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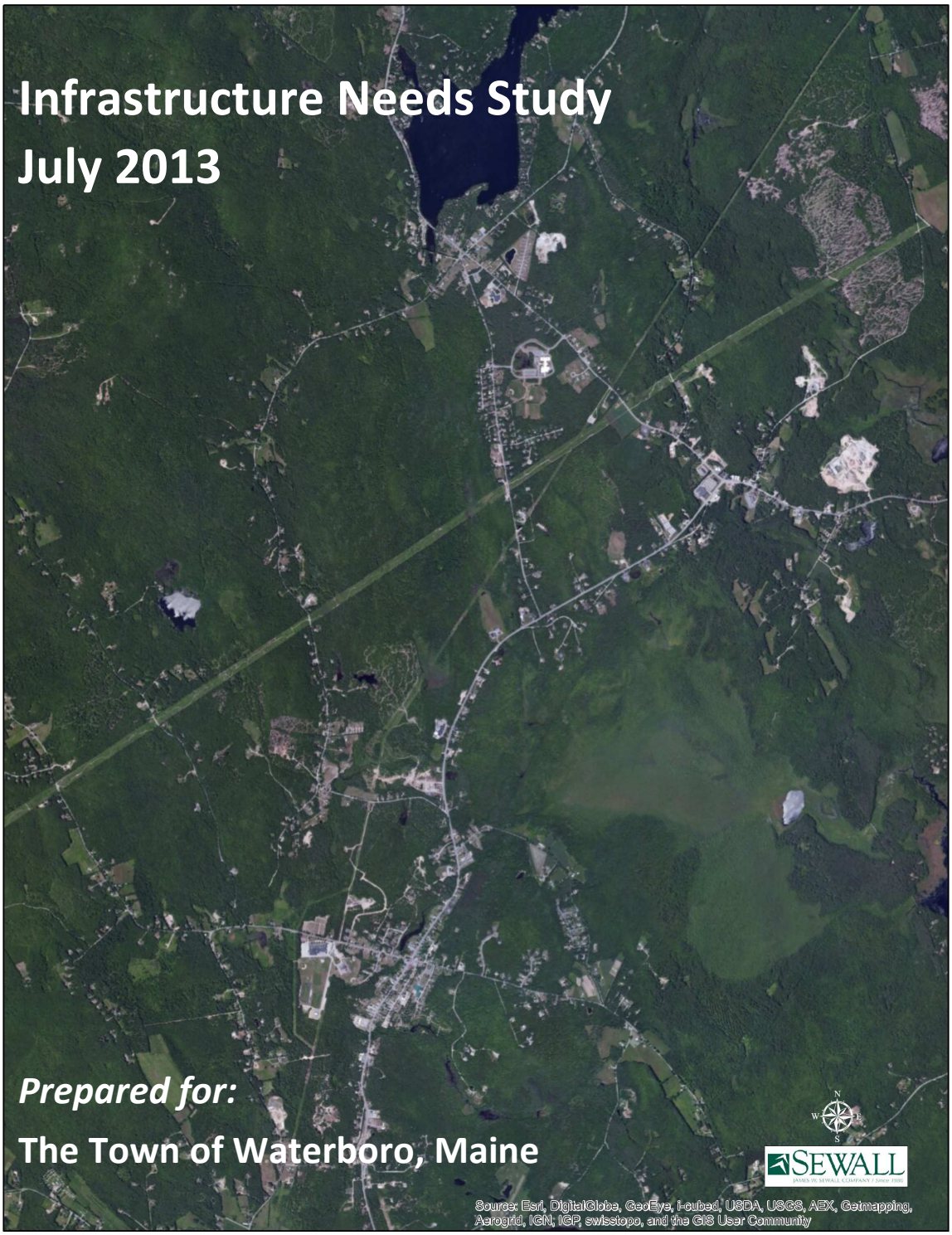

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Infrastructure Needs Study

Town of Waterboro

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Infrastructure Needs Study
Town of Waterboro

SECTION 1 - BACKGROUND / INTRODUCTION

How the Infrastructure Needs Analysis fits into the Master Planning Process

In 2010 Town of Waterboro officials on the 20/20 Planning Committee began a multi-year process to update the Town's Comprehensive Master Plan. The first phase, completed in 2011, focused on energy efficiency planning. The second phase, completed in 2012, developed a conceptual plan for each village area (South Waterboro, East Waterboro, Center Waterboro, and North Waterboro). The third phase of the Master Plan update, which this report covers, focuses on public infrastructure needs, with particular emphasis on waste water collection and treatment needs over the next twenty (20) years, and the identification of parcels suitable for the development of a business park / industrial park.

In addition, the current effort included the development of a series of Town wide planimetric maps, which form the basis of a digital geographic information system (GIS) for the Town. The ability to superimpose various planimetric maps (GIS layers) over a base map of the Town provides a very powerful planning tool for Town officials. In fact, this approach was used extensively to evaluate potential business park sites and waste water treatment needs. A specific list of the GIS layers is included later in this report.

The final component of the infrastructure analysis was the development of a recommended action plan, with specific short term and long term actions the Town should take to move the project towards implementation. In effect, the Town can use the detailed action plan as a roadmap, as you move from the planning stage to the implementation stage. Future phases will tackle transportation challenges, capital investment planning, growth forecasting, land use priorities, and economic development strategies for the Town.

SECTION 2 -PLANIMETRIC MAPPING

Planimetric Maps

The term planimetric mapping refers to the mapping of physical features such as buildings, roads, bodies of water, etc. without the associated topography. Thus, a planimetric map is a two dimensional representation, as opposed to a topographic map which adds the third dimension in the form of contours and spot elevations. In Waterboro's case, the planimetric map will digitally capture cultural and natural features in their true coordinate positions, depicting them to scale on the Town of Waterboro base maps. Basic initial features typically include streets, wetlands, vegetation, and man made structures, like homes and commercial buildings.

Base Map

The availability of accurate maps is essential when evaluating public infrastructure needs on a Town wide basis. As a result, our first step was to develop an official "base map" for the Town with all roads and structures shown. Mapping the location of all structures gave us a reasonable indication of the density of subsurface waste water disposal systems (SSWWDS) throughout the town. A greater density of structures was assumed to mean a greater density of SSWWDS's and a greater inherent risk of groundwater contamination. In areas of Town not served by public water, homeowners must rely on private wells for their water supply and are thus subject to a greater threat of contamination of their drinking water. In areas of the Town served by public water, as shown in Figure 1 on the following page, the presence of groundwater contamination is not as serious a threat to homeowners since they're not drawing water from individual wells.

This approach allowed us to hone in on areas where public sewer would be most beneficial, i.e. areas not currently served by public water which also have a high SSWWDS density. Likewise, overlaying the base map with other maps of the same scale, such as soil maps, wetlands maps, sand and gravel aquifer maps, topographic maps, zoning maps, etc., gave us the ability to cross reference existing conditions and eliminate large areas of Town from further consideration with respect to potential business park sites. As the Town begins to use the GIS mapping for planning purposes it will become apparent how powerful this tool can be.

Figure 1: Waterboro Water District Service Area Map

Figures 2 and 3 below show an enlarged view of the water main layout in South Waterboro and East Waterboro/Center Waterboro, respectively.

Figure 2: South Waterboro Water

Figure 3: East and Center Waterboro Water

GIS Layers

In developing the individual GIS layers we drew from a variety of sources as shown in Figure 4. To keep costs down, we used existing mapping available from the Town, as well as State and Federal agencies. Specifically, the following layers are incorporated into the GIS mapping delivered to the Town of Waterboro:

- Base Map
- Street Patterns
- Town Tax Maps – help to identify large undeveloped parcels
- Town Zoning Maps – determines the type of development that can occur
- Areas where Waste Water Disposal Needs are greatest (highest density of SSWWDS's and greatest volume of waste water produced)
- Areas of Town where Development is Problematic (wetlands, restrictive soils, excessive slopes, critical wildlife habitat, deer wintering yards, recreational areas, etc)
- Waterboro Water District Systems Map
- Significant Sand & Gravel Aquifer Maps – critical water resources
- Designated High Growth Corridors – Route 4 & Route 5 corridors
- Soil Conservation Service Soils Map – identify restrictive soils
- USGS Map - topography
- Drainage Divides and Watersheds – where would waste water discharges end up
- FEMA 100 Year Flood Zones – cannot develop within flood zone
- ATV Recreational Trails

Future GIS Layers

In addition to the layers provided as part of the infrastructure needs analysis, the following layers have been identified as important future additions.

- Culvert Locations and Configuration – obstacles to fish migration
- Limits of 3 phase power – for industrial/commercial development

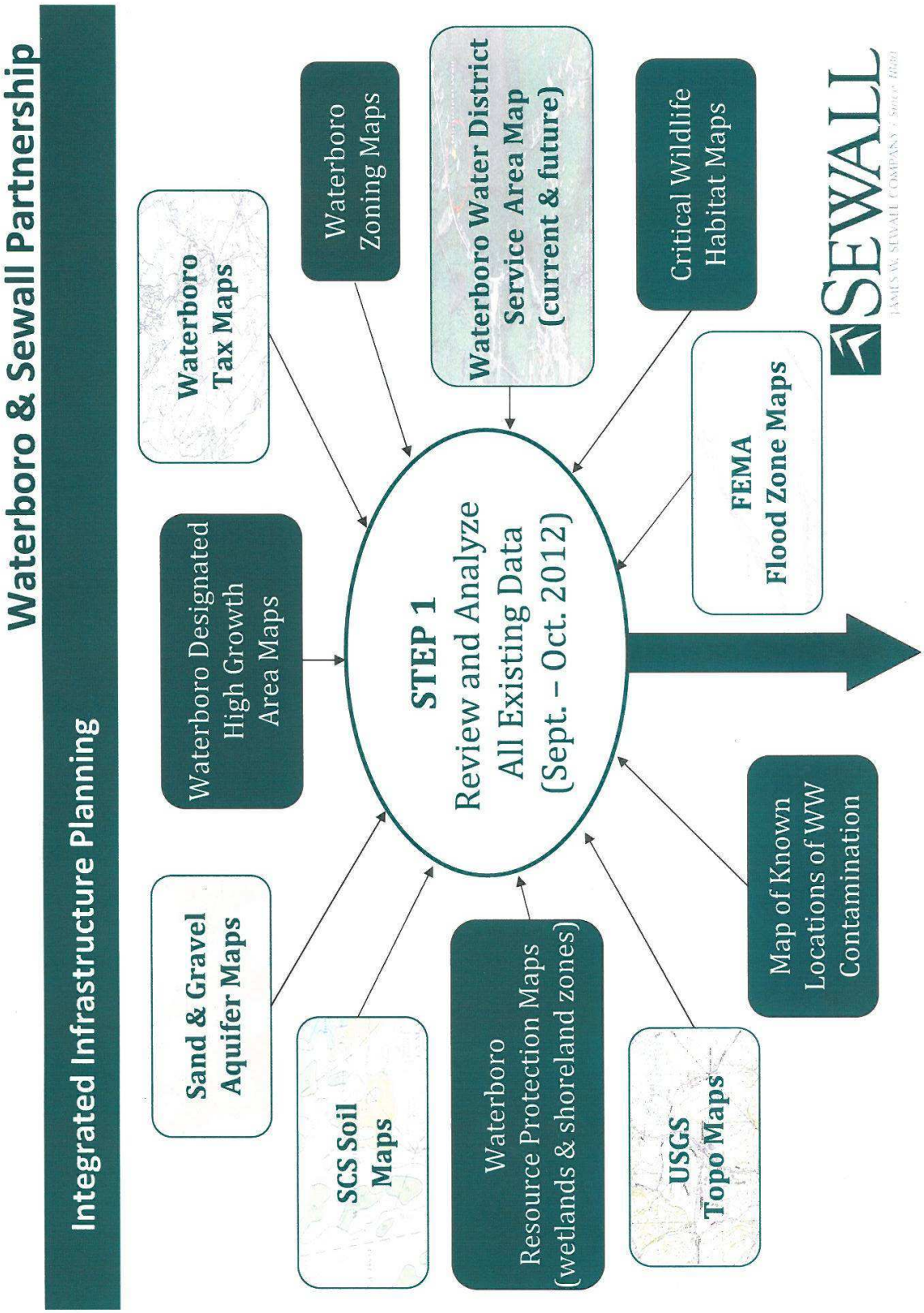

Figure 4: Source Maps for GIS Layers

SECTION 3 -WASTE WATER NEEDS ANALYSIS

In conducting a Town wide analysis of waste water treatment needs, we needed to make certain assumptions regarding the density of subsurface systems and the resulting volume of waste water produced in different areas of Town. The main assumption was that each residence shown on the base map was served by a subsurface system, since no public sewer currently exists.

This allowed us to gauge the density of subsurface systems, estimate the approximate amount of waste water generated, and compare that volume with the carrying capacity of the soils in that area of Town. The combination of high SSWWDS density, restrictive soils, and / or wetlands provided a good indication of where groundwater contamination from subsurface systems was likely. In areas of Town that have a high ground water table or restrictive soils, the ability of subsurface systems to adequately treat the waste water is compromised, resulting in a greater risk of groundwater contamination. Contamination from leaking septic tanks or non functioning leach fields is generally seen in the form of elevated nitrate and nitrite levels in groundwater, and both the eutrophication (elevated phosphorus and nitrogen levels) and bacterial contamination of nearby water bodies. Often times the groundwater contamination goes undetected unless it becomes severe enough to cause health problems (elevated nitrite levels cause blue baby syndrome). Contamination of surface water (streams, ponds, lakes) is generally more visible in the form of algae blooms and die offs and subsequent water quality deterioration.

Areas of known groundwater contamination

In addition to potential groundwater contamination from faulty SSWWDS's, the Town has experienced incidents of groundwater contamination in the following areas:

- South Waterboro - Tannery and gas contamination
- Intersection of Route 4 / Route 5 - gas contamination
- Lagoons near Transfer Station – heavy metals, chromium
- Southern Maine Finishing site on Route 5 – solvents, hydrocarbons
- Owen's property on Garland Hill Road

Impact of Public Water on the need for public waste water collection and treatment

As mentioned previously, the presence of public water service in an area of Town greatly reduces the need for public sewer in that same area, since homeowners are not relying on private wells which may be more susceptible to contamination due to limited wellhead protection. As a result, we were able to focus our waste water analysis on those areas of Waterboro that are not currently served by public water, and most likely won't be for the foreseeable future. In effect, you have two options to protect public health with respect to public water and sewer:

Option 1 - move residents off private wells onto public water, and let them continue to use their subsurface system.

Option 2 – move residents onto a public sewer system by retiring the subsurface systems, and let them continue to use their private wells.

Option 1 has already been implemented within the service area of the Waterboro Water District (WWD), and greatly reduces the need for public sewer in those areas. Outside the current WWD service area, and in areas not likely to receive public water in the future, Option 2 is generally the most viable option to prevent groundwater contamination and protect public health.

Waterboro Water District Service Area and Capital Improvement Plan

For reference, the WWD currently serves approximately 160 customers, or only about 5% of the Town's population. The ability of the District to expand their service area and / or serve large demand customers is currently limited by their well supply, which at a maximum capacity of 120 gallons per minute (gpm), is marginal for a municipal water system. Because the WWD recognizes this limitation they are currently investigating additional sources of supply, which would allow them to expand their service area and remove the restriction on serving large industrial customers. Future expansion of the water system is most likely to happen where the WWD finds their new source of supply.

To find a new source of supply, a hydrogeologic investigation is conducted by a trained, professional hydrogeologist. In general terms, a hydrogeologic investigation consists of the following steps:

1. Perform a desktop evaluation to identify promising sites for exploratory drilling, by reviewing the sand & gravel aquifer maps, surficial geology maps, and existing well logs, as well as talking to local well drillers to get a sense of subsurface conditions.
2. Conduct field reconnaissance to confirm findings from Step 1.
3. Work with the Town to obtain purchase option agreements for the most promising sites. The objective of this step is to establish a per acre sale price, prior to any drilling, so that if a suitable well site is found, the sale price doesn't skyrocket.
4. Once purchase option agreements are obtained a well drilling company is hired to install 3-5 test wells (typically 2-1/2" diameter PVC wells with screens installed) at the most promising site.
5. The test wells are then pumped at a sufficient rate over a period of a few days, to determine the safe yield of the aquifer (quantity of water that can be safely drawn from the aquifer indefinitely without negative repercussions).
6. During the short term pump test, drawdown readings will be taken in all test wells allowing the hydrogeologist to gauge the wellhead protection zone that will be needed to protect the well.
7. At the end of the short term pump test, water quality samples required by the State regulatory agency (Maine Drinking Water Program), will be drawn and submitted to

a certified lab. This step will identify any potential water quality issues associated with the site.

8. The investigation will continue until a site is found that can provide the quantity, quality, and wellhead protection needed.

