

# Notice of Intent (NOI) - Amendment

for Stormwater Discharges from  
Municipal Separate Storm Sewer Systems (MS4)  
General Permit 3-9014

For Dept. Use Only  
**Notice of Intent No:**

Submission of this Notice of Intent (NOI) constitutes notice that the entity in Section A intends to be authorized to discharge pollutants to waters of the State under Vermont's Municipal Separate Storm Sewer Systems (MS4) permit. Submission of the NOI also constitutes notice that the party identified in Section A of this form has read, understands and meets the eligibility conditions; agrees to comply with all applicable terms and conditions; and understands that continued authorization under the MS4 General Permit is contingent on maintaining eligibility for coverage. In order to be granted coverage, all information required on this form and the Minimum Control Measure attachments must be completed and a complete Stormwater Management Program (SWMP) Plan must be submitted.

## A. Permittee Information

Name of MS4: City of St. Albans

Name of Principle Executive Officer (PEO) or Chief Elected Official (CEO): Dominic Cloud Title: City Manager

Mailing Address:  
Street/P.O. Box: PO Box 867, 100 No. Main St.

City/Town: St. Albans State: VT Zip: 05478

Phone: 802-524-1500 \*254 Email: d.cloud@stalbansvt.com

## B. Primary contact responsible for overall coordination of SWMP, if different than PEO/CEO

Name: Chip Sawyer

Mailing Address:  
Street/P.O. Box: PO Box 867, 100 No. Main St.

City/Town: St. Albans State: VT Zip: 05478

Phone: 802-524-1500 \*259 Email: c.sawyer@stalbansvt.com

## C. Partnering organization responsible for Minimum Control Measure implementation (if applicable)

If you are participating in the CCRPC MOU to implement MCM1 &/or MCM2 check here:  MCM 1  
Or, if you are relying on another entity to implement a MCM, please complete the following:  MCM 2

Organization: Northwest Regional Planning Commission Contact: Catherine Dimitruk

Minimum Control Measure being implemented: 1 and 2

Mailing Address:  
Street/P.O. Box: 75 Fairfield St.

City/Town: St. Albans State: VT Zip: 05478

Phone: 802-524-5958 Email: cdimitruk@nrpcvt.com

Organization: \_\_\_\_\_ Contact: \_\_\_\_\_

Minimum Control Measure being implemented: \_\_\_\_\_

Mailing Address:  
Street/P.O. Box: \_\_\_\_\_

City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

**D. Municipal Separate Storm Sewer System (MS4) Information**

Estimate of the square mileage served by the MS4: 1.00

Identify the names of all know waters that receive a discharge from the MS4:

Receiving water	# of outfalls	Impaired status	Nature of impairment
Stevens Brook	45	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Multiple impacts associated with excess stormwater runoff
Rugg Brook	6	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Multiple impacts associated with excess stormwater runoff
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	

**E. Stormwater Impaired Waters Information**

Does the MS4 discharge into a stormwater impaired water?  Yes  No

If yes, the MS4 must comply with all requirements listed in Part IV.C. of the permit, including the requirement to develop a Flow Restoration Plan (FRP) for the stormwater impaired water.

**F. Incorporation of Previously Permitted Stormwater Systems**

As part of this application, is the MS4 incorporating a stormwater system that was previously authorized under a State stormwater permit?  Yes  No

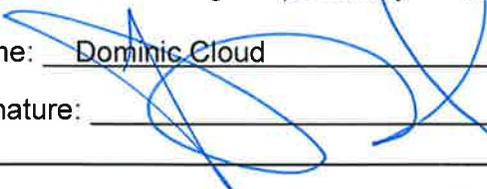
If yes, the MS4 must complete and attach an MS4 Incorporation Form for each permit it is incorporating. List permit numbers here: 1-0477.XXXX, 1-0691.XXXX, 2-0147.YYYY

**G. Certification**

This NOI shall be signed by a principal executive officer, ranking elected official or other duly authorized employee consistent with 40 CFR §122.22(b) and certified as follows:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Dominic Cloud Title: City Manager

Signature:  Date: 9/29/16

Submit this *Original* form to:  
MS4 Permit Coordinator  
VTDEC · Watershed Management Division  
Stormwater Management Program  
One National Life Drive  
Montpelier, Vermont 05620-3522

## Instructions for Public Comment, Public Hearings, and Appeals

### PUBLIC COMMENT

Public comments concerning this Notice of Intent to discharge under General Permit No 3-9014 and the accompanying Stormwater Management Plan (SWMP) are invited and must be submitted during the public notice period. Comments should address how the application complies or does not comply with the terms and conditions of General Permit No. 3-9014. A letter of interest should be filed by those persons who elect not to file comments but who wish to be notified if the comment period is extended or reopened for any reason. All written comments received within the time frame described above will be considered by the Department of Environmental Conservation in its final ruling to grant or deny authorization to discharge under General Permit No. 3-9014.

All submitted NOIs and SWMPs can be found on the Stormwater Program's website at:  
<http://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/ms4-permit>

Send written comments to: VT DEC, Watershed Management Division  
Stormwater Management Program, MS4 Permit Coordinator  
One National Life Drive  
Montpelier, VT 05620-3522

### PUBLIC HEARING REQUEST

During the notice period, any person may submit a written request to this office for a public hearing to consider the proposed permit authorization. The request must state the interest of the party filing such request and the reasons why a hearing is warranted. A hearing will be held if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. If the Secretary determines that useful information and data may be obtained thereby, the Secretary may hold a public hearing any time prior to the issuance of the authorization. Notice of a public hearing will be circulated 30 days prior to the hearing. (40 C.F.R. § 124.12 and Vermont Water Pollution Control Permit Regulations, Chapter 13.3G)

### APPEALS

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of \$250.00, payable to the state of Vermont.

The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal.

The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings.

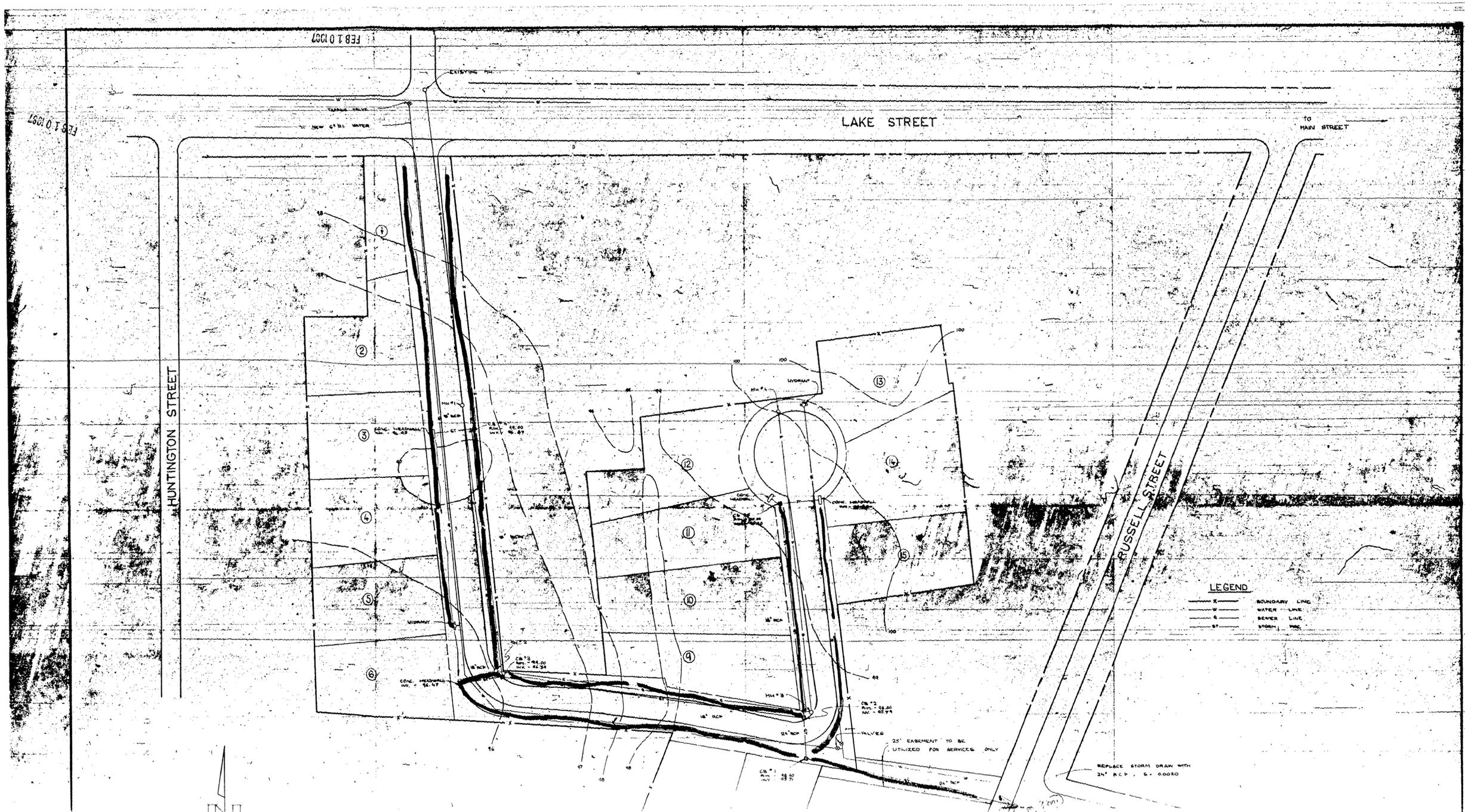
For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at [www.vermontjudiciary.org](http://www.vermontjudiciary.org). The address for the Environmental Court is 2418 Airport Road, Suite 1, Barre, VT 05641 (Tel. # 802-828-1660)

A copy of General Permit No. 3-9014 may be obtained by calling (802) 490-6173; by visiting the Department at the above address between the hours of 7:45 am and 4:30 pm; or by downloading from the Watershed Management Division's Web site at <http://dec.vermont.gov/watershed/stormwater>.

## MS4 Incorporation Form for State Issued Stormwater Permits

Please complete this form for each previously issued state stormwater permit that the MS4 plans to incorporate into the MS4 authorization. The stormwater management practices associated with the permit listed below shall be listed in the MS4's Stormwater Management Program (SWMP) under Minimum Control Measure 5, Post-Construction Stormwater Management.

1. Stormwater System Name: Lake Street Subdivision
2. Location: City street currently named Murray Drive.
3. Stormwater Permit Number: 1-0477.XXXX
4. Current Permit Status: (Issued, Expired, Title 3) Expired
5. Narrative Describing the Stormwater System: Stormwater runoff from paved and unpaved roads, roofs and natural terrain after treatment of the runoff in grass-lined swales. Treated runoff then flows into the St. Albans City MS4 via catchbasins and discharges into Stevens Brook.
6. Current Compliance Status:
  - Compliant with previously issued state permit
  - Planned compliance within 24 mos; Estimated Compliance Date: \_\_\_\_\_
  - Not constructed – plan for construction as part of FRP; Estimated construction schedule: \_\_\_\_\_
  - Substantially deteriorated – plan for construction as part of FRP; Estimated construction schedule: \_\_\_\_\_
7. Plans (for expired permits, list plan numbers and attach):  
See attached.
8. Proof of Legal Responsibility (list and attach):  
See attached discharge permit # 1-0477



FEB 1 0 1937

FEB 1 0 1937

LAKE STREET

HUNTINGTON STREET

TO MAIN STREET

RUSSELL STREET

LEGEND

- BOUNDARY LINE
- WATER LINE
- SEWER LINE
- STORM LINE

25' CASSEMENT TO BE UTILIZED FOR SERVICES ONLY

REPLACE STORM DRAIN WITH 24" R.C.P. @ 0.0000



STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES &  
ENVIRONMENTAL ENGINEERING

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DISCHARGE PERMIT

File No. 06-13-027

Permit No. 1-0477

In compliance with provisions of 10 V.S.A. 1263

Rodney Pelkey  
20 Burnell Terrace  
St. Albans, Vermont 05478

and in accordance with "Terms and Conditions" hereinafter specified, the above named permittee is hereby granted permission to discharge stormwater runoff from a 14-lot subdivision located off Lake Street in St. Albans, Vermont, to Stevens Brook via the St. Albans City storm drain system.

