up to 15 to 25 feet at the extreme southern boundary.

3.0 SUBSURFACE INVESTIGATION AND LABORATORY TESTING

Subsurface conditions within the proposed park area were investigated by drilling 22 shallow test borings, B-1 through B-22, and 5 hand auger probes, at the approximate locations shown on Figure 2. The primary purpose of the exploration program was to investigate the shallow subsurface conditions of the site in the top 2 to 4 feet to characterize the thickness and consistency of cap soils covering the former landfill. The borings were concentrated on the western portion of the site where cap soils are expected to be cut. A secondary purpose was to assess subsurface conditions in the vicinity of the abandoned tennis courts, the alternative location of the tennis courts to the north, and the proposed wading pool area to the north. A limited number of samples were collected for laboratory analysis of total lead content.

Topsoil: Topsoil was encountered at all boring locations (except those drilled through the existing tennis courts) and generally consisted of silty fine to coarse sand with roots and organics. The thickness of topsoil generally ranged from about 3 to 7 inches.

Surficial Fill Soil in General Field Areas: All of the explorations encountered a surficial zone of fill soil which was at least 4 feet thick in all borings, and up to 6 feet thick in borings that were extended to refusal. The general characterization from the borings indicated that the top 1.0 to 4.0 feet of soil consisted of either clay/silt type material or a silty sand type material presumably a glacial till. This soil is presumed to be the "cap" soils of the landfill. The borings indicated that the thickness and composition of the cap was quite variable. At three borings (B-4, B-11, and B-16) a clean sand layer up to 6-inches thick was encountered which is presumably associated with base drainage or underdrains. Eleven of the 22 borings encountered an ash fill material or a heavy ash concentration in a soil matrix within the top 4-feet. In general, this ash was encountered in the borings located to the south and west sides of the site with the exception of borings B-7, next to the pool, and Borings 13 and 14 adjacent to St

James Street. Borings where ash was encountered are noted on Figure 2 along with the depth below ground surface to the top of ash. We tested six of the ash samples for total lead concentrations with the following results:

Sample Number	Total Lead Concentration (mg/kg)
B13, S2	373
B7, S7	79
B1, S2	544
B22, S2	1910
B12, S2	1600
B2, S2	227

The total lead analyses were conducted by Maine Environmental Laboratory and are included in Appendix A. The results are indicated on Figure 2 along with the depth of the sample. As shown on the figure, the results show a substantial variation in the total lead concentration.

Subsurface Conditions in Existing Tennis Court Area: Two borings were drilled within the footprint of the existing tennis courts, B-19 and B-20. These borings encountered approximately 2.5 inches of asphalt pavement underlain by 0.7 to 0.9 feet of brown silty sand fill (base soils). At boring B20, a 0.2 foot thick layer of black ash fill was encountered. Beneath the base fill and ash, a gray silty clay fill was encountered to depths of about 5-feet. The clay was medium stiff based on N-values ranging from 13 to 22 blows per foot. At approximately 5-feet, the borings encountered a gray and brown silty sand with clay layers and trace silt and fine gravel. This zone appeared to be native soils. These native soils were loose to medium dense based on N-values ranging from 4 to 20 blows per foot. Groundwater was encountered at about 4.0 to 5.0 feet bgs.

Subsurface Conditions in Proposed Tennis Court Area Adjacent to Pool: Borings B-6 and B-8 were drilled within the general area of the proposed tennis court, south of the existing pool. The borings encountered approximately 0.5 to 0.6 inches of topsoil. Boring B-6 encountered 1.5 feet of stiff silty clay fill overlying 3-feet of clean sand fill, and 1.3 feet of brown silty sand, that appeared to be native soil. An auger refusal was encountered at 8.9 feet bgs. Boring B-8 encountered 3.5 feet of stiff silty clay fill, changing to a gray soft silty clay at about 5-feet. This gray clay extended to about 8 to 10 feet, where it transitioned to a gray fine silty sand with increasing density. An auger refusal was encountered at 13.4 feet in Boring B-8. Groundwater was encountered at about 6.0 to 8.0 feet bgs at this location.

Subsurface Conditions in the Vicinity of the Proposed Wading Pool: Borings B-7 was drilled in the vicinity of the pool, and encountered 0.5 feet of topsoil, 1.5 feet of fine to coarse silty sand, overlying 2.0 feet of loose gray sandy fill soil (native), with a substantial ash content, 4-feet of soft silty clay soil with numerous sand layers grading to a gray silty gravelly sand at 9.5 feet bgs. Refusal was encountered at 11.5 feet bgs. The groundwater was encountered at 5.0 feet bgs.

4.0 SUMMARY:

The primary purpose of the site improvements is to improve stormwater runoff, eliminating the several areas on the site where ponding now occurs. We believe that this improved drainage as well as the increased depth of the soil fill section across the majority of the site will actually decrease the amount of water infiltration into the existing landfill materials. The one area of the site where cutting may occur is on the southeast corner, where as much as 2 to 2.5 feet of soil may be cut to install planned improvements. The subsurface explorations indicated that ash laden soils would be encountered as shallow as 1.5 feet below the existing ground surface. Given the high total lead contents in three of the samples tested, it is the Parks Departments' intention to limit the cutting in this area, minimizing the area of ash exposed. Allowing for variations, it is proposed to limit the general grading in this area to 2 feet. As an additional measure, a geotextile barrier (such as Mirafi 140 N) will be placed under the sand drainage layer in all areas of the site where the ash material is encountered in order to limit exposure to the ash from possible excavation. The geotextile should be free draining and conform to the specifications of Mirafi 140 N, or an equal product. The underdrain system in the cut areas will be limited to the extent possible. One method of accomplishing this is to use a prefabricated geocomposite drainage system on top of the geotextile. This shallower system in cut areas will limit infiltrating water thorough to the ash. In net fill areas the underdrain system is not expected to encounter the ash material, and therefore not expected to increase the infiltration through the landfill materials.

The design will incorporate measures to limit exposure of the ash soils during construction; however, there may be unforeseen instances where ash is encountered. In anticipation of this, special controls will be imposed on the contractor to limit dust generation. If ash is encountered during construction, it will be buried on-site, in a designated area, where at least 2-feet of cover soil above it will be placed.

Thank you for your consideration in this matter. If you have any questions concerning the proposed plans or this letter please do not hesitate to call me.

