



Watershed Committee Update

February 2023

Presentation Overview

About us

Members, Purpose and Topics

Early Actions

What has already been accomplished

Water Quality

Overview and Key Finding from the 2022 Monitoring Plan

Recent Recs

Recommendations made to the Selectboard already

Long Term Plans

Where we are headed and what we are looking at

Town Feedback

Tell us what you think of what we have done and are planning on doing

Committee Members

Brad Roscoe (Chairman)

Ron Coburn

Charlie Paquette

Dan Syvertsen

Bayard Tracy

Judy Idelkope (Selectboard rep)





Our Purpose

To provide recommendations that would help preserve the quality of Spofford Lake to the Town of Chesterfield Board of Selectmen



Our Considerations

water quality monitoring

storm water runoff

septic impact

road salt impact

existing local, state and federal regulations

Early Actions

Water Quality Monitoring

Better Validate Watershed Model
Differentiate sources of pollution
Quantify road salt impact



North Shore Beach

Recommended engineer
revisit site to fix issues
from 2019 drainage project

Pinnacle Springs

Reduce erosion from new culverts
Pursue a grant to study
stormwater runoff





Questions?

Overview: Spofford Lake Water Quality Monitoring Program (WQMP)

- NH DES Volunteer Lake Assessment Program (VLAP) launched in 1985
- First recorded VLAP data for Spofford Lake was in 1988
- Regular on-lake and on-shore sampling started in 1990
 - Multiple sampling events, typically June, July & August
 - On-lake sampling primarily at the Deep Spot
 - On-shore sampling at tributaries, beaches, boat ramp and outlet
- Dataset from testing period 1988 to 2022 now includes >7,500 individual data points
- WQMP was expanded significantly in 2022

Water Quality Monitoring Trends

The Good News

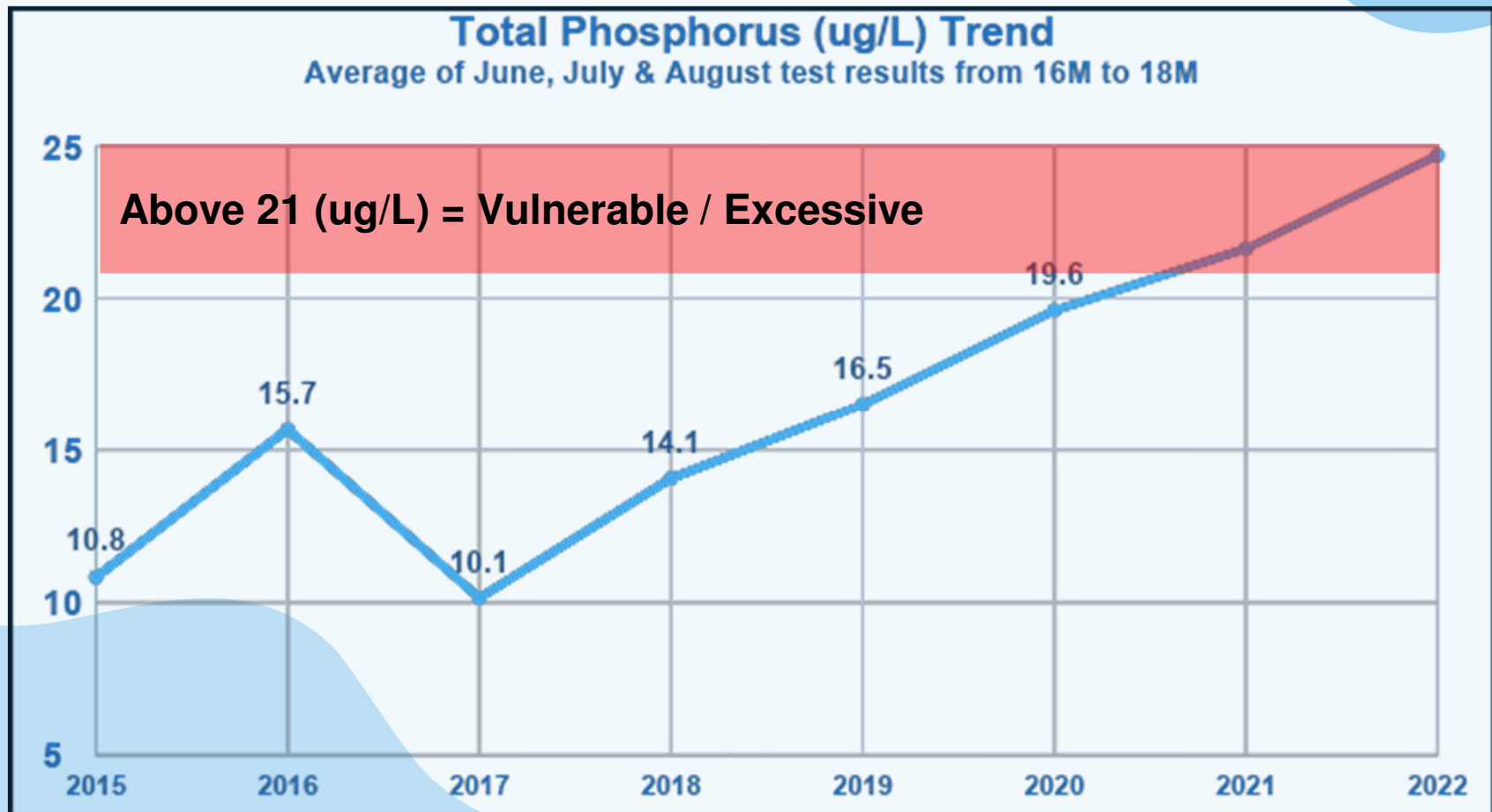
- No significant bacteria detected at the beaches and boat ramp
- Good to Excellent results for most key water quality parameters
- 2021 VLAP Report characterized Spofford Lake water as having “high quality conditions”