The WWD has identified two areas of Town that they wish to conduct further hydrogeological investigations to determine the quantity and quality of groundwater available. The two areas are (1) the existing well site behind the Town Office on Town House Road, and (2) the possible future well site along the Bennett Hill Road.

Despite the fact that preliminary testing indicates a safe yield of 750 gpm at the Town Office site, which would meet the District's needs well into the future, the WWD has recognized the difficulty of establishing adequate wellhead protection for a well at this site. The close proximity of commercial development along Route 5 and lakefront properties may preclude further exploration.

The area along the Bennett Hill Road has been identified as a potential well site, but no hydrogeologic investigation has occurred to date.

In addition to the search for a new well, the District has identified the need for a storage tank on the northern end of the distribution system, near the Route 5 corridor. The proposed tank will be used in conjunction with their existing tank in South Waterboro to provide redundancy and enhanced fire flows. To achieve the same hydraulic grade as the existing tank would require a water elevation in the tank of 491 feet. Possible tank sites would be on the Roberts Ridge Road or the Bennett Hill Road. Additional research, field reconnaissance, and topographic survey will be necessary to identify the most suitable site for the proposed storage tank.

The pace of water system expansion will be controlled by the finances of the WWD. The District currently has a debt load of $1M which is a significant amount for a small system. With water rates doubling two years ago, the District may not be in a position to implement their capital improvements for several years.

High Risk Areas of Town at Elevated Risk of Groundwater Contamination

The areas of Town with the heaviest subsurface waste water disposal system density not served by Public Water include:

1. Around Little Ossipee Pond including Center Waterboro, the Old Alfred Road, and North Waterboro
2. The portion of East Waterboro not served by Public Water
3. The portion of South Waterboro not served by Public Water

These three areas are under the greatest threat for groundwater /well contamination and in the case of the area around Little Ossipee Pond, also under

the greatest risk of surface water contamination from faulty septic systems. The Lake Arrowhead community, although possessing a high density of subsurface systems, is served by a public water system and therefore does not make the list of high risk areas.

Receiving watersheds

When looking at providing public sewer in high risk areas it is instructive to determine where the discharge of effluent from any waste water treatment plant would go. As shown in Figure 5, the Town of Waterboro is divided up into three receiving watersheds.

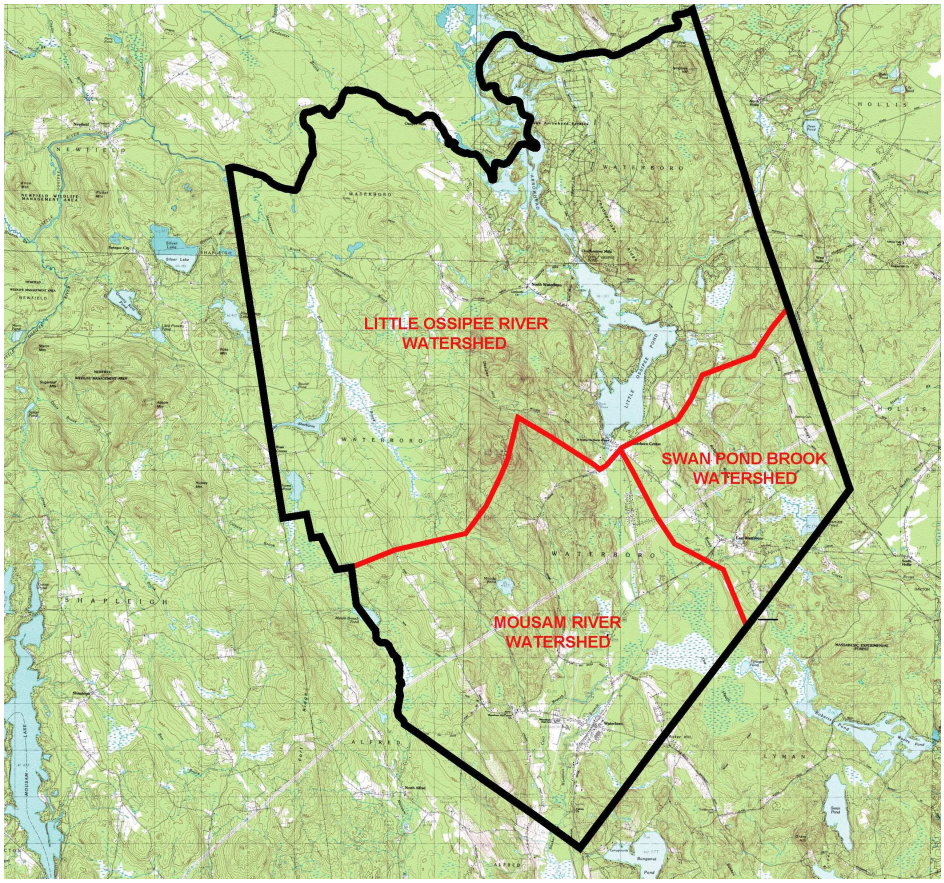

Figure 5: Receiving Watershed

Little Ossipee River Watershed into Saco River

Any discharge in the northern half of Town will flow to the Little Ossipee River and eventually to the Saco River, a Class A water body. Based on discussions with staff from the Maine Department of Environmental Protection (MDEP), which has jurisdiction over all waste water discharges in the State of Maine, it would be difficult, if not impossible, to obtain permits to discharge treated waste water effluent into a Class A water body, such as the Saco River.

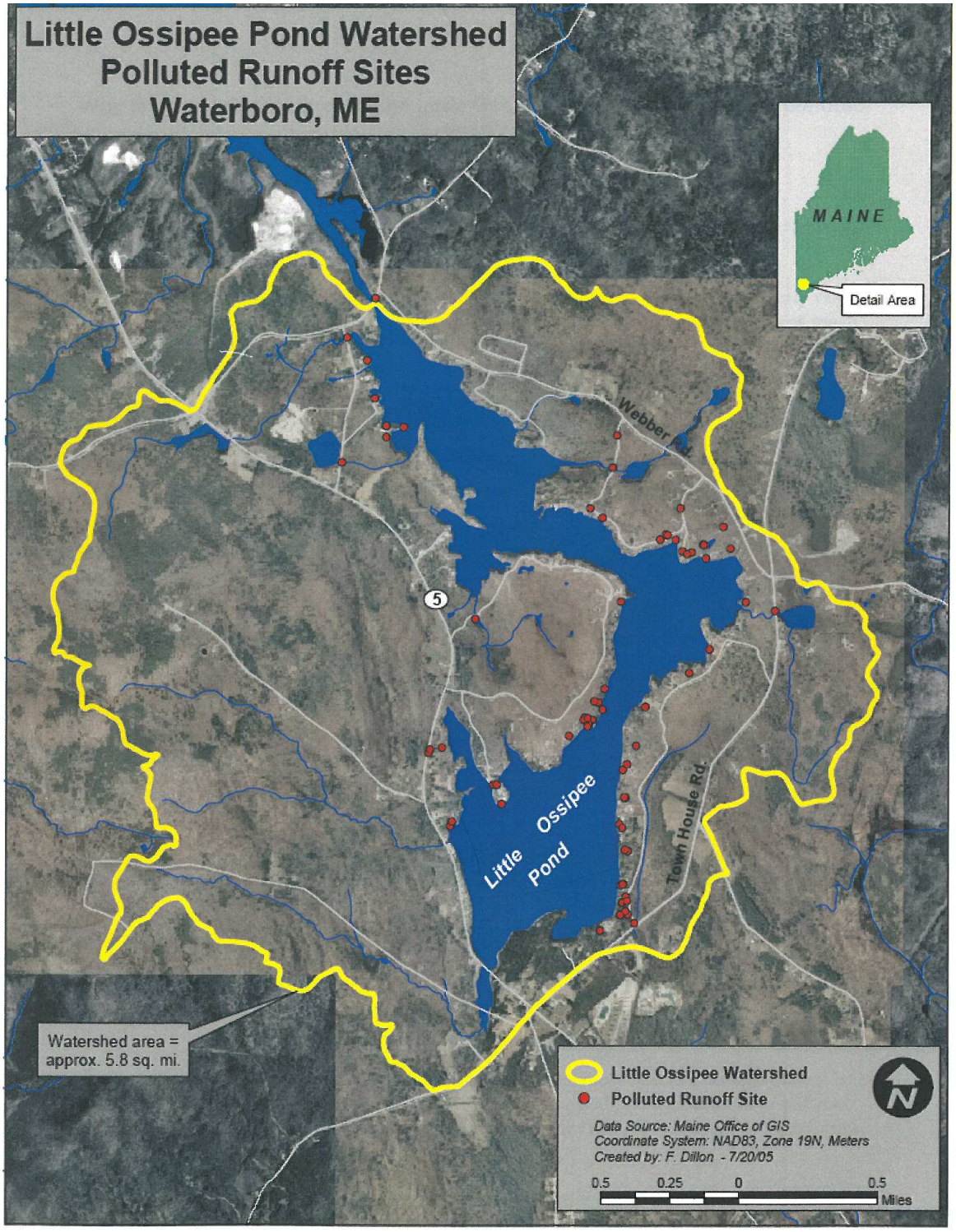

Figure 6: Little Ossipee Pond Watershed

Mousam River Watershed via several ponds

The receiving watershed in the southwestern portion of Waterboro is the Mousam River watershed. Although the Mousam River is not rated as highly as the Saco River, it flows through several ponds on its path to the ocean. Discharging treated effluent to a pond is no longer allowed in the State of Maine, so this is not a viable option either.

Swan Pond Watershed to Saco River and Kennebunk River

The receiving watershed for the southeastern portion of Waterboro is the Swan Pond watershed which feeds through other ponds before eventually reaching the Saco River or the Kennebunk River. For the same reasons as the Mousam River watershed, direct discharge of treated effluent would be prohibited into this watershed.

As a result, the discharge from any waste water treatment plant in Waterboro would be limited to either a land application system [spray application and rapid infiltration basins (RIBs) being the most common], or a community subsurface system.

Waste Water Collection & Treatment Priority

Protection of Little Ossipee Pond

In prioritizing the areas of Town which have the greatest need for waste water collection and treatment, we must start with the most prominent water body in Town, Little Ossipee Pond. The value of the pond as a four season recreational attraction must not be underestimated. With heavy residential development extending around the entire pond, it is at risk of water quality deterioration from septic systems and other sources of contamination. Protecting this valuable natural resource should be the highest priority with respect to waste water collection and treatment. Otherwise, the pond will eventually degrade in water quality, suffering algae blooms from elevated phosphorus levels, adversely impacting fisheries and other aquatic life. For these reasons we recommend that providing public sewer around the pond, including the villages of Center Waterboro and North Waterboro should be the highest priority for the installation of waste water infrastructure.

Waste Water Infrastructure Recommendations for the Next 20 Years

Because the Town of Waterboro has a large footprint (57.4 sq. miles) with large distances between the established village areas, we foresee individual waste water systems for each village initially, as opposed to a larger regional waste water system. A regional system may happen in the distant future, but for the next twenty years, the distance between villages is too great and would render a combined system cost prohibitive. Initial recommended systems in order of priority include:

Highest Priority - Little Ossipee Collection and Treatment System

This proposed system would include Center Waterboro, the Old Alfred Road, North Waterboro and picking up all subsurface wastewater disposal systems around the pond. The Little Ossipee Collection and Treatment System would also be well positioned for a future connection with the Lake Arrowhead community if they decide to install a sewer

collection system. Because of the topography around the pond, the system would require multiple pump stations situated at low points, to bring the wastewater to a central pump station via force mains and gravity sewer mains. From there the accumulated waste water would be conveyed to the treatment plant site.

Service Area and Population Served

The area served by the proposed collection system is shown in Figure 7. The system would pick up all residences around the pond, which would remove the biggest long term threat to the pond, as well as Center Waterboro village, North Waterboro village and the development along the Old Alfred Road (unless public water reaches this area first). We estimate the collection system would serve approximately 340 lots initially. Because of the seasonal nature of some residences around the pond, the actual population served is projected to be somewhere around 1,200.

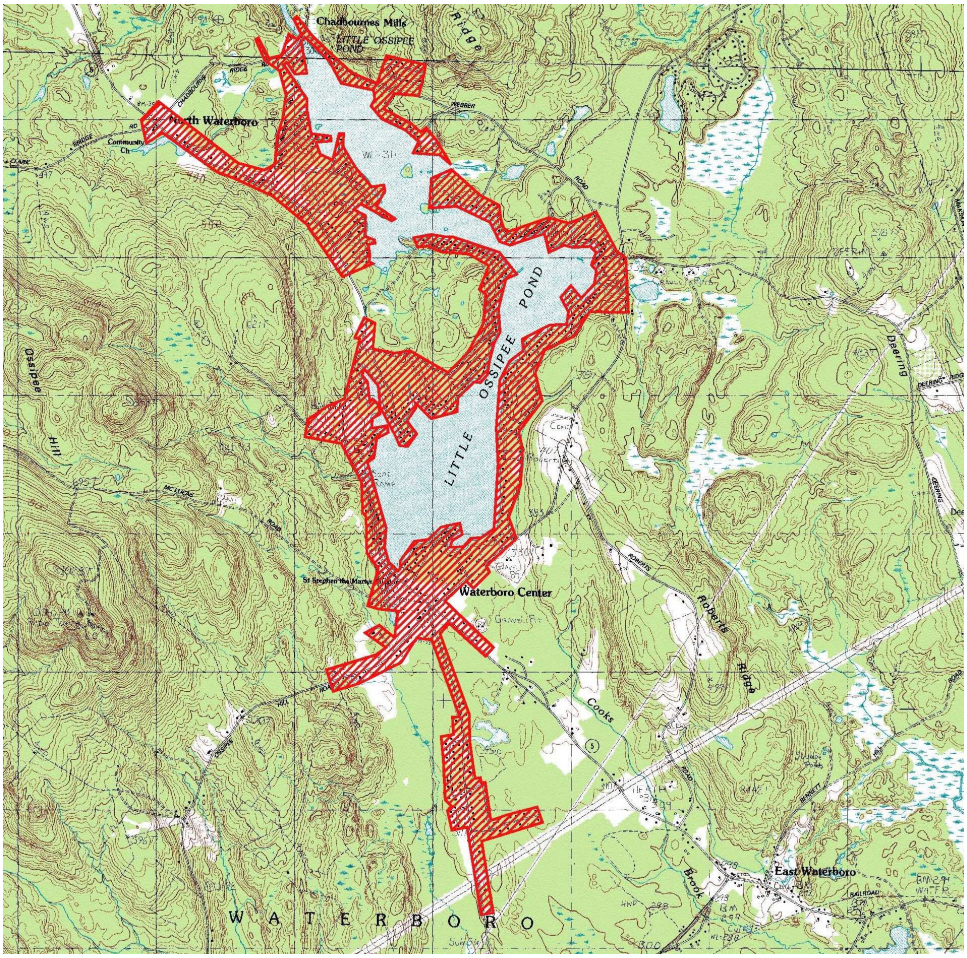

Figure 7: Little Ossipee Collection & Treatment System - Proposed Service Area

WWTP Location

Because of the lack of suitable receiving waters, a direct discharge is not feasible for this system. This leaves a land application system, such as RIBs or storage lagoons with spray application, or a community subsurface system as the only viable treatment alternatives. All three types of treatment require soils of a suitable composition and depth, so the exact location of the treatment plant would have to be determined in the field by conducting a detailed soils investigation. Potential sites that we would recommend a soils investigation would be to the foothills west of Center Waterboro, or on the large tract of undeveloped land to the northeast of the pond, near Chadbourne's Ridge.

Projected Wastewater Volume for Service Area

The projected wastewater volume collected by the Little Ossipee collection system, once the service area is fully connected, is estimated at 90,000 gallons per day.

High Priority - East Waterboro Collection and Treatment System

This high priority system would include East Waterboro, a section of Route 5, and the proposed business / industrial park site on the Bennett Hill Road. Because East Waterboro is surrounded by wetlands and fairly restrictive soils, the ability of subsurface systems to adequately treat waste water is somewhat compromised and could lead to groundwater contamination.

Service Area and Population Served

The area served by the proposed collection system is shown in Figure 8. The close proximity of the proposed business park site to the village of East Waterboro and the Route 202/4/Main Street and Route 5 intersection would allow the park to be served by both public water and sewer, greatly enhancing the attractiveness of the park to prospective businesses. We estimate the collection system would serve approximately 50 lots initially plus the business park if it develops on Town owned land off the Bennett Hill Road. The actual population served is projected to be approximately 200.