Very truly yours,

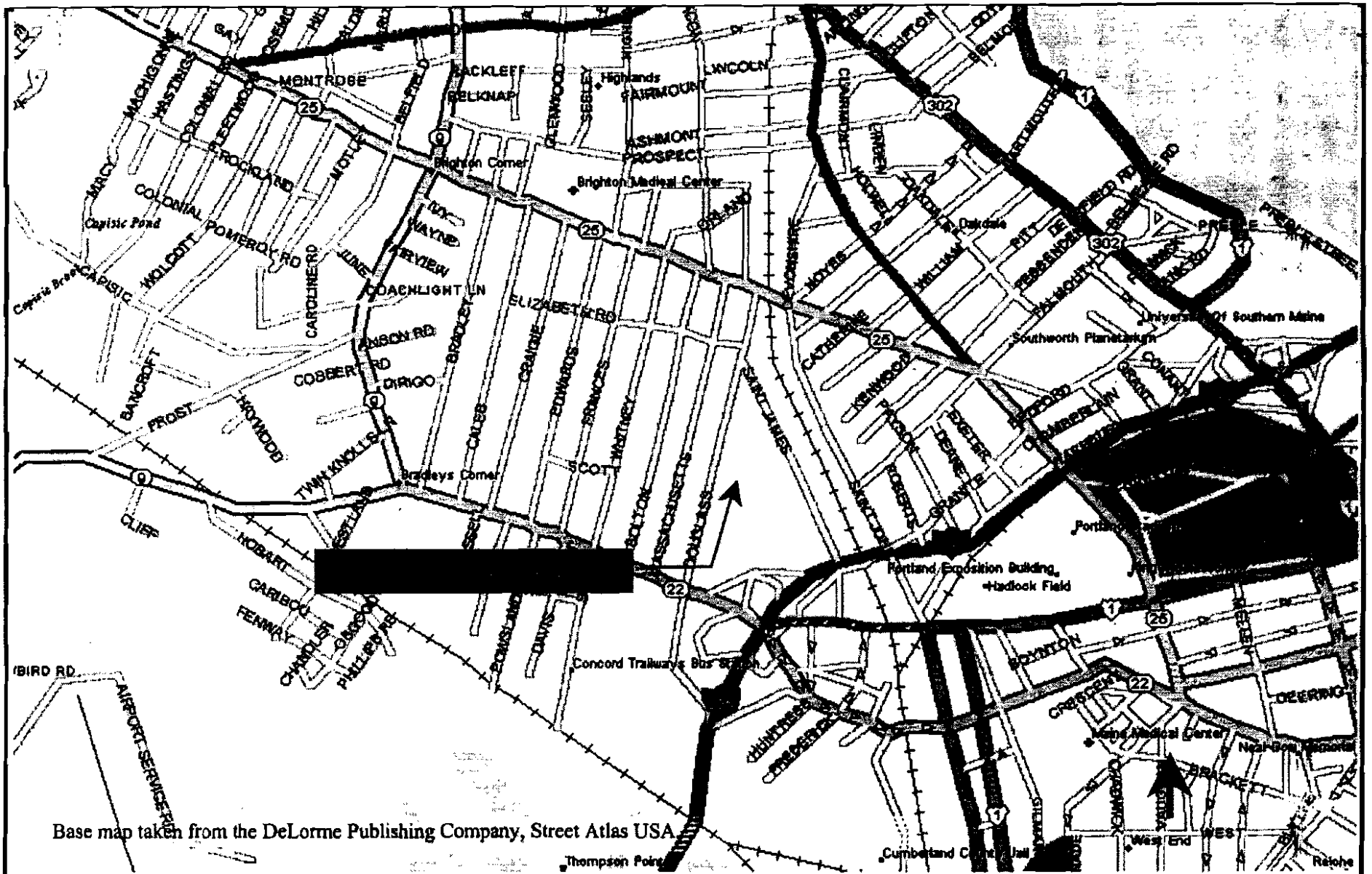
PETERSON-RABASCA GEOENGINEERS

Stephen J. Rabasca, P.E.
Partner

Attachments:

cc. Mr. Stephan Howick – City of Portland Parks and Recreation Department

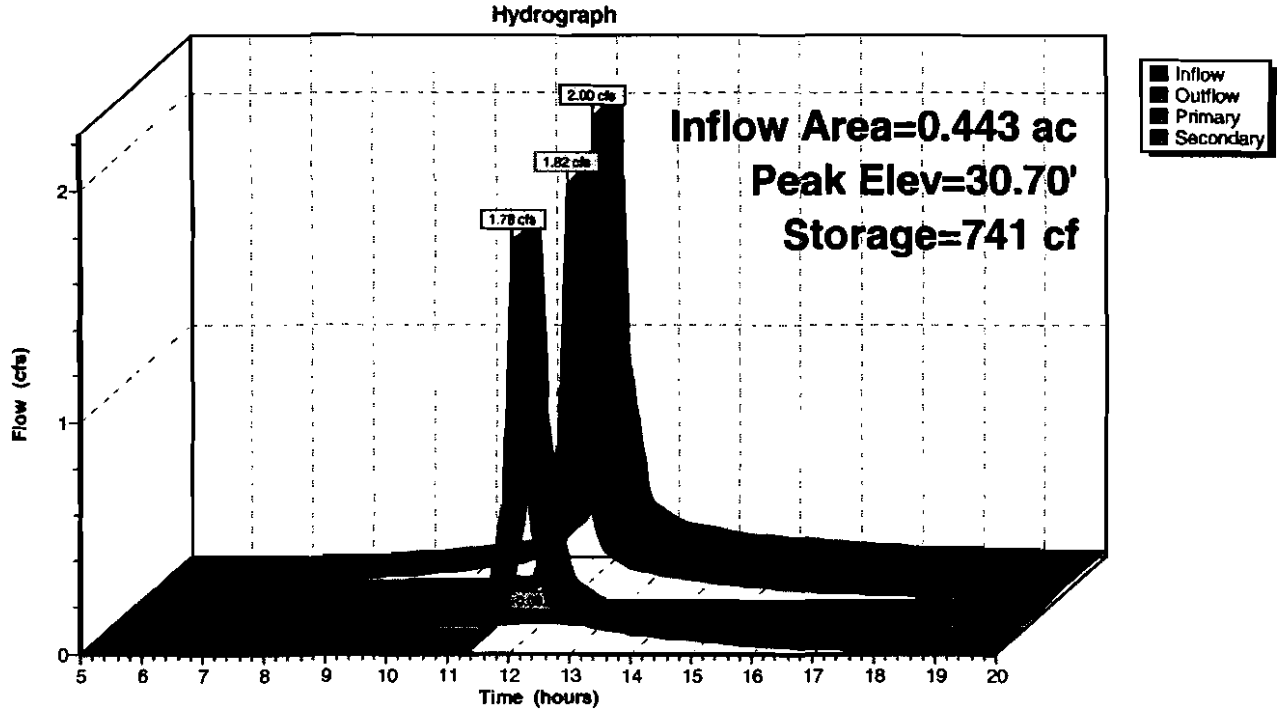
Figure 1 – Project Location Map
Figure 2 - Boring Location and Existing Conditions Plan
Figure 3 – Proposed Master Plan Layout



Base map taken from the DeLorme Publishing Company, Street Atlas USA

PETERSON-RABASCA GEOENGINEERS *Yarmouth, Maine*	Project: **Dougherty Fleid Site Improvements**	Title: **Project Location Map**			By: **SJR** Date: **12/12/00**
	Client: **DHA/City of Portland**	Proj. No: **10021**	Scale: **nts**		Fig. No: **1**

Pond SF6: Underdrain Soil Filter



Appendix E

Communications with DEP & Soils Report from Peterson Rabasca

PORTLAND MAINE

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

Planning & Urban Development Department
Penny St. Louis Littell, Director

September 16, 2010

Mark Leone
Hardcore Shotcrete Skateparks Inc.
601 McKinley Avenue
Joplin, Missouri 64801

Ethan Owens, Athletic Facilities Manager
Department of Recreation & Facilities Management.
City of Portland
134 Congress Street, Suite 2
Portland, ME 04101-3608

Project Name: SkatePark in part of Dougherty Field
City of Portland, Hardcore Shotcrete SkateParks Inc, Applicants
Project ID: 10-79900022
Project Address: Dougherty Field, Douglas Street, Portland

Dear Applicants:

On September 16, 2010, the Portland Planning Authority approved a minor site plan for a SkatePark in Dougherty Field, Douglas Street and adjacent to St James Street, as submitted by the applicant and shown on the approved plans: SP-1B Rev 2; SP-1C Rev 2; SP-1D Rev 2; and SP-5D Rev 1 prepared by Hardcore Shotcrete Skateparks Inc; and *Skate Park Area Grading & Drainage* sheet 3 of 9 dated 9.14.2010 and *Landscape Plan* sheet 5 of 9 dated 9.03.2010 prepared by Woodard & Curran, with the following conditions:

1. That the siltation barrier around the SkatePark site shall be installed prior to any vehicle access or regarding on the site; and
2. That the grading shall be as shown on Drawing SP-1B Rev 2 and SP-1D Rev 2, to be ensured by inclusion of these grading plans in the contract documents, and by a professional engineer confirming during construction that the as-built grades are correct, so that there is no ponding water on any of the concrete work upon completion; and
3. That the exposed soil areas that remain after construction of the SkatePark shall be stabilized through the use of straw much and Erosion and Sedimentation control matting (as per note on W&C sheet 3 of 9); and
4. That if the final grading in the vicinity of the SkatePark associated with the Dougherty Field improvements is not commenced by April 15, 2010, then all exposed soil areas shall be treated with temporary seeding and additional straw

mulch and matting, as necessary to stabilize the area around the SkatePark; and

5. That a final placement and density of the proposed trees and planting (as shown on *Landscape Plan* sheet 5 of 9) in the vicinity of the SkatePark shall be agreed with the City Arborist "in-the-field" once the SkatePark is constructed, and planted as part of the Dougherty Field improvement work scheduled for early 2011; and

6. That separate permits are required for any new signage.

The approval is based on the submitted site plan. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.