Water Quality Monitoring Trends

The Not So Good News

- High and increasing levels of Total Phosphorus
- Low and decreasing levels of Dissolved Oxygen
- Chloride levels are increasing (but still significantly below “Chronic” level)

Critical Trend: Increased Total Phosphorus



Increased Total Phosphorus

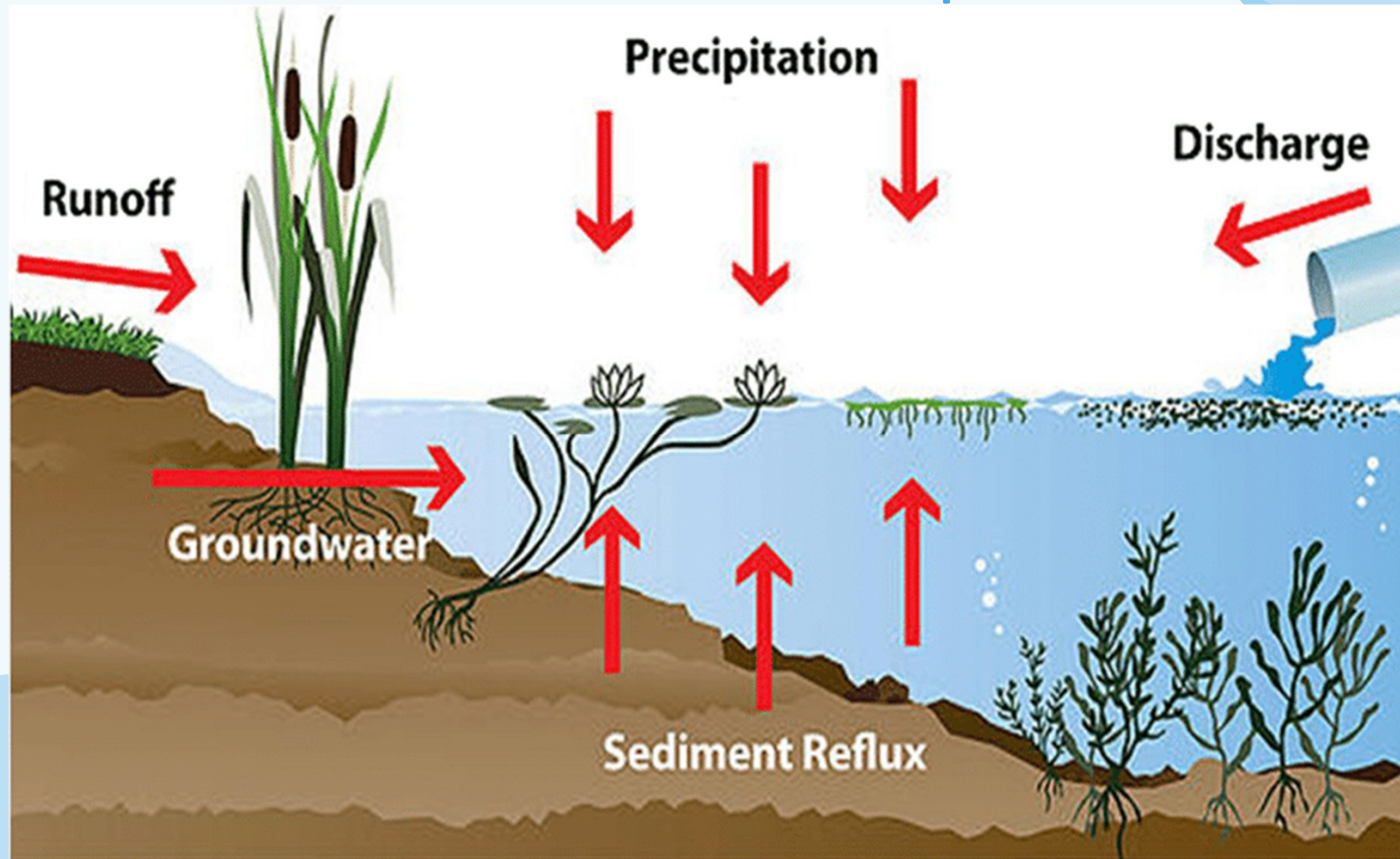
Primary Causes

- Stormwater runoff & Soil erosion
- Septic systems
- Other

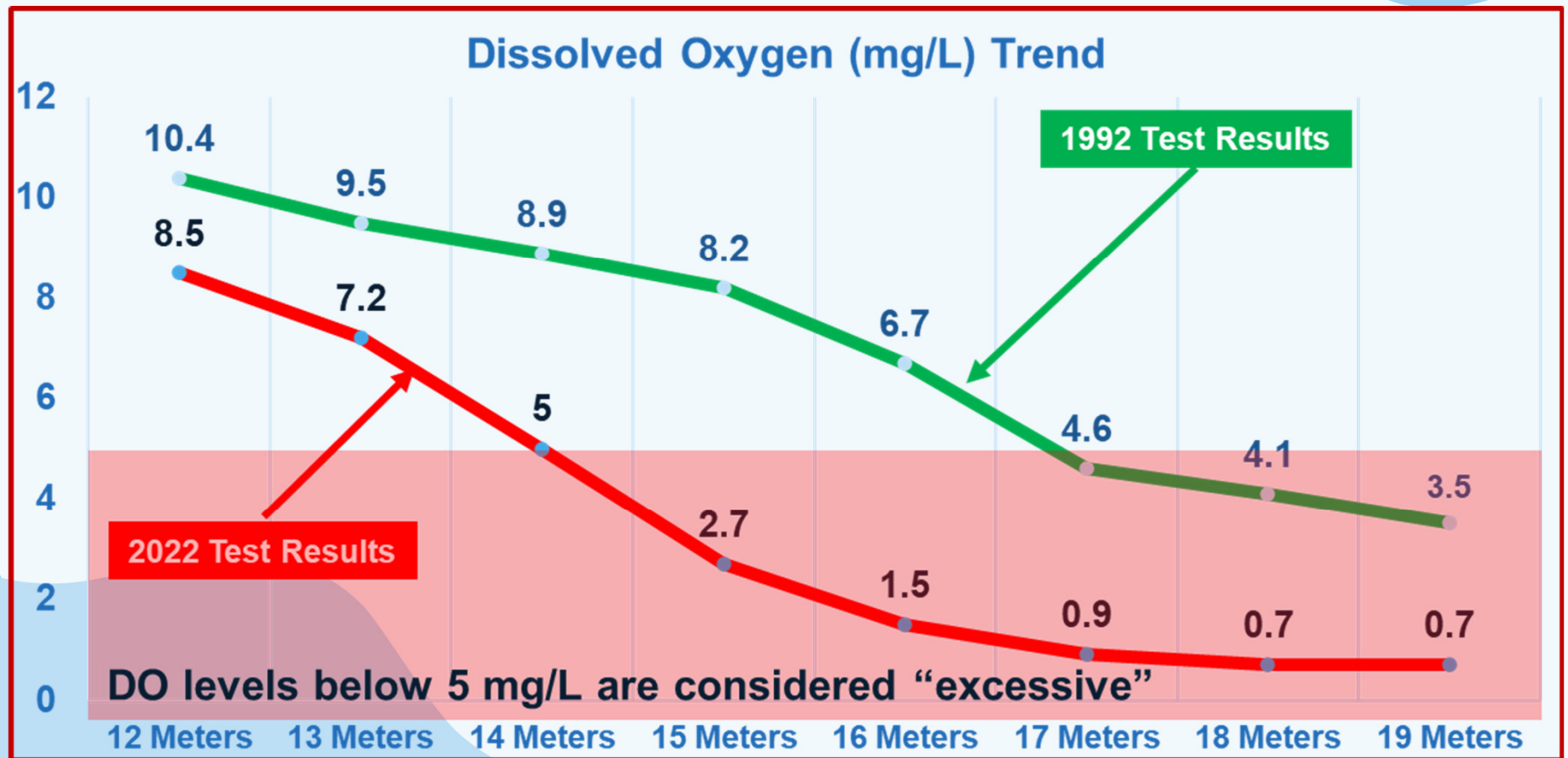
Effects (Why does it matter?)