1. Expiration Date: December 31, 1991. Note: This permit, unless revoked, shall be valid until the designated expiration date despite any intervening change in water quality, effluent, or treatment standards of the classification of the receiving waters. However, any such changed standard or classification shall be applied in determining whether or not to renew the permit pursuant to 10 V.S.A. 1263.

Re-apply for a discharge permit by June 30, 1991.

2. Revocation: 10 V.S.A. 1267 provides as follows:

"The Secretary may revoke any permit issued by him pursuant to this subchapter if he finds that the permit holder submitted false or inaccurate information in his application or has violated any requirement, restriction, or condition of the permit issued. Revocation shall be effective upon actual notice thereof to the permit holder."

3. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. The permittee shall notify the Secretary immediately, in writing, of any sale, lease, or other transfer of ownership of the property from which the discharge originates. The permittee shall also inform the new owner or tenant of his responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

4. Receiving Waters: Stevens Brook

5. Manner of Discharge: Via grass-lined swales to catch basins, then via the St. Albans storm drain system which discharges to Stevens Brook.
6. Wastes Permitted: Stormwater runoff from paved and unpaved roads, roofs, and natural terrain after treatment of the runoff in grass-lined swales.
7. Volumes Permitted: Such volumes as required by the discharges specified in #5 above.
8. Frequency of Discharge: Daily
9. Operation and Treatment: Treatment as specified in #6 above.  
For details on the treatment of stormwater runoff for this project see the Frank O'Brien Consulting Engineers, Inc. plans and details dated 11/21/86.
10. Maintenance and Maintenance Reporting Requirements:  
All catch basins, settling ponds, recharge basins, or other treatment devices or facilities shall be maintained in good operating order at all times and shall be cleaned quarterly and at such other times as necessary to maintain design treatment levels.  
**NO LATER THAN JANUARY 31 OF EACH YEAR A WRITTEN REPORT SHALL BE SUBMITTED TO THE DEPARTMENT OF WATER RESOURCES, NPDES PERMIT SECTION, 103 SOUTH MAIN STREET, WATERBURY, VERMONT 05676, PROVIDING THE DATES AND NATURE OF CLEANING OPERATIONS CARRIED OUT IN THE PRECEDING YEAR.**  
  
Paved parking lots and roads should be swept on a regular basis when seasonally practicable to minimize contaminants carried to the treatment device by runoff.
11. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of #10 above.
12. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in #10 above.
13. Miscellaneous Requirements: Not Applicable

14. Issue Date of Permit: May 13, 1987

AGENCY OF ENVIRONMENTAL CONSERVATION

BY Jonathan Dash  
Commissioner  
Department of Water Resources and  
Environmental Engineering

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TRANSFER APPLICATION

I, \_\_\_\_\_, hereby apply for permission to discharge waste into the waters of the State of Vermont under the provisions of Discharge Permit No. 1-0477, previously issued to \_\_\_\_\_.

Signed: \_\_\_\_\_

STATE OF VERMONT  
 AGENCY OF ENVIRONMENTAL CONSERVATION  
 DEPARTMENT OF WATER RESOURCES

FEB 10 1987

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## APPLICATION FOR PERMIT TO DISCHARGE WASTES

Chapter 47 of Title 10 V.S.A.

Date FEB. 6, 1987

## SCHEDULE T - TEMPORARY POLLUTION PERMITS AND TEMPORARY PRETREATMENT PERMITS

Applicant RODNEY PELKEY Activity MURRAY DENE

Explain below why the discharge being considered for a Temporary Pollution Permit or Temporary Pretreatment Permit meet the eight criteria provided by 10 V.S.A. §1265 (c) (listed below):

"After consideration of the applications, any additional information and all written comments submitted, and the record of any public hearings the Secretary shall grant or deny a temporary pollution permit. No such permit shall be granted by the Secretary unless he affirmatively finds:

- (1) the proposed discharge does not qualify for a discharge permit;
- (2) the applicant is constructing, installing or placing into operation or has submitted plans and reasonable schedules for the construction, installation or operation of an approved pollution abatement facility or alternate waste disposal system, or that the applicant has a waste for which no feasible and acceptable method of treatment or disposal is known or recognized but he is making a bona fide effort through research and other means to discover and implement such a method;
- (3) the applicant needs permission to pollute the waters of the state for a period of time after July 1, 1971 necessary to complete research, planning, construction, installation or the operation of an approved and acceptable pollution abatement facility or alternate waste disposal system;
- (4) there is no present, reasonable, alternative means of disposing of the waste other than by discharging it into the waters of the state;
- (5) the denial of a temporary pollution permit would work an extreme hardship upon the applicant;
- (6) the granting of a temporary pollution permit will result in some public benefit;
- (7) the discharge will not be unreasonably destructive to the quality of the receiving waters;
- (8) the proposed discharge will not violate any applicable provisions of federal laws or regulations."

THIS PROJECT IS WITHIN THE CITY LIMITS OF ST. ALBANS. THE CITY HAS REQUIRED THE APPLICANT TO CONNECT EXISTING CITY STORMWATER SYSTEM. THE RUNOFF FROM THIS PROJECT WILL NOT DECREASE THE QUALITY OF THE WATER NOW BEING

CONTINUED ON REVERSE SIDE



FEB 10 1987

Worksheet 2: Runoff curve number and runoff

Project ROD PELKEY, MURRAY DRIVE By DUE Date 22 Jan 87

Location LAKE ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN <sup>1/</sup>			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
<u>MASSENA, C</u>	<u>BRUSH - BRUSH, WOOD-GRASS MIXTURE</u> <i>FAIR CONDITION</i>	<u>70</u>				

<sup>1/</sup> Use only one CN source per line.

Totals =

CN (weighted) =  $\frac{\text{total product}}{\text{total area}}$  = \_\_\_\_\_ ;

Use CN = 70

2. Runoff

Frequency ..... yr  
 Rainfall, P (24-hour) ..... in  
 Runoff, Q ..... in  
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3
<u>10</u>		
<u>3.5</u>		
<u>1.01</u>		

### Worksheet 3: Time of concentration ( $T_c$ ) or travel time ( $T_t$ )

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Project ROD PELKEY, MURRAY DRIVE By DWF Date 28 Jan 87

Location LAKE ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_

Circle one:  $T_c$   $T_t$  through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

<u>Sheet flow</u> (Applicable to $T_c$ only)	Segment ID	
1. Surface description (table 3-1) .....		PAVED (PAV) LIGHT UNPAVED (PUB)
2. Manning's roughness coeff., n (table 3-1) ..		.32
3. Flow length, L (total L $\leq$ 300 ft) .....	ft	300
4. Two-yr 24-hr rainfall, $P_2$ .....	in	2.25
5. Land slope, s .....	ft/ft	.008
6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute $T_t$ .....	hr	1.240 + <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span> = <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>

<u>Shallow concentrated flow</u>	Segment ID	
7. Surface description (paved or unpaved) .....		UNPAVED
8. Flow length, L .....	ft	235
9. Watercourse slope, s .....	ft/ft	.01
10. Average velocity, V (figure 3-1) .....	ft/s	1.6
11. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....	hr	.041 + <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span> = <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>

<u>Channel flow</u>	Segment ID	
12. Cross sectional flow area, a .....	ft <sup>2</sup>	
13. Wetted perimeter, $p_w$ .....	ft	
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r .....	ft	
15. Channel slope, s .....	ft/ft	
16. Manning's roughness coeff., n .....		
17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V .....	ft/s	
18. Flow length, L .....	ft	
19. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....	hr	0.060 + <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span> = <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>
20. Watershed or subarea $T_c$ or $T_t$ (add $T_t$ in steps 6, 11, and 19) .....	hr	1.281

## Worksheet 4: Graphical Peak Discharge method

FEB 10 1987

Project ROD PELKEY, MURRAY DRIVE By DWF Date 2/10/87

Location LAKE ST, ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_

**1. Data:**

Drainage area .....  $A_m = \underline{.007}$  mi<sup>2</sup> (acres/640)  
 Runoff curve number .... CN = 70 (From worksheet 2)  
 Time of concentration ..  $T_c = \underline{1.281}$  hr (From worksheet 3)  
 Rainfall distribution type = II (I, IA, II, III)  
 Pond and swamp areas spread throughout watershed ..... = \_\_\_\_\_ percent of  $A_m$  (\_\_\_\_ acres or mi<sup>2</sup> covered)

		Storm #1	Storm #2	Storm #3
2. Frequency .....	yr	10		
3. Rainfall, P (24-hour) .....	in	3.5		
4. Initial abstraction, $I_a$ .....	in	.857		
(Use CN with table 4-1.)				
5. Compute $I_a/P$ .....		.245		
6. Unit peak discharge, $q_u$ .....	csn/in	280		
(Use $T_c$ and $I_a/P$ with exhibit 4-___)				
7. Runoff, Q .....	in	1.01		
(From worksheet 2).				
8. Pond and swamp adjustment factor, $F_p$ .....		1.0		
(Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)				
9. Peak discharge, $q_p$ .....	cfs	1.980		
(Where $q_p = q_u A_m QF_p$ )				

Worksheet 2: Runoff curve number and runoff

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Project ROD PELKEY, MURRAY DRIVE By DWF Date 27 JAN 87

Location LAKE ST, ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN <sup>1/</sup>			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
MASSENA, C	PAVEMENT	98			.671	65.758
"	ROOFS.	98			.360	35.280
"	GRAVEL.	89			.193	17.177
"	LAWNS.	74			3.166	234.284

<sup>1/</sup> Use only one CN source per line. Totals = 4.390 352.499

CN (weighted) =  $\frac{\text{total product}}{\text{total area}} = \frac{352.499}{4.390} = \underline{80.296}$ ; Use CN = 80

2. Runoff

Frequency ..... yr  
 Rainfall, P (24-hour) ..... in  
 Runoff, Q ..... in  
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3
10		
3.5		
1.64		

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### Worksheet 3: Time of concentration ( $T_c$ ) or travel time ( $T_t$ )

Project ROD PELKEY, MURRAY DRIVE By DWF Date 27 JAN 87

Location LAKE ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed

Circle one:  $T_c$   $T_t$  through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to  $T_c$  only)

	Segment ID		
1. Surface description (table 3-1) .....		<u>GRAVEL</u>	
2. Manning's roughness coeff., n (table 3-1) ..		<u>.24</u>	
3. Flow length, L (total L $\leq$ 300 ft) .....	ft	<u>110</u>	
4. Two-yr 24-hr rainfall, $P_2$ .....	in	<u>2.25</u>	
5. Land slope, s .....	ft/ft	<u>.004</u>	
6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute $T_t$ .....	hr	<u>.583</u>	+ _____ = _____

Shallow concentrated flow

	Segment ID		
7. Surface description (paved or unpaved) .....			
8. Flow length, L .....	ft		
9. Watercourse slope, s .....	ft/ft		
10. Average velocity, V (figure 3-1) .....	ft/s		
11. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....	hr	<u>.080*</u>	+ _____ = _____

Channel flow

	Segment ID		
12. Cross sectional flow area, a .....	ft <sup>2</sup>	<u>4.00</u>	
13. Wetted perimeter, $p_w$ .....	ft	<u>6.48</u>	
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r .....	ft	<u>.617</u>	
15. Channel slope, s .....	ft/ft	<u>.002</u>	
16. Manning's roughness coeff., n .....		<u>.05</u>	
17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V .....	ft/s	<u>.966</u>	
18. Flow length, L .....	ft	<u>110</u>	
19. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....	hr	<u>.032</u>	+ _____ = _____
20. Watershed or subarea $T_c$ or $T_t$ (add $T_t$ in steps 6, 11, and 19) .....	hr		<u>.645</u>

\*  $T_t$  THROUGH PIPE NETWORK.  
SEE ATTACHED SHT.