STANDARD CONDITIONS OF APPROVAL
Please note the following standard conditions of approval and requirements for all approved site plans:

1. The site shall be developed and maintained as depicted in the site plan and the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall require the prior approval of a revised site plan by the Planning Board or the planning authority pursuant to the terms of the site plan ordinance. Any such parcel lawfully altered prior to the enactment date of these revisions shall not be further altered without approval as provided herein.

2. The above approvals do not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.

3. Final sets of plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*,dwg), release AutoCAD 2005 or greater.

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

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

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

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If you have any questions, please contact Jean Fraser at 207 874 8728 or jf@portlandmaine.gov.

Sincerely,

Penny St Louis Littell
Director of Planning and Urban Development

Attachment: Performance Guarantee Packet

Electronic Distribution:
Penny St. Louis Littell, Director of Planning and Urban Development
Alexander Jaegerman, Planning Division Director
Barbara Barhydt, Development Review Services Manager
Jean Fraser Planner
Philip DiPierro, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Tammy Munson, Inspections Division Director
Gayle Guertin, Inspections Division
Lannie Dobson, Inspections Division
Michael Bobinsky, Public Services Director
Kathi Earley, Public Services
Bill Clark, Public Services
David Margolis-Pineo, Deputy City Engineer
Greg Vining, Public Services
John Low, Public Services
Jane Ward, Public Services
Keith Gautreau, Fire
Jeff Tarling, City Arborist
Tom Errico, TY Lin
Al Palmer, Gorrill-Palmer Consulting Engineers Inc
Assessor's Office
Approval File Letter

Hard Copy: Project File

Hard Copy: Project File

Planning & Urban Development Department
Penny St. Louis Littell, Director

September 16, 2010

Ethan Owens, Athletic Facilities Manager
Department of Recreation & Facilities Management.
City of Portland
134 Congress Street, Suite 2
Portland, ME 04101-3608

Re: Request for Preliminary Site Work Commencement
SkatePark, Dougherty Fields (HTE Application #10-79900022)

Dear Ethan,

On September 16, 2010 the site plan for the Skatepark was approved with conditions. Based on your letter of September 10, 2010, I approve the following preliminary site work activities prior to the building permits being issued.

- Put up site temporary fencing;
- Install erosion control;
- Minor site preparation, consisting of removal of debris, smoothing out rough gravel area and improving the existing construction access road; and
- Stock some materials.

This approval is subject to the following conditions:

1) That all work and materials remain within Dougherty Field; and

2) That part of the parking lot may be used as a construction staging area, provided that the remainder of the parking lot and the nearby street parking remains accessible; and

3) Adjacent sidewalks and street to remain safe, clear of debris and passable; and

4) That the siltation barrier around the Skatepark site shall be installed prior to any vehicle access or regrading on the site.

Please contact Jean Fraser if you have any questions at 874-8728 or jf@portlandmaine.gov.

Sincerely,

Penny St Louis Littell
Director of Planning and Urban Development

Electronic copies:

Alexander Jaegerman, Planning Division Director
Barbara Barhydt, Development Review Services Manager
Jean Fraser, Planner
Phil DiPierro, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Tammy Munson, Inspections Division
Michael Bobinsky, Public Works Director
Katherine Earley, Public Works Engineering Manager
Al Palmer, Engineering Reviewer
David Margolis-Pineo, Deputy Engineer
Tom Errico, Traffic Engineering Reviewer

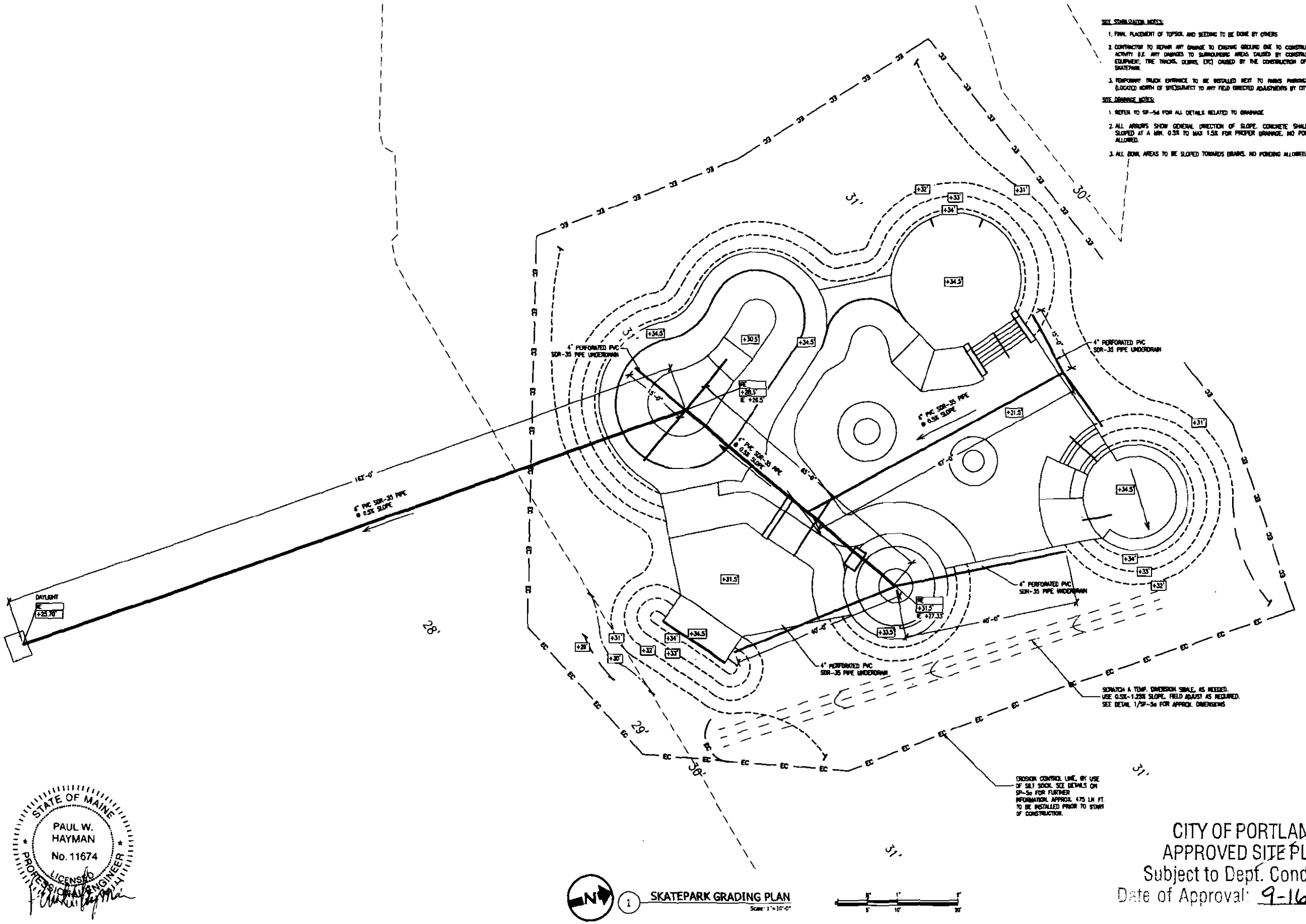
Paper copy: Mark Leone, Hardcore Shotcrete Skateparks Inc.

