Wellhead Protection Program Implementation Plan

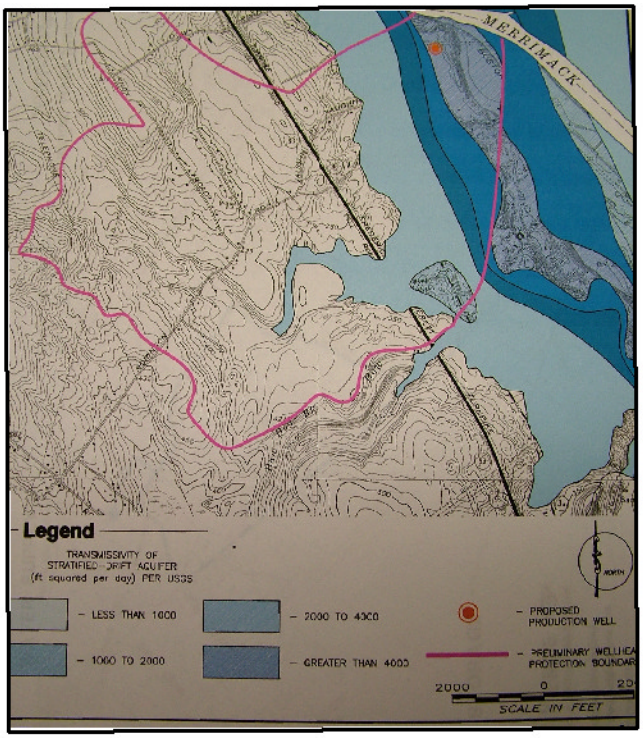
Bow Municipal Water System

Permit Number LGWP-2010-0003

Serving the Town since July, 2012

Wellhead Protection Area Boundary

2.3 Square Miles

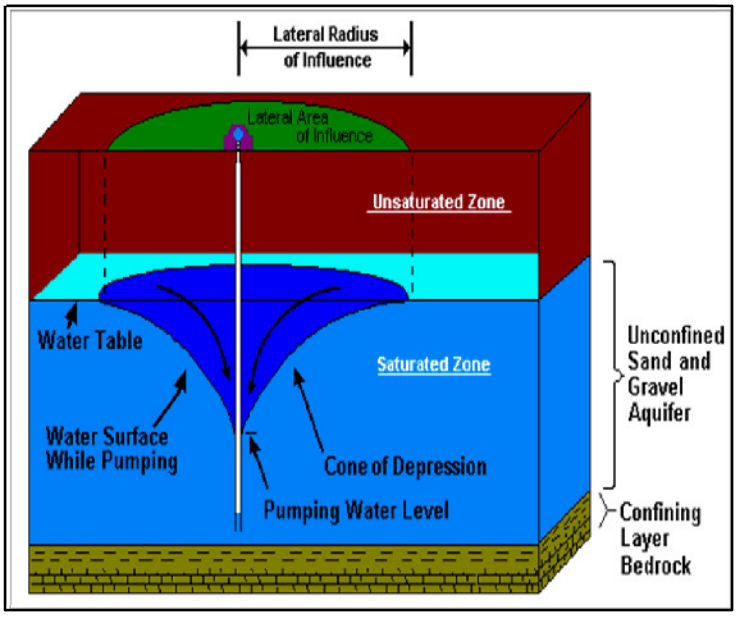


Production Wells Sited in Highly

Transmissive Sand & Gravel Aquifer

Production Wells PW-1 & PW-2

with Test Well in Foreground



WELLHEAD PROTECTION PROGRAM
IMPLEMENTATION PLAN

BOW MUNICIPAL WATER SYSTEM PWS #0261010
RIVER ROAD WELL (PW-1) and Back-up Well (PW-2)

Permit Number LGWP-2010-0003
15 April 2010

Prepared for the:

Town of Bow
10 Grandview Road
Bow, New Hampshire 03304

Prepared by:

Bow Drinking Water Protection Committee

January 2012

(Rev. 1/November 2012)

(Rev. 2/June 2014)

(Rev. 3/July 2019)

SUMMARY OF REVISIONS/ADDENDA

Revision No.: 1

Date Revised: November 2012

Summary of Revision(s): Added minor edits to text, tables, and appendices regarding back-up well PW-2 and its conditional approval by NHDES on 12 August 2011. Changed text and dates on Tables 4-1 and 4-2 to reflect activation of Bow Municipal Water System on 2 July 2012.

Revision No.: 2

Date Revised: June 2014

Added cover to report with photos. Edited Note #3 in Table 4-1 to reflect reduction in BMP inspections to once every 3 years in accordance with current regulations. Added to Appendix 1-1 and to References NHDES' authorization (C.Bowman e-mail 20 June 2013) to reduce PCS and BMP inventory and inspections to once every 3 years; added content to Appendices 4-3, 4-4, 4-5, 4-6, 4-7 & 5-1.

Revision No.: 3

Date Revised: 2019

Updated Table 4-1 to reflect current regulatory citation references, contact information, and frequency of inspections and reporting. Edited text in Section 3.4.1 to reflect current Town Winter Road Maintenance Policy. Replaced Appendix 3-1 and 4-1 through 4-7 with most recent updates. Changed footer information on text, tables and breaker pages to show document as "Rev 3".