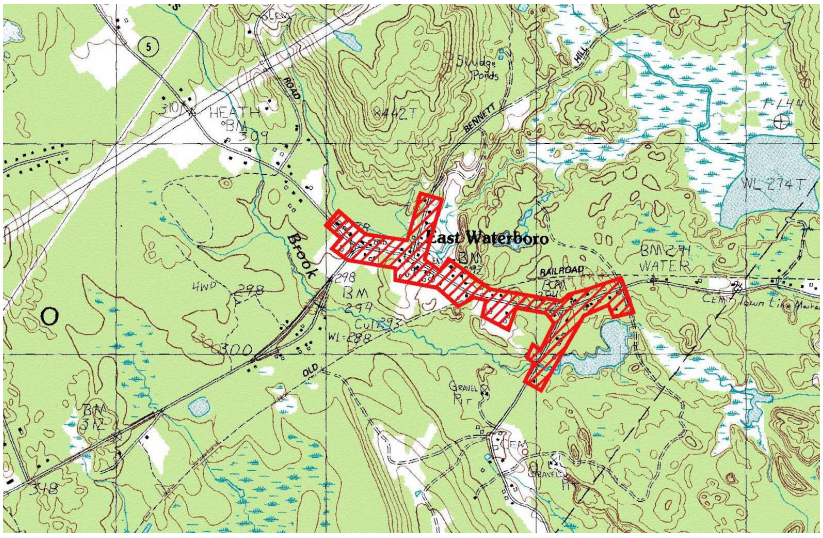

Figure 8: East Waterboro Collection & Treatment System - Proposed Service Area

WWTP Location

Because of the lack of suitable receiving waters, a direct discharge is not feasible for this system either. This leaves a land application system, such as RIBs or storage lagoons with spray application, or a community subsurface system as the only viable treatment alternatives. If the Town proceeds with the purchase of the Malone property to allow direct access to Route 5 from the Town owned property on the Bennett Hill Road, the overall acreage (well in excess of 100 acres) may be sufficient to site not only the business park, but also the waste water treatment plant. Another potential site would be the high ground south of the village, just to the west of the Jellerson Road and close to the Town boundary.

Projected Wastewater Volume for Service Area

The projected waste water volume collected by the East Waterboro Collection system, once the service area is fully connected, is estimated at 15,000 gallons per day, plus any volume generated at the business park.

Medium Priority - South Waterboro Collection and Treatment System

This medium priority system would include the village of South Waterboro, the schools to the west of the village, and the private residences south of Town not currently on Public Water.

Service Area and Population Served

The area served by the proposed collection system is shown in Figure 9. Of particular importance would be the area located south of the village where residences are not served by public water, and susceptible to groundwater contamination. We estimate the collection system would serve approximately 160 lots initially, including the school facilities. The actual population served is projected to be approximately 640.

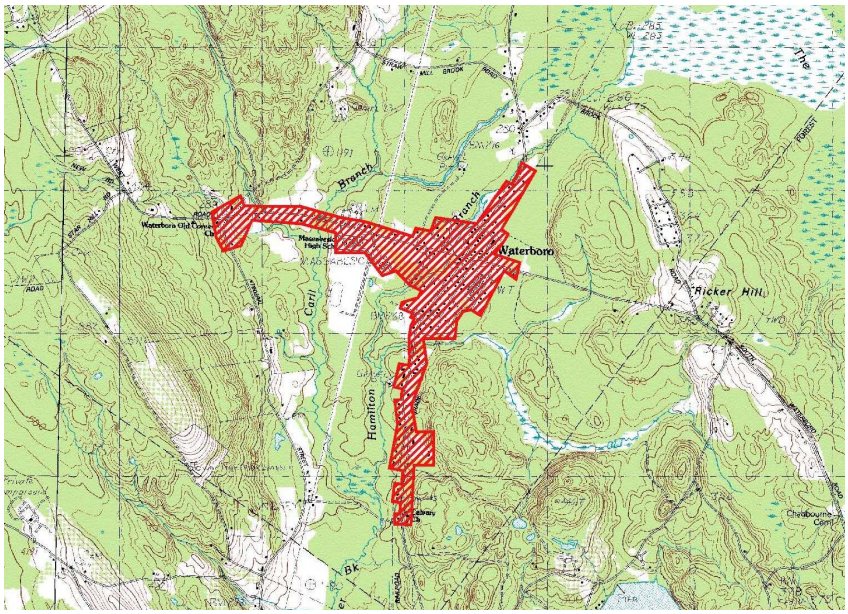

Figure 9: South Waterboro Collection & Treatment System - Proposed Service Area

WWTP Location

Because of the lack of suitable receiving waters, a direct discharge is not feasible for this system either. This leaves a land application system, such as RIBs or storage lagoons with spray application, or a community subsurface system as the only viable treatment alternatives. Potential sites for a treatment plant include an upland area south of the village, and to the east of Route 202/4/Main Street, and an area of uplands to the west of Federal Street, near the Alfred town line.

Project Wastewater Volume for Service Area

The projected waste water volume collected by the South Waterboro Collection system, once the service area is fully connected, is estimated at 48,000 gallons per day.

Conway Master Plan

It is our understanding that a conceptual plan was developed for each village area under the second phase of the Master Plan Update. The proposed plan to provide public sewer to each village, described in this report, could be incorporated into the Conway Master Plan. In this manner, the Town could achieve a comprehensive plan for each village that would include recommended infrastructure improvements. Running parallel with the infrastructure evaluation would be a concerted effort by the Planning Board and Town staff to revisit the densities and siting of future businesses and forecasted residential developments.

SECTION 4 - BUSINESS / INDUSTRIAL PARK

The other major component of this study is the siting of a business / industrial park which will help the Town to maintain its mil rate at a very attractive level by increasing the tax base.

Vision for Park

The first step in finding a suitable location for a business park is to establish a vision for the park as outlined by Town officials. Important features of that vision include:

1. Minimizing development costs by taking advantage of existing infrastructure and Town owned assets.
2. Locating the park so that it is close to major thoroughfares (Route 202/4 & Route 5), but out of sight to the general public.
3. Developing a park that does not impact existing recreational opportunities, in particular the well developed ATV trail system.
4. Helping the Town avoid sprawl by concentrating businesses within a designated area.
5. Attracting business to the park with attractive mil rates, an ideal location, and public utilities.

Preliminary Screening Process

To achieve this vision, Sewall developed a preliminary screening process which helped to narrow the focus of the search, and reduce the number of properties under consideration to a manageable level. The following steps were included in the initial screening process:

- Step 1 – Eliminate unsuitable and/or cost prohibitive areas based on the presence of wetlands, restrictive soils with no public sewer, excessive slopes > 10%, resource protected areas, 100 year flood zones, shoreland zones, wellhead protection zones, critical wildlife habitat, distance from major thoroughfare, etc.
- Step 2 – Narrow focus to the two most Suitable Sites.
- Step 3 – Rank each remaining site according to a more detailed screening process.

The result of the preliminary screening process was to eliminate a large portion of Town from further consideration as summarized in Table 1:

DESCRIPTION OF AREA	REASON FOR UNSUITABILITY
East of Route 202/ 4 / Main Street	Wetlands and excessive slopes on southern end of Town
East of Bennett Hill Road	Wetlands and poor access
Surrounding Ossipee Mountain	Excessive slopes and poor access
West of Middle Road	Maintain rural character, no access to major thoroughfare
West of Federal Street	Excessive slopes and poor access
Northeast Corner of Town	Excessive slopes, poor access and Lake Arrowhead development
Bounded by Ossipee Hill Road and Route 202/4 / Main Street	Wetlands and excessive slopes
Between Roberts Ridge Road and Deering Ridge Road with exception of area near Route 5	Excessive slopes and wetlands

Table 1: Areas of Waterboro eliminated from further consideration for Business Park.

Desirable Sites

The following areas of Town demonstrated enough desirable characteristics to make it to the detailed screening stage:

1. Route 5 corridor (1 mile on either side) between Center Waterboro and Hollis town line (labeled Route 5 Southeast)
2. Route 202/4/Main Street corridor between intersection with Route 5 and South Waterboro
3. Route 5 corridor between North Waterboro and Limerick town line (labeled Route 5 Northwest)

Detailed Screening Matrix

The sites which made it through the preliminary screening were then subjected to a more detailed screening matrix which evaluated each site according to the following criteria:

1. Direct access to major thoroughfare (Route 202/4/Main Street or Route 5)
2. Availability of Public Water,
3. Suitability of Subsurface Disposal Systems
4. Availability of 3 Phase Power
5. Zoning restrictions

6. Suitable topography (< 10% slope)
7. Parcels of sufficient acreage (>50 acres preferably)
8. Current ownership of parcel (publically or privately owned)
9. Encumbrances on property
10. Presence of critical wildlife habitat, deer wintering yards
11. Proximity to other business parks
12. Proximity to residential, recreational, or resource protected areas
13. Distance from Interstate (I-95)
14. Presence of Wetlands
15. Depth of Property / Ability to Screen
16. Overall cost of development

Recommended Business Park Site

Of the three areas of Town subjected to the detailed screening matrix, only the Route 5 corridor and specifically the area around the intersection with Route 202/4/Main Street met all criteria for a suitable business park site as shown in Table 2. The other two areas under consideration each had more drawbacks than the Route 5 Southeast corridor.

CRITERIA	ROUTE 5 CORRIDOR - SOUTHEAST	ROUTE 4 CORRIDOR	ROUTE 5 CORRIDOR - NORTHWEST
Access to major thoroughfare (Rt. 4 & Rt. 5)	Yes	Yes	Yes
Availability of Public Water	Yes	Yes	No
Availability of Future Public Sewer	Yes	No	No
Availability of 3 Phase Power	Yes	Yes	Yes
Zoning Restrictions	No	No	No
Suitable Topography	Yes	Yes	Yes
Parcels of Sufficient Acreage	Yes	No	Yes
Publicly owned to reduce costs	Yes	No	No
Encumbrances on property	No	No	No
Presence of critical wildlife habitat	No	No	No
Proximity to other business parks	No	No	No
Proximity to recreational areas	No	No	No
Distance from Interstate (I-95)	Close	Close	Distant
Presence of Wetlands	Minimal	Widespread	Minimal
Depth of Property / Ability to Screen	Deep / Excellent	Shallow / Poor	Deep / Excellent
Cost of Development	Moderate	High	Prohibitive

Table 2: Detailed Screening Matrix for Business Park Siting

As a result, Sewall looked up and down this section to see if any parcels met the established criteria, and came up with two potential business park sites. The first is a parcel near East Waterboro, with a 50' wide right of way to Route 5 owned by the Malone family (Map 8, Lot 44-2-1) shown in Figure 10. Since this property is contiguous with the Town holdings on the Bennett Hill Road, a potential business park site with well over 100 acres could be carved out.

Figure 10 – Malone Property and Town owned abutting property (Tax Map 8, Lots 44-2-1 (Malone) & 47 (Town of Waterboro)

The second site, an 84 acre parcel is located further north within the Route 5 corridor, closer to the village of Center Waterboro, with frontage on the Townhouse Road. This parcel is owned by the Foglio family (Map 8, Lot 19) and is shown in Figure 11.

Figure 11 – Foglio Property (Tax Map 8, Lot 19)

Both sites have reasonable soil profiles with some wet areas which would have to be avoided. Due to a projected lower overall cost of development, we recommend the Town pursue the Malone property, in combination with the Town owned lots on the Bennett Hill Road, as the preferred site for the development of a Business Park.

Alternative Development Opportunities

The Route 202/4/Main Street corridor while having many desirable features is bounded by wetlands on either side resulting in shallow lots and a more linear development pattern as compared to the deeper, much larger lots from the other two areas. The physical attributes along the Route 202/4/Main corridor suggest alternative development opportunities. Due to scattered residential development and significant wetlands the Route 202/4/Main corridor holds promise for the development of individual business lots. A linear focused planning framework of smaller business lots will work well for business incubator and small retail/commercial buildings. A recent illustration of this business model is on Main Street and developed by Victor Wright (see Figure12). Additionally, the conceptualization of business lots envisioned for the Foglio tract of land on Route 202/4/Main, surrounding the Howe & Howe Technologies land, reveals opportunities for private- sector development (see Figure 13).

The Route 5 northwest corridor is considered attractive due to the availability of undeveloped lots, as well as the relatively flat topography near the Limerick town line. The major drawback of this area is the distance from any village area, no public utilities, and the greater distance from the Interstate. As a result, we kept being drawn back to the Route 5 southeast section, between Center Waterboro and the Hollis Town line, as the most desirable location for a business park .

Figure 12 - Wright photo

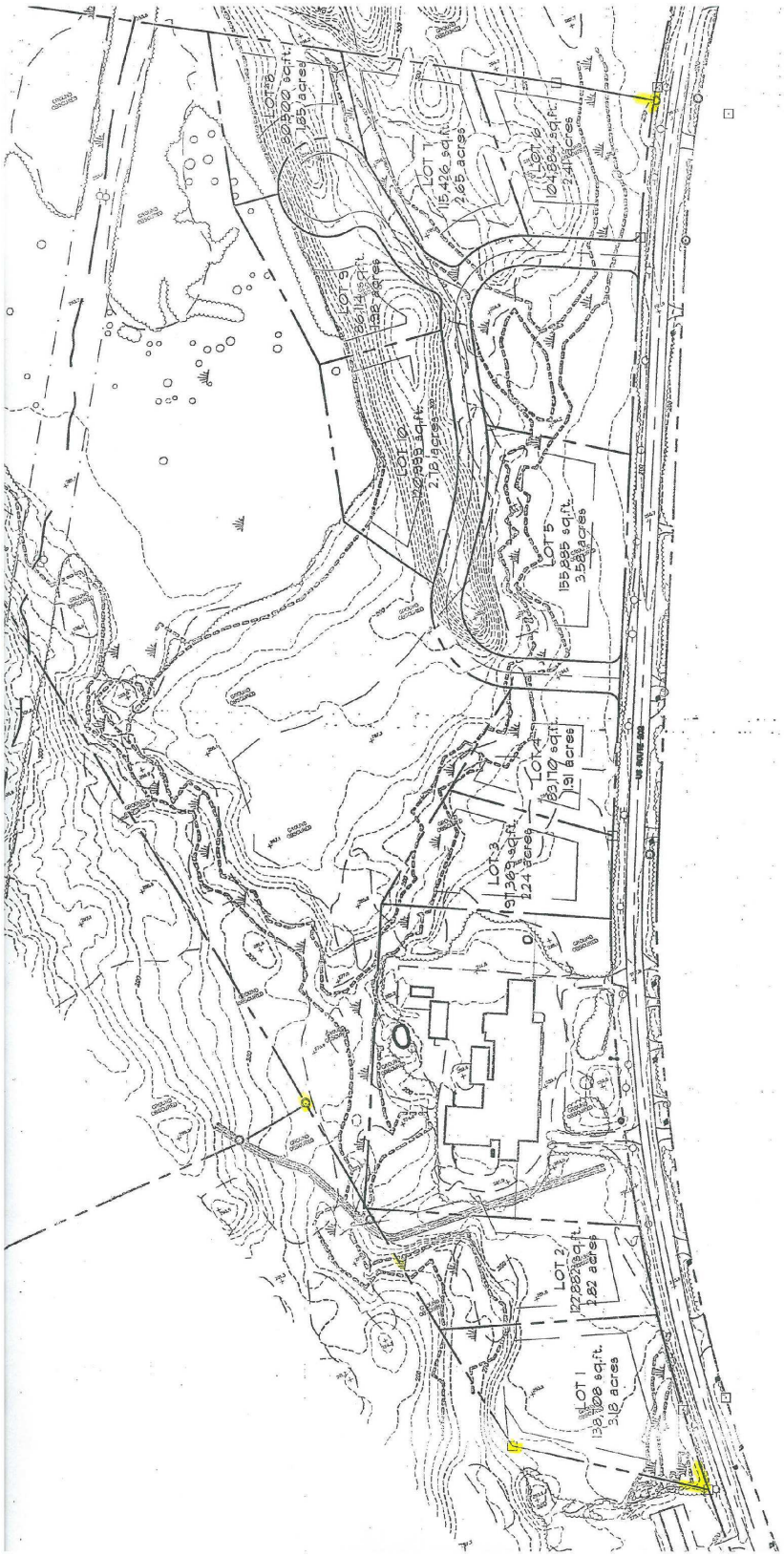

Figure 13: Example of Linear Development

SECTION 5 - RECOMMENDED ACTION ITEM LIST

Action items the Town can implement on or before the fiscal year period of 2014-2015, include the following:

1. Negotiate and sign a purchase option agreement on Lot 44-2-1 (Malone property) to allow direct access to Route 5 from Town owned property on Bennett Hill Road.

2. Conduct a preliminary engineering investigation of the Town owned site on Bennett Hill Road to refine the estimated cost of developing the site into a business / industrial park. The investigation should include a detailed topographic survey with one foot contours of the entire site, a Phase I Environmental Site Assessment (ESA), an intensive soil survey, wetland mapping, critical resource mappng, test pits, borings, timber inventory, and mapping of any contaminated areas.