SITE STABILIZATION NOTES:

1. FINAL PLACEMENT OF TOPSOIL AND SEEDING TO BE DONE BY OTHERS
2. CONTRACTOR TO REPAIR ANY DRAINAGE TO EXISTING GROUND DUE TO CONSTRUCTION ACTIVITY (I.E. ANY DAMAGED TO SURROUNDING AREAS CAUSED BY CONSTRUCTION EQUIPMENT, TIRE TRACKS, DEBRIS, ETC) CAUSED BY THE CONSTRUCTION OF THE SKATEPARK.
3. TEMPORARY TRUCK ENTRANCE TO BE INSTALLED NEXT TO PARKS PARKING LOT (LOCATED NORTH OF SITE)SUBJECT TO ANY FIELD DIRECTED ADJUSTMENTS BY CITY.

SITE DRAINAGE NOTES:

1. REFER TO SP-5d FOR ALL DETAILS RELATED TO DRAINAGE
2. ALL ARROWS SHOW GENERAL DIRECTION OF SLOPE. CONCRETE SHALL BE SLOPED AT A MIN. 0.5% TO MAX 1.5% FOR PROPER DRAINAGE. NO PONDING ALLOWED.
3. ALL BOWL AREAS TO BE SLOPED TOWARDS DRAINS. NO PONDING ALLOWED.