TDWIF

27, Jan 87

PELKEY / 5137

FEB 10 1987

$$\text{Flow Area} = \pi R^2 = 1.767 \text{ F}^2$$

$$R = \frac{1.5}{2}$$

$$\text{WETTED PERIMETER} = 2\pi R = 2(\pi)1 = 4.712'$$

$$\text{HYDRAULIC RADIUS} = \frac{1.767}{4.712} = 0.375 \text{ FT}$$

MANNING COEFFICIENT FOR CONCRETE PIPE

$$N = .011 - .015$$

$$\text{USE } N = .013$$

$$V = \frac{1.49}{N} (R^{2/3} S^{1/2})$$

FOR 18" RCP

$$V = 59.583 (S^{1/2})$$

$$V = 2.665 \text{ FT/S}$$

$$S = .002 \text{ FT/FT (DESIGN)}$$

$$\text{Area} = 3.142$$

$$\text{KIP} = 6.283$$

$$R = .500$$

FOR 24" RCP

$$V = \frac{1.49}{.013} (.5^{2/3} S^{1/2})$$

$$V = 72.186 (S^{1/2})$$

$$V = 3.228 \text{ FT/S}$$

$$S = .002 \text{ FT/FT (DESIGN)}$$

DWIF

27 JAN 87

PELKEY/S137

FEB 10 1987

T<sub>c</sub> Computations For 18" & 24" R.C.P.

FROM HEADWALL # 1 → CB # 4 (18" R.C.P.)

LENGTH OF RUN = 35'

$$T_c = L / 3600(V) = 35 / 3600(2.665) = .004 \text{ HR.}$$

FROM CB # 4 → CB # 3 (18")

L = 235'

$$T_c = 235 / 3600(2.665) = .024 \text{ HR.}$$

FROM CB # 3 → CB # 2 (18")

L = 295'

$$T_c = 295 / 3600(2.665) = .031 \text{ HR.}$$

FROM CB # 2 → CB # 1 (24")?

L = 36'

$$T_c = 36 / 3600(3.228) = .003 \text{ HR.}$$

FROM CB # 1 TO EXISTING CB (IN RUSSELL ST, 24")

L = 206'

$$T_c = 206 / 3600(3.228) = .018 \text{ HR.}$$

TOTAL T<sub>c</sub> = 0.080 HR.

## Worksheet 4: Graphical Peak Discharge method

FEB 10 1987

Project 202 PELKEY, MURRAY DRIVE By DWF Date 27 JAN 87  
 Location LAKE ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed

1. Data:

- Drainage area .....  $A_m = \underline{.007}$  mi<sup>2</sup> (acres/640)
- Runoff curve number .... CN = 80 (From worksheet 2)
- Time of concentration ..  $T_c = \underline{.695}$  hr (From worksheet 3)
- Rainfall distribution type = II (I, IA, II, III)
- Pond and swamp areas spread throughout watershed ..... = \_\_\_\_\_ percent of  $A_m$  (\_\_\_\_\_ acres or mi<sup>2</sup> covered)

		Storm #1	Storm #2	Storm #3
2. Frequency .....	yr	10		
3. Rainfall, P (24-hour) .....	in	3.5		
4. Initial abstraction, $I_a$ .....	in	.500		
(Use CN with table 4-1.)				
5. Compute $I_a/P$ .....		.143		
6. Unit peak discharge, $q_u$ .....	csn/in	440		
(Use $T_c$ and $I_a/P$ with exhibit 4-___)				
7. Runoff, Q .....	in	1.64		
(From worksheet 2).				
8. Pond and swamp adjustment factor, $F_p$ ....		1.0		
(Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)				
9. Peak discharge, $q_p$ .....	cfs	5.051		
(Where $q_p = q_u A_m Q F_p$ )				

NOV 25 1986

FRANKLIN COUNTY, VA

(Joins sheet 23)

5000 FEET

Scale 1:20000

0

1000

2000

3000

4000

5000

10000 FEET

0



(Joins sheet 29)

1:340 000 FEET (Joins sheet 37)

STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES  
PERMITS AND COMPLIANCE DIVISION

FEB 20 1987  
FEB 10 1987

APPLICATION FOR PERMIT TO DISCHARGE WASTES

Chapter 47 of Title 10 V.S.A.

1. Applicant RODNEY PELKEY Legal Entity OWNER.
2. Mailing Address 20 BURNELL TERRACE  
ST. ALBANS, VERMONT 05478
3. Contact FRANK R. O'BRIEN, P.E. Telephone 985-8595
4. Name of Activity MURRAY DRIVE Location LAKE ST., ST. ALBANS.
5. Type of Activity 14 LOT SUBDIVISION.
6. Nature of Wastes:  Sanitary  Industrial  Commercial  Drainage  Other  
(Describe) STORM WATER RUNOFF
7. Receiving Water EXITS CITY STORM SYSTEM TO STENOUS BROOK.
8. Status of Discharge  Proposed  Existing (Permit No. \_\_\_\_\_)
9. The applicant hereby applies for a  
 Discharge Permit  Indirect Discharge Permit  
 Temporary Pollution Permit  Emergency Pollution Permit  
 Pretreatment Discharge Permit  Pretreatment Temporary Pollution Permit  
to discharge wastes, directly or indirectly, into water of the State from the  
above named activity as described in this application, its attached schedule(s), plans and  
specifications.
10. Application is for  Original Permit  Permit Renewal If this is for a permit  
renewal, is original application still valid in all respects \_\_\_\_\_? If not, attached  
schedule(s) for major changes. Minor changes may be documented by letter.
11. Enter below, using a separate serial number (S/N), to identify each independent discharge  
which will result from the activity described in Item 4. Attached separate schedule for  
each discharge identified below.  
S/N 001 EXISTING C.B. RUSSELL ST. 004 \_\_\_\_\_  
002 \_\_\_\_\_ 005 \_\_\_\_\_  
003 \_\_\_\_\_ 006 \_\_\_\_\_
12. Application Fee Enclosed \$ 10.00 . Date of application 1/31/87
13. Rodney Pelkey owner Rodney Pelkey  
AUTHORIZED REPRESENTATIVE (PRINT) TITLE SIGNATURE

INSTRUCTIONS

1. Applicant (name) and legal entity (individual, corporation, partnership, firm, state agency, municipality, etc.)
3. Contact Person to contact regarding this application.
4. Name of activity (John Doe residence, XYZ Corp., Clear Lake State Park, Green Motel, etc.)
5. Type of Activity (single family residence, paper mill, state park, motel, etc.)
6. Nature of Wastes: Sanitary (Domestic sewage only), Industrial/Commercial/Industrial (process wastes, cooling water rinse water, laboratory wastes, etc.) Drainage (stormwater, roof drains pond overflows, foundation drains, return flows, etc.)
7. Receiving waters For unnamed streams, so state and give named tributary. For discharges to "wells" (Vermont Water Pollution Control Permit Regulation 13.1(j)), enter "groundwater" and give name and distance to nearest surface water.
8. Complete as appropriate; provide permit number, if any, for existing discharge.
11. Identify and describe each separate discharge point to waters of the State.
12. Submit application fee in accord with fee schedule.

FEE SCHEDULE

Note: No application fee necessary for Emergency Pollution Permits.

Nature of Discharge	Discharge Permit	Indirect Discharge Permit	Temporary Pollution Permit	Pretreatment Permit	Temporary Pretreatment Permit
<u>Drainage only</u>	\$10	--	\$20	--	--
<u>Sanitary only</u> less than 1000 GPD	\$10	--	\$20	--	--
<u>Sanitary only</u> greater than 6,500 gpd	--	\$50	--	--	--
All others	\$50	--	\$100	\$50	\$100

13. Signature Application must be signed by the applicant or an officer in applicant's business, a municipal official, etc. Application can not be signed by applicant's attorney, engineer, contractor, etc.

ATTACH APPROPRIATE SCHEDULE(S), APPLICATION FEE, PLANS, SPECIFICATIONS AND OTHER MATERIAL AS APPROPRIATE. APPLICANT FOR TEMPORARY POLLUTION PERMITS OR TEMPORARY PRETREATMENT PERMITS MUST COMPLETE SCHEDULE "T" (WR-82T) IN ADDITION TO OTHER NECESSARY SCHEDULE(S).

Send application to and for further information call or write:

Agency of Environmental Conservation  
 Department of Water Resources  
 Permits and Compliance Section  
 West Office Building  
 103 South Main Street  
 Waterbury, Vermont 05676  
 244-5674

The following application forms and material will be supplied to applicants for the following permit applications.

- (1) Discharge Permits and Pretreatment Discharge Permits
  - (a) Application (WR-82)
  - (b) Appropriate Schedule (A, B, C or D)
- (2) Indirect Discharge Permits
  - (a) Application (WR-82)
  - (b) Schedule I (WR-82I)
- (3) Temporary Pollution Permits and Pretreatment Temporary Pollution Permits
  - (a) Application (WR-82)
  - (b) Schedule T (WR-82T)
  - (c) Other appropriate schedule (A, B, C or D)
- (4) Emergency Pollution Permit
  - (a) Application (WR-82)
  - (b) Schedule E
- (5) Permit Renewals  
 All include Application Form WR-82 and may need other schedules.

- NOTES: (1) At this time all applications for stormwater discharge are for Temporary Pollution Permits.
- (2) Applications for Industrial/Commercial/Institutional discharges (Schedule B) will be provided a copy of E.P.A.'s list of priority pollutants.

\* \* \* \* \*

Application Form	Number	Type of Discharge
Application	WR-82	All Discharges
Schedule A	WR-82A	Municipal Treatment Plants
Schedule B	WR-82B	Industrial/Commercial/Institutional
Schedule C	WR-82C	Individual & Commercial (Sanitary only)
Schedule D	WR-82D	Drainage (Including stormwater)
Schedule E	WR-82E	Emergency Pollution Permit
Schedule I	WR-82I	Indirect Discharge
Schedule T	WR-82T	All Temporary Pollution Permits & Pretreatment Temporary Pollution Permits

FEB 20 1987  
FEB 10 1987

STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES

**D** APPLICATION FOR PERMIT TO DISCHARGE WASTES

SCHEDULE D - DRAINAGE DISCHARGES Date FEB 6, 1987

- D-1 Applicant RODNEY TELKEY Activity MURRAY DRIVE
- D-2 Discharge S/N 001 Designation STORM WATER RUNOFF
- D-3 Exact location on receiving water (describe and locate on map) EXITS CITY STORMWATER SYSTEM @ INTERSECTION OF SEVENS BROOK & LOUISE WELDON ST.
- D-4 How are wastes conveyed to receiving water? EXITS CITY STORM SYSTEM TO SEVENS BROOK.
- D-5 Type of Discharge:

**STORMWATER RUNOFF**

Sources (in acres): Paved Roads .671 A. Unpaved Roads .193 A.  
 Paved Parking Lots      A. Unpaved Parking Lots      A. Roofs .360 A.  
 Natural Terrain 3.166 A. Other (specify)      A. Total 4.390 A.  
 Pre-Development Peak Flow 1.980 CFS Post-Development Peak Flow 5.051 CFS  
 Receiving Stream Watershed Area (sq. miles) above discharge point 2.7 sq. mi.  
 Ratio of Stream Watershed Area (sq. miles) to Area of Road and Parking Lots (acres): 3.125

Proposed Treatment (check all that apply): Grass or Stone-lined Swales .  
 Overland Flow Across Vegetated Terrain . Catch Basins .  
 Detention Pond (attach design details)     .  
 Sedimentation Basin (attach design details)     .  
 Other (specify and attach design details)     .