3. Prepare and adopt a comprehensive plan to protect Little Ossipee Pond from manmade degradation.

4. Conduct a search for funding to extend public water from Route 5 into the proposed business park site.

5. Initiate a series of meetings with the Waterboro Water District to answer one overriding question: **should the Town collaborate with the Water District on a multi decade effort to carve out a wellhead protection area for the 750 gpm well behind the Town Office?** The effort would consist of buying up any properties in the wellhead protection area that went up for sale, purchasing conservation easements from those property owners who chose not to sell outright, and generally trying to eliminate any threat of contamination to the wellhead over the next two decades. There is no guarantee that you would be successful, but a natural asset such as this deserves serious discussion. The alternative is to declare this site un-protectable and agree that the Water District should move on and look for wells in more remote areas of Town. This is a key decision point that impacts many other things.

6. Work collaboratively with the Water District to commit to the engineered designs for high priority, shovel ready water line extensions, as well as engineered water tank site selection and demarcation.

Action Items the Town can implement over the next few years include the following:

1. For the three future Collection and Treatment systems described in the report:
    - Identify parcels of land that may be suitable for a subsurface system or storage lagoons and land application of treated wastewater effluent based on overall acreage, topography, soil composition and overburden, distance from collection system, and remoteness from populated areas or ATV trails.

    - Consider signing a purchase option agreement for the selected property, or a conservation easement which would allow only the treatment of wastewater but otherwise would leave the land in a wild, undeveloped condition.

APPENDIX

Little Ossipee Lake Watershed Survey Report

Little Ossipee Lake
Watershed Survey Report

Photo by Tammy Keimach

York County Soil and Water Conservation District
Little Ossipee Lake Association
Maine Department of Environmental Protection
Town of Waterboro

April 2006

Acknowledgments

The following people were instrumental in the Little Ossipee Lake Watershed Survey Project and deserve special recognition for their efforts:

Watershed Survey Volunteers

Wayne & Pauline Gautreau
Don Holden
Richard Sevigny
Pam L'Heureaux
Martha Bowman
Amy Marcotte

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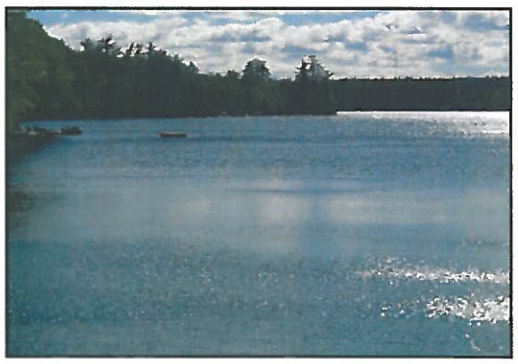
Table of Contents

Dedication

This report and follow-up implementation work is dedicated to the memory of Guy C. Litalien whose energy behind the initial 1997 survey and whose caring for Little Ossipee Lake was very instrumental in keeping water quality at the forefront for several years until his passing in 2003.

Guy's enthusiasm along with the efforts of the Little Ossipee Lake Association spurred this project to update the 1997 survey with steps to implement BMP designs in following phases. Volunteers from LOLA and watershed residents conducted the update in the spring of 2004.



Introduction

Is there a water quality problem in the Little Ossipee Lake Watershed?

WATERSHED

All the land that surrounds a lake that drains or sheds its water into the lake through streams, ditches, directly over the ground surface or through ground water.

The Little Ossipee Lake Watershed covers 4.66 square miles and includes some 1300 properties.

The Volunteer Lake Monitoring Program (VLMP) and Maine Department of Environmental Protection (MDEP) have monitored the lake's water quality since 1977. It's water quality is considered to be fair, but as with many Maine lakes, Little Ossipee's water quality is threatened by phosphorus pollution from stormwater runoff and uncontrolled soil erosion. As a result, the MDEP has placed Little Ossipee Lake on their list of "Lakes Most at Risk from Development" under the Maine Stormwater Law and the State's "Nonpoint Source Priority Watersheds" list. Declining water quality may be a result of the fast pace of development we are seeing in the Little Ossipee Lake watershed. The biggest pollution culprit in Maine's lakes is **nonpoint source (NPS) pollution** found in storm water runoff from rain and snowmelt. During and after storms and snowmelt, soil, with nutrients like phosphorus and nitrogen, wash into lakes from the surrounding landscape via streams and overland flow.

NONPOINT SOURCE POLLUTION

Also called NPS or polluted runoff. Pollution that can not be traced back to a discharge from a particular direct source (e.g., an industrial outfall pipe).

One way to visualize NPS pollution is to think of rain and snow melt as a giant broom that sweeps over the watershed, moving debris and soil into the lake from the surrounding land and streams.

In an undeveloped, forested watershed, storm water runoff is slowed and filtered by trees, shrubs and other vegetation. It then filters through the duff and soaks into the uneven forest floor. In a developed watershed, storm water velocity increases over smoothed and impervious surfaces like rooftops, compacted soil, gravel camp roads and pavement, and does not always receive the filtering treatment the forest once provided.

The nutrients in storm water runoff can be bad news for lakes. **Phosphorus**, a nutrient that is common in our soils, is a primary food for all plants, including **algae**. In natural conditions, the scarcity of phosphorus in a lake limits algae growth. However, when a lake receives extra phosphorus from the watershed, algae growth increases dramatically. Sometimes this growth causes choking blooms, but more often it results in small, insidious changes in water quality that, over time, damage the ecology, aesthetics and economy of lakes.

The purpose of this project is to reduce watershed pollutant loading to protect and improve the water quality of Little Ossipee lake. The aim is to update an existing 1997 survey through identifying, evaluating and prioritizing soil erosion problems in the Little Ossipee Lake Watershed. This document will prepare the watershed for implementation of conservation practices on the highest priority sites. The spirit of a watershed survey is to work cooperatively with land owners toward a common goal for the stewardship of Little Ossipee Lake.

Excess **phosphorus** can "fertilize" a lake and lead to nuisance **algal blooms**.

Purpose of the Watershed Survey

The primary purpose of a watershed survey is to identify and prioritize **existing** sources of polluted runoff, particularly soil erosion sites, in the Little Ossipee Lake Watershed. However, of equal importance is to:

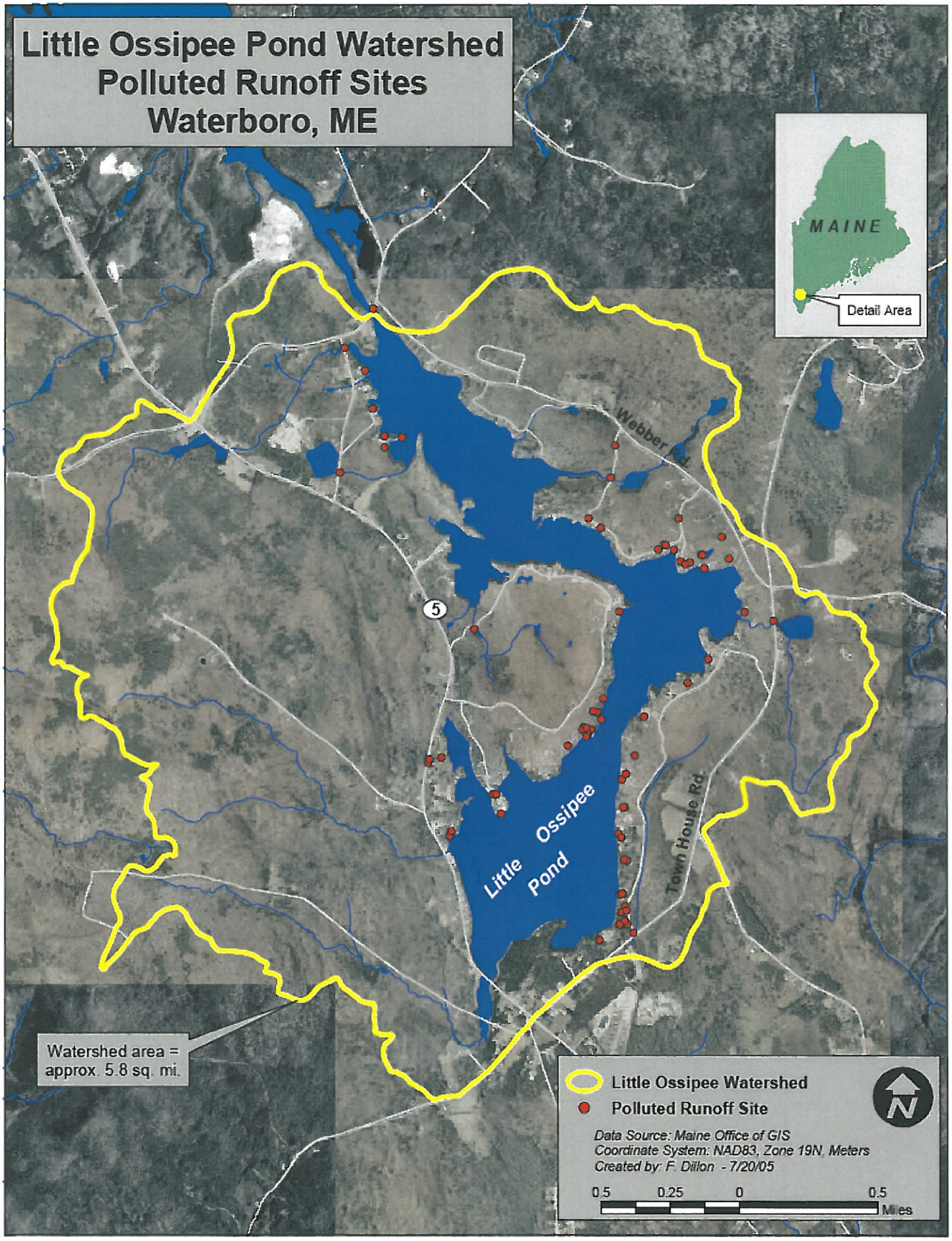
- Raise public awareness of the connection between land use and water quality, and the impact of polluted runoff.
- Inspire people to become active stewards of the watershed.
- Use the information gathered as one component of a long term lake protection strategy.
- Make general recommendations to landowners for fixing erosion problems on their properties

Local citizen participation is essential in completing a watershed survey and will be even more important in upcoming years. Through the leadership of the Little Ossipee Lake Association, and with assistance from groups and agencies concerned with lake water quality, the opportunities for stewardship are limitless! We hope that you will find this report interesting and informative.

Numerous lakeshore properties were observed to have little or no **shoreline vegetation** at the water's edge. It is important to note that shoreline vegetation of shrubs and trees do a much more effective job than bare ground or grass at keeping **NPS** pollution from entering lakes. Deep shrub and tree roots also help hold the shoreline.

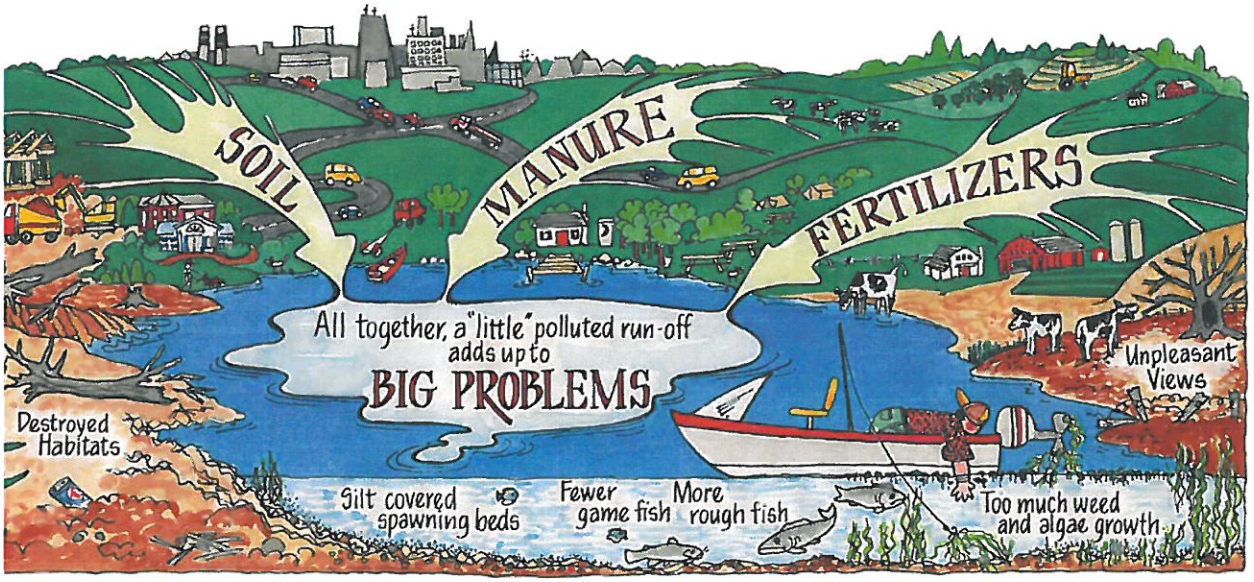
Shoreline vegetation can be installed inexpensively. You can either stop mowing and raking to the water's edge and let plants grow up naturally. Or you can plant the area with native trees and shrubs.

Shoreline vegetation enhances the appearance of lakefront property and attracts birds and other wildlife, without ruining the landowner's view.


Little Ossipee Pond Watershed
Polluted Runoff Sites
Waterboro, ME
MAINE
Detail Area
Webber Rd
5
Little Ossipee Pond
Town House Rd
Watershed area = approx. 5.8 sq. mi.
Little Ossipee Watershed
Polluted Runoff Site
Data Source: Maine Office of GIS
Coordinate System: NAD83, Zone 19N, Meters
Created by: F. Dillon - 7/20/05
0.5 0.25 0 0.5
Miles

Why is it important to protect the Little Ossipee Lake Watershed from polluted runoff?

- Little Ossipee Lake contains valuable habitat for fish, birds and other wildlife.
- Little Ossipee Lake drains into Lake Arrowhead and eventually into the Little Ossipee River which provides Atlantic Salmon spawning habitat and flows into the Saco River.
- A 1996 University of Maine study demonstrated that lake water quality affects property values. For every meter (3 ft) decline in water clarity, shorefront property values can decline as much as 10 to 20 percent! Declining property values affect individual landowners as well as the economics of the entire community.
- Once a lake has declined, it can be difficult or impossible to restore.
- Little Ossipee Lake's water quality is directly impacted by the land uses in its surrounding watershed. The most effective way to manage lake water quality is by managing land uses



What is being done to protect the Little Ossipee Lake Watershed?

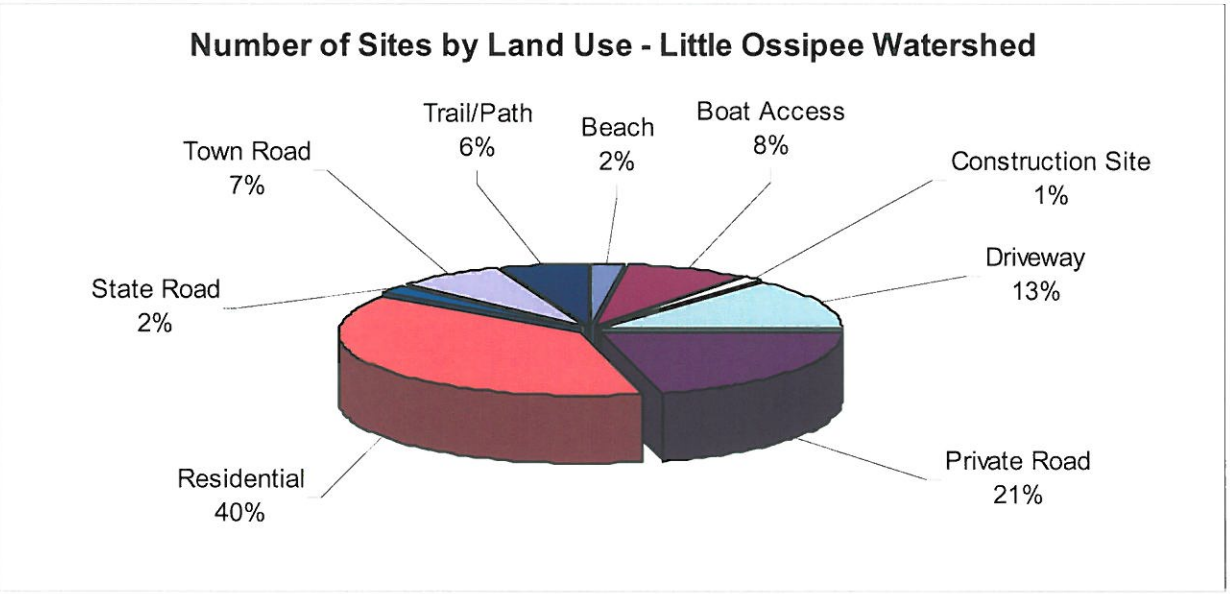
The Little Ossipee Lake Association (LOLA) tests water quality in Little Ossipee Lake as part of the Maine Volunteer Lake Monitoring Program. LOLA also works with agencies and watershed residents to promote environmental stewardship.