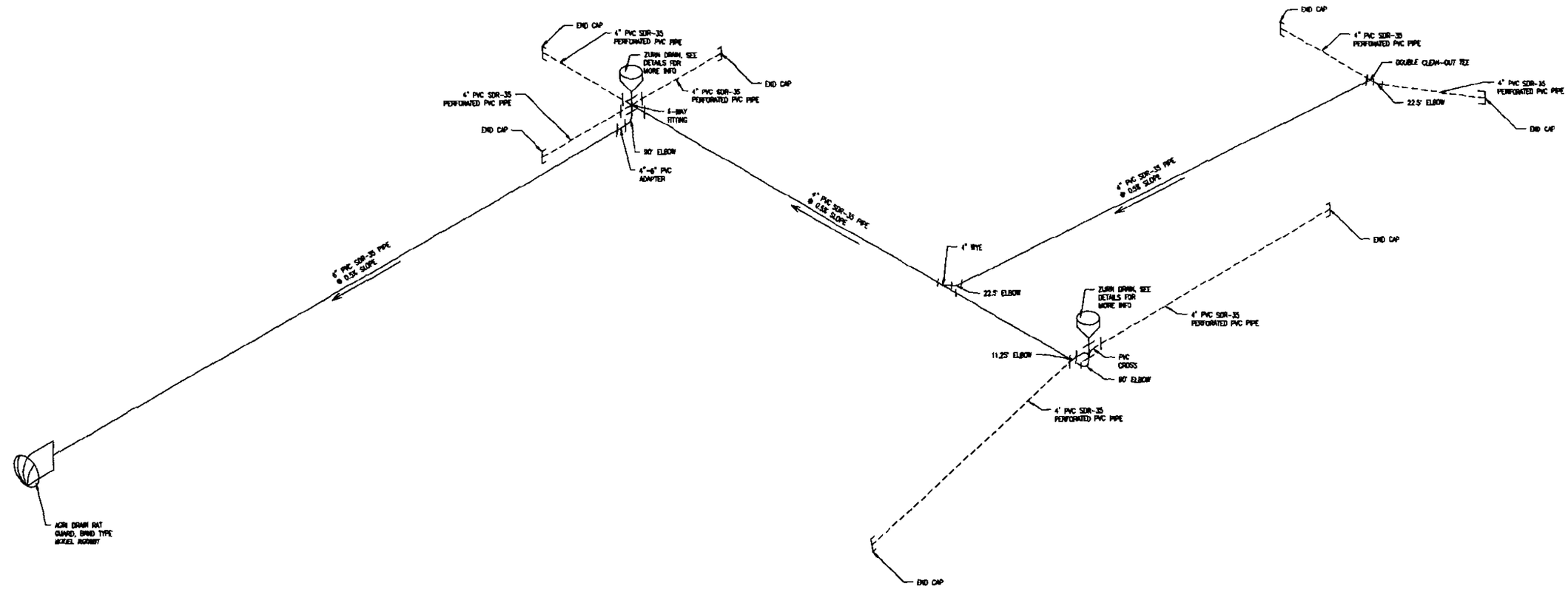


STATE OF MAINE
PAUL W. HAYMAN
No. 11674
LICENSED PROFESSIONAL ENGINEER

1 SKATEPARK GRADING PLAN
Scale: 1"=10'-0"

CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 9-16-2010

SKATEPARK GRADING PLAN



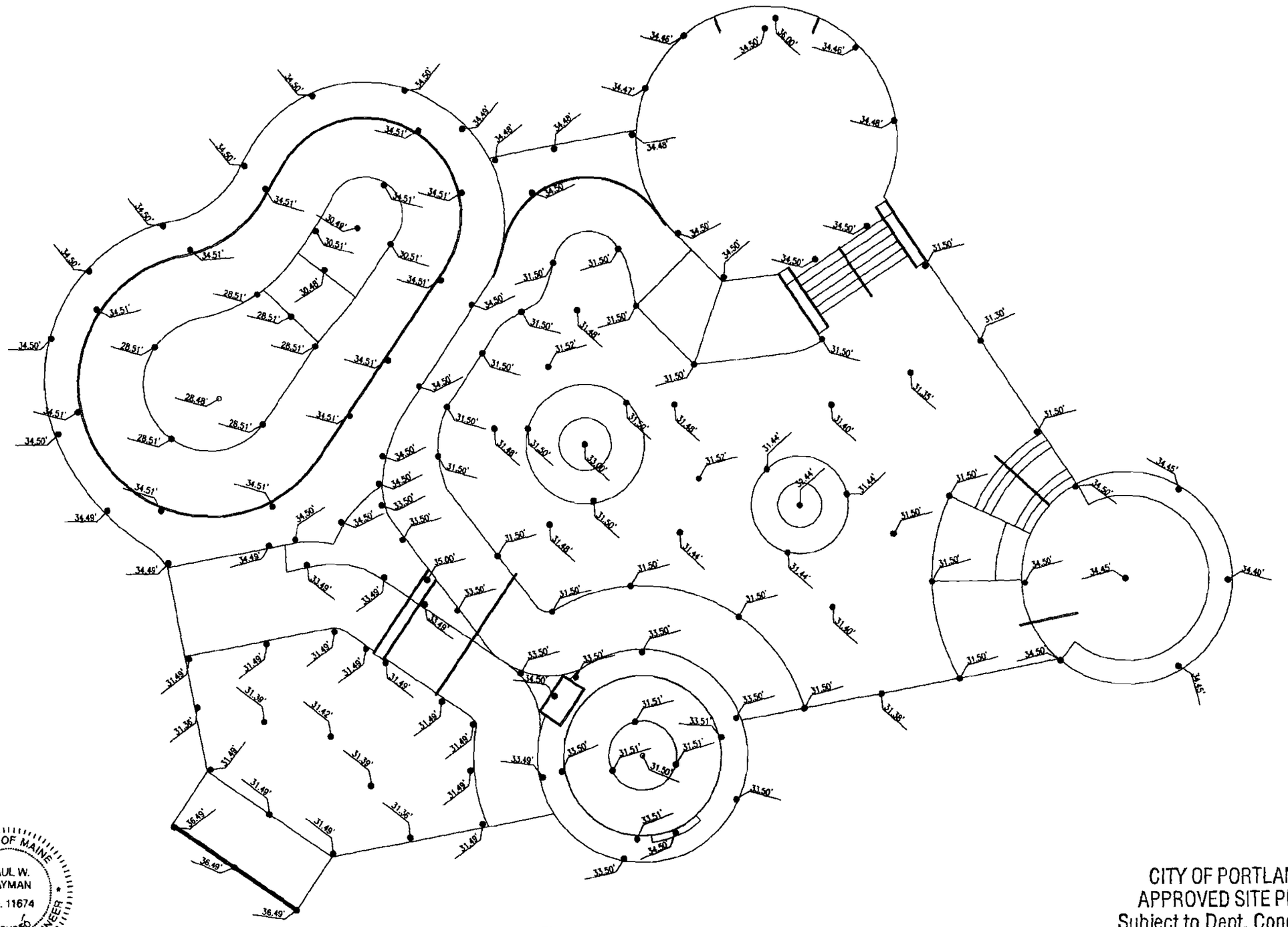
STATE OF MAINE
PAUL W. HAYMAN
No. 11674
LICENSED PROFESSIONAL ENGINEER

1 SKATEPARK DRAINAGE ISO VIEW
Scale: NONE

CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 9-16-2010

SKATEPARK ELEVATION PLAN

SKATEPARK DRAINAGE ISO VIEW
SKATEPARK
PORTLAND, ME

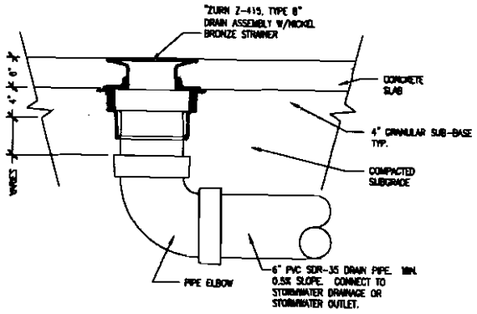


STATE OF MAINE
PAUL W. HAYMAN
No. 11674
LICENSED PROFESSIONAL ENGINEER

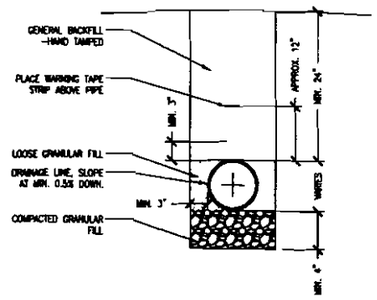
1 SKATEPARK ELEVATION PLAN
Scale: 3/16"=1'-0"

CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 9-16-2010

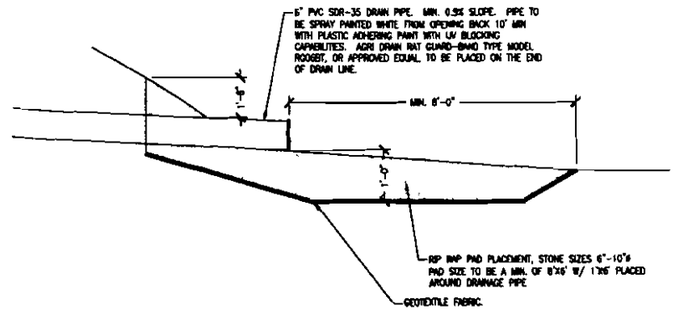
SKATEPARK ELEVATION PLAN



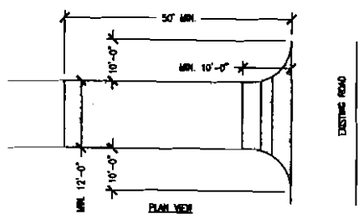
1 TYP. SLAB DRAIN
Scale: NONE

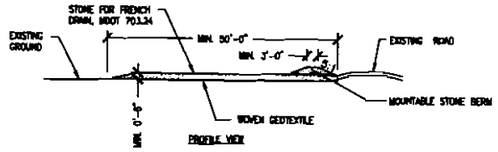


2 BURIED DRAINAGE LINE
Scale: NONE



3 DRAINAGE OUTFLOW
Scale: NONE





NOTES:

- CONSTRUCTION ENTRANCES MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
- WHEEL WASH PITS MAY ALSO BE USED, IF APPROVED.

MAINTENANCE: INSPECT FOR EFFECTIVE REMOVAL OF SOIL FROM VEHICLES PRIOR TO LEAVING THE SITE. SWEEP ANY SOIL FROM ADJACENT ROADWAYS.

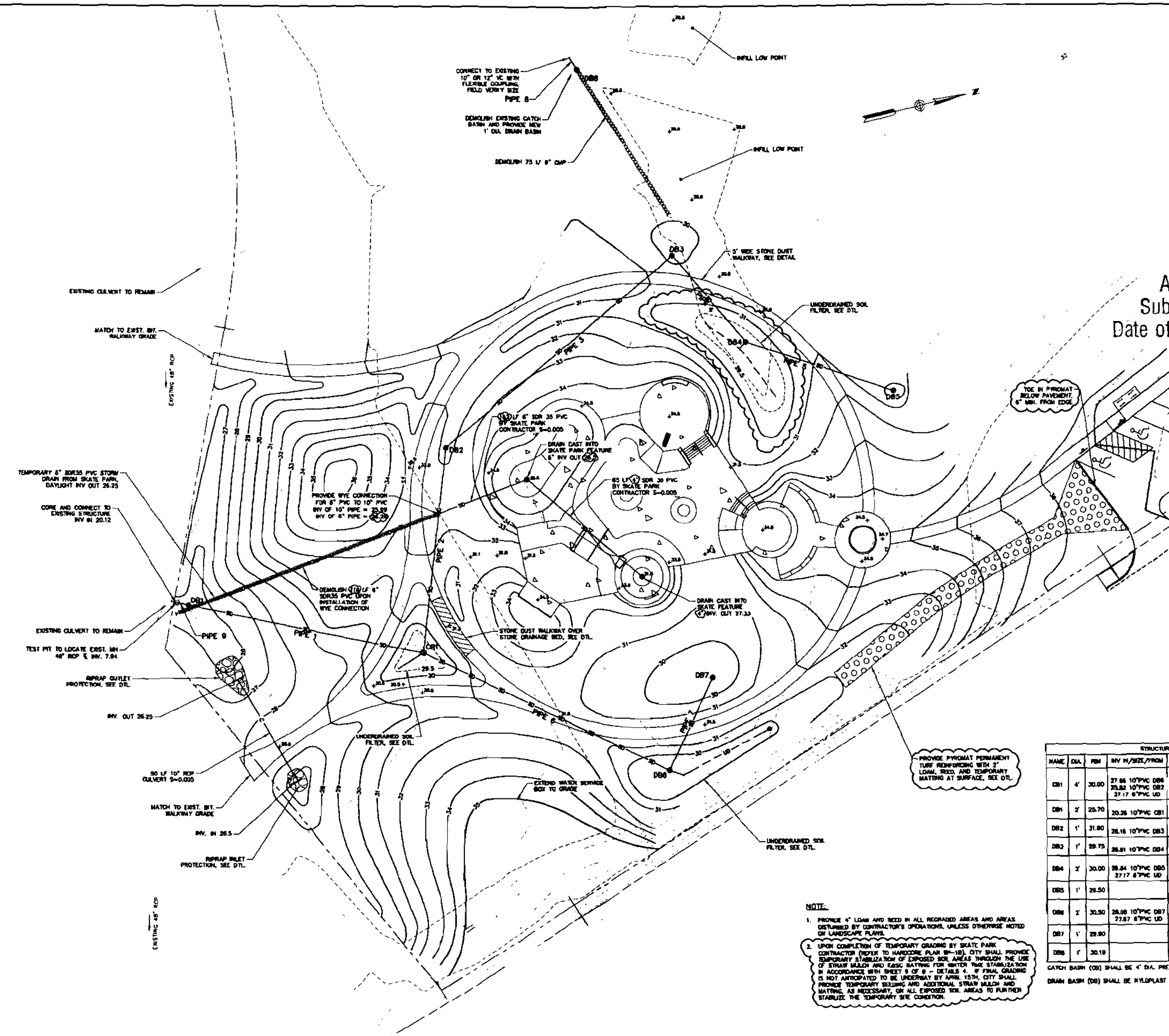
REMOVAL: AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL AREAS OF THE SITE ARE STABILIZED.