**GROUNDWATER AND RETURN FLOWS**

Source (check which applies): Foundation Drain      Curtain Drain      Spring       
 Well      Mine      Quarry      Pond      Water Wheel of Turbine       
 Filter Backwash      Other (specify)     .  
 Discharge: Estimated Discharge      CFS Frequency     .  
 Duration     . Pumping required?     .  
 Contaminants present (specify)     .  
 Proposed Treatment:     .

D-6 Additional Information:

## INSTRUCTIONS

The following supporting documents are required as part of the complete application: Location map, site, drainage, and erosion control plans and detailed drawings of all treatment devices.  
Incomplete applications will be returned to the applicant.

- D-1 Applicant Same as Item 1 on Application (WR-82)
- Activity Same as Item 4 on Application (WR-82)
- D-2 Discharge Same as Item 11 on Application (WR-82). Complete a separate Schedule D (WR-82D) for each drainage discharge identified in Item 11.
- D-3 Location
1. Name receiving water and describe with reference to a known landmark, e.g. 1000' upstream of RR bridge in village, 550' above mouth, etc., or give geographical coordinates (latitude and longitude).
  2. Also identify each discharge point by serial number, e.g. S/N 001, 002, 003, etc. on U.S.G.S. topographical map and on site plan.
- D-4 Conveyance Describe routing of discharges to surface waters of the State; e.g. through grass-lined swales, culverts, prior to discharge to the receiving stream.
- D-5 Type of Discharge Complete appropriate section(s)

### Instructions for Stormwater Runoff Only:

Peak Flows - Calculate peak flows using the Soil Conservation Service Technical Release No. 55 or No. 20. Use a 10 year - 24 hour storm event as the design storm. Attach all calculations including runoff curve numbers for each discharge point.

### Watershed Area

1) Single or multiple discharges to the same receiving water - Determine the watershed area (sq. miles) above the most upstream discharge point. Calculate the ratio of watershed area (sq. miles) to the total area of roads and parking lots (acres) draining to the receiving water.

2) Discharges to more than one receiving water - Determine the watershed area (sq. miles) above the most upstream discharge point for each receiving water. Calculate the ratio of watershed area (sq. miles) to the total area of roads and parking lots (acres) draining to each receiving water.

Proposed Treatment - Treatment of stormwater runoff must occur both on site and prior to discharge to surface waters of the State. All projects must utilize infiltration into soil to the extent feasible to dispose of stormwater runoff as per the Vermont Water Quality Standards revised January 7, 1985. Where necessary detention pond design should be based upon a 10 year - 24 hour storm event. A minimum requirement for sedimentation basin design is 145 square feet/cfs of outflow; the 2 year - 24 hour storm is recommended for this design.

- D-6 Additional Complete as needed.

For further information call (802/244-5674) or write:

Department of Water Resources  
Permits and Compliance Section  
103 South Main Street  
West Office Building  
Waterbury, Vermont 05676

# ST. ALBANS



- ADAMS ST. C1
- ALDIS ST. B2
- ALLEN ST. C3
- BANK ST. C4
- OW ST. D4
- BELLOWS ST. A2
- BEST CT. B3
- BERKELEY TERR. C5
- BEVERLY CT. D5
- B1 P ST. C4
- BORLEY ST. B4
- BRAINARD ST. B4
- BROWN AVE. C4
- BL TERR. D4
- CALO CT. D4
- CLAVARY ST. A2
- CATHERINE ST. C3
- CEDAR ST. B2
- CENTER ST. C3
- CHURCH ST. C4
- CONGRESS ST. C4
- CREST ST. D5
- DIAMOND ST. D3
- DONNELLY CT. A4
- OLL DR. C5
- EDWARD ST. C2
- ELM ST. B3
- FAIRFAX ST. E2
- LD ST. C4
- FARRAK ST. A4
- FEDERAL ST. B3
- F ST. D4
- FINN AVE. A3
- FOREST HILL DE. C5
- FREEBORN ST. E3
- GILMAN AVE. D3
- ST. B4
- HC 5 CT. D4
- HOSPITAL ST. C3

- HUNT ST. C2
- HUNTINGTON ST. C1
- INDUSTRIAL PARK RD. E2
- KINGMAN ST. C3
- LAKE ST. C1
- LAKEVIEW TERR. A4
- LASALLE ST. B2
- LINCOLN ST. D4
- LOCKE TERR. D3
- LOWER ST. A3
- MAIDEN LN. C4
- E ST. C3

- NORTH ST. C2
- OAK ST. B2
- ORCHARD ST. E2
- PARSONS ST. E2
- PEARL ST. B2
- PINE ST. C3
- PROSPECT ST. B5
- QUARRY RD. A5
- QUINTIN CT. D4
- RUBLEE ST. B4
- RUGG ST. D4
- RUSSELL ST. C1
- ST. AL STATE
- SOU D2

- SOUTH ELM ST. C2
- SOUTH MAIN ST. F2
- SPRUCE ST. C2
- STANLEY CT. A4
- STEBBIN ST. C3
- STEVENS AVE. C3
- STOWELL ST. C4
- THORPE AVE. D4
- UPPER NEWTON ST. B4
- UPPER WELDON ST. D4
- F ST. B1
- WARD C5

FRANK R. O'BRIEN CONSULTING ENGINEERS, INC.

FEB 20 1987

P. O. Box 715  
Shelburne, Vermont 05482  
(802) 985-8595

FEBRUARY 19, 1987

MR. JOHN J. AKIELASZEK  
PERMITS AND COMPLIANCE  
103 SOUTH MAIN STREET  
WATERBURY, VERMONT 05676

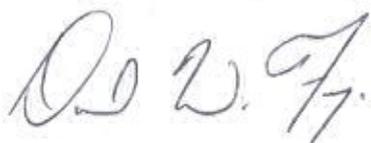
RE: RODNEY PELKEY, 14 LOT SUBDIVISION.

DEAR MR. AKIELASZEK:

ENCLOSED PLEASE FIND A REVISED APPLICATION FOR PERMIT TO DISCHARGE WASTES (WR-82) AND A REVISED SCHEDULE D FOR THE ABOVE REFERENCED PROJECT. ALSO ENCLOSED IS A CHECK FOR \$10.00 FOR THE APPLICATION FEE.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL.

VERY TRULY YOURS,



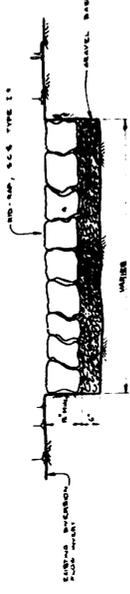
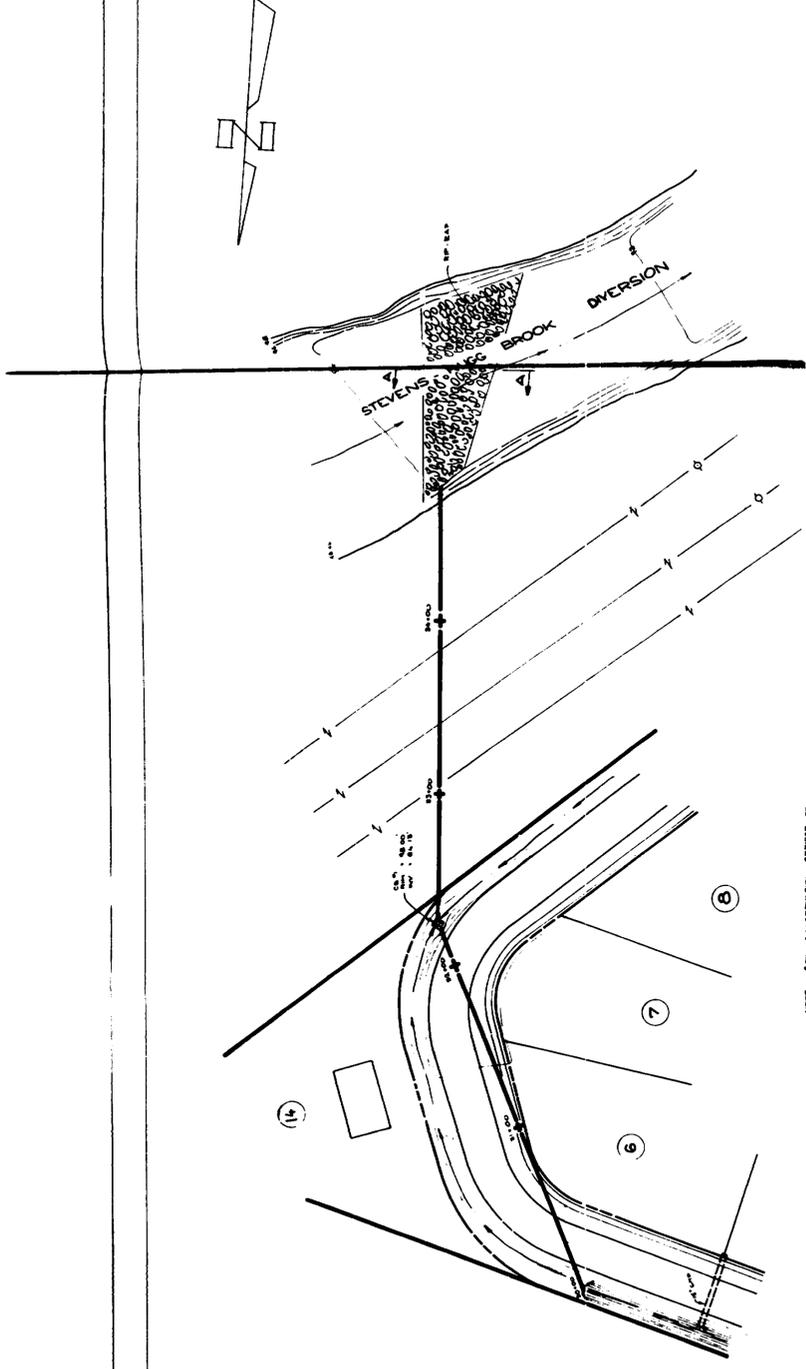
DAVID W. FUQUA

## MS4 Incorporation Form for State Issued Stormwater Permits

Please complete this form for each previously issued state stormwater permit that the MS4 plans to incorporate into the MS4 authorization. The stormwater management practices associated with the permit listed below shall be listed in the MS4's Stormwater Management Program (SWMP) under Minimum Control Measure 5, Post-Construction Stormwater Management.

1. Stormwater System Name: Edward Street Subdivision
2. Location: City streets currently named Guyette Circle and Bowles Lane in the City of St. Albans.
3. Stormwater Permit Number: 1-0691.XXXX
4. Current Permit Status: (Issued, Expired, Title 3) Expired
5. Narrative Describing the Stormwater System: Stormwater runoff from paved roads, gravel drives, roofs and natural terrain after treatment of the runoff in grass-lined swales and by overland flow cross vegetated terrain. There is one discharge to Rugg Brook and one rip-rap designed discharge in the Stevens-Rugg Brook Diversion Structure.
6. Current Compliance Status:
  - Compliant with previously issued state permit
  - Planned compliance within 24 mos; Estimated Compliance Date: \_\_\_\_\_
  - Not constructed – plan for construction as part of FRP; Estimated construction schedule: \_\_\_\_\_
  - Substantially deteriorated – plan for construction as part of FRP; Estimated construction schedule: \_\_\_\_\_
7. Plans (for expired permits, list plan numbers and attach):  
See attached grading plan and storm drain plan.
8. Proof of Legal Responsibility (list and attach):  
See attached discharge permit # 1-0691





SECTION A-A

1. SEE PLAN SHEET FOR WELL DETAILS.  
 2. SEE PLAN SHEET FOR GRAVEL BED DETAILS.  
 3. SEE PLAN SHEET FOR CONCRETE BASE DETAILS.  
 4. SEE PLAN SHEET FOR PIPE DETAILS.

