

Vermont Department of Environmental Conservation

Watershed Management Division
Springfield Regional Office
100 Mineral Street, Suite 303
Springfield, VT 05156
www.watershedmanagement.vt.gov

Agency of Natural Resources

[phone] 802-885-8855
[fax] 802-885-8890
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AUTHORIZATION TO CONDUCT STREAM ALTERATION ACTIVITIES

Pursuant to Section C.2.2.5 of the VT Stream Alteration General Permit (Reporting activities not requiring an application)

Project Number: **SA-05-007-2015 Chester Popple Dungeon Road**

Applicant Name: Chester Highway Department, Chester, Vermont

Contact: Graham Kennedy

Mailing Address: P.O. Box 370, 556 Elm Street, Chester, Vermont 05143

Phone: (802) 875-2173 or (802) 875-2737

Project Location: Popple Dungeon Rd trib to South Branch Williams River

Email: jhchester@vermontel.net

The Secretary of the Vermont Agency of Natural Resources (VT ANR) has determined that:

1. This project authorizes the replacement of two culverts on un-named tributaries, relocation of approximately 100 l.f. of roadway and road embankment stabilization along the South Branch of the Williams River.
2. The proposed activity is eligible for coverage under the VT ANR Stream Alteration General Permit.
3. The proposed activity will meet the terms and conditions of the General Permit provided:
 - a) The project will be completed and approved as shown on the attached plans dated 3/11/05, prepared by Leach Engineering and verified by Dufresne Group, and approved by the VT ANR as attached herein.
 - b) The project will not adversely affect the public safety by increasing flood hazards.
 - c) The project will not significantly damage fish life or wildlife.
 - d) The project will not significantly damage the rights of riparian owners.
 - e) The project will not obstruct the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction.
 - f) The project is conducted in a manner which minimizes or avoids any discharge of sediment or other pollutants to surface waters in violation of the VT Water Quality Standards.
 - g) The ANR River Management Engineer is notified by phone or email when construction begins and when the project is complete.
 - h) In-stream working dates for all GP activities are from July 1st through October 1st; any in-stream work outside these dates will require an Individual Stream Alteration Permit authorization by the River Management Engineer.
 - i) This authorization has been posted for three days public comment. This authorization constitutes final approval.

If there are any changes in the project plan or deviation in construction from the plan, the Permittee must notify the River Management Engineer immediately.

If the project is constructed as you have described, as shown on the above referenced approved plans and according to the above conditions, there is no reason to expect any violation of Vermont Water Quality Standards.

Signed this 17th day of March, 2015

This permit expires October 1, 2015.

David K. Mears, Commissioner

Department of Environmental Conservation

by 

Todd Menees, P.E., P.H., River Management Engineer

Memo

**DUFRESNE GROUP
CONSULTING ENGINEERS**

54 Main St. / P.O. Box B
Windsor, Vermont 05089

To: Todd Menees
From: Naomi Johnson
Date: September 4, 2014
Re: Popple Dungeon Stream Alteration General Permit

Following our August 26, 2014 meeting to review the Town of Chester's planned project for Popple Dungeon Road Improvements, we performed a brief hydrologic and hydraulic review to support the town's Stream Alteration General Permit application.

The planned improvements are shown on the enclosed Sheet 4, Plan and Profile Popple Dungeon Road Improvements by Leach Engineering dated March 11, 2005. You requested that we check the capacity of the proposed 36" diameter culvert during the 25 year design storm, as estimated by the StreamStats program. As shown on the enclosed two page output from Streamstats and the one page Hydraulic Analysis Report, the runoff from the 25 year design storm was calculated as 12 cfs and the depth in the 36" diameter culvert is 0.6 ft for a flow of 12 cfs. Therefore, the culvert is adequately sized for the 25 year design storm.

We are submitting this data with the enclosed permit application. If you need further information, please let me know.