- Increased Algae & Plant growth
- Harmful Algae Blooms (Cyanobacteria)
- Reduced Dissolved Oxygen - Stress on Aquatic Life

Increased Total Phosphorus



Critical Trend: Decreased Dissolved Oxygen



Decreased Dissolved Oxygen (DO)

Primary Causes

- Excessive Phosphorus - Increased Algae & Plant Growth
- Climate Change - Warm water has reduced capacity for DO

Effects (Why does it matter?)

- Low levels of DO ($< 5\text{mg/L}$) threatens Survival of Fish and other Aquatic Life
- Internal Phosphorus Loading

Decreased Dissolved Oxygen

Parts per Million (ppm) – Dissolved Oxygen

1 2 3 4 5 6 7 8 9 10



Too low for fish populations

Stressful for fish

Acceptable for
spawning and growth

Supports abundant fish populations

Risk of “Do Nothing” Option

Excessive Plant and Algae Growth
Loss of Fish Species
More Frequent Cyanobacteria Blooms



Questions?

Grants

319 Grant

- Led by the Spofford Lake Association
- Addressing Stormwater Runoff at the Boat Launch

Clean Water State Revolving Fund Grant

- Led by the Board of Selectmen
- Studying stormwater runoff from Pinnacle Springs



Questions?