	<b>STORM DRAIN</b> <b>SHERMAN TAYLOR</b> EDWARD STREET ST. ALBANS, VERMONT	DATE: 4-7-66 DRAWN BY: MIB CHECKED BY: NOTED PROJECT NO: 7069
	PROJECT: ST. ALBANS, VERMONT SHEET: 5 OF 7	DESIGNER: FRANK R. O'BRIEN, P.E. ADDRESS: ROUTE 7, SHELDON, VERMONT

SCALE: 1" = 10' VERTICAL

NOTE: SEE PLAN SHEET FOR DETAILS OF DIVERSION STRUCTURE.

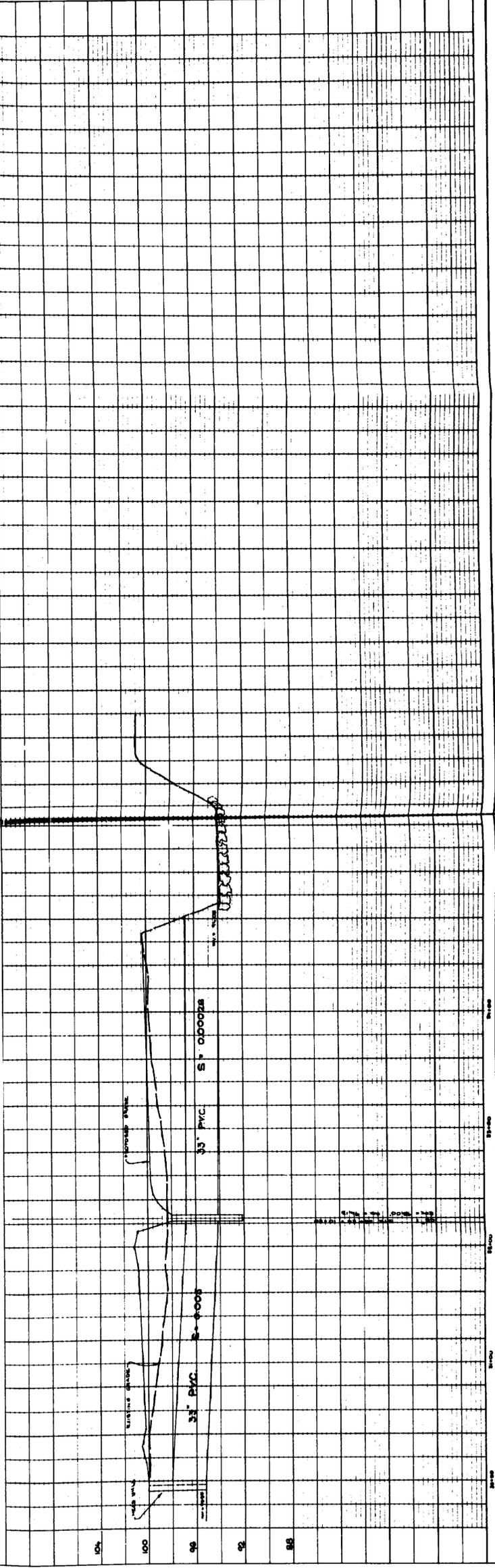


PLATE 1 - SINGLE PIPES AND PROFILES - FULL LINE

PLAN  
 NO. \_\_\_\_\_  
 DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_

PROFILE  
 NO. \_\_\_\_\_  
 DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_

STATE OF VERMONT  
AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Page 1 of 3

DISCHARGE PERMIT

File No. 06-13-031

Permit No. 1-0691

In compliance with provisions of 10 V.S.A. 1263

Donald E. Merchant, Jr.  
419 Flynn Avenue  
Burlington, Vermont 05401

and in accordance with "Terms and Conditions" hereinafter specified, the above named permittee is hereby granted permission to discharge stormwater runoff from a Thirty-one lot residential subdivision located on Edward's Street St. Albans, Vermont, to the Rugg Brook and the Stevens-Rugg Brook Diversion.

1. Expiration Date: March 31, 1993 Note: This permit, unless revoked, shall be valid until the designated expiration date despite any intervening change in water quality, effluent, or treatment standards of the classification of the receiving waters. However, any such changed standard or classification shall be applied in determining whether or not to renew the permit pursuant to 10 V.S.A. 1263.  
Re-apply for a discharge permit by September 30, 1992.
2. Revocation: 10 V.S.A. 1267 provides as follows:  
"The Secretary may revoke any permit issued by him pursuant to this subchapter if he finds that the permit holder submitted false or inaccurate information in his application or has violated any requirement, restriction, or condition of the permit issued. Revocation shall be effective upon actual notice thereof to the permit holder."
3. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. The permittee shall notify the Secretary immediately, in writing, of any sale, lease, or other transfer of ownership of the property from which the discharge originates. The permittee shall also inform the new owner or tenant of his responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

4. Receiving Waters: to Rugg Brook and the Stevens-Rugg Brook Diversion
5. Manner of Discharge:  
S/N 001: Via grass-lined swales and by overland flow across vegetated terrain prior to discharge to the Rugg Brook.  
S/N 002: Via grass-lined swales and a storm drain prior to a rip-rap designed discharge into the Stevens-Rugg Brook Diversion.
6. Wastes Permitted:  
S/N 001 and S/N 002: Stormwater runoff from paved roads, gravel drives, roofs, and natural terrain after treatment of the runoff in grass-lined swales and by overland flow across vegetated terrain.
7. Volumes Permitted: Such volumes as required by the discharges specified in No. 5 above
8. Frequency of Discharge: Daily
9. Operation and Treatment: Treatment as specified in #6 above. For details on the treatment of stormwater runoff for this project see the Frank O'Brien plans and details Sheet 2 of 7 rev. 2/11/88 and Sheet 5 of 7 dated 4/7/88.
10. Maintenance and Maintenance Reporting Requirements:  
All catch basins, settling ponds, recharge basins, or other treatment devices or facilities shall be maintained in good operating order at all times and shall be cleaned quarterly and at such other times as necessary to maintain design treatment levels. NO LATER THAN JANUARY 31 OF EACH YEAR A WRITTEN REPORT SHALL BE SUBMITTED TO THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NPDES PERMIT SECTION, 103 SOUTH MAIN STREET, WATERBURY, VERMONT 05676, PROVIDING THE DATES AND NATURE OF CLEANING OPERATIONS CARRIED OUT IN THE PRECEDING YEAR.  
  
Paved parking lots and roads should be swept on a regular basis when seasonally practicable to minimize contaminants carried to the treatment device by runoff.
11. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of #10 above.
12. Monitoring and reporting Requirement: No monitoring required; reporting requirement as specified in #10 above.

13. Miscellaneous Requirements: As the Stevens-Rugg Brook Diversion is a City of St. Albans owned and Soil Conservation Service maintained flood control device, prior to permitting City approval shall be obtained. Further, the developer shall contact SCS to arrange for inspection of the installation of the discharge point into the diversion prior to its construction.
14. Issue Date of Permit: 12/26/06

AGENCY OF NATURAL RESOURCES

Patrick A. Parenteau, Commissioner  
Department of Environmental Conservation

By Gary Schultz  
Gary Schultz, Director  
Permits, Compliance & Protection

Prepared and Reviewed by

Nancy R. Manley

-----  
TRANSFER APPLICATION -- File No.- 06-13-031

I, \_\_\_\_\_, hereby apply for permission to discharge waste into the waters of the State of Vermont under the provisions of Discharge Permit No. 1-0691, previously issued to Donald E. Merchant, Jr. .

Signed: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES  
PERMITS AND COMPLIANCE DIVISION

JAN 5 1988

APPLICATION FOR PERMIT TO DISCHARGE WASTES

Chapter 47 of Title 10 V.S.A.

1. Applicant SHERMAN TAYLOR Legal Entity OWNER
2. Mailing Address 337 HARDSCRABBLE ROAD  
MILTON, VERMONT 05468
3. Contact FRANK R. O'BRIEN, P.E. Telephone 985-8595
4. Name of Activity Sherman Taylor Location EDWARD'S ST., ST. ALBANS
5. Type of Activity 31 LOT SUBDIVISION
6. Nature of Waste(s):  Sanitary  Industrial  Commercial  Drainage  Other  
(Describe) STORMWATER RUNOFF
7. Receiving Water THE RUGG BROOK
8. Status of Discharge  Proposed  Existing (Permit No. \_\_\_\_\_)
9. The applicant hereby applies for a  
 Discharge Permit  Indirect Discharge Permit  
 Temporary Pollution Permit  Emergency Pollution Permit  
 Pretreatment Discharge Permit  Pretreatment Temporary Pollution Permit  
to discharge wastes, directly or indirectly, into water of the State from the  
above named activity as described in this application, its attached schedule(s), plans and  
specifications.
10. Application is for  Original Permit  Permit Renewal If this is for a permit  
renewal, is original application still valid in all respects \_\_\_\_\_? If not, attached  
schedule(s) for major changes. Minor changes may be documented by letter.
11. Enter below, using a separate serial number (S/N), to identify each independent discharge  
which will result from the activity described in Item 4. Attached separate schedule for  
each discharge identified below.  
S/N 001 To RUGG BROOK 004 \_\_\_\_\_  
002 To STEVENS-RUGG BROOK DIVERSION 005 \_\_\_\_\_  
003 \_\_\_\_\_ 006 \_\_\_\_\_
12. Application Fee Enclosed \$ 35.00 . Date of application 12-17-87
13. Sherman Taylor President Sham Lap  
AUTHORIZED REPRESENTATIVE (PRINT) TITLE SIGNATURE

INSTRUCTIONS

1. Applicant (name) and legal entity (individual, corporation, partnership, firm, state agency, municipality, etc.)
3. Contact Person to contact regarding this application.
4. Name of activity (John Doe residence, XYZ Corp., Clear Lake State Park, Green Motel, etc.)
5. Type of Activity single family residence, paper mill, state park, motel, etc.)
6. Nature of Wastes: Sanitary (Domestic sewage only), Industrial/Commercial/Industrial (process wastes, cooling water rinse water, laboratory wastes, etc.) Drainage (stormwater, roof drains pond overflows, foundation drains, return flows, etc.)
7. Receiving waters For unnamed streams, so state and give named tributary. For discharges to "wells" (Vermont Water Pollution Control Permit Regulation 13.1(j)), enter "groundwater" and give name and distance to nearest surface water.
8. Complete as appropriate; provide permit number, if any, for existing discharge.
11. Identify and describe each separate discharge point to waters of the State.
12. Submit application fee in accord with fee schedule.

FEE SCHEDULE

Note: No application fee necessary for Emergency Pollution Permits.

Nature of Discharge	Discharge Permit	Indirect Discharge Permit	Temporary Pollution Permit	Pretreatment Permit	Temporary Pretreatment Permit
<u>Drainage only</u>	\$10	--	\$20	--	--
<u>Sanitary only</u> less than 1000 GPD	\$10	--	\$20	--	--
<u>Sanitary only</u> greater than 6,500 gpd	--	\$50	--	--	--
All others	\$50	--	\$100	\$50	\$100

13. Signature Application must be signed by the applicant or an officer in applicant's business, a municipal official, etc. Application can not be signed by applicant's attorney, engineer, contractor, etc.