4 CONSTRUCTION ENTRANCE DETAIL
Scale: NONE

STATE OF MAINE
PAUL W. HAYMAN
No. 11674
LICENSED
PROFESSIONAL ENGINEER

CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 9-16-2010

DETAILS



CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 9-16-2010

NOTE:

1. PROVIDE 4" LOAM AND SEED IN ALL REGRADED AREAS AND AREAS DISTURBED BY CONTRACTOR'S OPERATIONS, UNLESS OTHERWISE NOTED ON LANDSCAPE PLANS.
2. UPON COMPLETION OF TEMPORARY GRADING BY SKATE PARK CONTRACTOR (REFER TO HARDCORE PLAN SP-1B), CITY SHALL PROVIDE TEMPORARY STABILIZATION OF EXPOSED SOIL AREAS THROUGH THE USE OF STRAW MULCH AND E&SC MATTING FOR WINTER TIME STABILIZATION IN ACCORDANCE WITH SHEET 9 OF 9 - DETAILS 4. IF FINAL GRADING IS NOT ANTICIPATED TO BE UNDERWAY BY APRIL 15TH, CITY SHALL PROVIDE TEMPORARY SEEDING AND ADDITIONAL STRAW MULCH AND MATTING, AS NECESSARY, ON ALL EXPOSED SOIL AREAS TO FURTHER STABILIZE THE TEMPORARY SITE CONDITION.

PIPE TABLE

PIPE NAME	SIZE	LENGTH	SLOPE
PIPE 1	10" PVC	100'	0.0546
PIPE 2	10" PVC	86'	0.0028
PIPE 3	10" PVC	127'	0.0028
PIPE 4	10" PVC	47'	0.0028
PIPE 5	10" PVC	85'	0.0028
PIPE 6	10" PVC	114'	0.0028
PIPE 7	10" PVC	42'	0.0028
PIPE 8	10" PVC	5'	*
PIPE 9	10" PVC	4'	0.0100

* MATCH TO EXISTING VC PIPE INVERT ELEVATION

ALL PIPE SHALL BE SDR 35 PVC UNLESS OTHERWISE NOTED.

STRUCTURE TABLE

NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	COVER TYPE
CB1	4'	30.00	27.86 10"PVC DB6 25.82 10"PVC DB2 27.17 6"PVC UD	25.73 10"PVC DB1	BEEHIVE
DB1	2'	25.70	20.26 10"PVC CB1	20.16 10"PVC EXIST. MH	BEEHIVE
DB2	1'	31.80	26.16 10"PVC DB3	26.06 10"PVC CB1	SOLID
DB3	1'	29.75	26.61 10"PVC DB4	26.51 10"PVC DB2	BEEHIVE
DB4	2'	30.00	26.84 10"PVC DB5 27.17 6"PVC UD	26.74 10"PVC DB3	BEEHIVE
DB5	1'	29.50		27.02 10"PVC DB4	BEEHIVE
DB6	2'	30.50	28.08 10"PVC DB7 27.67 6"PVC UD	27.98 10"PVC CB1	BEEHIVE
DB7	1'	29.90		28.20 10"PVC DB6	BEEHIVE
DB8	1'	30.19		26.50 10"PVC	FLAT GRATE

CATCH BASIN (CB) SHALL BE 4' DIA. PRECAST CATCH BASIN

DRAIN BASIN (DB) SHALL BE NYLOPLAST AREA DRAIN

20' 0 20' 40'
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

SKATEPARK - Details for SITE PLAN APPLICATION - NOT FOR CONSTRUCTION

41 HUTCHINS DRIVE
PORTLAND, MAINE 04102
800.426.4262 | www.woodardcurran.com

WOODARD & CURRAN
COMMITMENT & INTEGRITY DRIVE RESULTS

LDD PROJECT NAME: N/A
DRAWING NAME: 203939.65-C00A.DWG
FIELD BOOK USED: N/A

REFERENCES
dougOIB.dwg
fieldOIT.dwg

DESIGNED BY: DAS
DRAWN BY: JBC
CHECKED BY: DAS
SCALE: 1"=30'
DATE: 09/14/2010

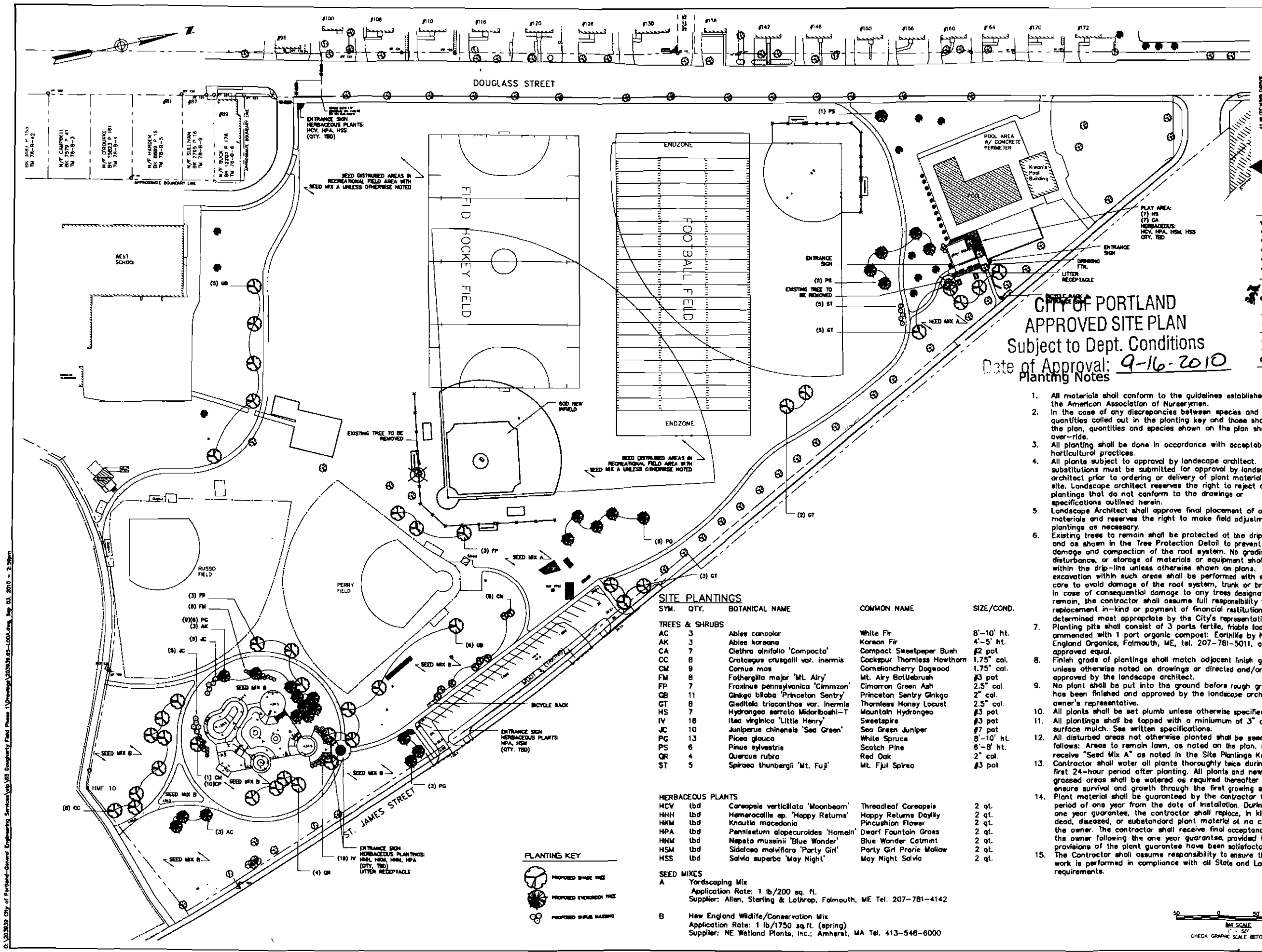
STATE OF MAINE
DAVID A. BENUS
16791
PROFESSIONAL ENGINEER
09/14/2010