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LIST OF FIGURES

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LIST OF ACRONYMS

BDWPC	Bow Drinking Water Protection Committee
bgs	below ground surface
BMP	Best Management Practice
CIP	Capital Improvements Plan
DPW	Department of Public Works
DWGB	Drinking Water and Groundwater Bureau
ft	feet/foot
GIS	Geographic Information System
gpd	gallons per day
I-93	Interstate 93
Implementation Plan	Wellhead Protection Program Implementation Plan
LGWP	Large Groundwater Withdrawal Permit
MCL	maximum contaminant level
µg/L	micrograms per liter
mg/L	milligrams per liter
MtBE	Methyl tertiary butyl ether
MWS	Bow Municipal Water System (Public Water Supply #0261010)
NHDES	New Hampshire Department of Environmental Services
NHDOT	New Hampshire Department of Transportation
OW	observation well
PCS	potential contaminant source
PWS	Public Water Supply
PW-1	River Road Well
PW-2	River Road Back-up Well
RU	Rural District
SMCL	secondary maximum contaminant level
SPA	sanitary protective area
Stantec	Stantec Consulting Services, Inc.
TBD	to be determined
Town	Town of Bow
TW-1	Test Well TW-1
USGS	United States Geological Survey
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WHPP IP	Wellhead Protection Program Implementation Plan

EXECUTIVE SUMMARY

This Wellhead Protection Program Implementation Plan (WHPP-IP), also referred to as the Implementation Plan, was prepared for the Town of Bow (Town) by the Drinking Water Protection Committee (BDWPC) in response to the Large Groundwater Withdrawal Permit issued by the New Hampshire Department of Environmental Services (NHDES) on 15 April 2010, for the new Bow Municipal Water System (MWS). The WHPP-IP applies to the immediate area surrounding the new well sources PW-1 and back-up well PW-2, and a 2.5 square mile Wellhead Protection Area (WHPA), which contributes groundwater recharge to these sources. The location of the wells and the WHPA are shown in Figures 1-2 and 3-1.

Human activities in the WHPA have the potential to adversely impact groundwater quality of the new MWS. The protection of this groundwater resource is of critical importance. The goal of this Implementation Plan is to provide an organized approach with action items, schedule of activities, and required submissions to NHDES. These action items are both required and necessary to preserve the productivity of the aquifer, identify potential contaminant sources, minimize the potential for contamination within the WHPA, and respond to water system threats when justified.

The Implementation Plan is a working document developed to ensure that the special permit conditions and periodic activities stipulated by NHDES for a Wellhead Protection Program (WHPP) are met. The actions taken by the Town's water system management, surrounding landowners, and others potentially impacting this water resource, as well as the larger community, are critical factors for achieving comprehensive water resource protection.

Basic elements of the WHPP Implementation Plan include:

- A description of the water system and historical groundwater quality;
- An inventory of current land use and potential contamination sources (PCSs);
- An assessment of the risks posed by PCSs, and their control using Best Management Practices; and
- A management plan to ensure compliance with the WHPP requirements of NHDES during operation of the MWS.

The management team assigned to implement the WHPP is shown in Figure 4-1. The Team Lead is the Town Manager working under the direction of the Board of Selectmen. The Town Manager's primary support team is also shown on Figure 4-1. The BDWPC and the Town Planning Board are also available as a resource/advisory group through the Board of Selectmen. The specific WHPP activities, NHDES contacts and due dates for submissions to NHDES are shown in Table 4-1 (see Items #7-14 on Table 4-1).

The Appendices in the Implementation Plan are intended to include the latest WHPP deliverables required by NHDES. These deliverables are required in different timeframes. As they are generated, it is intended that they would be added to the appropriate Appendix and update or replace the older content. In addition, other pertinent documents related to the WHPP (e.g., MWS permit and special conditions letters, relevant ordinances, management plans, and policies) are also in the Appendices. Other than the Appendices, which are updated as required in the schedule shown on Table 4-1, the body of the Implementation Plan should not require frequent revision.

In addition to the requirements for the WHPP, the Implementation Plan includes:

- A summary of other monitoring and reporting requirements in order to achieve operational compliance of the MWS (see Table 4-2); and,
- An Emergency Plan (see Section 5 and Appendix 5-1) detailing emergency response measures for both short-term emergencies as well as long-term water supply alternatives.

The operational aspects of the MWS do not specifically relate to the WHPP but provide the reader/user of this Implementation Plan with an overall understanding of the requirements to operate the MWS in compliance with state statutes and regulations.

In summary, this WHPP Implementation Plan provides the following:

- A single document for ensuring compliance with the requirements of the approved WHPP.
- A series of Appendices where the latest required deliverables and other documents are maintained and available for use.
- Additional information for the reader/user of the Implementation Plan to obtain a basic understanding of the development and operation of the MWS.

1. INTRODUCTION

1.1 PURPOSE

This WHPP Implementation Plan (Implementation Plan) was prepared by the Bow Drinking Water Protection Committee for the Town of Bow (Town) in response to the State of New Hampshire Department of Environmental Services (NHDES) issuance of a permit on 15 April 2010, for a large groundwater withdrawal well known as the River Road Well (PW-1). Well PW-1, located on Figure 1-1, is intended to serve as a source of supply for a new municipal water system (MWS) to serve a residential and commercial area in the northeast portion of the Town of Bow, between Interstate 93 (I-93) and the Merrimack River (River Road Area). NHDES issued the permit approval contingent on complying with New Hampshire Administrative Rules: Env-Dw 302 governing large production wells; Env-Wq 403 governing Large Groundwater Withdrawals [>57,600 gallons per day (gpd) as defined in Env-Wq 403.03]; and special conditions noted in two 7 May 2010 NHDES letters to the Town of Bow (see Appendix 1-1).