Volunteer watershed surveys have been found to be one of the most effective ways to protect lake water quality by getting citizens involved in identifying existing and potential sources of polluted runoff. During the summer and fall of 2004, the Little Ossipee Lake Association, the York County SWCD and Maine DEP conducted a watershed survey.

This report is specifically designed for citizens living in the Little Ossipee Lake Watershed. It contains a summary of the survey findings and recommendations to protect the health of the lake.

Summary of Watershed Survey Findings

Volunteers and technical staff identified 85 sites that are currently impacting or have the potential to impact water quality in the Little Ossipee Lake Watershed.



Land Use Breakdown

A total of nine land use types were associated with the identified sites. The largest number of problems were associated with residential areas, driveways, and private roads. Detailed descriptions of these sites are on the following pages.

Driveway—— Eleven driveway sites were found, six with low impact ratings, four with medium impact ratings and one with a high impact rating.

Private Boat Access and Beach—Seven private boat access site were found, with medium—low impact ratings (see **page 10** for ranking criteria). Two beach sites were found, both with low impact ratings. Most private boat access and beach sites can be fixed easily, with low to moderate cost.

Private Road Sites—Eighteen private road sites were found, two with low impact ratings, seven with medium impact ratings and nine with high impact ratings.

Residential——Thirty-three residential sites were found, sixteen with low impact ratings, ten with medium impact ratings and seven with high impact ratings.

Town and State Roads—Six town road sites were found with one low, one medium, and four high impact ratings. Two state road sites were found (one medium impact and one high impact).

Other—Five Trail/Path sites were found (two low impact and three medium impact) and one low impact construction site was identified.

Residential

Of the 33 sites associated with residential areas, 16 are low impact, 10 are medium impact, and 7 are high impact. Nearly half of the sites can be fixed with little professional expertise and low cost.

Common Problems Identified:

- Slight or moderate surface erosion
- Bare and sparsely vegetated soil
- Lack of vegetated shoreline along shoreline
- Direct flow of runoff to lake
- Roof runoff causing erosion
- Stockpiled soil
- No erosion controls at construction sites

Recommended Solutions:

- Seed and mulch bare soil
- Establish or enhance shoreline vegetation
- Limit foot traffic in eroding areas
- Install dripline trench to catch roof runoff
- Install silt fence around construction sites
- Install waterbar, open-top culvert, rubber razor or other runoff diverter
- Place mulch or stone on footpaths

Problems:

- Lack of silt fence
- Bare soil with direct flow to lake
- Lack of shoreline vegetation

Solutions:

- Properly install and maintain silt fence
- Seed and mulch bare areas
- Remove stockpiled soil
- Establish shoreline vegetation along shoreline
- Eliminate or reduce area raked

Residential areas were associated with 40% of the identified sources of polluted runoff to Little Ossipee Lake. These problems pose a significant threat to lake water quality. Fortunately, most of these sites can be corrected with easy, low cost fixes.

It's the cumulative impact of all the sites that causes water quality to decline.

Driveways

Of the 11 driveways, 6 are low impact, 4 are medium impact, and one is high impact. Most of the sites could be fixed with low to medium cost and technical expertise.

Common Problems Identified:

- Slight to moderate surface erosion
- Direct flow to lake or ditch
- Poor shaping
- Poor (too sandy) surface material

Recommended Solutions:

- Crown driveway so that water flows to either side
- Install diverters such as waterbars, open top culverts or rubber razors to get water off road
- Install turnouts to direct water into wooded depressions

Problems

- Poor driveway shaping and ruts cause water to concentrate and erode the surface
- Direct flow of sediment to lake

Solutions

- Add new surface material
- Reshape and crown driveway so water moves quickly from the surface
- Install diverters such as waterbars, open top culverts or rubber razors to get water off driveway

Preserve water quality and save time, money, and wear and tear on your vehicle by having a well crowned driveway. Use adequate surface material and add diversions to direct runoff into Shoreline vegetation.

It's great for watershed residents and it's great for the lakes!

Private Roads

Of the 18 private road sites, 2 are low impact, 7 are medium impact and 9 are high impact. The problems are more expensive to fix and will require technical assistance.

Common Problems Identified:

- Slight to moderate surface erosion
- Direct flow to lake or stream
- Slight to moderate ditch erosion
- Undersized ditches
- Poor (too sandy) surface material
- Unstable culvert inlet and outlet
- Clogged ditches and culverts

Recommended Solutions:

- Crown and reshape road to get water off road
- Install diverters such as waterbars, open top culverts or rubber razors to get water off road
- Build up road with cohesive surface material
- Clean out culverts
- Clean, reshape and armor ditches with stone rip rap or plant grass
- Remove grader berms and winter sand to allow proper drainage
- Install culverts and stabilize ends with stone

Problems:

- Lack of ditches
- Moderate surface erosion
- Poor surface material

Solutions:

- Build up road with cohesive surface material
- Reshape and crown
- Install proper ditching

Unpaved roads are one of the biggest sources of pollution to Maine lakes.

While a one time fix may cost more up front, it will reduce lake pollution and reduce maintenance costs on your road, ditches and vehicle.

Boat & Beach Access

Of the 2 beach sites and 7 boat sites, four are low impact and five are medium impact. Nearly half of the problems can be fixed with low technical expertise and low cost.

Common Problems Identified:

- Slight to moderate surface erosion
- Bare soil
- Direct flow of sediment to stream or lake
- Shoreline degradation
- Unstable beach access

Recommended Solutions:

- Seed and mulch
- Plant or enhance shoreline vegetation
- Install runoff diverters; i.e. water bars
- Define path for foot traffic
- Tri-lock blocks to create swale for boat access

Problems:

- Severe erosion
- Direct flow of sediment and winter sand into lake

Solutions:

- Install tri-lock blocks to create swale
- Install rubber razor blade
- Install runoff diverter at top of boat access to trap sediment before it reaches the lake

Working with homeowners to fix sites such as this one will help minimize the transport of phosphorus into Little Ossipee Lake. This site can be fixed for a medium

Important Points!

Summaries of the NPS sites identified in the survey are contained in the spreadsheet. Sites are grouped in alphabetical order by the site identification letter & number. Each listing shows the map site number, the type of problem(s) encountered, location, size or area, and recommended solution.

In addition to the surveyed sites, numerous lakeshore properties were observed to have little or no vegetated shoreline vegetation at the water's edge. These sites were not included in the survey results, but it is important to note that Shoreline vegetation of shrubs and trees do a much more effective job than bare ground or grass to keep NPS pollution from entering lakes.

Some watershed residents expressed concern that fluctuating water levels aggravated shorefront erosion problems on Little Ossipee Lake. This survey did not specifically include these areas as NPS sites. However, it is recommended that the Little Ossipee Lake Association, which owns the dam on Little Ossipee Lake, and landowners monitor the situation and take appropriate action.

Site Rankings

Sites in the spreadsheet were ranked according to three criteria:

- **Technical level to install** describes the degree of professional expertise needed to address a problem. A "low" tech level requires little or no specific professional assistance. For example, seeding and mulching an area that is relatively stable, but which requires vegetative cover to prevent additional soil loss from occurring. Sites with a "medium" tech level need to be visited by a technical expert who can make recommendations. A "high" tech level requires an engineered design.

- **Impact** was assigned by considering factors such as the size of disturbed area, slope, soil type, amount of soil that's eroding, proximity to water or shoreline vegetation, and size of shoreline vegetation. "Low" impact eroding sites are those with limited transport off-site even if the site is large or a small site with no evidence of rills or gullies (channels cut into the soil). At "medium" impact sites, sediment is transported off-site, but the erosion does not reach a high magnitude. Large sites where there is significant erosion that flows directly into a stream, lake or ditch, were rated "high" impact.

- **Cost** is an important factor in planning for restoration. "Low" cost sites were estimated to cost less than $500 to fix. An estimate of $500 to $2,500 was rated "medium". If the estimated cost to fix a site exceeded $2,500, a "high" rating was assigned.

With a few exceptions, virtually all of the sites identified in the survey are significant to one degree or another. The cumulative effect of many "low" and "medium" impact sites can exceed that of any one "high" impact site. This should be considered when a strategy is developed to address problems in the watershed.

Next Steps ~ Where Do We Go From Here?

Fixing the erosion sites identified in this survey will require efforts by individuals, the Little Ossipee Lake Association, road associations and municipal officials.

Individual Citizens

- Prevent runoff from washing sediment into the lakes. Detain runoff in depressions or divert flow to vegetated areas. Call the York County SWCD or DEP for free technical assistance.
- Minimize the amount of cleared land and road surfaces on your property.
- Stop mowing and raking, and let lawn and raked areas revert back to natural plants. Deep shrub and tree roots help hold the shoreline.
- Avoid exposing bare soil. Seed and mulch bare areas.
- Don't bring in sand or rebuild beaches without permits and technical assistance.
- Call the Town Code Enforcement Officer before cutting vegetation within 250' of the shore.
- Maintain septic systems properly. Pump septic tanks (every 2 to 3 years for year round residences; 4-5 years if seasonal) and upgrade marginal systems.

Little Ossipee Lake Association

- Develop an active membership, and provide educational materials and guidance to members of the Little Ossipee Lake watershed community.
- Organize workshops and volunteer "work parties" to start fixing identified erosion problems and teach citizens how to fix similar problems on their own properties.
- Educate municipal officials about lake issues and work cooperatively to find solutions.

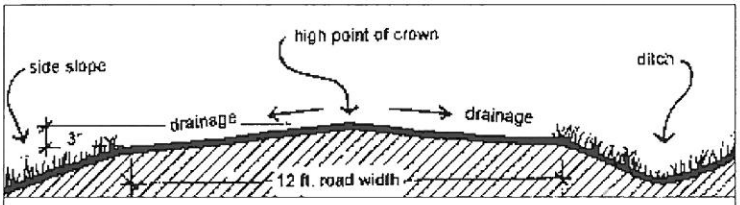
Road Associations (or private roads without associations)

- Get a copy of "A Guide to Forming Road Associations" developed by York County SWCD and partners. Call York County SWCD at 324-7015 and get a free book and cd.
- Minimize road runoff by doing regular, comprehensive maintenance. Form a road association if one does not already exist. Get a copy of "A Guide to Forming a Road Association " from York County SWCD or Maine DEP.
- Get a copy of "Camp Road Maintenance Manual – A Guide for Landowners." This reference is a must for anyone managing a gravel road. (Call the DEP at 822-6300 to order a free copy.)
- For more extensive problems, seek free professional assistance. Contact the York County SWCD or DEP to request technical assistance.

Municipal Officials

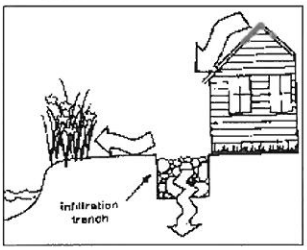
- Enforce shoreland zoning ordinance to assure full protection of Little Ossipee Lake.
- Conduct regular maintenance on town roads in the watershed, and fix town road problems identified in this survey.
- Participate in and support long term watershed management projects.
- Promote training for road crews, planning boards and conservation commissions.

Glossary of Common Conservation Measures



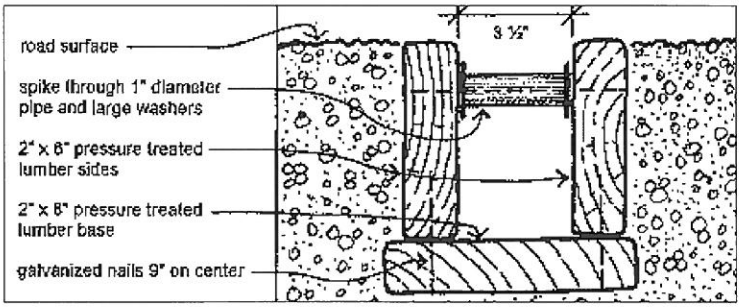
Crown profile: 1/4" of crown per foot of road width (e.g., 1/4" x 12' road—3' crown)

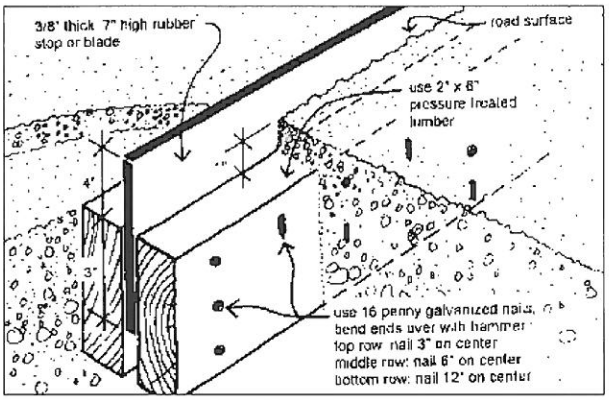
Crown—High point that runs lengthwise along the center of a road or driveway. The high point slopes gently away from the center toward the outer edge of the road, allowing water to drain off the road and preventing erosion of the road surface.



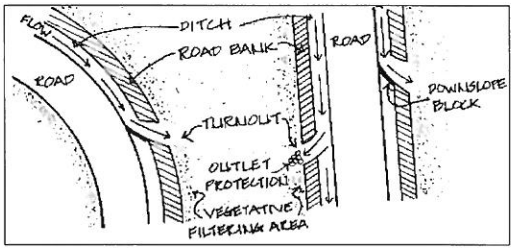
Dripline Trench—Rock-filled trench beneath the roof edge dripline that collects and stores roof runoff until it soaks into the ground. Helps control erosion and reduce wear on the house by preventing backsplash. A typical trench is 6-8" deep and 12-18" wide and filled with 3/4" stone. Can also be used along the edges of driveways to encourage infiltration of runoff.

Open Top Culvert—Box-like structure that collects and diverts road surface runoff away from a sloped driveway or camp road. They are seldom recommended for year-round roads due to the likelihood of plow damage. Install at a 30° angle to the road and direct the outlet into a stable shoreline vegetation. Clean out leaves and debris periodically.

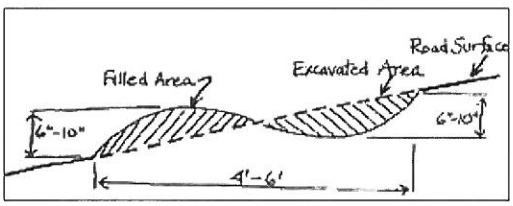




Rubber Bar—Structure that protrudes above the road surface high enough to intercept and collect water, while allowing traffic to pass over it. It is generally used on seasonal roads and driveways because of the likelihood of plow damage. Install at a 30° angle to the road and direct the outlet into a stable shoreline vegetation. The rubber conveyor belts can be purchased at some hardware stores or Augusta Rubber (582-6200).



Turnout—A conservation practice used to direct runoff from a ditch (or road ruts) into a vegetated shoreline vegetation. The turnout should have a flared end section that is level and lined with rock to spread out the flow.



Waterbar—Ridge (like a speed bump) that runs diagonally across a road, driveway or path, typically at a 30° angle. Stops water from running down the road and diverts it to the side. Easy to construct and most appropriate for roads with low traffic volume. Needs to be rebuilt periodically.

Permitting ABC's

Protection of the Little Ossipee Lake Watershed is ensured through the good will of residents around the lakes and through laws and ordinances created and enforced by the State and Towns.

How do you know when you need a permit?

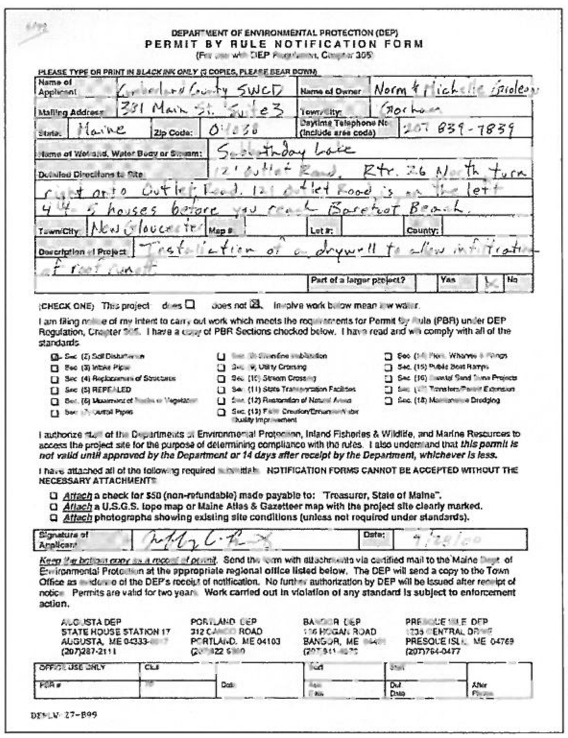
- Construction, clearing of vegetation and soil movement within 250 feet of the lake shore falls under the Shoreland Zoning Act, which is administered by the Towns through the Code Enforcement Officer and the Planning Board.