ATTACH APPROPRIATE SCHEDULE(S), APPLICATION FEE, PLANS, SPECIFICATIONS AND OTHER MATERIAL AS APPROPRIATE. APPLICANT FOR TEMPORARY POLLUTION PERMITS OR TEMPORARY PRETREATMENT PERMITS MUST COMPLETE SCHEDULE "T" (WR-82T) IN ADDITION TO OTHER NECESSARY SCHEDULE(S).

Send application to and for further information call or write:

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 Department of Water Resources  
 Permits and Compliance Section  
 West Office Building  
 103 South Main Street  
 Waterbury, Vermont 05676  
 244-5674

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- (1) Discharge Permits and Pretreatment Discharge Permits
  - (a) Application (WR-82)
  - (b) Appropriate Schedule (A, B, C or D)
- (2) Indirect Discharge Permits
  - (a) Application (WR-82)
  - (b) Schedule I (WR-82I)
- (3) Temporary Pollution Permits and Pretreatment Temporary Pollution Permits
  - (a) Application (WR-82)
  - (b) Schedule T (WR-82T)
  - (c) Other appropriate schedule (A, B, C or D)
- (4) Emergency Pollution Permit
  - (a) Application (WR-82)
  - (b) Schedule E
- (5) Permit Renewals  
 All include Application Form WR-82 and may need other schedules.

NOTES: (1) At this time all applications for stormwater discharge are for Temporary Pollution Permits.

(2) Applications for Industrial/Commercial/Institutional discharges (Schedule B) will be provided a copy of E.P.A.'s list of priority pollutants.

\* \* \* \* \*

Application Form	Number	Type of Discharge
Application	WR-82	All Discharges
Schedule A	WR-82A	Municipal Treatment Plants
Schedule B	WR-82B	Industrial/Commercial/Institutional
Schedule C	WR-82C	Individual & Commercial (Sanitary only)
Schedule D	WR-82D	Drainage (Including stormwater)
Schedule E	WR-82E	Emergency Pollution Permit
Schedule I	WR-82I	Indirect Discharge
Schedule T	WR-82T	All Temporary Pollution Permits & Pretreatment Temporary Pollution Permits



LETTER OF COMPLIANCE

JAN 5 1988

DEVELOPMENT NAME:

Edward St Subdivision

LOCATION:

Edward St St Albans Vt.

I hereby certify that the plans for the above referenced development, submitted in application for a stormwater discharge permit, have been designed in accordance with the Department of Water Resources and Environmental Engineering's Stormwater Procedures. I also certify that the development will be constructed according to these plans insofar as stormwater treatment and control is concerned.

Signed

Shawn Lyle  
(Applicant)

Date

12-18-87

STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES

JAN 5 1988

D

APPLICATION FOR PERMIT TO DISCHARGE WASTES

SCHEDULE D - DRAINAGE DISCHARGES

Date 12-18-87

- D-1 Applicant SHEPHERD TAYLOR Activity SHEPHERD TAYLOR  
D-2 Discharge S/N 001 Designation STORMWATER RUNOFF  
D-3 Exact location on receiving water (describe and locate on map) THE RUGG BROOK  
D-4 How are wastes conveyed to receiving water? SHEET OVERLAND FLOW AND FLOW THROUGH GRASSY SWALES.  
D-5 Type of Discharge:

STORMWATER RUNOFF

Sources (in acres): Paved Roads .51 A. Unpaved Roads .18 A. <sup>Driveways</sup>  
Paved Parking Lots — A. Unpaved Parking Lots — A. Roofs .24 A.  
Natural Terrain 2.85 A. Other (specify) — A. Total 3.78 A.  
Pre-Development Peak Flow 2.02 CFS Post-Development Peak Flow 1.97 CFS  
Receiving Stream Watershed Area (sq. miles) above discharge point 3.75 sq. mi.  
Ratio of Stream Watershed Area (sq. miles) to Area of Road and Parking Lots (acres): 1:1.96

Proposed Treatment (check all that apply): Grass or Stone-lined Swales X .

Overland Flow Across Vegetated Terrain X . Catch Basins — .

Detention Pond (attach design details) — .

Sedimentation Basin (attach design details) — .

Other (specify and attach design details) — .

GROUNDWATER AND RETURN FLOWS

Source (check which applies): Foundation Drain — Curtain Drain — Spring —

Well — Mine — Quarry — Pond — Water Wheel of Turbine —

Filter Backwash — Other (specify) — .

Discharge: Estimated Discharge — CFS Frequency — .

Duration — . Pumping required? — .

Contaminants present (specify) — .

Proposed Treatment: — .

D-6 Additional Information: —

## INSTRUCTIONS

Incomplete applications will be returned to the applicant.

- D-1 Applicant Same as Item 1 on Application (WR-82)
- Activity Same as Item 4 on Application (WR-82)
- D-2 Discharge Same as Item 11 on Application (WR-82). Complete a separate Schedule D (WR-82D) for each drainage discharge identified in Item 11.
- D-3 Location
1. Name receiving water and describe with reference to a known landmark, e.g. 1000' upstream of RR bridge in village, 550' above mouth, etc., or give geographical coordinates (latitude and longitude).
  2. Also identify each discharge point to receiving waters by serial number, e.g. S/N 001, 002, etc., on copy of U.S.G.S. topographical map and on the site plan.
- D-4 Conveyance Describe routing of discharges to surface waters of the State; e.g. through grass-lined swales, culverts, prior to discharge to the receiving stream.
- D-5 Type of Discharge Complete appropriate section(s)

### Instructions for Stormwater Runoff Only:

Peak Flows - Calculate pre and post-development peak flows from the site using the Soil Conservation Service Technical Release No. 55 (2nd Ed., June, 1986). Use a 10 year - 24 hour storm event as the design storm. Attach all calculations on forms provided.

#### Watershed Area

1) Single or multiple discharges to the same receiving water - Determine the watershed area (sq. miles) above the most upstream discharge point. Calculate the ratio of watershed area (sq. miles) to the total area of roads and parking lots (acres) draining to the receiving water.

2) Discharges to more than one receiving water - Determine the watershed area (sq. miles) above the most upstream discharge point for each receiving water. Calculate the ratio of watershed area (sq. miles) to the total area of roads and parking lots (acres) draining to each receiving water.

Proposed Treatment - Treatment of stormwater runoff must occur both on site and prior to discharge to surface waters of the State. All projects must utilize infiltration into soil to the extent feasible to dispose of stormwater runoff as per the Vermont Water Quality Standards, revised January 8, 1987. Where detention is required, detention pond design should be based upon a 10 year - 24 hour storm event. The minimum requirement for sedimentation basin design is 254 square feet/cfs of outflow; the 2 year - 24 hour storm is recommended for this design.

- D-6 Additional Complete as needed.

For further information call (802/244-5674) or write:

Department of Water Resources  
Permits and Compliance Section  
103 South Main Street  
West Office Building  
Waterbury, Vermont 05676

STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES

D

APPLICATION FOR PERMIT TO DISCHARGE WASTES

SCHEDULE D - DRAINAGE DISCHARGES

Date 12-18-87

- D-1 Applicant SHEZMAN TAYLOR Activity SHEZMAN TAYLOR  
D-2 Discharge S/N 002 Designation STORMWATER RUNOFF  
D-3 Exact location on receiving water (describe and locate on map) THE STEVENS - KUGG BROOK DIVERSION.  
D-4 How are wastes conveyed to receiving water? SHEET OVERLAND FLOW, GRASSED SWALE FLOW, & STORM DRAIN.  
D-5 Type of Discharge:

STORMWATER RUNOFF

Sources (in acres): Paved Roads .89 A. Unpaved Roads .33 A.  
Paved Parking Lots — A. Unpaved Parking Lots — A. Roofs .44 A.  
Natural Terrain 4.63 A. Other (specify) — A. Total 6.29 A.  
Pre-Development Peak Flow 4.82 CFS Post-Development Peak Flow 11.48 CFS  
Receiving Stream Watershed Area (sq. miles) above discharge point 3.75 sq. mi.  
Ratio of Stream Watershed Area (sq. miles) to Area of Road and Parking Lots (acres): 1:1.96

Proposed Treatment (check all that apply): Grass or Stone-lined Swales X.  
Overland Flow Across Vegetated Terrain X. Catch Basins X.  
Detention Pond (attach design details) —.  
Sedimentation Basin (attach design details) —.  
Other (specify and attach design details) —.

GROUNDWATER AND RETURN FLOWS

Source (check which applies): Foundation Drain — Curtain Drain — Spring —  
Well — Mine — Quarry — Pond — Water Wheel of Turbine —  
Filter Backwash — Other (specify) —.  
Discharge: Estimated Discharge — CFS Frequency —.  
Duration —. Pumping required? —.  
Contaminants present (specify) —.  
Proposed Treatment: —.

D-6 Additional Information: —  
—

INSTRUCTIONS

Incomplete applications will be returned to the applicant.

- D-1 Applicant Same as Item 1 on Application (WR-82)
- Activity Same as Item 4 on Application (WR-82)
- D-2 Discharge Same as Item 11 on Application (WR-82). Complete a separate Schedule D (WR-82D) for each drainage discharge identified in Item 11.
- D-3 Location
1. Name receiving water and describe with reference to a known landmark, e.g. 1000' upstream of RR bridge in village, 550' above mouth, etc., or give geographical coordinates (latitude and longitude).
  2. Also identify each discharge point to receiving waters by serial number, e.g. S/N 001, 002, etc., on copy of U.S.G.S. topographical map and on the site plan.
- D-4 Conveyance Describe routing of discharges to surface waters of the State; e.g. through grass-lined swales, culverts, prior to discharge to the receiving stream.
- D-5 Type of Discharge Complete appropriate section(s)

Instructions for Stormwater Runoff Only:

Peak Flows - Calculate pre and post-development peak flows from the site using the Soil Conservation Service Technical Release No. 55 (2nd Ed., June, 1986). Use a 10 year - 24 hour storm event as the design storm. Attach all calculations on forms provided.

Watershed Area

1) Single or multiple discharges to the same receiving water - Determine the watershed area (sq. miles) above the most upstream discharge point. Calculate the ratio of watershed area (sq. miles) to the total area of roads and parking lots (acres) draining to the receiving water.

2) Discharges to more than one receiving water - Determine the watershed area (sq. miles) above the most upstream discharge point for each receiving water. Calculate the ratio of watershed area (sq. miles) to the total area of roads and parking lots (acres) draining to each receiving water.

Proposed Treatment - Treatment of stormwater runoff must occur both on site and prior to discharge to surface waters of the State. All projects must utilize infiltration into soil to the extent feasible to dispose of stormwater runoff as per the Vermont Water Quality Standards, revised January 8, 1987. Where detention is required, detention pond design should be based upon a 10 year - 24 hour storm event. The minimum requirement for sedimentation basin design is 254 square feet/cfs of outflow; the 2 year - 24 hour storm is recommended for this design.

- D-6 Additional Complete as needed.