The Implementation Plan applies to the immediate area surrounding PW-1 and a Wellhead Protection Area (WHPA), which is the area contributing groundwater recharge to PW-1. The WHPA identified for PW-1 is shown in Figure 1-2. The Implementation Plan also applies to back-up well PW-2, which is located approximately 20 feet (ft) from PW-1.

The goal of the Implementation Plan for PW-1 is to provide an organized approach with action items, schedule of activities, and Best Management Practices (BMP) to preserve the productivity of the aquifer, minimize the potential for contamination within the WHPA, and to respond to water system threats when justified. The Implementation Plan expands on and implements the WHPP which is described in the permit application prepared by Stantec Consulting Services, Inc. (Stantec) and submitted to NHDES in October 2009.

The Implementation Plan is a working document that will be reviewed at least annually and updated every 2 years (see NHDES, 7 May 2010(a) letter) to remain current, active, and viable. The actions taken by the Town of Bow's water system management, surrounding landowners,

and others potentially impacting this water resource, as well as the larger community, are critical factors for achieving comprehensive water resource protection.

Basic elements of the Implementation Plan include:

- A description of the water system
- An inventory of potential contamination sources
- An assessment of their risks and their control using BMPs
- A management plan to ensure compliance with the Wellhead Protection

1.2 BACKGROUND

Interest in developing a MWS serving the River Road Area has been discussed since the 1990s. The following chronology summarizes the major events leading to the permitting of PW-1:

- From approximately 2001 to 2003, Wright-Pierce and ECS Marin, on behalf of the Town of Bow, completed field explorations in search of a favorable well site culminating in September 2003 with a Preliminary Report regarding the feasibility of developing a source of supply from a large sand and gravel aquifer near the Merrimack River.

- Between November 2004 and December 2005, Wright-Pierce, Jacques Whitford (now working with Stantec), and representatives of the Town of Bow coordinated the water supply exploration with NHDES, which culminated in the collection and analyses of test samples of groundwater in December 2005.

- From December 2005 to January 2006, the DL Mayer Company (a division of Boart Longyear) drilled PW-1.

- From 31 March to 6 April 2006, Wright-Pierce and Stantec conducted a 6-day 700-gallon per minute (approximately 1,000,000 gpd or 1 million gpd) pump test of PW-1, collected water level data, and analyzed water quality samples from the pumping well and eight observation wells. Water quality monitoring at three surface water sampling locations was also performed during the test. On 8 April 2006, PW-1 was developed and completed.

- Between May 2006 and April 2009, there was extensive testing of PW-1 and the observation wells; close coordination between the Town, Wright-Pierce, Stantec, and NHDES was necessary for development of a comprehensive plan for the new water supply system.

- In October 2009, the final report for a Large Groundwater Withdrawal Permit (LGWP) was submitted and deemed administratively complete by NHDES.

- Between October 2009 and April 2010, there was additional response to NHDES's requests for information to support the LGWP application.

- On 15 April 2010, NHDES issued LGWP-2010-0003 for PW-1, with an expiration date of 16 April 2020. On 7 May 2010, NHDES issued a notice of the approval, with conditions, for PW-1 as a source of supply for the Town MWS. On 12 August 2011, NHDES issued a notice of conditional approval of back-up well PW-2.

1.3 DESCRIPTION OF THE SOURCE OF SUPPLY AND THE WELLHEAD PROTECTION AREA

Well PW-1 is located about 800 ft from the Merrimack River and about 1,000 ft east of an industrial/commercial development corridor located along I-93, Route 3A, and River Road in the Town (see Figures 1-1 and 1-2). Well PW-1 was sited on Lot 17-A, Block 5, Map 31 located off River Road and is accessed via easements over Lots 18-E and 19, Block 5, Maps 31 and 36 (see Figure 1-3).

Well PW-1 was drilled to a total depth of approximately 133 ft. The well was completed in January 2006 with an 18-inch-diameter steel casing and the screened zone extending from approximately 118 to 131 ft below ground surface (bgs) in highly permeable unconsolidated deposits. Bedrock was not encountered during drilling. Water levels in PW-1 under non-pumping conditions are typically in the range of 70+ ft bgs (Stantec, 2009).

The unconsolidated materials encountered at the PW-1 well site are glacial and post glacial deposits consisting primarily of stratified silts, sands, and gravels. Near the base of these stratified deposits and overlying bedrock is a thick stratum of coarse sand, gravel, and cobbles known as an esker. The esker developed from fast moving glacial outwash. Beneath PW-1, the esker is interpreted as 40 ft in thickness (Stantec, 2009). It was encountered approximately 80 ft bgs and, based on previous investigations, trends in a north-south direction extending under the Merrimack River. Figure 1-4 (USGS, 1997 and Stantec, 2009) illustrates the extent of this highly productive groundwater resource in the vicinity of PW-1 and the WHPA.

The WHPA (see Figure 1-2) is the area potentially contributing groundwater recharge to PW-1. Groundwater resources within this area need to be protected to ensure that PW-1 can consistently provide suitable water quality for public consumption. The WHPA shown in Figure 1-2 was

developed by Stantec using numerical modeling to evaluate the zone of groundwater contribution as well as conventional topographic and hydrogeological analysis of the likely recharge area. Excluded from the WHPA are potential recharge from the Merrimack River and potential recharge from a small portion of the Bow Bog Brook drainage basin, which is within zone of influence from PSNH's production wells.