- Soil disturbance within 100 feet of the lakeshore or 75 feet of a stream also falls under the Natural Resources Protection Act, which is administered by the DEP.

  To ensure that permits for projects that will not result in significant disturbance are processed swiftly, the DEP has established a streamlined permit process called **Permit by Rule**. These one page forms (shown below) are simple to fill out and allow the DEP to quickly review the project.

> The Natural Resources Protection Act seeks to establish reasonable regulation in order to assure responsible development that does not harm Maine's precious natural systems.
>
> ~from Protecting Maine's Natural Resources~Volume 1, DEP 1996

The project partners encourage you to contact the DEP and Town Code Enforcement Officer if you have any plans to construct or relocate a structure, clear vegetation, create a new path or driveway, stabilize a shoreline or otherwise disturb the soil on your property. Even if projects are planned with the intent of enhancing the environment—such as installing some of the practices mentioned in this report –contact the DEP and Town to be sure. See last page for contact information.



DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)
PERMIT BY RULE NOTIFICATION FORM
(For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN BLACK INK ONLY (5 COPIES, PLEASE BEAR DOWN)

Name of Applicant	Cumberland County SWCD	Name of Owner	Norm & Michelle [illegible]
Mailing Address	331 Main St. Suite 3	Town/City	Gorham
State: Maine	Zip Code: 04038	Daytime Telephone No. (include area code)	207 839-7839
Name of Wetland, Water Body or Stream:	Sabbathday Lake		
Detailed Directions to Site	12' Outlet Road, Rte. 26 North turn right onto Outlet Road. 12 Outlet Road is on the left 4 or 5 houses before you reach Barefoot Beach.		
Town/City: New Gloucester	Map #:	Lot #:	County:
Description of Project	Installation of a drywell to allow infiltration of roof runoff		
	Part of a larger project?	Yes	No X

(CHECK ONE) This project does ☐ does not ☒ involve work below mean low water.

I am filing notice of my intent to carry out work which meets the requirements for Permit by Rule (PBR) under DEP Regulation, Chapter 305. I have a copy of PBR Sections checked below. I have read and will comply with all of the standards.

- ☒ Sec. (2) Soil Disturbance
- ☐ Sec. (3) Intake Pipes
- ☐ Sec. (4) Replacement of Structures
- ☐ Sec. (5) REPEALED
- ☐ Sec. (6) Movement of Rocks or Vegetation
- ☐ Sec. (7) Outfall Pipes
- ☐ Sec. (8) Shoreline Stabilization
- ☐ Sec. (9) Utility Crossing
- ☐ Sec. (10) Stream Crossing
- ☐ Sec. (11) State Transportation Facilities
- ☐ Sec. (12) Restoration of Natural Areas
- ☐ Sec. (13) Fish Creation/Enhancement/Water Quality Improvement
- ☐ Sec. (14) Piers, Wharves & Pilings
- ☐ Sec. (15) Public Boat Ramps
- ☐ Sec. (16) Coastal Sand Dune Projects
- ☐ Sec. (17) Transfers/Permit Extension
- ☐ Sec. (18) Maintenance Dredging

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that *this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.*

I have attached all of the following required submittals. NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS

- ☐ *Attach* a check for $50 (non-refundable) made payable to: "Treasurer, State of Maine".
- ☐ *Attach* a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
- ☐ *Attach* photographs showing existing site conditions (unless not required under standards).

Signature of Applicant	[signature]	Date:	[illegible]

Keep the bottom copy as a record of permit. Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection at the appropriate regional office listed below. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. Work carried out in violation of any standard is subject to enforcement action.

AUGUSTA DEP	PORTLAND DEP	BANGOR DEP	PRESQUE ISLE DEP
STATE HOUSE STATION 17	312 CANCO ROAD	106 HOGAN ROAD	1235 CENTRAL DRIVE
AUGUSTA, ME 04333-0017	PORTLAND, ME 04103	BANGOR, ME [illegible]	PRESQUE ISLE, ME 04769
(207)287-2111	(207)822 6300	(207)941-[illegible]	(207)764-0477

OFFICE USE ONLY	CK#				
PBR #		Date		Out Date	After Photo

DEPLW 27-B99

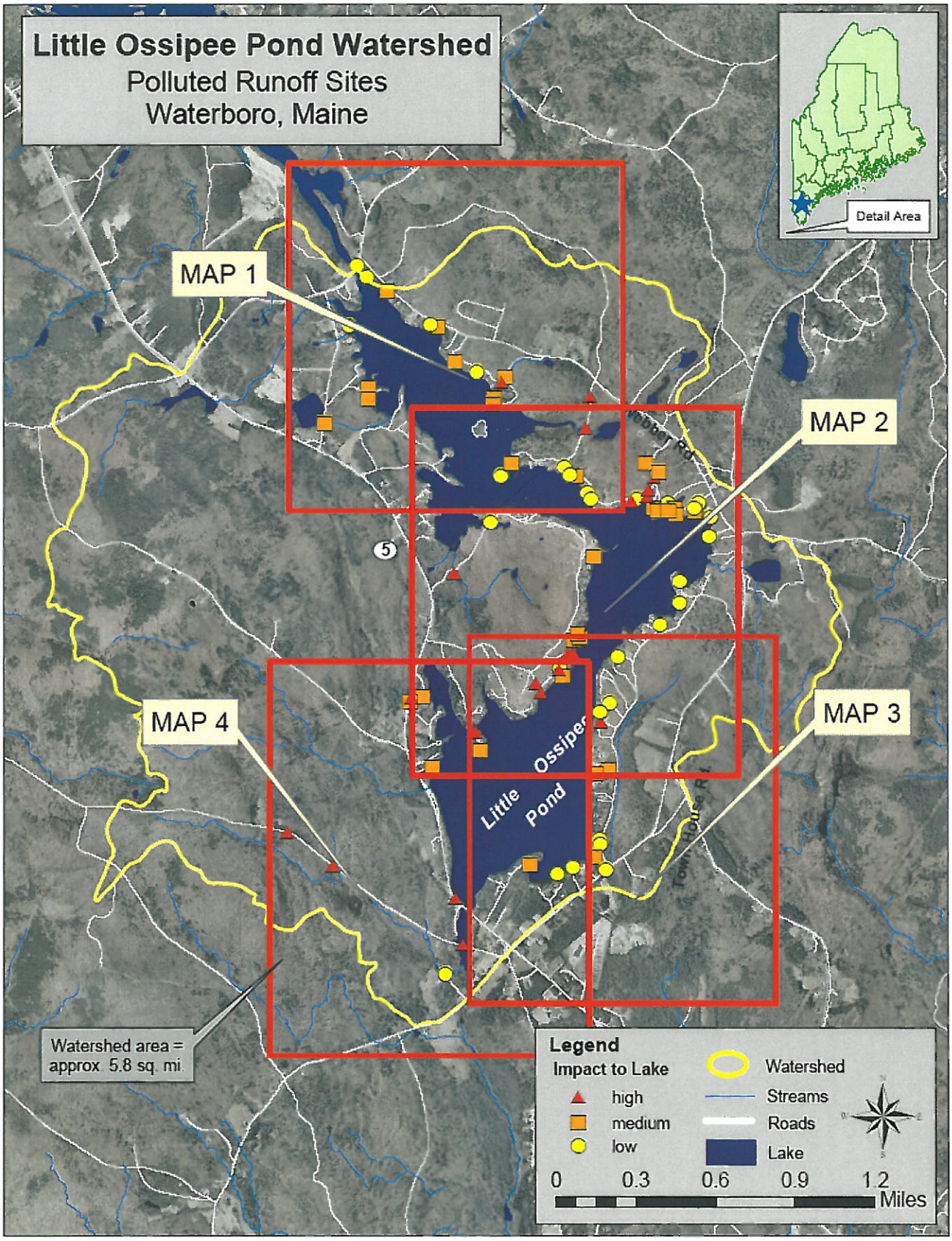
How to apply for Permit by Rule with DEP:

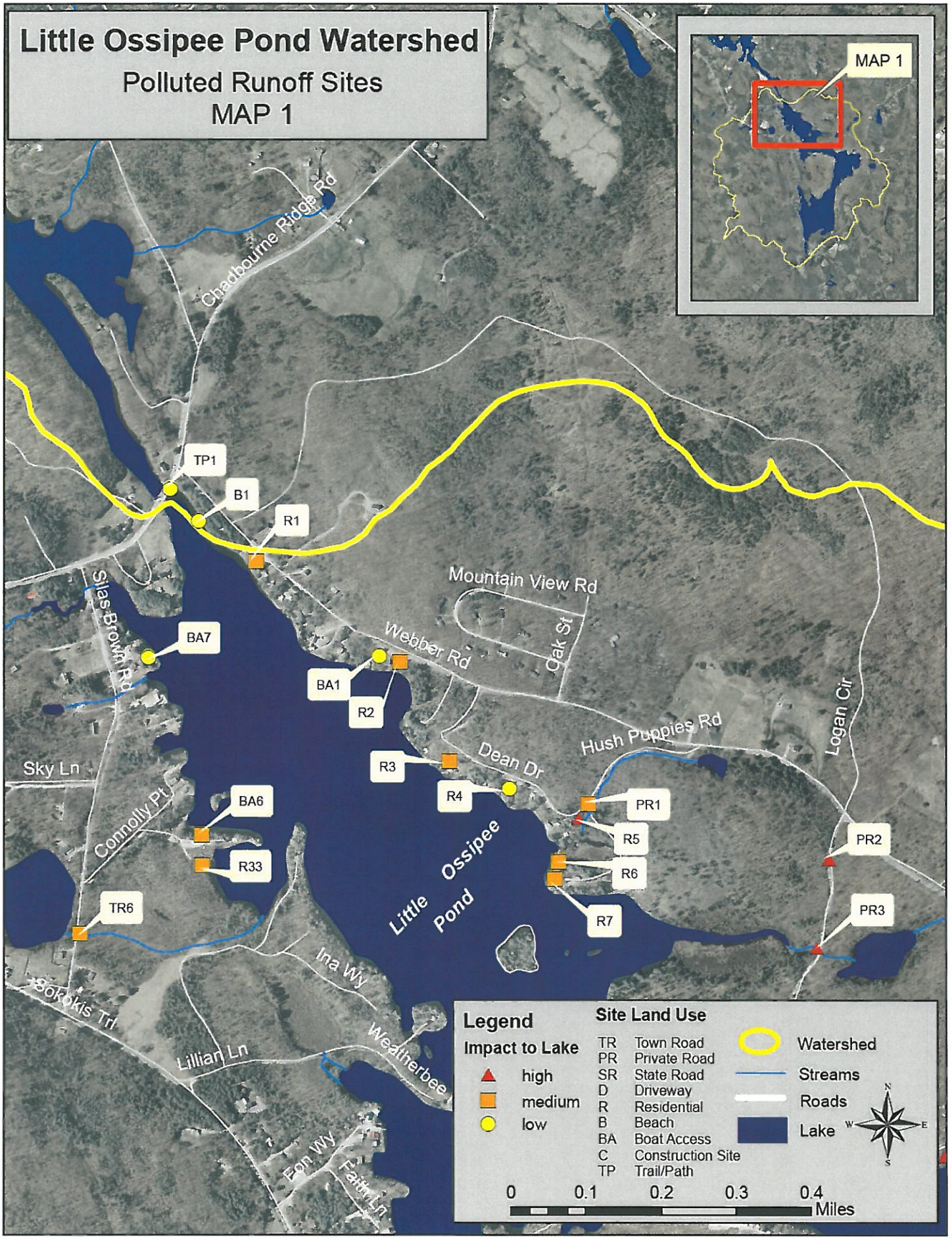
1. Fill out a notification form. Forms are available from your town code enforcement officer or the Maine DEP offices in Portland or Augusta.

2. Permit by Rule requires that you follow certain standards such as installing silt fence. It is important that you obtain a copy of the standards so you will be familiar with the law's requirements.

The permit will be reviewed within 14 days. If you do not hear from DEP within 14 days, you can assume your permit is valid. If you bring the permit directly to a DEP office, you may be able to get your permit approved immediately.

Little Ossipee Lake Watershed Survey Polluted Runoff Sites




Little Ossipee Pond Watershed
Polluted Runoff Sites
MAP 1
MAP 1
Chadbourne Ridge Rd
TP1
B1
R1
Mountain View Rd
Oak St
Webber Rd
Silas Brown Rd
BA7
BA1
R2
Hush Puppies Rd
Logan Cir
Dean Dr
R3
R4
Sky Ln
Connolly Pt
BA6
R33
PR1
R5
R6
R7
PR2
PR3
TR6
Little Ossipee Pond
Ina Wy
Sokokis Trl
Lillian Ln
Weatherbee
Eon Wy
Faith Ln
Legend
Impact to Lake
high
medium
low
Site Land Use
TR Town Road
PR Private Road
SR State Road
D Driveway
R Residential
B Beach
BA Boat Access
C Construction Site
TP Trail/Path
Watershed
Streams
Roads
Lake
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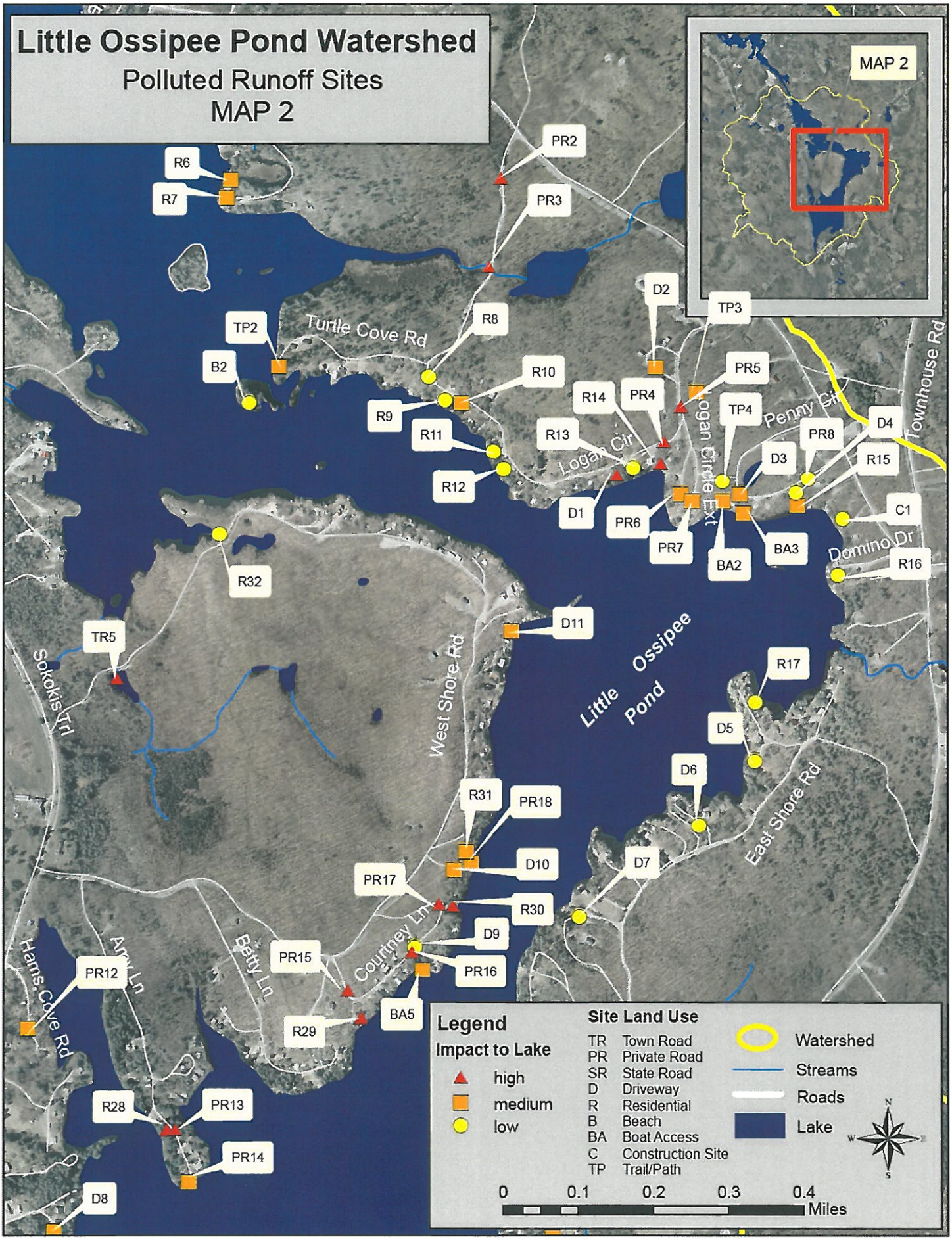
Miles