VERMONT AGENCY OF NATURAL RESOURCES

APPLICATION FOR COVERAGE UNDER THE STREAM ALTERATION GENERAL PERMIT FOR REPORTING ACTIVITY (SECTION C.2.3)

10 VSA, Section 1022 & 7503

Applicant Name Town of Chester

Mailing Address PO Box 370

Chester, VT 05143

Agency Use Only
Project ID _____
Receipt Date _____

Telephone: Home _____ Work 802 875 2173 Mobile _____

Email jhchester@vermontel.net

Landowner (if different than applicant) _____

Landowner Mailing Address _____

Watershed Size at Project Location
 Less than 0.5 square miles
 0.5 - 1.0 square miles
 1.0 - 10.0 square miles
If >10 sq mi use Individual Permit

Phone _____ Email _____

Project Location Address Near 799 Popple Dungeon Rd Town Chester Lat/Long 43° 14' 29.65" N

River South Branch Williams River Drainage Area .08 mi² Nearest Rd Popple Dungeon 72° 37' 11.38" W

Brief Project Description Relocate a 700± ft section of roadway as shown on Sheet 4 (attached), which will involve two new culverts and bank stabilization.

Consultant or Designer (if known) Dufresne Group Phone 802 674 2904

Contractor (if known) _____ Phone _____

Required Attachments Location Map, see http://www.watershedmanagement.vt.gov/rivers/htm/rv_management.htm

- 2 copies of project design drawings including:
- 1) plan view
 - 2) longitudinal profile
 - 3) cross sections
 - 4) existing and proposed conditions
 - 5) bankfull width (channel width at high water)

CERTIFICATION: I hereby certify that the information on this application is, to the best of my knowledge, true and accurate and that I have provided a copy of this application to the Clerk of the municipality in which this activity is located, the local and regional planning commissions, and to each adjoining landowner as required in 10 V.S.A., Section 7503. I recognize that by signing this application I am giving consent to employees of the State to enter the subject property for the purpose of processing this application and for ensuring compliance with subsequent agency decisions relating to the project.

Applicant Signature David Pisha Date 9/14/14

Print full name David Pisha

NOTE: A PERMIT MAY BE REQUIRED FROM THE US ARMY CORPS OF ENGINEERS. For information contact: USA Corps of Engineers, VT Project Office, 8 Carmichael Street Suite 205, Essex Jct VT 05452 802-872-2893

Popple Angcon



Vermont StreamStats

Streamstats Ungaged Site Report

Date: Wed Aug 27 2014 07:14:37 Mountain Daylight Time

Site Location: Vermont

NAD27 Latitude: 43.2427 (43 14 34)

NAD27 Longitude: -72.6206 (-72 37 14)

NAD83 Latitude: 43.2427 (43 14 34)

NAD83 Longitude: -72.6201 (-72 37 12)

Drainage Area: 0.0775 mi²

Peak Flows Region Grid Basin Characteristics

100% Statewide Peak Flow (0.0775 mi²)

| Parameter | Value | Regression Equation Valid Range | |
|---|--------------------------------|---------------------------------|--------|
| | | Min | Max |
| Drainage Area (square miles) | 0.0775 (below min value 0.211) | 0.211 | 850 |
| Percent Lakes and Ponds (percent) | 0 | 0 | 6.86 |
| Percentage of Basin Above 1200 ft (percent) | 14.4 | 0 | 100 |
| Geographic Factor for VT (dimensionless) | 82178.4 | -87 | 296194 |