The WHPA includes a 400-foot (ft) radius sanitary protective area (SPA) immediately around PW-1 as required by Env-Dw 302.06. The SPA is intended to provide a buffer for PW-1 where there is a minimal risk of groundwater contamination. The entire SPA is contained on Lot 17-A that is owned by the Town (see Figure 1-3). The remainder of the WHPA consists of residential, commercial, open space, and transportation corridors as shown in Figure 1-2. The entire WHPA comprises an area of approximately 2.5 square miles.

1.4 DESCRIPTION OF THE MUNICIPAL WATER SYSTEM

Figure 1-5 shows the main service area for the MWS. In addition to PW-1 and back-up well PW-2, the water system infrastructure includes a pump station/treatment works, a finished water storage tank, and water mains. NHDES's design approvals for these components were issued 19 October 2009 and in April 2010. A general description of the proposed infrastructure is provided below.

1.4.1 Pump Station/Treatment Works

- Sited on easement on Lot 19, Block 5, Map 36 (and 31)
- Accessed via easement over Lot 18-E, Block 5, Map 31
- Pump station building area 1,400 square feet (46 ft, 8 inches by 30 ft)
- Aeration for radon and pH adjustment/corrosion control
- Below grade Clearwell for chlorine contact time 27.7 ft by 36 ft by 14 ft (13,900 cubic feet, 100,000 gallons)
- Chemical feed including calcium hypochlorite (disinfection) and sodium hydroxide (final pH adjustment). Provisions for future addition of fluoride (hydrofluorosilic acid) are also provided.

1.4.2 Storage Tank

- Sited on easement on Lot 200-C, Block 2, Map 40 located at 708-710 NH Route 3A.
- Access via easement over Lot 92, Block 2, Map 40 located at 706 NH Route 3A.
- 1 million gallon above ground, reinforced concrete, 92-ft diameter by 20-ft water depth.
- Approximately 600,000 gallons of storage for fire flow (3,500 gallons per minute for 3 hours) per Insurance Services Office requirements.
- Provides water pressure of 40 to 100 psi.

1.4.3 Distribution Area

Figure 1-5 illustrates the service area between the pump station/treatment works off of River Road and the water storage tank and areas to the south and east along NH Route 3A and Johnson Road. The service area is planned in two phases.

- Phase I – along River Road between Vaughn Road and Dunklee Road; Dunklee Road up to NH Route 3A and south along NH Route 3A to the storage tank and Johnson Road; 12-inch ductile iron piping (16 inches from tank to NH Route 3A).
- Phase II -along Johnson Road from NH Route 3A to the Boston and Maine Railroad; from Dunklee Road north along NH Route 3A to Vaughn Road and northeast along Vaughn Road to the intersection with River Road; ductile iron piping mains from 8 inches to 12 inches.

1.5 CONTENTS OF THE IMPLEMENTATION PLAN

In addition to the background information summarized above, this Implementation Plan includes the following:

- A source water quality summary of historical water quality results and the required water quality monitoring program for the new water supply.
- A summary of present land use and potential contaminant sources and water resource use and source inventory at the time of approval of the MWS.
- A statement about future land use and a description of potential sources and responses to salt contamination within the Wellhead Protection Area.
- A management plan outlining the steps required to comply with the WHPP.

- A summary of other monitoring and reporting requirements in order to achieve operational compliance of the MWS.
- A Contingency Plan detailing emergency response measures for both short-term emergencies as well as long-term water supply alternatives.

The aforementioned topics are provided so the reader or user of the Implementation Plan can acquire in one location a general summary of what is involved in the operation of the MWS. However, the primary focus of this Implementation Plan is to detail the specific activities required to protect water resources within the WHPA and comply with the WHPP requirements stipulated by NHDES.

To that end, the Implementation Plan includes a number of Appendices that are intended to be the repository for the latest WHPP deliverables required by NHDES. These deliverables are required at different intervals. As they are generated, it is intended that they would be added to the appropriate Appendix and update or replace the older content. Other than the Appendices, this Implementation Plan should not require frequent revision. Section 4 (Management Plan) describes this approach in further detail.

1.6 SUMMARY OF PUBLIC INVOLVEMENT ACTIVITY FOR DEVELOPMENT OF THE IMPLEMENTATION PLAN

This Implementation Plan was prepared by the Bow Drinking Water Protection Committee (BDWPC) under the direction of the Town Board of Selectmen following approval of the MWS by NHDES in April 2010. The BDWPC includes members of the general public as well as representatives of various departments, boards, and volunteer commissions and clubs within the Town. Following review and approval of the *Draft Implementation Plan* by the Board of Selectmen in September 2011, the draft was finalized in January 2012. During the first quarter of 2012, it will be circulated to other departments for comment. Comments will be taken into consideration by the BDWPC and the Implementation Plan will be submitted along with outstanding comments to the Board of Selectmen for final review and adoption. Responses to comments will be included in the BDWPC's meeting minutes between January and March 2012.

2. SOURCE WATER QUALITY

This section summarizes the historical water quality for certain parameters of interest in selected wells sampled within the WHPA throughout the groundwater permitting evaluations. This section also summarizes a detailed monitoring program to be followed once the Town begins formal operation of the new water supply as a public water system. New Hampshire Drinking Water Quality Standards for public water systems are established in Env-Dw 702 through Env-Dw 706. The standards address maximum contaminant levels (MCLs), secondary maximum contaminant levels (SMCLs), and maximum contaminant level goals for radiological, microbiological, organic, and inorganic contaminants. These are the standards that will apply to the Town's permitted groundwater supply.