Little Ossipee Pond Watershed
Polluted Runoff Sites
MAP 2
MAP 2
R6
R7
PR2
PR3
TP2
Turtle Cove Rd
B2
R8
R10
R9
R11
R12
R14
PR4
R13
Logan Cir
D2
TP3
PR5
TP4
Penny Cir
Logan Circle Ext
D4
PR8
D3
R15
Townhouse Rd
C1
Domino Dr
R16
D1
PR6
PR7
BA2
BA3
R32
TR5
Sokokis Trl
D11
West Shore Rd
Little Ossipee Pond
R17
D5
D6
East Shore Rd
R31
PR18
D10
D7
PR17
R30
D9
PR16
Courtney Ln
PR15
BA5
Betty Ln
Amy Ln
PR12
Hams Cove Rd
R29
R28
PR13
PR14
D8
Legend
Impact to Lake
high
medium
low
Site Land Use
TR Town Road
PR Private Road
SR State Road
D Driveway
R Residential
B Beach
BA Boat Access
C Construction Site
TP Trail/Path
Watershed
Streams
Roads
Lake
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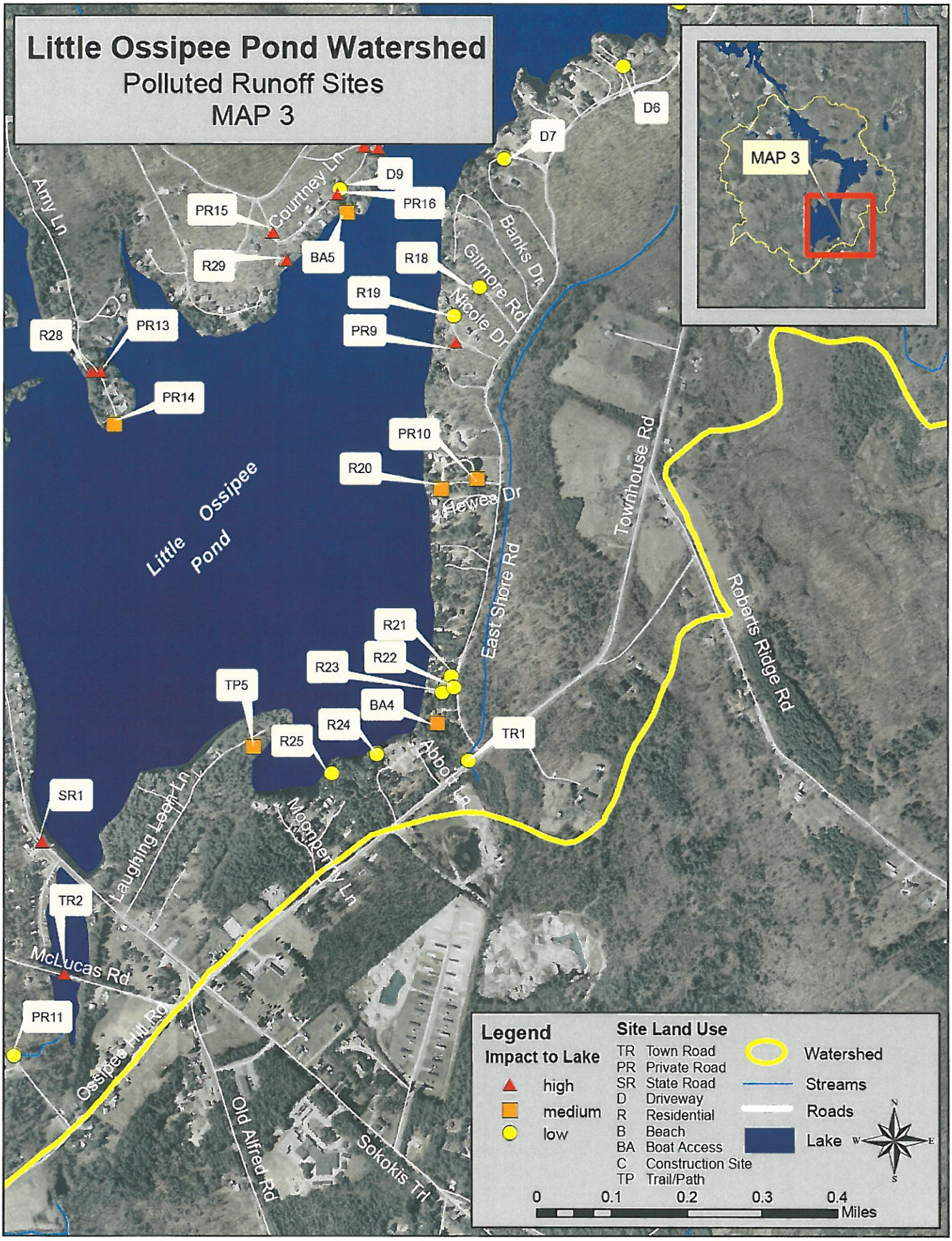
Miles


Little Ossipee Pond Watershed
Polluted Runoff Sites
MAP 3
MAP 3
D6
D7
D9
PR16
PR15
BA5
R29
R18
R19
PR9
PR13
R28
PR14
PR10
R20
R21
R22
R23
TP5
BA4
R24
R25
TR1
SR1
TR2
PR11
Amy Ln
Courtney Ln
Banks Dr
Gilmore Rd
Nicole Dr
Hewes Dr
East Shore Rd
Townhouse Rd
Roberts Ridge Rd
Abbott Ln
Laughing Loon Ln
Moonberry Ln
McLucas Rd
Ossipee Hill Rd
Old Alfred Rd
Sokokis Trl
Little Ossipee Pond
Legend
Impact to Lake
high
medium
low
Site Land Use
TR Town Road
PR Private Road
SR State Road
D Driveway
R Residential
B Beach
BA Boat Access
C Construction Site
TP Trail/Path
Watershed
Streams
Roads
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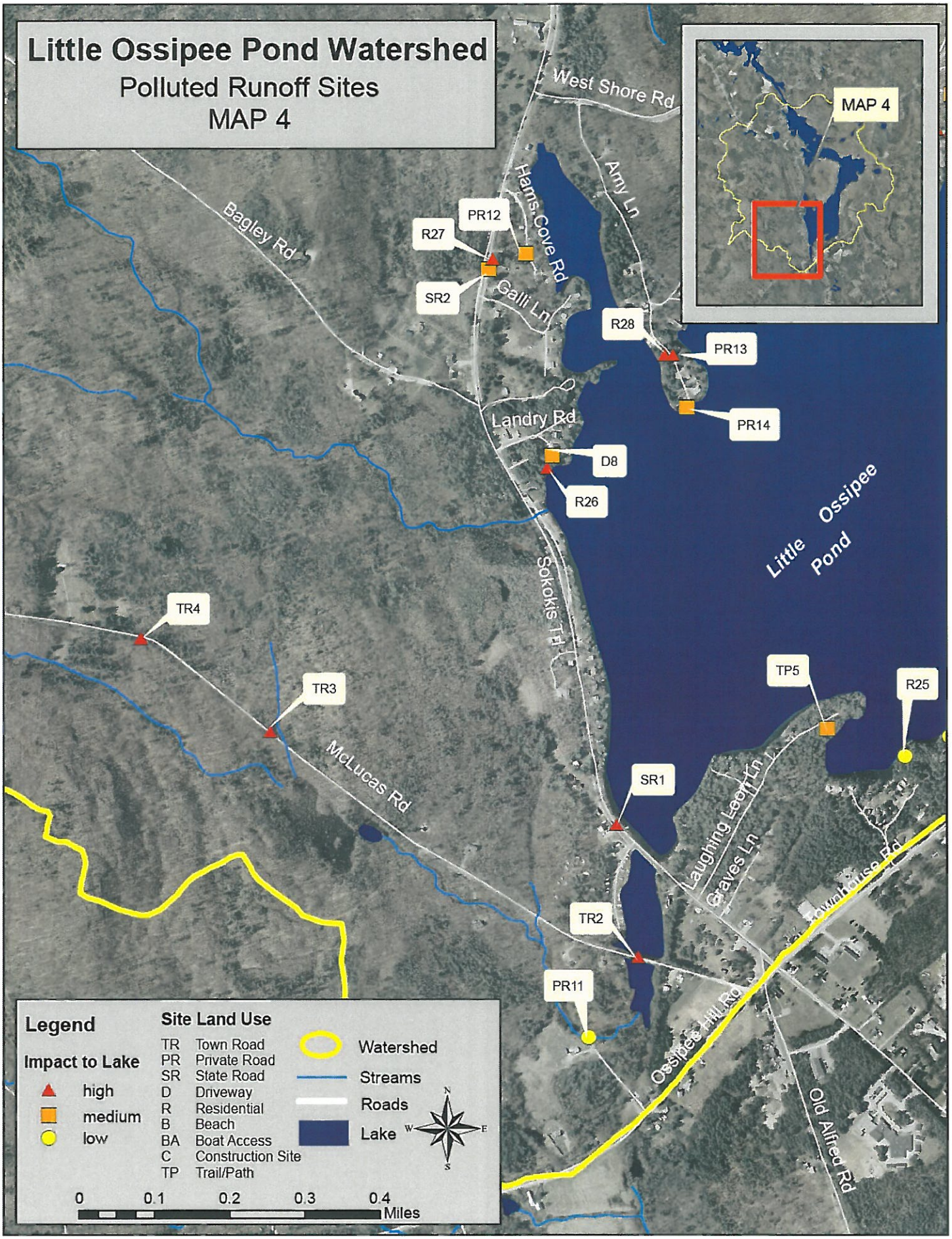
Little Ossipee Pond Watershed
Polluted Runoff Sites
MAP 4
MAP 4
West Shore Rd
Army Ln
Harms Cove Rd
Galli Ln
Bagley Rd
Landry Rd
Sokokis Trl
McLucas Rd
Laughing Loon Ln
Graves Ln
Old Alfred Rd
Little Ossipee Pond
PR12
R27
SR2
R28
PR13
PR14
D8
R26
TR4
TR3
TP5
R25
SR1
TR2
PR11
Legend
Impact to Lake
high
medium
low
Site Land Use
TR Town Road
PR Private Road
SR State Road
D Driveway
R Residential
B Beach
BA Boat Access
C Construction Site
TP Trail/Path
Watershed
Streams
Roads
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Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
B1	2-24	Beach	Webber & Chadbourne Ridge Roads, Map 41, Lot 12	sheet flow over beach access	10 x 15	seed & mulch, install steps	low	low	low
B2	2-14	Beach	Ossipee Pine Park, Map 38	Shoreline erosion, unstable beach acess	30	riprap	low	low	low
BA1	2-22	Boat Access	Webber Road, Map 41	Direct flow to lake, lack of buffer, unstable boat access	20 x 4	Pave driveway, seed & mulch	low	low	low
BA2	2-32	Boat Access	Penny Circle Map 36, Lot 26	Moderate surface erosion, unstable boat access, direct flow to lake	20 x 4	Enhance vegetation, install runoff diverters, consider closing off to vehicle access	med	low	low
BA3	2-31	Boat Access	Penny Circle Map 36, Lot 25	Moderate surface erosion, direct flow to lake	51 x 10	Seed and mulch boat access or add new surface material to stabilize, plant vegetation in uphill areas, stop raking	med	low	low
BA4	7-13	Boat Access	East Shore Road, Map 29, Lot 22	Moderate surface erosion, unstable beach, bare soil, lack of buffer, slight ditch erosion, direct flow to lake	50 x 20	Install check dams in ditch, add better surface material, install new and/or maintain existing runoff diverters, seed and mulch bare soil	med	med	med
BA5	6-1	Boat Access	Courtney Lane Map 33, Lot 33A	Beach enhancement w/ sand, direct flow to lake, bare soil, moderate surface erosion, unstable beach & boat access	75 x 50	Establish buffer, seed & mulch, install runoff diverters, stop raking	med	med	med
BA6	1-7	Boat Access	Connolly Point Map 39, Lot 4	Direct flow to lake, slight surface erosion, unstable boat access	30 x 15	Install runoff diverters	med	med	low
BA7	1-4	Boat Access	Silas Brown Road Map 41, Lot 24	Direct flow to lake, bare soil, moderate surface erosion	150 x 15	Add new surface material, reshape & crown, install open-top culvert or rubber razor	low	low	low
C1	3-4	Construction Site	Webber Road, Map 36	Unstable construction site, bare soil, lack of buffer, potential for sediment to reach lake.	150 x 10	Install stone-filled dripline trench along house, install runoff diverters, seed and mulch bare soil	low	low	low
D1	2-7	Driveway	Locan Circle, Pole 12-18, Map 38	Moderate to severe surface erosion	150 x 12	Reshape or crown road or driveway, install rubber razor	high	med	med
D2	2-1	Driveway	Logan Circle, Map 11, Lot 15A	Moderate Surface erosion	175 x 10	Install ditch, add new surface material, install turnout(s), install runoff diverter (s)	med	med	med
D3	2-30	Driveway	Penny Circle, Map 36	Moderate surface erosion, direct flow to lake	50 x 10	Add better surface material, reshape or crown road	low	low	low
D4	3-3	Driveway	Penny Circle, Map 36	Direct flow to ditch, slight surface erosion	25 x 3	Install french drain	low	low	low

Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
D5	7-D14	Driveway	East Shore Rd, Map 35, Lot 14a	Moderate surface erosion, bare soil and unstable banking, direct flow to lake	60 x 10	Add better surface material to driveway, mulch and vegetate banking	low	low	med
D6	7-D16	Driveway	East Shore Rd, Map 35, Lot 6	Moderate surface erosion	50 x 10	Add better surface material, install turn-outs, reshape or crown road	low	low	med
D7	7-D15	Driveway	East Shore Rd, Map 33, Lot 18	Moderate surface erosion	100 x 10	Add better surface material, install turn-outs, reshape or crown road	low	low	med
D8	5-6	Driveway	Landry Road, Map 32	Severe surface erosion, lack of buffer, direct flow of sediment to lake	100 x 10	Add better surface material, install runoff diverters, reduce parking area, install infiltration area at base	med	med	med
D9	6-9a	Driveway	Courtney Lane, Map 33, Lot 34	Moderate surface erosion, direct flow of sediment to lake via boat access	50 x 12	Install runoff diverter, add better surface material	low	med	med
D10	6-8	Driveway	West Shore Rd, Map 33, Lot 26 & 27	Moderate surface erosion, inadequate buffer	175 x 15	Install turnouts, install ditch, reshape or crown road, extend buffer	med	med	med
D11	6-4	Driveway	West Shore Road Map 34, Lot 13A	Direct flow to lake, moderate surface erosion, moderate shoulder erosion, moderate ditch erosion	10 x 50	Armor ditch with stone or grass, install ditch, add new surface material to drive, pave, install detention basin	med	low	med
PR1	2-17	Private Road	intersection Dean Road & Hush Puppy Road into Lot 8	Moderate shoulder erosion, moderate surface erosion	200 x 20	Install ditch and turnout	med	high	med
PR2	2-26	Private Road	Logan Circle, near stream crossing on western end	Moderate surface erosion, grader berms keep water on road, direct flow to stream	400 x 15	Add better road surface material, remove grader berms, reshape and crown road, install broad-based dip	high	med	med
PR3	2-25	Private Road	Logan Circle stream crossing	Moderate surface erosion, undersized and unstable culvert, grader berms keep water on road, direct flow to stream, bare soil on banking	200 x 15	Install larger culvert and armor inlet/ outlet, add better road surface material, remove grader berms, reshape and crown road	high	med	med
PR4	2-5	Private Road	Logan Circle, Map 36, Lot 38	Severe surface erosion, unstable bank	100 x 10	Install ditch and detention basin, establish new slope bank, riprap bank	high	high	high
PR5	2-3	Private Road	Logan Circle, Map 36	Moderate Surface erosion	350 x 15	Clean out existing detention basin & redesign, realign driveway to provide space for additional basin, Install ditch to lead to basin	high	high	high
PR6	2-27	Private Road	loop off Logan Circle, Map 36	Bare soil on banking, moderate surface erosion	375 x 15	Add better surface material, install turn-outs, reshape/see/mulch banking	med	med	med
PR7	2-28	Private Road	loop off Logan Circle, Map 36	Moderate surface erosion, direct flow to lake	500 x 15	Add better surface material, install turn-outs, reshape and crown road	med	med	med

Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
PR8	3-1	Private Road	Pete Rose Way (ROW), Map 36	Moderate Surface erosion	150 x 4	Install rubber razor	low	low	low
PR9	7-P14	Private Road	off East Shore Road, Map 31, by Lot 17	Moderate surface erosion, direct flow of sediment to lake	300 x 15'	Add better surface material, reshape or crown road, install ditch and runoff diverters	high	med	high
PR10	7-25	Private Road	Wakefield Drive, Map 31	Moderate surface erosion, bare soil, poor road material, direct flow of sediment to lake	100 x 15	Add better road material such as recycled asphalt, reshape or crown road, reduce road width, install infiltration trench at base	med	med	med
PR11	4-1	Private Road	long dirt trail off Ossipee Hill Road, Map 7 between Lots 44 & 45	Unstable culvert inlet/outlet, direct flow to stream, slight shoulder erosion	5 x 5	Clean out culvert, stabilize inlet and/or outlet, remove grader berms and winter sand	low	low	low
PR12	6-10	Private Road	Ham's Cove stream crossing	Undersized culvert, moderate road shoulder erosion, uncovered soil pile next to stream, direct flow of sediment to stream	25 x 15	Enlarge culvert, stabilize culvert inlet/ outlet, reshape and vegetate road shoulder, relocate soil pile	med	med	med
PR13	6-7	Private Road	Amy Lane Map 32, from Lot 33 to 28	Driect flow to lake, severe surface and road shoulder erosion	500 x 15	Install turnouts, install ditch and armor with stone or grass, add new surface material, reshape & crown road, pave, install detention basin	high	high	high
PR14	6-5	Private Road	End of Amy Lane, Map 32	direct flow to lake, severe ditch erosion, severe road shoulder erosion, severe surface erosion	75 x 12	Add new surface material & build up road, install turnout(s), reshape & crown, pave, establish buffer, install detention basin	med	med	med
PR15	6-3	Private Road	Courtney Lane Map 33	Direct flow to lake, severe erosion on road and road shoulder	300 x 15'	Install ditch, reshape & crown road, install detention basin, install cross culvert	high	high	high
PR16	6-8a	Private Road	Courtney Lane, Map 33	Moderate surface erosion, direct flow of sediment to lake via boat access	100 x 12	Build up road, install turnouts, reshape or crown road, install detention basin	high	high	med
PR17	6-10a	Private Road	north end of Courtney Lane, Map 33	Moderate surface erosion, direct flow of sediment to lake	75 x 12	Build up road with better surface material, reshape or crown road, install turnouts and runoff diverters	high	med	med
PR18	6-13	Private Road	Esther Lane, Map 33	Severe surface erosion, direct flow of sediment to lake	150 x 10	Build up road, install turnouts, install runoff diverters	med	med	med
PR2	2-26	Private Road	Logan Circle, near stream crossing on western end	Moderate surface erosion, grader berms keep water on road, direct flow to stream	400 x 15	Add better road surface material, remove grader berms, reshape and crown road, install broad-based dip	high	med	med

Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
PR3	2-25	Private Road	Logan Circle stream crossing	Moderate surface erosion, undersized and unstable culvert, grader berms keep water on road, direct flow to stream, bare soil on banking	200 x 15	Install larger culvert and armor inlet/ outlet, add better road surface material, remove grader berms, reshape and crown road	high	med	med
PR4	2-5	Private Road	Logan Circle, Map 36, Lot 38	Severe surface erosion, unstable bank	100 x 10	Install ditch and detention basin, establish new slope bank, riprap bank	high	high	high
PR5	2-3	Private Road	Logan Circle, Map 36	Moderate Surface erosion	350 x 15	Clean out existing detention basin & redesign, realign driveway to provide space for additional basin, Install ditch to lead to basin	high	high	high
PR6	2-27	Private Road	loop off Logan Circle, Map 36	Bare soil on banking, moderate surface erosion	375 x 15	Add better surface material, install turnouts, reshape/see/mulch banking	med	med	med
PR7	2-28	Private Road	loop off Logan Circle, Map 36	Moderate surface erosion, direct flow to lake	500 x 15	Add better surface material, install turnouts, reshape and crown road	med	med	med
PR8	3-1	Private Road	Pete Rose Way (ROW), Map 36	Moderate Surface erosion	150 x 4	Install rubber razor	low	low	low
PR9	7-P14	Private Road	off East Shore Road, Map 33, Lot 3?	Moderate surface erosion, direct flow of sediment to lake	300 x 15'	Add better surface material, reshape or crown road, install ditch and runoff diverters	high	med	high
R1	2-23	Residential	Webber Road, Map 41, Lot 11?	Direct flow to lake, moderate to severe surface erosion	30 x 10	Seed & mulch, rip rap	med	low	med
R2	2-21	Residential	Webber Road, Map 41, Lot 1A	Bare soil, lack of buffer, moderate surface erosion, unstable beach access	8 x 25	Seed & mulch, no raking, terrace	med	low	low
R3	2-20	Residential	Dean's Way, Map 40, Lot 13	Direct flow to lake, bare soil, lack of buffer, slight surface erosion	100 x 6	Install turnout, install stone-filled dripline trench, extend buffer, seed & mulch, install runoff diverters	med	low	low
R4	2-19	Residential	Dean's Way, Map 40, Lots 10 & 10A	Direct flow to lake, bare soil, slight to moderate surface erosion	200 x 20	Establish buffer, terrace	low	low	low
R5	2-18	Residential	Intersection Dean Road & Hush Puppy Road, Map 40, Lot 8	Direct flow to lake, bare soil, moderate to severe surface erosion	25	Install stone-filled dripline trench under gutter vent, establish buffer, terrace	high	med	high
R6	2-16	Residential	Hush Puppy Road, Map 40, Lot 5	bare soil, lack of buffer, slight sheet erosion	30 x 20 & 75 x 5	Install stone-filled dripline trench, establish buffer, seed and mulch, terrace	med	low	low
R7	2-15	Residential	Hush Puppy Road, Map 40, Lot 3	Direct flow to lake, bare soil, sheet erosion, slight surface erosion	75 x 25	Install stone-filled dripline trench, establish buffer, terrace	med	low	low
R8	2-12	Residential	Logan Circle, Map 38, Lot 21	Roof runoff, bare soil, slight to moderate surface erosion	100 x 12.5	Install stone-filled dripline trench, install rubber razor near road	low	low	low
R9	2-11	Residential	Logan Circle, Map 38, Lot 18	Roof runoff, slight surface erosion	60 x 10	Install stone-filled dripline trench, establish buffer, terrace	low	med	low

Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
R10	2-10	Residential	Logan Circle, Map 38, Lot 16	Direct flow to lake, roof runoff, bare soil, moderate surface erosion, unstable beach access	25 x 10	Install stone-filled dripline trench, install waterbar, terrace edge of driveway	med	low	low
R11	2-9	Residential	Logan Circle, Map 38, Lot 13	roof runoff, bare soil, slight surface erosion	100 x 10	Install stone-filled dripline trench, establish buffer, seed and mulch, terrace	low	low	low
R12	2-8	Residential	Logan Circle, Map 38, Lot 12	roof runoff, bare soil, slight surface erosion	50 x 10	Install stone-filled dripline trench, install waterbar at bse of hill, establish buffer, seed and mulch, no raking	low	low	low
R13	2-6	Residential	Logan Circle, Map 38	Bare soil, lack of buffer, slight surface erosion	25 x 75	Establish buffer, seed and mulch	low	low	low
R14	2-4	Residential	Logan Circle, Map 36, Lot 31	Direct flow to lake, roof runoff, bare soil, lack of buffer, large amount of sediment from orad deposited on property	200 x 8	Reshape ditch, install dry well or rain barrel, establish buffer, install additional detention basin, remove accumulated material	high	high	high
R15	3-2	Residential	Penny Lane, Map 36	Direct flow to lake	30 x 2 & 60 x 1	Extend buffer, stop raking, mulch, install drywell	med	med	med
R16	3-5	Residential	Domino Road, Map 36, Lot 10	Direct flow to lake, shoreline erosion, light surface erosion, lack of buffer	10 x 15	Establish buffer, seed and mulch	low	low	low
R17	3-6	Residential	East Shore Ext., Map 35, Lot 21	Direct flow to lake, slight erosion, bare soil	6 x 12	Install steps, & vegetate	low	low	low
R18	7-R21	Residential	off East Shore Rd, Map 33, Lot 2	Bare soil, slight surface erosion, direct flow to lake	10 x 10	Seed and mulch bare soil, establish shoreline buffer	low	low	low
R19	7-R20	Residential	off East Shore Road, Map 33, Lot 1	Bare soil, slight surface erosion, direct flow to lake	10 x 5	Seed and mulch bare soil, establish shoreline buffer	low	low	low
R20	7-R7	Residential	Wakefield Drive, Map 31, Lot6	Moderate surface erosion, bare soil, lack of buffer, direct flow of sediment to lake	20 x 15	Install waterbars, establish shoreline buffer, seed and mulch bare soil	med	low	low
R21	7-R23	Residential	East Shore Road, Map 29, Lot 29	Bare soil, slight surface erosion	30 x 10	Seed and mulch bare soil	low	low	low
R22	7-R24	Residential	East Shore Road, Map 29, Lot 26	Bare soil, slight surface erosion, lack of buffer	50 x 20	Seed and mulch bare soil, establish shoreline buffer	low	low	low
R23	7-R25	Residential	East Shore Road, Map 29, Lot 24	Moderate surface erosion on path	30 x 3	Create meandering path, install waterbars, extend buffer	low	low	low
R24	4-6	Residential	Townhouse Road, Map 29, Lot 12	Direct flow to lake, slight ditch erosion, site being worked on, protection inadequate	25 x 25	Establish buffer	low	low	low
R25	4-5	Residential	Map 29, Lot 11	Driect flow to lake, slight ditch erosion, steep land erosion	15-20	Establish buffer, riprap	low	low	low
R26	5-5	Residential	Landry Road, Map 32	Severe surface erosion, unstable beach access, lake of buffer, direct flow of sediment to lake	25 x 8	Seed and mulch bare soil, install rain garden, establish vegetated buffer	high	med	med

Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
R27	6-12	Residential	Route 5 - next to stream, Map 32, Lot 55	Bare soil, Moderate surface erosion, severe streambank erosion, lack of riparian buffer, unstable construction site, direct flow to stream	50 x 50	Add better surface material to driveway, reshape or crown road, establish streamside vegetation, seed and mulch bare soil	high	med	med
R28	6-6	Residential	Amy Lane, Map 32, Lot 30	Direct flow to lake, bare soil, moderate surface erosion, lack of vegetated buffer	75 x 15	Install detention basin, seed and mulch bare soil, plant trees/shrubs/groundcover plants	high	med	high
R29	6-2	Residential	Courtney Lane Map 33, Lot 41	Severe surface erosion, bare soil, direct flow to lake	100 x 10	Install detention basin, seed and mulch bare soil, plant trees/shrubs/groundcover plants	high	med	med
R30	6-11a	Residential	north end of Courtney Lane, Map 33, Lot 29	Moderate surface erosion, direct flow of sediment to lake	75 x 12	Install runoff diverter such as rubber razor, seed and mulch bare soil, plant vegetation	high	med	med
R31	6-14	Residential	Esther Lane, Map 33, Lot 25	Moderate surface erosion, roof runoff, bare soil, direct flow of sediment to lake	50 x 20	Install stone-filled dripline trench to capture roof runoff, install runoff diversters, install infiltration steps, mulch bare soil, extend buffer	med	med	med
R32	1-9	Residential	West Shore Drive Map 37, Lot 20	Direct flow to lake, roof runoff, slight surface erosion	40 x 8	Install stone-filled dripline trench, seed & mulch	low	low	low
R33	1-8	Residential	Short Street, Map 39, Lot 15	Direct flow to lake, bare soil, slight surface erosion, lack of shoreline buffer	25 x 75	Install stone-filled dripline trench for roof runoff, establish new slope, mulch, terrace	med	low	low
SR1	4-3	State Road	Rt. 5 by church, Map 7, Lot 25	Direct flow to lake, moderate ditch erosion	75 x 10	Establish buffer, install detention basin, restrict foot traffic (fishing), add vegetation	high	high	high
SR2	6-11	State Road	Route 5, stream crossing north of Galli Lane	Unstable culvert inlet/outlet, moderate road shoulder errosion, direct flow of sediment to stream	10 x 10	Stabilize culvert inlet/outlet, reshape and vegetate road shoulder	med	med	low
TP1	1-1	Trail/Path	Dam outlet, Map 41, Lot 13	Direct flow to lake, moderate surface erosion	6 x 25	Install steps or terrace, divert storm water to drywell	low	low	low
TP2	2-13	Trail/Path	Ossipee Pine Park, Map 38	Direct flow to lake, bare soil, shoreline erosion, moderate surface erosion	25 x 6	Install waterbar, mulch, riprap, terrace	med	med	med
TP3	2-2	Trail/Path	Logan Circle, Map 11, Lot 16	Moderate Surface erosion	150 x 5	Install waterbar	med	low	low
TP4	2-29	Trail/Path	Penny Circle	Moderate surface erosion and bare soil on ATV trail	100 x 3	Discontinue use if possible, install turnouts, install detention basin at base of hill	low	low	low
TP5	4-4	Trail/Path	Camp Laughing Loon (beach area), Map 28, Lot 29	Direct flow to lake, moderate ditch erosion, unstable beach access	10-15	Mulch, riprap, install runoff diverters	med	med	med

Map ID	Survey ID	Land Use	Location	Type of Problem	Area (ft)	Recommendations	Impact	Tech Level	Cost
TR1	4-7	Town Road	Town House Road, Pole #19	Unstable culvert inlet/outlet, slight ditch erosion	10 x 10	Stabilize inlet and/or outlet.	low	low	med
TR2	4-2	Town Road	McLucas Road Pole #4, Map 7	Unstable culvert inlet/outlet, direct flow to lake, moderate ditch erosion moderate shoulder erosion	300 x 8	Stabilize inlet and/or outlet, remove grader berms, pave?, riprap	high	high	high
TR3	5-2	Town Road	McLucas Road - 2nd culvert up from red camp	Unstable culvert inlet/outlet, direct flow to stream,severe road shoulder erosion, sever surface erosion	1000 x 15	Replace culvert, stabilize inlet and/or outlet, install ditch and turnout, reshape or crown road install broad-based dip	high	high	high
TR4	5-1	Town Road	McLucas Road -1st culvert before red camp	Unstable culvert inlet/outlet, clogged culvert, direct flow to stream, severe shoulder erosion, severe surface erosion	800 x 8	Clean out and enlarge culvert, stabilize inlet and/or outlet, install ditch and turnout, reshape or crown road	high	high	high
TR5	6-9	Town Road	West Shore Road - stream crossing	Undersized culvert, unstable culvert inlet/outlet, direct flow to stream and wetland, moderate road and road shoulder erosion	100 x 20	Enlarge culvert, stabilize culvert inlet/outlet, install turnouts	high	med	med
TR6	1-11	Town Road	Silas Brown Road, Map 39	Direct flow to stream, Road sand, moderate road shoulder erosion, unstable culvert inlet/outlet	40 x 10	Install turnout, remove winter sand, stabilize culvert inlet/outlet with stone	med	low	low

Where Do I Get More Information?

Contacts

York County Soil and Water Conservation District

8 Waterboro Road
P O Box 819
Alfred, Maine 04002-0819
(207) 324-7015
York-swcd@me.nacdnet.org

Offers assistance with watershed planning and survey work, environmental education, engineering support, seminars and training sessions, and education on the use of conservation practices.

Maine Department of Environmental Protection
312 Canco Road, Portland, ME 04103
Toll Free (888) 769-1036 or (207) 822-6300

17 State House Station, Augusta, ME 04333
Toll Free (800) 452-1942 or (207) 287-7688

Provides permit applications and assistance, numerous reference materials, technical assistance, environmental education, project funding opportunities, and stewardship activities for lakes.

Publications

Androscoggin Valley SWCD and Lake and Watershed Resources Management Associates. 1998. ***The Shoreline vegetation Handbook: A Guide to Creating Vegetated Shoreline vegetation for Lakefront Properties.*** **20 pgs. plus inserts.**

Kennebec County SWCD and Maine DEP. June, 2000. ***Camp Road Maintenance Manual: A Guide for Landowners.*** **54 pgs.**

York County SWCD Fall 2004. ***A Guide to Forming a Road Association*****, 50+ pages plus CD of forms.**

Maine DEP. December, 1997. ***A Homeowner's Guide to Environmental Laws Affecting Shorefront Property in Maine's Organized Towns.*** **DEPLW-38-B98. 28 pgs.**

Maine DEP. 1999. ***Maine Shoreland Zoning—A Handbook for Shoreland Owners.*** **DEPLW 1999-2. 34 pgs.**

University of Maine Cooperative Extension. ***Gardening to Conserve Maine's Native Landscape: Plants to Use and to Avoid.*** **Bulletin #2500. June, 1999. Folded leaflet.**

Remember, the long term health of your watershed depends on you!

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