Reviews and Recommendations

Review Land Use Regulations

Floodplain, Zoning, Land Development and Building Ordinances

Town Procedures

Building Permits and Code Enforcement



Review State Regulations

Shoreland Protection Act and Alteration of Terrain

State Enforcement

Shoreland, Septic, Wetlands

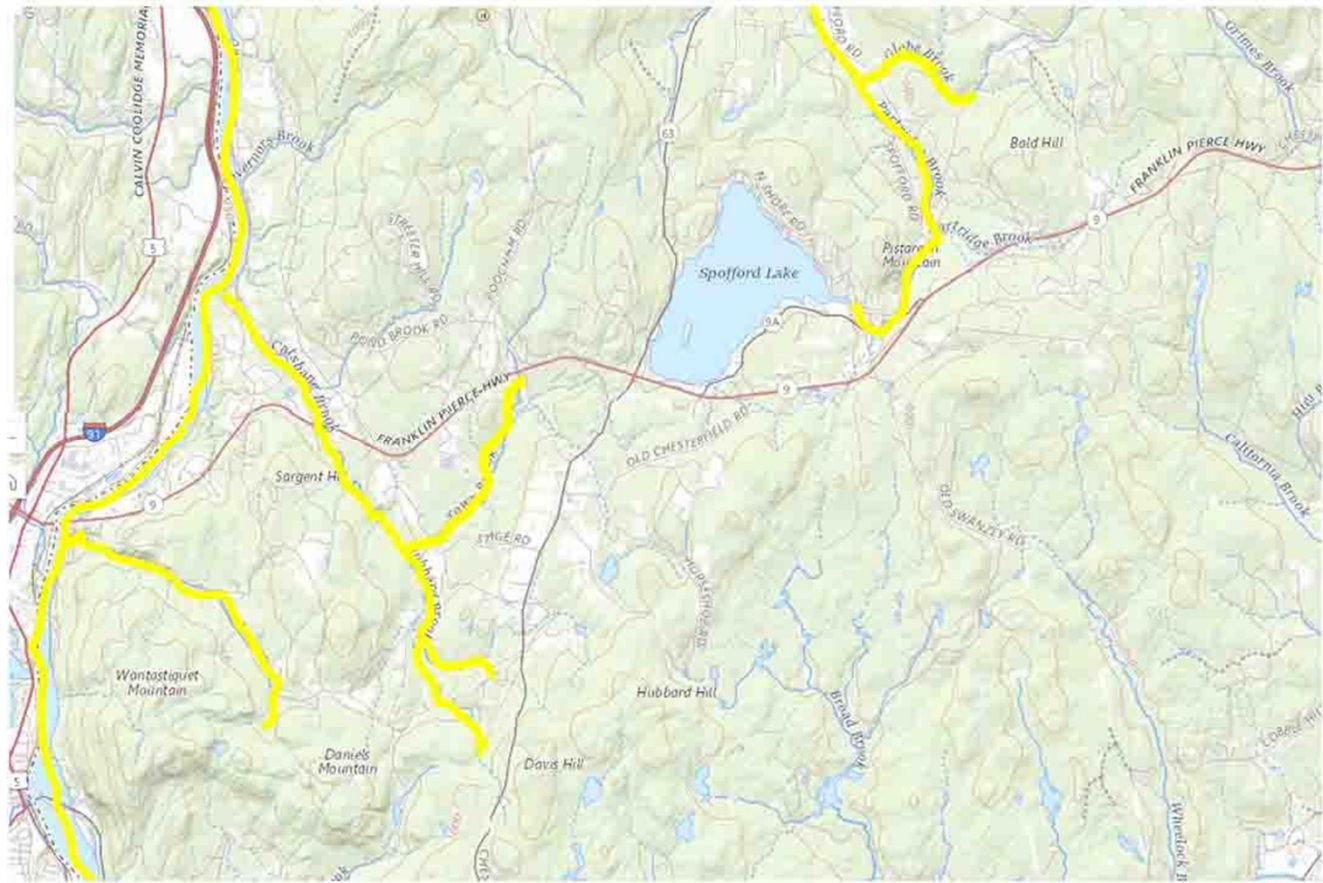
Recent Recommendations

Changes to the Building Permit

- Ask if all required State and Federal Permits have been applied for and received.
- Require a copy of all the required State and Federal permits for the building permit application.
- Ask if the work on their property is within 250 feet of Spofford Lake or the Town Protected Shoreland Brooks, Rivers, and Streams called out in section 209.1 of the Zoning Ordinances.

Protected Streams in Chesterfield

- Catsbane Brook
- Gulf Brook
- Partridge Brook
- Very Brook
- Hubbard Brook
- Town Brook
- CT River



Recent Recommendations

Changes to the Building Permit (continued)

- Include total amount of land being disturbed.

Disturbed land is land that is dredged, excavated, filled, mined, has stumps removed, used for the transport of forest products, or alter the characteristics of the terrain, in such a manner as to impede the natural runoff or create an unnatural runoff.