2.1 HISTORICAL WATER QUALITY

The analytical results for groundwater samples collected from 2002 to 2007 are summarized in the *Final Report for Large Production Well for Community Water System*. (Stantec, 2009). Groundwater samples were periodically collected from a test well (TW-1), observation wells (OWs) and the proposed supply well (PW-1). Figure 2-1 shows the well locations. Results indicated that groundwater was generally of good quality with all parameters meeting the respective health standard MCLs in PW-1. However, as shown in Table 2-1, groundwater sampling of PW-1 also showed chloride and manganese concentrations above their respective aesthetic or secondary SMCLs. Low pH and elevated sodium and radon were also detected in PW-1.

Elevated chlorides [230 to 460 milligrams per liter (mg/L)] were consistently present in the PW-1, as well as TW-1, OW-1, OW-6, and OW-8 (Figure 2-1). Sodium levels in these five wells ranged from 60 to 227 mg/L (Stantec, 2009). The presence of elevated chloride and sodium in this aquifer is likely due to decades of road salt runoff and infiltration along River Road and Route 3A traffic and business parking areas, as well as from the I-93 highway corridor. Chloride and sodium levels were observed to decrease during the pumping tests completed in 2003 (TW-1) and 2006 (PW-1), suggesting recharge contributions from directions with lower salt impact. Elevated salt levels are proposed to be managed through aquifer protection and road salt BMPs as detailed in Sections 3 and 4.

On 15 June 2010, Town representatives (Klubben and Kraybill, 2010) met with Mr. Stephen Roy of NHDES's Drinking Water and Groundwater Bureau (DWGB) to discuss the provisions in the newly issued large groundwater withdrawal permit, including the department's enforcement of the secondary drinking water standards specifically relating to chloride. Should the 250 mg/L SMCL routinely be exceeded during standard compliance monitoring for the new water system, NHDES may require public notice to water system users, additional and/or more frequent monitoring, and stricter BMP requirements. Should high chloride levels persist despite these efforts, the Town may consider blending with other well sources or with another public water system.

Potential corrosiveness of the well water (pH 5.8 – 6.2) will be addressed by aeration and final pH adjustment with sodium hydroxide. Aeration will also reduce moderate radon (2,500 pCi/L). Manganese levels (0.059 – 0.15 mg/L) have not been recommended for treatment at this time, but may be addressed with addition of a chemical sequestering agent, if needed.

Methyl tertiary butyl ether (MtBE) was detected above the state standard of 13 micrograms per liter (µg/L) in observation well OW-4 (27 µg/L, 2006 sampling) and OW-6 (17.6 µg/L, 2009 sampling). All other wells including PW-1 were well below the standard or laboratory detection limits. Additional investigations conducted by Stantec (2009) did not identify any MtBE sources other than general land use activities within the WHPA. Therefore, no additional treatment is anticipated for this contaminant other than the general BMPs discussed in Sections 3 and 4.

2.2 WATER QUALITY MONITORING PROGRAM

The LGWP (NHDES LGWP-2010-003) and the 7 May 2010(a) conditional approval letter from NHDES require monthly raw water quality monitoring (see Table 2-2) of PW-1 for a period of 2 years to be initiated within 1 month prior to initiating withdrawal from the new water supply. Raw water "Investigative Monitoring" samples for *E.coli* must also be collected from PW-1 for a period of 6 months, starting 1 month prior to initiating withdrawal from the new water supply.

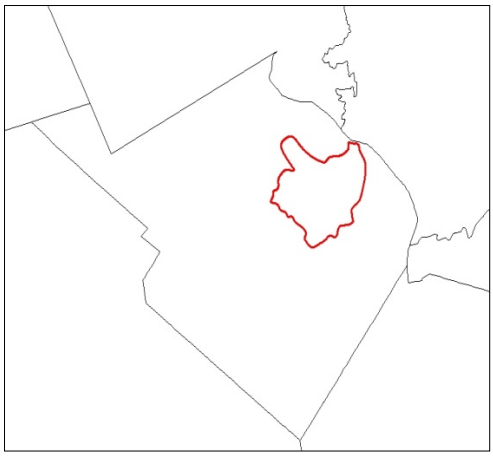
Observation wells OW-6, OW-8, and OW-9 are required to be sampled for the parameters in Table 2-2 starting 1 month prior to operation of the water system, and quarterly sampling

thereafter. Per NHDES requirements, sample collection must follow standard low-flow sampling techniques or equivalent.

3. POTENTIAL CONTAMINANT SOURCE SURVEY AND WATER RESOUCE USE AND SOURCE INVENTORY

3.1 PRESENT LAND USE

As shown in Figure 3-1, the WHPA covers 2.5 square miles (1,600 acres) and is divided by two north-south oriented roads - I-93 and NH Route 3A. More than half of the WHPA is located west of I-93, and the remainder is east of I-93. The commercial and industrial land uses are located in the eastern part of the WHPA, while the remainder is primarily residential, conservation land or undeveloped.



It is important to document the present land use to ensure appropriate evaluation of the risks those land uses pose to the municipal water supply. Land uses that manage regulated substances, as well as those that pose threats as non-point sources of contamination, such as parking lots, (which increase runoff and are typically treated with deicing materials in the winter) are potential sources of contamination of groundwater.

3.1.1 Overview of Land Use Categories

The following provides general information about land uses that are found within the WHPA.