For further information call (802/244-5674) or write:

Department of Water Resources  
Permits and Compliance Section  
103 South Main Street  
West Office Building  
Waterbury, Vermont 05676

## Worksheet 4: Graphical Peak Discharge method

Project SHERMAN TAYLOR 31 LOT SUBDIVISION By DWF Date 16 DEC 87

Location EDWARDS ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed 3/14 001

1. Data:

- Drainage area .....  $A_m = .006$  mi<sup>2</sup> (acres/640)
- Runoff curve number .... CN = 20 (From worksheet 2)
- Time of concentration ..  $T_c = 2.42$  hr (From worksheet 3)
- Rainfall distribution type = II (I, IA, II, III)
- Pond and swamp areas spread throughout watershed ..... = \_\_\_\_\_ percent of  $A_m$  ( \_\_\_\_\_ acres or mi<sup>2</sup> covered)

		Storm #1	Storm #2	Storm #3
2. Frequency .....	yr	10		
3. Rainfall, P (24-hour) .....	in	3.5		
4. Initial abstraction, $I_a$ .....	in	.500		
(Use CN with table 4-1.)				
5. Compute $I_a/P$ .....		.143		
6. Unit peak discharge, $q_u$ .....	csf/in	200		
(Use $T_c$ and $I_a/P$ with exhibit 4-II)				
7. Runoff, Q .....	in	1.64		
(From worksheet 2).				
8. Pond and swamp adjustment factor, $F_p$ .....		1.0		
(Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)				
9. Peak discharge, $q_p$ .....	cfs	1.968		
(Where $q_p = q_u A_m Q F_p$ )				

## Worksheet 2: Runoff curve number and runoff

JAN 5 1988

Project SHERMAN TAYLOR, 31 LOT SUBDIVISION By DWF Date 1/6/88

Location EDWARDS ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_ S/N 001

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
MASSENA C	MEADOWS	71			5.940	421.74
Totals =					5.94	421.74

1/ Use only one CN source per line.

$$CN \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{421.74}{5.94} = \underline{71}; \quad \text{Use CN} = \boxed{71}$$

2. Runoff

Frequency ..... yr

Rainfall, P (24-hour) ..... in

Runoff, Q ..... in  
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3
10		
3.5		
1.07		

### Worksheet 3: Time of concentration ( $T_c$ ) or travel time ( $T_t$ )

Project SHERMAN TAYLOR 31 LOT SUBDIVISION By DNF Date 16 DEC 87

Location EDWARDS ST. → ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_ S/N 1001

Circle one:  $T_c$   $T_t$  through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to  $T_c$  only)

- Segment ID
1. Surface description (table 3-1) .....
  2. Manning's roughness coeff., n (table 3-1) ..
  3. Flow length, L (total L  $\leq$  300 ft) ..... ft
  4. Two-yr 24-hr rainfall,  $P_2$  ..... in
  5. Land slope, s ..... ft/ft
  6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$  Compute  $T_t$  ..... hr

MEADOW	
.13	
300	
2.25	
.01	
.55	+ [ ] = .55

Shallow concentrated flow

- Segment ID
7. Surface description (paved or unpaved) .....
  8. Flow length, L ..... ft
  9. Watercourse slope, s ..... ft/ft
  10. Average velocity, V (figure 3-1) ..... ft/s
  11.  $T_t = \frac{L}{3600 V}$  Compute  $T_t$  ..... hr

UNPAVED	
300	
.01	
1.6	
.05	+ [ ] = .05

Channel flow

- Segment ID
12. Cross sectional flow area, a ..... ft<sup>2</sup>
  13. Wetted perimeter,  $p_w$  ..... ft
  14. Hydraulic radius,  $r = \frac{a}{p_w}$  Compute r ..... ft
  15. Channel slope, s ..... ft/ft
  16. Manning's roughness coeff., n .....
  17.  $v = \frac{1.49 r^{2/3} s^{1/2}}{n}$  Compute V ..... ft/s
  18. Flow length, L ..... ft
  19.  $T_t = \frac{L}{3600 V}$  Compute  $T_t$  ..... hr
  20. Watershed or subarea  $T_c$  or  $T_t$  (add  $T_t$  in steps 6, 11, and 19) ..... hr

IN PROJECT	TO 2000 FEET
4.0	4.0
6.48	6.48
.67	.67
.01	.02
.04	.15
2.699	1.018
130	5350
.01	+ 1.46 = 1.47
2.07	

### Worksheet 4: Graphical Peak Discharge method

Project SHERMAN TAYLOR 31 LOT SUBDIVISION By DWF Date 16 DEC 87

Location EDWARDS ST., ST. ARKANS. Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_ S/A 001

1. Data:

Drainage area .....  $A_m = \underline{.009}$   $mi^2$  (acres/640)  
 Runoff curve number .... CN = 71 (From worksheet 2)  
 Time of concentration ..  $T_c = \underline{2.07}$  hr (From worksheet 3)  
 Rainfall distribution type = II (I, IA, II, III)  
 Pond and swamp areas spread throughout watershed ..... = - percent of  $A_m$  (- acres or  $mi^2$  covered)

2. Frequency ..... yr

3. Rainfall, P (24-hour) ..... in

4. Initial abstraction,  $I_a$  ..... in  
 (Use CN with table 4-1.)

5. Compute  $I_a/P$  .....

6. Unit peak discharge,  $q_u$  ..... csm/in  
 (Use  $T_c$  and  $I_a/P$  with exhibit 4- $\pi$ )

7. Runoff, Q ..... in  
 (From worksheet 2).

8. Pond and swamp adjustment factor,  $F_p$  ....  
 (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)

9. Peak discharge,  $q_p$  ..... cfs  
 (Where  $q_p = q_u A_m Q F_p$ )

Storm #1	Storm #2	Storm #3
10		
3.5		
.817		
.233		
210		
1.07		
1.0		
2.022		

## Worksheet 2: Runoff curve number and runoff

Project SHERMAN TAYLOR 3/ LOT SUBDIVISION By DWF Date 16 DEC 87

Location EDWARD'S ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed S/N 001

### 1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN <sup>1/</sup>			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
MASSENA, C	ASPHALT PAVE.	98			.51	49.980
	GRAVEL DRIVES	89			.18	16.020
	ROOFS.	98			.24	23.520
	LAWNS, GOOD COND.	74			2.85	210.900
Totals =					3.78	300.420

<sup>1/</sup> Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{300.420}{3.78} = 79.47$$
 Use CN = 80

### 2. Runoff

Frequency ..... yr  
 Rainfall, P (24-hour) ..... in  
 Runoff, Q ..... in  
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3
10		
3.5		
1.64		

### Worksheet 3: Time of concentration (T<sub>c</sub>) or travel time (T<sub>t</sub>)

Project SHERMAN TAYLOR 31 LOT SUBDIVISION By DAF Date 10/24/87

Location EDWARDS ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed S/N 001

Circle one: T<sub>c</sub> T<sub>t</sub> through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T<sub>c</sub> only)

	Segment ID			
1. Surface description (table 3-1) .....		GRASS		
2. Manning's roughness coeff., n (table 3-1) ..		.24		
3. Flow length, L (total L ≤ 300 ft) .....	ft	300		
4. Two-yr 24-hr rainfall, P <sub>2</sub> .....	in	2.25		
5. Land slope, s .....	ft/ft	.01		
6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute T <sub>t</sub> .....	hr	.90	+	= .90

Shallow concentrated flow

	Segment ID			
7. Surface description (paved or unpaved) .....		UNPAVED		
8. Flow length, L .....	ft	300		
9. Watercourse slope, s .....	ft/ft	.01		
10. Average velocity, V (figure 3-1) .....	ft/s	16		
11. $T_t = \frac{L}{3600 V}$ Compute T <sub>t</sub> .....	hr	.05	+	= .05

Channel flow

	Segment ID	In Project AREA	From Project To Right Bank	
12. Cross sectional flow area, a .....	ft <sup>2</sup>	40	40	
13. Wetted perimeter, p <sub>w</sub> .....	ft	6.48	6.48	
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r .....	ft	.617	.617	
15. Channel slope, s .....	ft/ft	.01	.02	
16. Manning's roughness coeff., n .....		.04	.15	
17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V .....	ft/s	2.699	1.018	
18. Flow length, L .....	ft	130	5350	
19. $T_t = \frac{L}{3600 V}$ Compute T <sub>t</sub> .....	hr	.01	1.46	= 1.47
20. Watershed or subarea T <sub>c</sub> or T <sub>t</sub> (add T <sub>t</sub> in steps 6, 11, and 19) .....	hr			2.42

## Worksheet 2: Runoff curve number and runoff

Project SHERMAN TAYLOR, 31 LOT SUBDIVISION By DWIF Date 10/26/87

Location EDWARDS ST., ST. ALBANS. Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_ S/N 002

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN <sup>1/</sup>			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
MASSENA, C.	MEADOW,	71			6.29	446.59
<b>Totals =</b>					6.29	446.59

<sup>1/</sup> Use only one CN source per line.

$$CN \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{446.59}{6.29} = \underline{71}$$
;
 Use CN = 71

2. Runoff

Frequency ..... yr Rainfall, P (24-hour) ..... in Runoff, Q ..... in (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Storm #1</th> <th style="width: 33%;">Storm #2</th> <th style="width: 33%;">Storm #3</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3.5</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1.07</td> <td></td> <td></td> </tr> </tbody> </table>	Storm #1	Storm #2	Storm #3	10			3.5			1.07		
Storm #1	Storm #2	Storm #3											
10													
3.5													
1.07													

### Worksheet 3: Time of concentration ( $T_c$ ) or travel time ( $T_t$ )

Project SHERMAN TAYLOR, 31 LOT SUBDIVISION By DWF Date 6 DEC 87

Location EDWARDS ST ST. ALBAN Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_ S/N 607

Circle one:  $T_c$   $T_t$  through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to $T_c$ only)	Segment ID			
1. Surface description (table 3-1) .....		Meadow		
2. Manning's roughness coeff., n (table 3-1) ..		.13		
3. Flow length, L (total L $\leq$ 300 ft) .....	ft	300		
4. Two-yr 24-hr rainfall, $P_2$ .....	in	2.25		
5. Land slope, s .....	ft/ft	.01		
6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute $T_t$ .....	hr	.55	+	.55

Shallow concentrated flow	Segment ID			
7. Surface description (paved or unpaved) .....		UNPAVED		
8. Flow length, L .....	ft	300		
9. Watercourse slope, s .....	ft/ft	.01		
10. Average velocity, V (figure 3-1) .....	ft/s	1.6		
11. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....	hr	.06	+	.06

Channel flow	Segment ID			
12. Cross sectional flow area, a .....	ft <sup>2</sup>			
13. Wetted perimeter, $p_w$ .....	ft			
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r .....	ft			
15. Channel slope, s .....	ft/ft			
16. Manning's roughness coeff., n .....				
17. $v = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V .....	ft/s			
18. Flow length, L .....	ft			
19. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....	hr		+	
20. Watershed or subarea $T_c$ or $T_t$ (add $T_t$ in steps 6, 11, and 19) .....	hr		=	.61

### Worksheet 4: Graphical Peak Discharge method

Project SHERMAN TAYLOR 31 LOT SUBDIVISION By DWF Date 16 DEC 87

Location EDWARDS ST., ST. ARBANS. Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed \_\_\_\_\_ 4/NOOZ

1. Data:

Drainage area .....  $A_m = \underline{.01}$  mi<sup>2</sup> (acres/640)  
 Runoff curve number .... CN = 71 (From worksheet 2)  
 Time of concentration ..  $T_c = \underline{.61}$  hr (From worksheet 3)  
 Rainfall distribution type = II (I, IA, II, III)  
 Pond and swamp areas spread throughout watershed ..... = — percent of  $A_m$  (— acres or mi<sup>2</sup> covered)

2. Frequency ..... yr

3. Rainfall, P (24-hour) ..... in

4. Initial abstraction,  $I_a$  ..... in  
 (Use CN with table 4-1.)

5. Compute  $I_a/P$  .....

6. Unit peak discharge,  $q_u$  ..... csm/in  
 (Use  $T_c$  and  $I_a/P$  with exhibit 4-II)

7. Runoff, Q ..... in  
 (From worksheet 2).

8. Pond and swamp adjustment factor,  $F_p$  ....  
 (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)

9. Peak discharge,  $q_p$  ..... cfs  
 (Where  $q_p = q_u A_m Q F_p$ )

	Storm #1	Storm #2	Storm #3
2. Frequency ..... yr	10		
3. Rainfall, P (24-hour) ..... in	3.5		
4. Initial abstraction, $I_a$ ..... in (Use CN with table 4-1.)	.217		
5. Compute $I_a/P$ .....	.233		
6. Unit peak discharge, $q_u$ ..... csm/in (Use $T_c$ and $I_a/P$ with exhibit 4- <u>II</u> )	450		
7. Runoff, Q ..... in (From worksheet 2).	1.07		
8. Pond and swamp adjustment factor, $F_p$ .... (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)	1.0		
9. Peak discharge, $q_p$ ..... cfs (Where $q_p = q_u A_m Q F_p$ )	4.815		

## Worksheet 2: Runoff curve number and runoff

Project SHERMAN TAYLOR, 31 LOT SUBDIVISION By DKF Date 4/24/87  
 Location EDWARDS ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_  
 Circle one: Present Developed S/N 002

### 1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN <sup>1/</sup>			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Fig. 2-3	Fig. 2-4		
MASSENA, C	ASPHALT PAVE	98			.89	87.22
"	GRAVEL DRIVES	89			.33	29.37
"	ROOFS	98			.44	43.12
"	LAWNS, GOOD COND.	74			4.63	342.62
Totals =					6.29	502.33

<sup>1/</sup> Use only one CN source per line.