TOWN OF CHESTERFIELD

P.O. BOX 175
CHESTERFIELD, NH 03443-0175
(603) 363-4624

BUILDING PERMIT

LOCATION _____ MAP/LOT/SUBLOT _____
OWNER(S) _____ PHONE _____
MAIL ADDRESS _____ E-MAIL _____
CONTRACTOR _____ PHONE _____
ADDRESS _____ E-MAIL _____

TYPE OF PROJECT

- ☐ NEW
☐ ADDITION
☐ REMODEL
☐ REPAIR
☐ DEMO
☐ SEASONAL
☐ SIGN
☐ AGRICULTURE

ELECTRICAL CONT. _____ ADDRESS _____
PHONE _____ NH M LIC# _____
PLUMBING CONT. _____ ADDRESS _____
PHONE _____ NH M LIC# _____
PROPOSED USE _____ ESTIMATED COST _____
TOTAL SQ. FT OF CONSTRUCTION _____ TOTAL SQ. FT OF LAND DISTURBED _____

PROJECT DESCRIPTION _____

ARE THERE ANY EXISTING OR PENDING ZONING VARIANCES FOR THIS PROPERTY? ☐ YES ☐ NO PLEASE EXPLAIN _____

IS THE PROPERTY WITHIN 250 FEET OF SPOFFORD LAKE OR OTHER WATERBODIES PROTECTED UNDER SECTION 289.1 OF THE TOWN OF CHESTERFIELD'S ZONING REGULATIONS? ☐ YES ☐ NO

HAVE YOU APPLIED FOR AND RECEIVED ALL NECESSARY STATE/FEDERAL PERMITS (SEE PAGE 4)? ☐ YES ☐ NO ☐ N/A

DRIVEWAY PERMIT # _____ NHDES SEPTIC APPROVAL # _____ OR EXISTING SEPTIC WITH # _____ BEDROOMS

PROPERTY IN CURRENT USE? ☐ YES ☐ NO TREE CUTTING? ☐ YES ☐ NO INTENT TO CUT FILED (RSA 79:10) ☐ YES ☐ NO

ALL RELATED CHARGES FOR THIRD PARTY REVIEW AND/OR INSPECTIONS ARE PAYABLE WHEN REQUESTED

I hereby certify that I have read and examined this document and know the same to be true and correct. All provisions of the laws and ordinances of the State of New Hampshire and The Town of Chesterfield that apply to this project will be complied with and whether specified herein or not, I further certify that I am the owner or the owner's authorized agent and that the proposed work is authorized by the owner. I understand that work shall not begin until the permit is issued by this department, and that I AM RESPONSIBLE FOR CALLING FOR ALL REQUIRED INSPECTIONS, THAT THE WORK SHALL BE ACCESSIBLE FOR INSPECTION, THAT A FINAL INSPECTION, APPROVAL AND CERTIFICATE OF OCCUPANCY ARE REQUIRED PRIOR TO OCCUPYING THIS BUILDING OR IT'S RENOVATED OR ADDED AREAS.

The applicant also hereby certifies that the number of bedrooms will not exceed the number of bedrooms approved by the NHDES approval or not to exceed the number of bedrooms in an existing building with a predated septic system. New approved septic designs to be provided as required by NHDES rules.

Fees are not refundable. This permit application is only for the work described above. This permit will expire one year after the date of issue and may be renewed if the work has been started, the renewal fee has been paid and the renewal has been approved by the Code Official.

The applicant hereby grants permission for the Code Enforcement Officer/Building Inspector, Health Officer or other agency at the direction of the Code Official to enter upon the above described property as needed to perform their duties until a Certificate of Occupancy/Completion is issued.

APPLICANT SIGNATURE _____ DATE _____

PRINT NAME _____ TITLE _____

TOWN OF CHESTERFIELD, NH Building Permit & Construction Checklist

Code Enforcement Officers: Matt Beauregard (603)-363-4624 ext. 12
Steve Dumont

Applicant should review the Town of Chesterfield's zoning and building ordinances before planning new construction or making changes to any structure.

Items to accompany building permit application:

- 1) Completed Building Permit Application.
- 2) Buildable Plans, for construction. (Must be the final draft and complete.)
- 3) Site (plot) plan including property line setbacks.
- 4) State septic design Approval for Construction when applicable
- 5) Copy of Driveway permit from Highway Superintendent for new driveways.
- 6) Copy of all required state/federal permits.
- 7) Copy of ZBA Variance if required.
- 8) Copy of NHPUC Energy Certification
- 9) Payment of permit fee per fee schedule

Plan review and approval is required before a building permit is issued

Inspections: (As required by Code Enforcement) (48 Hour prior notice requested)

- 1- Site: To confirm building footprint, setbacks and installation of required silt fencing.
- 2-Footings: When footings have been formed and rebar is in place.
- 3-Foundation: When foundation walls are formed with rebar in place and before concrete is poured.
- 4-Foundation drainage: When foundation has been sealed & drainage is complete and ready for backfill
- 5-Structure: When all framing, roof, windows & doors are installed.
- 6-Rough-in: When Plumbing, Electrical, HVAC & etc. has been completed before insulation
- 7-Insulation: When insulation has been installed before drywall starts.
- 8-Final: Check completion, code and zoning compliance.