3.1.1.1 Residential/Rural Land

Residential/rural land uses in the WHPA, are predominantly to the west of I-93. The land use is primarily low density housing, agricultural, and open space.

3.1.1.2 Conservation Land

Conservation lands are those parcels that have been permanently set aside for conservation and on which development is prohibited. Such land can include Town forests, lands owned by private conservation organizations, as well as properties subject to conservation easements. Conservation land in the WHPA is located entirely to the west of I-93.

3.1.1.3 Commercial/Industrial Land

Commercial uses involve the sale or trade of goods and services, which can include restaurants, convenience stores, warehouses, as well as gas stations. Industrial uses can be thought of as any land use where raw materials are processed, modified, or assembled to create a finished or value-added product. Industrial uses can include the excavation of materials and lands classified as utilities. Commercial/Industrial land in the WHPA is mostly located east of I-93.

3.1.1.4 Public/Institutional Land

In the WHPA, public and institutional land uses include the police station, the department of public works (DPW), cemeteries and land associated with the water and sewer systems. Public/Institutional land uses in the WHPA are located both to the east and west of I-93.

3.1.1.5 Undeveloped Land

Undeveloped lands are lands that are neither developed nor protected from development. Land classified as undeveloped includes forested areas, fields, and agricultural lands. They are found throughout the WHPA.

3.1.2 Current Zoning

Five zoning districts are represented in the WHPA. These zoning districts are shown in Figure 3-1. In order of decreasing area, the districts are: rural, general industrial, residential, commercial, and business development. The following provides a description of the zoning districts. Detailed information about permitted uses by zoning district may be found in Appendix 3-1.

3.1.2.1 Rural District

The Rural District (RU) is designed to accommodate a range of residential uses at low density in a rural environment where sewer service is not available or anticipated, as indicated in the Master Plan. Agriculture, forestry, recreation, and other low intensity uses are permissible in the RU District. Almost the entire area of the WHPA west of I-93 is zoned rural. It is approximately 1,050 acres (1.1 square miles). Of this area, approximately 350 acres (0.5 square mile) is Conservation Land (see Figure 3-1).

3.1.2.2 General Industrial District

The General Industrial District (I-2) is designed to include offices and industrial uses, and some limited commercial uses, in an area in which the extension of sewer service is anticipated at some future time. This is the predominant zone east of I-93 within the WHPA, comprising approximately 240 acres (0.4 square mile).

3.1.2.3 Residential District

The Residential District (R) is designed to accommodate a range of residential uses at low densities in areas where sewer service is available or the extension of such is anticipated at some future time. The two small areas both east and west of I-93 include small parts of a larger residential zone and comprise approximately 190 acres (0.3 square mile).

3.1.2.4 Commercial District

The Commercial District (C) is designed to allow a broad range of commercial uses including retail, service, offices, restaurants, recreational, institutional, and transportation-related uses in areas along arterial roads where sewer service is available or the extension of such is anticipated at some future time. A portion of the WHPA of approximately 110 acres (0.2 square mile), located along the west side of NH Route 3A, is zoned commercial.

3.1.2.5 Business Development District

Less than 10 acres of the WHPA (see Figure 3-1) is located east of I-93 in the Business Development District (BD).

The Business Development District is designed to

- Attract environmentally acceptable commercial, industrial, recreational, and institutional uses to the District,
- Encourage diversity in the community tax base through appropriate flexibility in land use and land use development;
- Optimize financial return on public infrastructure investments and expenditures, including municipal sewer, municipal water supply, and public highways;

- Minimize adverse traffic impacts on NH Route 3A, future interstate highway interchanges, and surrounding local streets and roadways; and
- Preserve valuable historical, cultural, and natural features within the District and to minimize adverse environmental impacts to water and air, while reducing light and noise pollution, flooding, clear cutting of vegetation, and the blocking of scenic views.

3.2 POTENTIAL CONTAMINANT SOURCES AND WATER RESOURCE AND USE INVENTORY

New Hampshire Statute RSA 485-C:7 defines potential contamination sources as human activities or operations upon the land surface that pose a reasonable risk that regulated contaminants may be introduced into the environment in such quantities as to degrade the natural groundwater quality.

3.2.1 Existing Contaminant Source Inventory Data

Stantec (2009) utilized the NHDES OneStop Web Geographic Information System (GIS) in order to identify potential and known sources of contamination within the WHPA. Stantec also completed a detailed windshield survey of the area to observe any other land uses that were not identified by the NHDES OneStop website.

Stantec's review of WebGIS data indicated the presence of five remediation sites, three Underground Storage Tank facilities, two Above Ground Storage Tank facilities, two local potential contaminant source (PCS) facilities, three non-point sources, and 25 hazardous waste generators. Information pertaining to these potential sources is summarized in Table 3-1. Figure 3-2 depicts the location of these potential contaminant sources within the WHPA.

3.2.1.1 Transportation Corridors

Transportation corridors, such as roads, highways, and railroad rights-of-way, may act as potential sources of contamination due to the nature of impervious surfaces that can accumulate chemicals from automobiles and deicing materials placed on the roads in winter time. Stormwater runoff then carries these chemicals and materials to nearby surface water and groundwater. Major automobile corridors within the WHPA include I-93, Route 3A, and

River Road. Each of these roadways is located to the west or upgradient of PW-1. The Boston and Maine railroad is also within the WHPA and located to the east of PW-1.