CN (weighted) =  $\frac{\text{total product}}{\text{total area}} = \frac{502.33}{6.29} = 79.86$ ; Use CN = 80

### 2. Runoff

Frequency ..... yr  
 Rainfall, P (24-hour) ..... in  
 Runoff, Q ..... in  
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3
10		
3.5		
1.64		

### Worksheet 3: Time of concentration ( $T_c$ ) or travel time ( $T_t$ )

Project SHEZMAN TAYLOR, 31 LOT SUBDIVISION By DWF Date 14 DEC 87

Location EDWARDS ST., ST. ALBANS Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present ~~Developed~~ S/N 002

Circle one:  $T_c$   ~~$T_t$~~  through subarea \_\_\_\_\_

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to  $T_c$  only)

- |   | Segment ID |  |
|---|------------|--|
| 1. Surface description (table 3-1) .....                                  |            | <u>GRAVEL</u>  |
| 2. Manning's roughness coeff., n (table 3-1) ..                           |            | <u>.24</u>   |
| 3. Flow length, L (total L $\leq$ 300 ft) .....                           | ft         | <u>100</u>   |
| 4. Two-yr 24-hr rainfall, $P_2$ .....                                     | in         | <u>2.25</u>  |
| 5. Land slope, s .....  | ft/ft      | <u>.01</u>   |
| 6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute $T_t$ ..... | hr         | <u>.15</u> + <span style="border: 1px solid black; padding: 2px;"> </span> = <span style="border: 1px solid black; padding: 2px;">.15</span> |

Shallow concentrated flow

- |  | Segment ID |  |
|--|------------|--|
| 7. Surface description (paved or unpaved) .....  |            | <u>UNPAVED</u>   |
| 8. Flow length, L .....                          | ft         | <u>180</u>   |
| 9. Watercourse slope, s .....                    | ft/ft      | <u>.01</u>   |
| 10. Average velocity, V (figure 3-1) .....       | ft/s       | <u>1.6</u>   |
| 11. $T_t = \frac{L}{3600 V}$ Compute $T_t$ ..... | hr         | <u>.03</u> + <span style="border: 1px solid black; padding: 2px;"> </span> = <span style="border: 1px solid black; padding: 2px;">.03</span> |

Channel flow

- |  | Segment ID      |   |
|--|-----------------|---|
| 12. Cross sectional flow area, a .....   | ft <sup>2</sup> | <u>6.48</u>   |
| 13. Wetted perimeter, $p_w$ .....  | ft              | <u>6.480</u>  |
| 14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r .....                        | ft              | <u>.617</u>   |
| 15. Channel slope, s .....   | ft/ft           | <u>.01</u>  |
| 16. Manning's roughness coeff., n .....  |                 | <u>.04</u>  |
| 17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V .....                         | ft/s            | <u>2.697</u>  |
| 18. Flow length, L .....   | ft              | <u>775</u>  |
| 19. $T_t = \frac{L}{3600 V}$ Compute $T_t$ .....                                 | hr              | <u>.08</u> + <span style="border: 1px solid black; padding: 2px;"> </span> = <span style="border: 1px solid black; padding: 2px;">.08</span>  |
| 20. Watershed or subarea $T_c$ or $T_t$ (add $T_t$ in steps 6, 11, and 19) ..... | hr              | <span style="border: 1px solid black; padding: 2px;">.15</span> + <span style="border: 1px solid black; padding: 2px;">.03</span> = <span style="border: 1px solid black; padding: 2px;">.26</span> |

## Worksheet 4: Graphical Peak Discharge method

Project SHERMAN TAYLOR, 31 Lot SUBDIVISION By DWF Date 14 DEC 87

Location EDWARDS ST., ST. ALBAK Checked \_\_\_\_\_ Date \_\_\_\_\_

Circle one: Present Developed S/N 007

1. Data:

Drainage area .....  $A_m = \underline{.010}$   $mi^2$  (acres/640)  
 Runoff curve number .... CN = 80 (From worksheet 2)  
 Time of concentration ..  $T_c = \underline{.26}$  hr (From worksheet 3)  
 Rainfall distribution type = II (I, IA, II, III)  
 Pond and swamp areas spread throughout watershed ..... = — percent of  $A_m$  (— acres or  $mi^2$  covered)

		Storm #1	Storm #2	Storm #3
2. Frequency .....	yr	10		
3. Rainfall, P (24-hour) .....	in	3.5		
4. Initial abstraction, $I_a$ .....	in	.500		
(Use CN with table 4-1.)				
5. Compute $I_a/P$ .....		.143		
6. Unit peak discharge, $q_u$ .....	csf/in	700		
(Use $T_c$ and $I_a/P$ with exhibit 4- <u>II</u> )				
7. Runoff, Q .....	in	1.64		
(From worksheet 2).				
8. Pond and swamp adjustment factor, $F_p$ .....		1.0		
(Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond and swamp area.)				
9. Peak discharge, $q_p$ .....	csf	11.480		
(Where $q_p = q_u A_m Q F_p$ )				

## MS4 Incorporation Form for State Issued Stormwater Permits

Please complete this form for each previously issued state stormwater permit that the MS4 plans to incorporate into the MS4 authorization. The stormwater management practices associated with the permit listed below shall be listed in the MS4's Stormwater Management Program (SWMP) under Minimum Control Measure 5, Post-Construction Stormwater Management.

1. Stormwater System Name: St. Albans Industrial Park
2. Location: City street currently named Lemnah Drive.
3. Stormwater Permit Number: 2-0147.YYYY
4. Current Permit Status: (Issued, Expired, Title 3) Expired
5. Narrative Describing the Stormwater System: Stormwater runoff from paved access road only, after passage through trap catch basin to remove floatable and settleable materials, then flowing via 12 inch PVC pipe to concrete headwall on Stevens Brook.
6. Current Compliance Status:
  - Compliant with previously issued state permit
  - Planned compliance within 24 mos; Estimated Compliance Date: \_\_\_\_\_
  - Not constructed – plan for construction as part of FRP; Estimated construction schedule: \_\_\_\_\_
  - Substantially deteriorated – plan for construction as part of FRP; Estimated construction schedule: \_\_\_\_\_
7. Plans (for expired permits, list plan numbers and attach):
8. Proof of Legal Responsibility (list and attach):  
See attached discharge permit # 2-0147

STATE OF VERMONT  
AGENCY OF ENVIRONMENTAL CONSERVATION  
DEPARTMENT OF WATER RESOURCES

Page 1 of 3

TEMPORARY  
POLLUTION PERMIT

File No. 06-13-016

Permit No. 2-0147

In compliance with provisions of 10 V.S.A. §1265

The City of St. Albans

is hereby granted permission to discharge waste into the water of the State in accordance with "Terms and Conditions" herein after specified, from a facility known as the St. Albans Industrial Park and located on Lower Weldon Street in the City of St. Albans, to receiving water Stevens Brook, a Class B water.

TERMS AND CONDITIONS

1. Expiration Date: July 1, 1985
2. Pollution Charges: Pollution charges may be assessed pursuant to 10 V.S.A. §1265.
3. Revocation: 10 V.S.A. §1267 provides as follows:  

"The Secretary may revoke any permit issued by it pursuant to this subchapter if it finds that the permit holder submitted false or inaccurate information in his application or has violated any requirement, restriction or condition of the permit issued. Revocation shall be effective upon actual notice thereof to the permit holder."
4. Transfer of Permit: Subject to written approval of the Secretary, this permit must be transferred to a new permittee upon transferral of the property from which the permitted discharge originates. The above named permittee shall notify the Permits and Compliance Section of the Agency (828-3345) of any pending sale, lease, or other transfer of ownership thirty days prior to such transfer, and shall concurrently provide the prospective new owner with a copy of this permit, calling attention to the transfer application on Page 3.

FAILURE TO COMPLY WITH THE ABOVE SHALL BE DEEMED A VIOLATION OF THIS PERMIT AND MAY RESULT IN THE PERMITTEE'S REMAINING LIABLE UNDER THIS PERMIT AFTER THE PROPERTY TRANSFER.

5. Manner of Discharge: Via 12 inch PVC pipe to concrete headwall on receiving water.
6. Wastes Permitted: Stormwater runoff from paved access road only, after passage through trap catch basin\* to remove floatable and settleable material.  
  
\*For location and details of stormwater treatment see Krebs & Lansing drawings on this project (No. 82110) as follows: #4 Utility Plan & Profile, dated January 1982 and #6. Details, dated December, 1982.
7. Volumes Permitted: Such volumes as required by the discharge specified in item #6.
8. Frequency of Discharge: Daily
9. Operation and Treatment Requirements: Treatment as noted in item #6.
10. Maintenance and Maintenance Reporting Requirements:  
All catch basins, settling ponds, recharge basins or other treatment devices or facilities shall be maintained in good operating order at all times and shall be cleaned quarterly and at such other times as necessary to maintain design treatment levels. NO LATER THAN JANUARY 31 OF EACH YEAR A WRITTEN REPORT SHALL BE SUBMITTED TO THE DEPARTMENT OF WATER RESOURCES, NPDES PERMIT SECTION, MONTPELIER, VERMONT 05602, PROVIDING THE DATES AND NATURE OF CLEANING OPERATIONS CARRIED OUT IN THE PRECEDING YEAR.  
  
Paved parking lots and roads should be swept on a regular basis when seasonally practicable to minimize contaminants carried to the treatment device by runoff.
11. Personnel and Training Requirements: Such personnel and training as necessary to comply with the requirements of item #10.
12. Monitoring and Reporting Requirements: No monitoring required.
13. Miscellaneous Requirements: During the life of this permit, the permittee may be requested to furnish certain data in support of the investigation of the environmental effect of storm drainage on the receiving stream. If, prior to July 1, 1985, an acceptable method of treatment is adopted or applicable legislative changes are enacted, the permit will be amended to reflect the approved changes.

14. Issue Date of Permit: March 21, 1983

AGENCY OF ENVIRONMENTAL CONSERVATION

By   
Commissioner  
Department of Water Resources  
and Environmental Engineering

-----  
TRANSFER APPLICATION

I, \_\_\_\_\_, hereby apply for permission to discharge waste into the waters of the State of Vermont under the provisions of Temporary Pollution Permit No. 2-0147, previously issued to \_\_\_\_\_.

Signed: \_\_\_\_\_