NO BUILDING OR STRUCTURE SHALL BE USED OR OCCUPIED WITHOUT A CERTIFICATE OF OCCUPANCY. THE APPLICANT IS RESPONSIBLE FOR COMPLIANCE WITH CHESTERFIELD BUILDING & ZONING ORDINANCES. ANY ADDITIONAL WORK WILL REQUIRE AN APPROVED BUILDING PERMIT AMENDMENT.

Items needed for Certificate of Occupancy:

- 1) Driveway final approval.
- 2) Water test results for bacteria for new wells.
- 3) Installation of street number as required for 911.
- 4) Septic system, Approval for Operation from NHDES
- 5) Planning Board and/or Zoning Board conditions have been met

Recent Recommendations

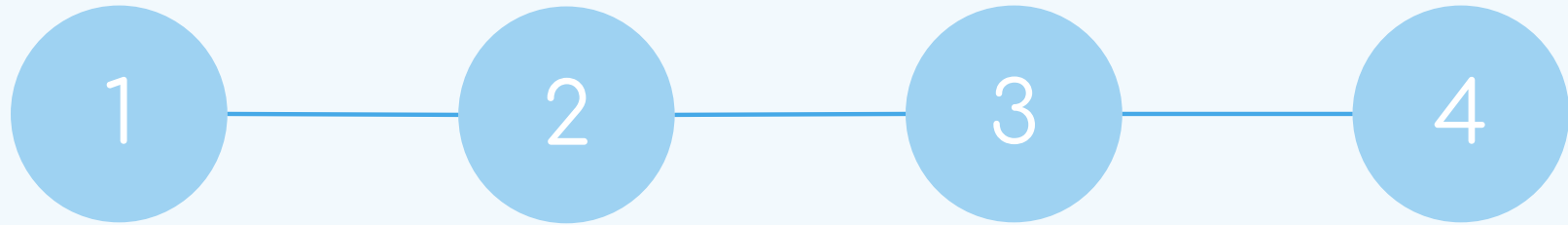
Changes to the Building Code

- Correct Building Ordinance 13.08
 - Currently Reads - "Floodplain Development Regulations-see pages 29-31"
 - Current document is only 10 pages long
 - Pages 29-31 do not exist



Questions?