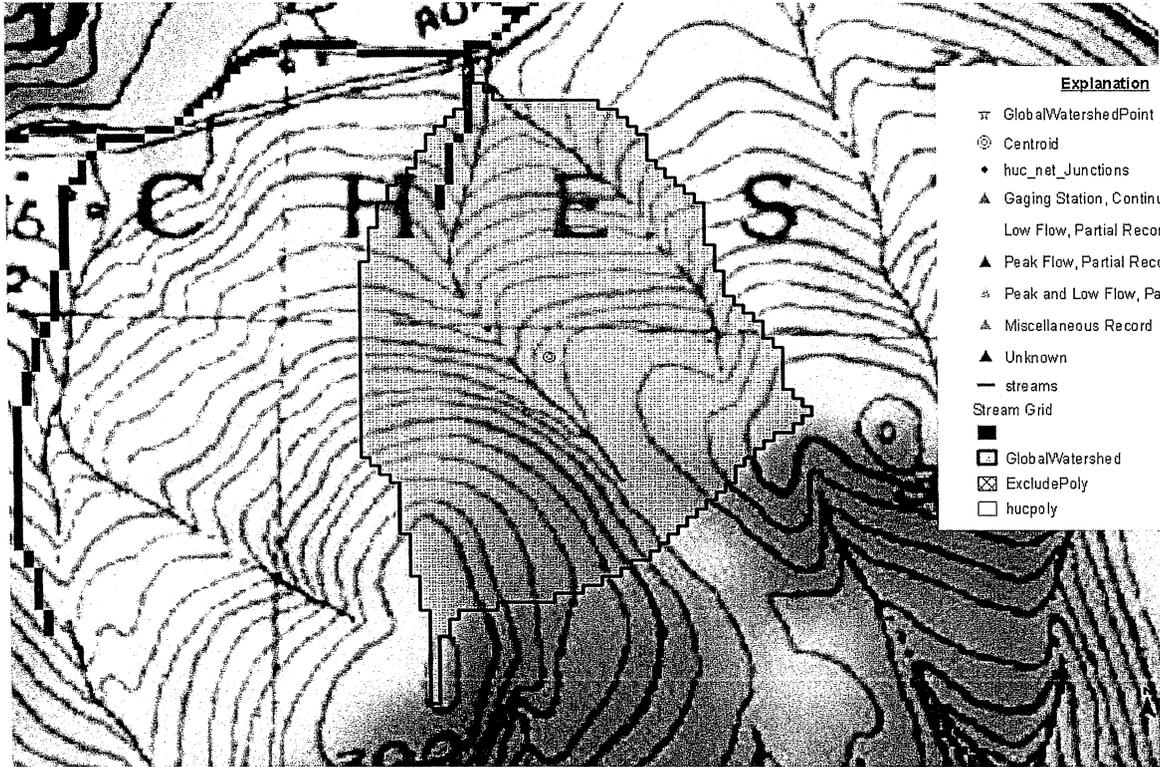
Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Peak Flows Region Grid Streamflow Statistics

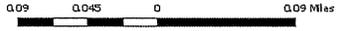
| Statistic | Flow (ft ³ /s) | Prediction Error (percent) | Equivalent years of record | 90-Percent Prediction Interval | |
|-----------|---------------------------|----------------------------|----------------------------|--------------------------------|---------|
| | | | | Minimum | Maximum |
| PK2 | 4.09 | | 1.4 | | |
| PK5 | 6.64 | | 2.3 | | |
| PK10 | 8.57 | | 3.2 | | |
| PK25 | 12 | | 4.6 | | |
| PK50 | 15 | | 5.5 | | |
| PK100 | 18.3 | | 6.3 | | |
| PK500 | 27.8 | | 7.6 | | |



StreamStats Print Page



| Explanation | |
|-------------|-----------------------------------|
| ⋈ | GlobalWatershedPoint |
| ⊙ | Centroid |
| • | huc_net_Junctions |
| ▲ | Gaging Station, Continuous Record |
| ▲ | Low Flow, Partial Record |
| ▲ | Peak Flow, Partial Record |
| ▲ | Peak and Low Flow, Partial Record |
| ▲ | Miscellaneous Record |
| ▲ | Unknown |
| — | streams |
| ■ | Stream Grid |
| ■ | GlobalWatershed |
| ⊗ | ExcludePoly |
| □ | hucpoly |



8/27/2014 7:15:52 AM

Hydraulic Analysis Report

Project Data

Project Title: *Chester Popple Dungeon*
Designer: *NRJ*
Project Date: Wednesday, August 27, 2014
Project Units: U.S. Customary Units
Notes:

Channel Analysis: Channel Analysis

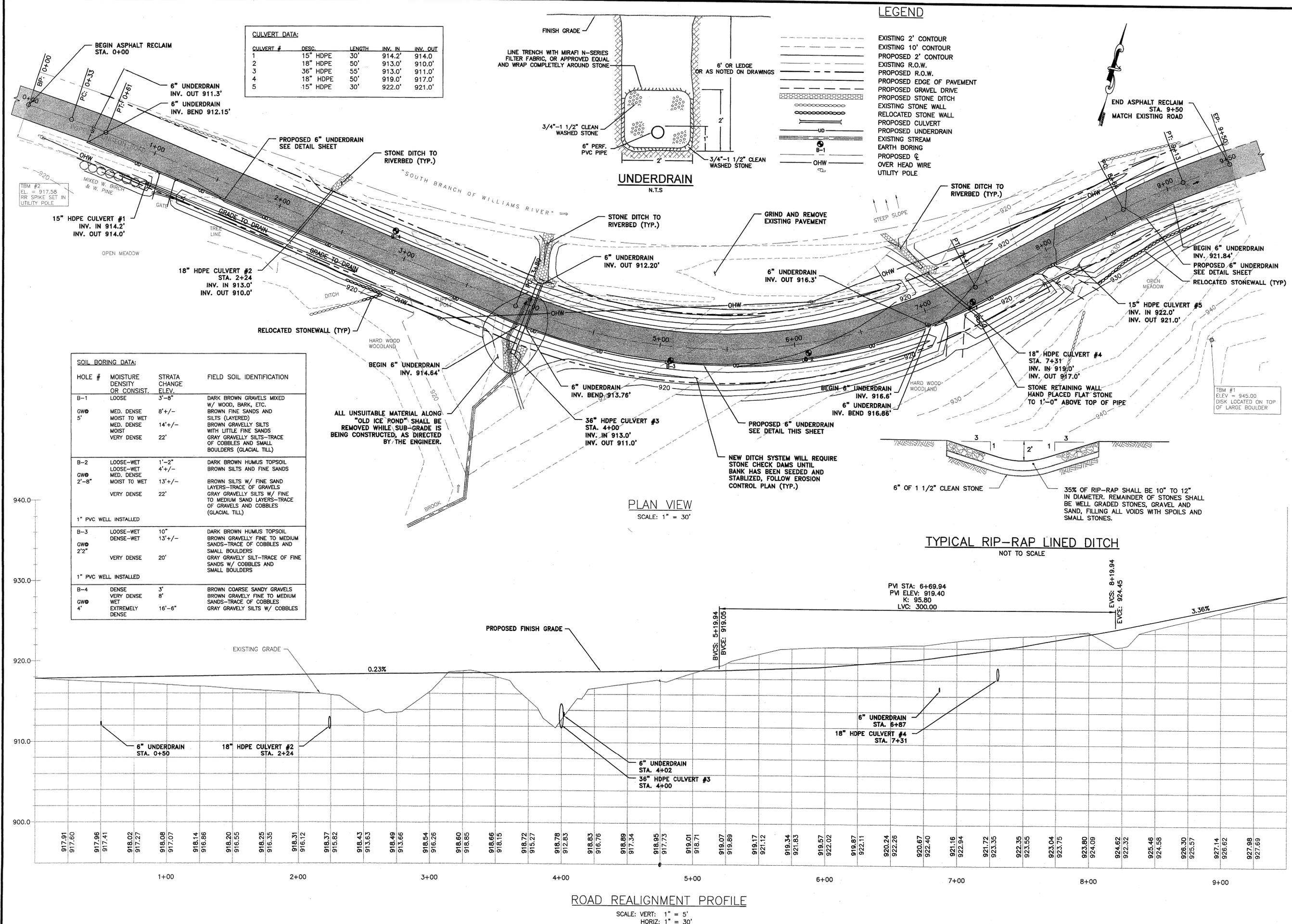
Notes:

Input Parameters

Channel Type: Circular
Pipe Diameter: 3.0000 (ft)
Longitudinal Slope: 0.0364 (ft/ft)
Manning's n: 0.0120
Flow: 12.0000 (cfs)

Result Parameters

Depth: 0.5982 (ft)
Area of Flow: 1.0021 (ft²)
Wetted Perimeter: 2.7774 (ft)
Average Velocity: 11.9746 (ft/s)
Top Width: 2.3973 (ft)
Froude Number: 3.2639
Critical Depth: 1.0994 (ft)
Critical Velocity: 5.1133 (ft/s)
Critical Slope: 0.0034 (ft/ft)
Critical Top Width: 2.8910 (ft)
Calculated Max Shear Stress: 1.3587 (lb/ft²)
Calculated Avg Shear Stress: 0.8195 (lb/ft²)