DOUGHERTY FIELD IMPROVEMENTS
SKATE PARK AREA GRADING & DRAINAGE PLAN

CITY OF PORTLAND, MAINE
PUBLIC SERVICES DEPARTMENT
ENGINEERING SECTION

RESURGAM
CITY OF PORTLAND, MAINE

SHEET # 3 OF 9
PLAN NUMBER



WOODARD & CURRAN
COMMITMENT & INTEGRITY DRIVE RESULTS
41 HUTCHINS DRIVE
PORTLAND, MAINE 04102
800.426.4262 | www.woodardcurran.com

Regina S. Leonard
landscape architecture & design
29 Bridge Street
Topsham, Me 04086
Tel: 207.450.9700
Regina@reginaleonard.com

CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 9-16-2010

Planting Notes

1. All materials shall conform to the guidelines established by the American Association of Nurserymen.
2. In the case of any discrepancies between species and quantities called out in the planting key and those shown on the plan, quantities and species shown on the plan shall over-ride.
3. All planting shall be done in accordance with acceptable horticultural practices.
4. All plants subject to approval by landscape architect. All substitutions must be submitted for approval by landscape architect prior to ordering or delivery of plant material on site. Landscape architect reserves the right to reject any plantings that do not conform to the drawings or specifications outlined herein.
5. Landscape Architect shall approve final placement of all plant materials and reserves the right to make field adjustments to plantings as necessary.
6. Existing trees to remain shall be protected at the drip-line and as shown in the Tree Protection Detail to prevent damage and compaction of the root system. No grading, soil disturbance, or storage of materials or equipment shall occur within the drip-line unless otherwise shown on plans. Any excavation within such areas shall be performed with special care to avoid damage of the root system, trunk or branches. In case of consequential damage to any trees designated to remain, the contractor shall assume full responsibility for replacement in-kind or payment of financial restitution, as determined most appropriate by the City's representative.
7. Planting pits shall consist of 3 parts fertile, friable loam ammended with 1 part organic compost: Earthlife by New England Organics, Falmouth, ME, tel. 207-781-5011, or approved equal.
8. Finish grade of plantings shall match adjacent finish grades unless otherwise noted on drawings or directed and/or approved by the landscape architect.
9. No plant shall be put into the ground before rough grading has been finished and approved by the landscape architect or owner's representative.
10. All plants shall be set plumb unless otherwise specified.
11. All plantings shall be topped with a minimum of 3" of surface mulch. See written specifications.
12. All disturbed areas not otherwise planted shall be seeded as follows: Areas to remain lawn, as noted on the plan, shall receive "Seed Mix A" as noted in the Site Plantings Key.
13. Contractor shall water all plants thoroughly twice during the first 24-hour period after planting. All plants and newly grassed areas shall be watered as required thereafter to ensure survival and growth through the first growing season.
14. Plant material shall be guaranteed by the contractor for a period of one year from the date of installation. During the one year guarantee, the contractor shall replace, in kind, any dead, diseased, or substandard plant material at no cost to the owner. The contractor shall receive final acceptance from the owner following the one year guarantee, provided the provisions of the plant guarantee have been satisfactorily met.
15. The Contractor shall assume responsibility to ensure that all work is performed in compliance with all State and Local requirements.

SITE PLANTINGS

SYM.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE/COND.
TREES & SHRUBS				
AC	3	Abies concolor	White Fir	8'-10' ht.
AK	3	Abies koreana	Korean Fir	4'-5' ht.
CA	7	Clethra alnifolia 'Compacta'	Compact Sweetpeper Bush	#2 pot
CC	8	Crataegus crusgalli var. inermis	Cockspur Thornless Hawthorn	1.75" cal.
CM	9	Cornus mas	Corneliancherry Dogwood	1.75" cal.
FM	8	Fothergilla major 'Mt. Airy'	Mt. Airy Bottlebrush	#3 pot
FP	7	Fraxinus pennsylvanica 'Cimmzon'	Cimarron Green Ash	2.5" cal.
GB	11	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2" cal.
GT	8	Gleditsia triacanthos var. inermis	Thornless Honey Locust	2.5" cal.
HS	7	Hydrangea serrata Midoriboshi-T	Mountain Hydrongea	#3 pot
IV	18	Itea virginica 'Little Henry'	Sweetspire	#3 pot
JC	10	Juniperus chinensis 'Sea Green'	Sea Green Juniper	#7 pot
PG	13	Picea glauca	White Spruce	8'-10' ht.
PS	6	Pinus sylvestris	Scotch Pine	6'-8' ht.
QR	4	Quercus rubra	Red Oak	2" cal.
ST	5	Spiraea thunbergii 'Mt. Fuji'	Mt. Fiji Spirea	#3 pot
HERBACEOUS PLANTS				
HCV	tbd	Coreopsis verticillata 'Moonbeam'	Threadleaf Coreopsis	2 qt.
HHH	tbd	Hemerocallis sp. 'Happy Returns'	Happy Returns Daylily	2 qt.
HKM	tbd	Knautia macedonia	Pincushion Flower	2 qt.
HPA	tbd	Pennisetum alopecuroides 'Hameln'	Dwarf Fountain Grass	2 qt.
HNM	tbd	Nepeta mussinii 'Blue Wonder'	Blue Wonder Catmint	2 qt.
HSM	tbd	Sidalcea malviflora 'Party Girl'	Party Girl Prarie Mallow	2 qt.
HSS	tbd	Salvia superba 'May Night'	May Night Salvia	2 qt.

SEED MIXES

A Yardscaping Mix
Application Rate: 1 lb/200 sq. ft.
Supplier: Allen, Sterling & Lothrop, Falmouth, ME Tel. 207-781-4142

B New England Wildlife/Conservation Mix
Application Rate: 1 lb/1750 sq.ft. (spring)
Supplier: NE Wetland Plants, Inc.; Amherst, MA Tel. 413-548-6000

50 0 50' 100'
BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

LDD PROJECT NAME: N/A
DRAWING NAME: 203939.85-L00A.DWG
FIELD BOOK USED: N/A

DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: RAS
SCALE: 1"=50'
DATE: 9/03/10

DOUGHERTY FIELD IMPROVEMENTS
LANDSCAPE PLAN

CITY OF PORTLAND, MAINE
PUBLIC SERVICES DEPARTMENT
ENGINEERING SECTION

SHEET # 5 OF 9
PLAN NUMBER —

REFERENCES:

G:\203939 City of Portland-General Engineering Services\Veb\05 Dougherty Field Phase 1\Drawings\203939.85-L00A.dwg, Sep 03, 2010 - 2:39pm

Note: See condition as will need adjusting re density & location

Tammy Munson - Re: Fwd: Dougherty Field Skatepark Approvals

From: Jean Fraser
To: Munson, Tammy
Date: 9/20/2010 3:19 PM
Subject: Re: Fwd: Dougherty Field Skatepark Approvals

Tammy,

Further to our conversation this AM and some comments in my e-mails, this does not need a separate site work BP but please ensure that the paperwork (ie entered into the system) makes it clear that Phil diPierro needs to sign off re the CO in respect of the site work part of this project.

Phil will be arranging the normal PRECON meeting on this in a week or so via Ethan Owens in Rec.

Thanks
Jean

From: Ethan Owens
To: Penny St. Louis Littell; Tammy Munson
CC: Sally Deluca
Date: 9/16/2010 3:19 PM
Subject: Handrail Waiver Request - Portland Skate Park

Tammy & Penny,
The Recreation Dept is requesting a waiver for the handrails that are a part of the skating features located in the proposed Portland Skate Park. The handrails are intended to be ground and slid down like a jump for the skater, they are not intended to be used to walk down the stairs. The stairs are intended to jumped and ground on not used for traversing up and down the stake park.

Similar to a playground's individual play pieces, these play pieces are "elements" of a skate part and have considerably different intended uses then what they might normally be used for in a building.