Future Direction



Establish a
Watershed
District

Update
Permitting
Requirements

Change
Impermeable
Surface
Definition

Encourage
Low Impact
Development

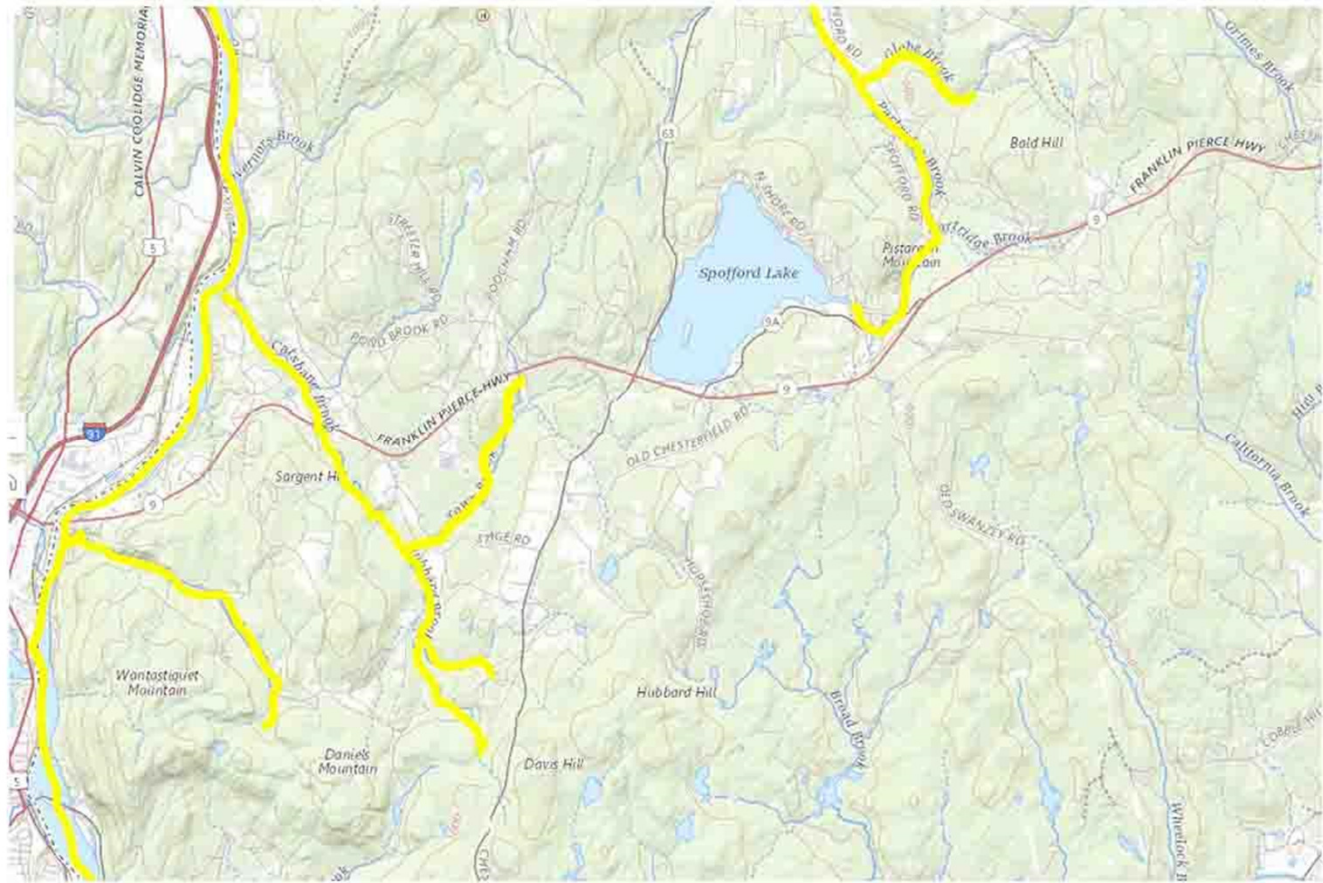


New Permitting Requirements

- Watershed District
 - Alterations to property where surface water resulting from land development causes increased flooding or unreasonable deposits of storm water runoff or sediment onto adjacent properties or properties further downstream
 - New Driveways
 - Driveway Modifications
- Town Wide
 - When doing work within 250 feet of protected streams in Section 209.1 of the 2022 Zoning Ordinances

Protected Streams in Chesterfield

- Catsbane Brook
- Gulf Brook
- Partridge Brook
- Very Brook
- Hubbard Brook
- Town Brook
- CT River



Update Impermeable Surface Definition

Proposed Definition

Impervious surface means any modified surface that cannot effectively absorb or infiltrate water. Examples of impervious surfaces include, but are not limited to, roofs, **and unless designed to effectively absorb or infiltrate water**, decks, patios, and paved, gravel, or crushed stone driveways, parking areas, and walkways. All portions of any ground mounted solar panels other than the portion in direct contact with the ground are considered permeable. All portions of underground waste disposal systems, along with necessary access covers, vents and risers for pump out and inspection are considered permeable.

Low Impact Development (LID)

Add LID Definition to Building Ordinances

- Examples Include
 - pervious pavement
 - rain gardens
 - green roofs
 - bioretention basins and swales
 - filtration trenches

Add Ordinance That Encourages LID

- 20% of Ground Coverage can be exceeded (with an upper cap) when using professionally engineered LID techniques

Changes to Regulation - Process

- Study Issues
- Determine Basic Strategy
- Get Input from Town
- Update Strategy and Make Recommendations to BOS
- Have Town Attorney Draft Changes
- Proposed Changes given to BOS and Planning Board
- Go to Town Vote



Questions?