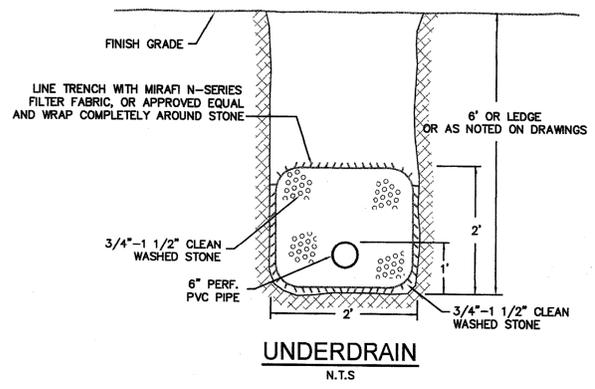


CULVERT DATA:

| CULVERT # | DESC. | LENGTH | INV. IN | INV. OUT |
|-----------|----------|--------|---------|----------|
| 1 | 15" HDPE | 30' | 914.2' | 914.0' |
| 2 | 18" HDPE | 50' | 913.0' | 910.0' |
| 3 | 36" HDPE | 55' | 913.0' | 911.0' |
| 4 | 18" HDPE | 50' | 919.0' | 917.0' |
| 5 | 15" HDPE | 30' | 922.0' | 921.0' |

SOIL BORING DATA:

| HOLE # | MOISTURE DENSITY OR CONSIST. | STRATA CHANGE ELEV. | FIELD SOIL IDENTIFICATION |
|-----------------------|------------------------------|---------------------|---|
| B-1 | LOOSE | 3'-8" | DARK BROWN GRAVELS MIXED W/ WOOD, BARK, ETC. BROWN FINE SANDS AND SILTS (LAYERED) |
| GW# 5' | MED. DENSE MOIST TO WET | 8'+/- | BROWN GRAVELLY SILTS WITH LITTLE FINE SANDS |
| | MED. DENSE MOIST | 14'+/- | GRAY GRAVELLY SILTS-TRACE OF COBBLES AND SMALL BOULDERS (GLACIAL TILL) |
| | VERY DENSE | 22' | |
| B-2 | LOOSE-WET | 1'-2" | DARK BROWN HUMUS TOPSOIL |
| | LOOSE-WET | 4'+/- | BROWN SILTS AND FINE SANDS |
| GW# 2'-8" | MED. DENSE MOIST TO WET | 13'+/- | BROWN SILTS W/ FINE SAND LAYERS-TRACE OF GRAVELS |
| | VERY DENSE | 22' | GRAY GRAVELLY SILTS W/ FINE TO MEDIUM SAND LAYERS-TRACE OF GRAVELS AND COBBLES (GLACIAL TILL) |
| 1" PVC WELL INSTALLED | | | |
| B-3 | LOOSE-WET | 10" | DARK BROWN HUMUS TOPSOIL |
| | DENSE-WET | 13'+/- | BROWN GRAVELLY FINE TO MEDIUM SANDS-TRACE OF COBBLES AND SMALL BOULDERS |
| GW# 2'2" | VERY DENSE | 20' | GRAY GRAVELLY SILT-TRACE OF FINE SANDS W/ COBBLES AND SMALL BOULDERS |
| 1" PVC WELL INSTALLED | | | |
| B-4 | DENSE | 3' | BROWN COARSE SANDY GRAVELS |
| | VERY DENSE | 8' | BROWN GRAVELLY FINE TO MEDIUM SANDS-TRACE OF COBBLES |
| GW# 4' | WET EXTREMELY DENSE | 16'-6" | GRAY GRAVELLY SILTS W/ COBBLES |



LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRAVEL DRIVE
- PROPOSED STONE DITCH
- EXISTING STONE WALL
- RELOCATED STONE WALL
- PROPOSED CULVERT
- PROPOSED UNDERDRAIN
- EXISTING STREAM
- EARTH BORING
- PROPOSED C OVER HEAD WIRE
- UTILITY POLE



PLAN AND PROFILE
POPPEL DUNGEON ROAD IMPROVEMENTS
 FOR THE TOWN OF CHESTER
 TOWN HIGHWAY #10
 CHESTER, VERMONT

| NO. | REVISIONS | DATE |
|-----|-----------|------|
| | | |

LEACH ENGINEERING CONSULTANTS, P.A.
 36 EASTERN AVENUE, SUITE 6
 ST. JOHNSBURY, VERMONT 05819
 PHONE: (802) 748-9009 FAX: (802) 748-9023

DATE: 3/11/05
 SCALE: 1" = 30'

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