Thank you for the consideration and I look forward to your answer.

Sincerely,
Ethan Owens
Athletic Facilities Manager
City of Portland

Have a great day,

Ethan Owens
Athletic Facilities, Playground & Courts Manager
Recreation Department ~ City of Portland
134 Congress St
Portland, Maine 04103 ~ USA
207-756-8275/Fax 207-756-8279
eowens@portlandmaine.gov

Summit Testing & Inspection Company
P. O. Box 2231, Akron, Ohio 44309

88000803
Date: **Aug/03/10**

Report of Concrete Inspection and Testing (ASTM C39)

Project: **KENT SKATE PARK**
Location: **Kent, Ohio**
Client: **Hardcore Skate Park**
General Cont'r. / Const. Manager: **Hardcore Skate Park**
Weather and Temperature A.M.: **Cloudy, 65**

Number: **I10-8800**
Technician: **JS**
Supplier: **Associated Associates**
Subcont'r:
P.M.:

Placement Information

Location of pour: **Tabletop ramp**

Reinforcing Steel: **Checked and found in accordance with drawings**

Total Cubic Yards Placed: **9.0** By (Method): **Truck chute** Consolidation Method: **Manual**

Field Test Data

Set Number: **1 of 1**

Specific Location: **Same as noted above**

ASTM C143 Slump (In.): **2.0**
ASTM C231/173 Air (%): **6.5**
ASTM C1064 Temp (^{O}F) **85**
Curing Days Other Than Moist [1]: **1(F)**

Mix Design Data (4,000 PSI @ 28 Days)

Cement		Per Cubic Yard
Water		Per Cubic Yard
Coarse Aggregate		Per Cubic Yard
Fine Aggregate	**Batch weight not available on delivery ticket**	Per Cubic Yard
Admixture (1)		Per
Admixture (2)		Per
Water added on site		Per

Laboratory Data

Cyl. I.D.	Diameter (In.)	Area (In^2)	Test Date	Age (Days)	Load (Lbs.)	Compressive Strength (PSI)	Type of Break[2]
10-3473	**4.02**	**12.69**	**08-10-10**	**7**	**43,580**	**3,430**	**5**
10-3474	**4.02**	**12.69**	**08-31-10**	**28**	**64,800**	**5,110**	**5**
10-3475	**4.02**	**12.69**	**08-31-10**	**28**	**66,070**	**5,210**	**3**
10-3476	**4.02**	**12.69**	**08-31-10**	**28**	**69,770**	**5,500**	**2**

Remarks:

For test cylinders made by other than ST&I personnel, missing information was not supplied
[1] Curing other than moist: (F) = field cure (L) = lab air
[2] Type of break: 1=Cone; 2=Cone and split; 3=Columnar; 4=Sheer; 5=Side fractures at top or bottom; 6=Similar to five, but end of cylinder is pointed

Approved: EDK

PC: **Hardcore Skate Park (2); Associated Associates (1)**

Tammy Munson - RE: Portland Skate Park: Statement of Special Inspections

From: "Chris Parker" <ChrisP@hardcoreskateparks.com>
To: "Ethan Owens" <EOWENS@portlandmaine.gov>
Date: 9/16/2010 6:26 PM
Subject: RE: Portland Skate Park: Statement of Special Inspections
CC: "Mark Hardcore" <Mark@hardcoreskateparks.com>, "David Senus" <dsenus@woo...
Attachments: Sample Concrete Testing Report.pdf

Ethan, please find included in this email a list of all inspections that we'll be performing on the job, as well as others that the City may wish to perform either with or without the cooperation of Dave Senus and company.

General Inspection Items:

1. Per our Construction Notes (sheet SP-0), the Contractor (a.k.a., Hardcore Shotcrete / American Ramp Company) shall perform an adequate number of soil testing and compaction tests to ensure compliance with stated requirements in Note #1 & #3.

The City will be copied on all such reports, so as to ensure that they are assured of a quality product.

General Inspection #1: Compaction Reports on Soils and Aggregate Bases

2. We, as the Contractor, will spend several thousand dollars on testing concrete specimens for strength. Please see that attached file for an example from a project we did recently in Kent, OH. The information on the bottom half is the most pertinent regarding verification of quality. The City of Portland should be listed under the PC (Prepared Copy) list at the very bottom of each report. Note that the initials of the person approving it ("EDK") are not from Hardcore Shotcrete / American Ramp Company).

General Inspection #2: Compressive Strength Requirements on Concrete and Shotcrete Samples

Special Inspection Items:

The only element of the skatepark that sits higher than a couple of feet is the Deckless Quarter Pipe, which sits 5-ft high, as shown on Sheet SP-4. Recommended special inspections for this element would be the following:

1. Compaction testing for

a. the soils underneath the aggregate base;

b. the aggregate base underneath the structure;

2. Steel Reinforcement: confirmation that the structure does indeed have the required types and number of rebars in it, inspected prior to pouring the concrete.

Of course, the compaction testing mentioned above is included in the General Inspection list, but it's worthwhile to mention it specifically for this Deckless Quarter Pipe, simply because it will receive wind loads, once in place–although they should be relatively insignificant.

Lastly, please know the following:

General Items:

If you have access to our plans, please see Sheet SP-0 for our standard notes; the following items are noteworthy regarding those notes:

- We reference standards for materials and quality of construction: ASTM, ACI, and the IBC. See

- According to the 2006 International Residential Code, Portland, Maine appears to fall under the Seismic zone, B, which is a low classification; also, there do not appear to be any special wind load concerns for structures

Most importantly, we desire open communication between the City and us, particularly with our site superintendent, who I'm sure will be more than happy to coordinate all inspection work to coincide with milestones during the construction process. If he doesn't then he should, and we should be notified immediately to correct the situation.

I hope that this email suffices for a 'statement of special inspections.' If not, please let me know what is lacking.

Thank you for your patience in this matter.

CHRIS PARKER, P.E.

Sr. Project Engineer

phone (417) 206-6816

toll free 888-SK8-BOWL

fax 888-SK8-FLOW

Skater Owned/Operated Since 2001

PROMO VIDEO | 2010 CATALOG

-----Original Message-----
From: Ethan Owens [mailto:EOWENS@portlandmaine.gov]
Sent: Thursday, September 16, 2010 2:32 PM
To: Chris Parker; Jerry Bailey; Mark Hardcore; David Senus; Megan LaPierre
Subject: Fwd: Re: Handrail Waiver Request - Portland Skate Park

SO Gang, I am not sure how to go about this and I need it. I wonder Dave if we change your contract to include the IBC standards to your inspections, if that would do it?

Have a great day,

Ethan Owens

Athletic Facilities, Playground & Courts Manager

Recreation Department ~ City of Portland

134 Congress St

Portland, Maine 04103 ~ USA

207-756-8275/Fax 207-756-8279

eowens@portlandmaine.gov

>>> Tammy Munson 9/16/2010 3:27 PM >>>

So, the only outstanding issue for me is the statement of special inspections. Once planning gives the ok and I receive the statement I can issue the permit.

>>> Ethan Owens 9/16/2010 3:19 PM >>>

Tammy & Penny,

The Recreation Dept is requesting a waiver for the handrails that are a part of the skating features located in the proposed Portland Skate Park. The handrails are intended to be ground and slid down like a jump for the skater, they are not intended to be used to walk down the stairs. The stairs are intended to jumped and ground on not used for traversing up and down the stake park.

Similar to a playground's individual play pieces, these play pieces are "elements" of a skate part and have considerably different intended uses then what they might normally be used for in a building.

Thank you for the consideration and I look forward to your answer.

Sincerely,

Ethan Owens

Athletic Facilities Manager

City of Portland

Have a great day,

Ethan Owens

Athletic Facilities, Playground & Courts Manager

Recreation Department ~ City of Portland

134 Congress St

Portland, Maine 04103 ~ USA

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<<Sample Concrete Testing Report.pdf>>