3.2.1.2 Known Contamination Sources

NHDES defines a known contamination source as a site where contaminants are known to emanate and degrade groundwater quality. Stantec's review (2009) of the NHDES OneStop system indicated there are no known contaminant sources within the proposed WHPA.

3.2.2 Existing Water Resource and Use Inventory Data

3.2.2.1 Private Water Supply Wells

According to Env-Wq 403.09(d)(7), all private wells within 1,000 ft of the cone of depression associated with the withdrawal must be identified. Stantec selected the area within, and within 500 ft beyond the Refined WHPA (see Figure 1-2) that overlies the sand and gravel aquifer as reflecting this zone. Stantec used all available data sources, including NHDES and Town on-line sources, as well as a windshield survey to collect readily available data. The locations of these wells are shown on Figure 3-3. The data collected regarding these wells is listed on Table 3-2.

3.2.2.2 Public Water Supply Wells

There are no public water supply wells identified within 1,000 ft of PW-1. There are however three such public water supply well sites within about 2,500 ft of PW-1. Locations of these well sites are shown on Figure 3-3. These include the River Road Business Bay site, PSNH Merrimack Station site, and Keller Products site. Note that PSNH site contains two separate wells and the Keller Products site contains four separate wells. Data pertaining to these wells sites are presented in Table 3-2.

3.2.3 Updating Inventory Data

In accordance with Env-Dw 302.21(a)(1), the Town is required to update the contaminant source inventory at intervals no greater than 3 years. However, the permit was approved with a condition that the inventory be updated every 2 years. The Town may want to inquire with NHDES about the possibility of reducing the frequency to the 3 year cycle. Regardless of the frequency, this process will involve ongoing monitoring of the land uses within the WHPA.

As a first step in fulfilling this requirement, the Town obtained a 2010 Well Siting Inventory of Potential and Existing Sources of Groundwater Contamination for PW-1 from Johnna McKenna of NHDES (see Table 3-3). Figure 3-4 depicts the location of these potential contaminant sources within the WHPA.

Moving forward, the Town will need to put in place procedures to maintain these inventories and assign individuals to be responsible for their implementation. *Section 4 Management Plan* outlines how the Town plans to execute this process.

3.3 POTENTIAL FOR FUTURE LAND DEVELOPMENT

In the WHPA, developable land is present in several districts. It is important to identify the areas where future development may occur to ensure that future land use activities do not pose a threat to groundwater.

Within the WHPA, east of I-93:

- Commercial/industrial district includes approximately 180 acres available for development. Available for development means vacant or underutilized land that is not restricted by conservation easements or other protective limitations.
- Residential district includes approximately 5 – 20 lots.

Within the WHPA, west of I-93:

- The residential district has approximately 19 residential parcels that could potentially accommodate approximately 100 residential lots.

Additional tools to protect the municipal water supply may be considered to protect the groundwater in the WHPA. These figures are estimated from the build-out analysis performed in 2002 and described in Bow's 2004 Master Plan.

3.4 SALT CONTAMINATION

In early 2006, the Town completed construction on PW-1 for the MWS. Water quality test results (summarized in Section 2) showed that the water was acceptable for drinking water supply, although sodium and chloride exceeded SMCLs. The SMCLs are not health related, but

focus on aesthetic --taste, odor, and staining-- issues. Salt is not naturally occurring in New Hampshire's groundwater except near the coast.

In discussions with state regulators at NHDES (DWGB), the Town has been assured that unless sodium and chloride levels increase substantially or that customers register numerous complaints, the Town will not be faced with costly treatment requirements (Williamson, 2009; Klubben and Kraybill, 2010).

In issuing Permit No LGWP 2010-0003 and in previous communications, the DWGB has made it clear that the Town must have a strong program to address sodium and chloride contamination from winter road and parking lot deicing operations. Within the WHPA, sources of salt from winter deicing include roads (I-93, NH Route 3A and numerous local highways), salt storage, and parking lots. Salt discharges from the regeneration of home water softeners may also contribute to groundwater contamination. Residential regeneration wastes are typically discharged to septic systems. Section 4 summarizes the plan for addressing salt contamination and management.

3.4.1 Town Winter Road Maintenance

The original Town Winter Maintenance Policy was adopted by the Select Board in November 1997. The policy was most recently updated in 2015 and approved by the Board of Selectmen on October 27, 2015. The policy summarizes the objectives of winter road maintenance (provide safe travel for the public under all weather and road conditions). The policy outlines how the DPW applies salt to Town roads, frequency of plowing and priorities for treatment. To minimize salt use, the DPW applies a salt/sand mixture to paved roads and parking areas. The mixture ratio varies based on specific conditions. Town plow trucks are also outfitted with "compuspreaders", which are calibrated to wheel rotation. Spreaders can be adjusted at the garage to match the amount of the sand/salt mixture to specific storm conditions.

The Town of Bow current Public Works Department employees have become state certified under the "Green Snow Pro" training program implemented by NHDES and the University of New Hampshire. This program focuses on proper application standards to apply salt and

chemical treatment to roads as sparingly as possible under varying winter conditions, thus minimizing salt contamination to the environment.

The Town provides winter maintenance for about 100 miles of roads. Over the past 4 years, the Town has used an average of 2,500 tons of salt per year. Approximately 6.6 miles (35,100 ft) of roads are maintained by the Town in the WHPA. Roads in the WHPA include:

Road Name		Road Name	Linear Feet in WHPA
Alexander Lane	1000*	Ferry Road	200
Briarwood Drive	2400*	River Road	3400
Clearview Drive	2600*	Robinson Road	7300
Dow Road	1900	Saltmarsh Circle	600
Gordon Road	800*	Tallwood Drive	1600*
Heather Lane	1000	Vaughn Road	2900*
Knox Road	6400	Whittier Drive	1700*
Meadow Lane	1300		

Notes:

*Roads entirely within the WHPA

The Town removes snow and ice from parking lots for Town and school buildings. The DPW/Police Station/School Bus Maintenance facility is the only town facility within the WHPA.

3.4.2 Town Storage of Salt

The Town takes delivery of salt and sand at the DPW facility at 12 Robinson Road. Salt is stored under roof in a building constructed for the purpose soon after the Town acquired the property in 1994. Sand and salt are mixed and loaded outside. The existing drainage system conveys runoff to a detention pond, which outlets to the roadside swale along Robinson Road.

The Capital Improvements Plan (CIP) is a long-term inventory of major capital items adopted and updated annually by the Planning Board. The Planning Board submits the CIP to the Select Board and Budget Committee for use in preparing annual Town budgets.

The CIP lists the Salt Shed as a $440,000 purchase in Fiscal-Year 2018-19. Ideally the new salt shed will store sufficient salt for multiple storms, sufficient sand for near-term use, and provide covered space for mixing and loading plow trucks with sand-salt mixture.

3.4.3 Maintenance of Town Stormwater Management Facilities

The Town has responsibility for about 3,000 catch basins, cross culverts, and other stormwater management structures and facilities. Of those, 25 catch basins, 34 culverts, and 3 stormwater retention/detention facilities are within the WHPA.

In issuing LGWP 2010-0003, NHDES added a condition for cleaning/maintenance of stormwater management facilities (culverts and catch basins) in the WHPA every 2 years (7 May 2010 letter to Bill Klubben from Stephen Roy, DWGB).

The Town purchased a catch basin cleaner for DPW in 2007. The 2007 Dyna-Vac Jet-N-Vac SC600 catch basin cleaner is used to remove silt and debris from catch basins and culverts. The DPW crews inspect all catch basins and culverts annually and clean/ maintain each as needed.

3.4.4 New Hampshire Department of Transportation Winter Road Maintenance and Management, Storage, and Handling of Road Salt/Deicers

The New Hampshire Department of Transportation (NHDOT) provides winter road maintenance of Interstates 89 and 93, Clinton Street (NH Route 13), and NH Route 3A within Bow. Approximately 1.3 miles (7,000 ft) of I-93 (six lanes) and 1 mile (5,300 ft) of Route 3A are within the WHPA. Both roads are considered significant potential sources of salt contamination in the WHPA. Depending on the type of precipitation, temperature, and roadway classification, NHDOT applies between 200 and 300 pounds of salt per lane mile. The salt is applied in granular form without the addition of sand.

NHDOT District 5 has a maintenance facility at 670 NH Route 3A (Lot 100, Block 2, Map 35). District 5 stores, handles, and manages deicing materials at the site, as well as summer maintenance equipment. The facility site is almost entirely outside the WHPA, but the site has potential for salt contamination.

The NHDOT Snow and Ice Removal Policy guide the Department on its goal of "obtaining bare and dry pavements at the earliest practical time following cessation of a storm. Traffic volume and posted speed are the primary factors in determining the level of winter maintenance service with the highway grade also being an important factor. Plowing operations are generally initiated after one to 2 inches of snow have fallen and continue until the storm has ended. It is the intent of the NHDOT to use the minimum deicing or anti-icing material needed to restore safe travel conditions as soon as practical following termination of winter storms."

NHDOT considers alternative de-icers. There is considerable research being done to develop more effective deicing chemicals. Non-corrosive and environmentally friendly chemicals, in solid or liquid form, are now available but widespread use is currently limited due to the high costs and the need for specialized equipment to store and dispense them. NHDOT has been involved in salt reduction projects designed to protect drinking water sources and water bodies.

3.4.5 Winter Maintenance of Private Parking Lots and Driveways

The portion of the WHPA east of I-93 and south of Vaughn Road is zoned for commercial and industrial development. Subsections 3.1 and 3.3 describe the existing and potential future land use in the area. Every existing business maintains parking lots and driveways, which are also potential sources of salt contamination in groundwater.

3.4.6 Other Salt Sources

More than half of the WHPA is zoned for residential use. Most of the residential area is comprised of wooded area and lawns where deicing chemicals and abrasives are rarely applied.

As previously noted, water softeners and other water treatment systems use salt and other chemicals. Many require recharging, which generally results in the discharge of salt and other chemicals to septic systems or other locations where groundwater impacts can occur.

3.5 INVENTORY AND RISK DETERMINATION

As part of an initial assessment of WHPA characteristics, the BDWPC assessed the potential susceptibility of source well PW-1 and backup well PW-2 to contamination. The assessment took into account the same susceptibility factors or criteria used by NHDES to evaluate public water

supplies and their relative risk to become contaminated. Susceptibility was subjectively ranked by the BDWPC as having a “Low”, “Medium”, or “High” susceptibility based on current knowledge of specific conditions within the WHPA. Results are shown in Table 3-4.

The results suggest a moderately low susceptibility to contamination based on the NHDES factors. Seven criteria were rated low susceptibility while three were rated medium and three were rated high. The high susceptibility ratings were based on factors 1, 6, and 8 in Table 3-4. Table 3-4 serves as a broad-based guide to assess the characteristics of the WHPA over time. As the WHPP is implemented, this table will be updated as part of the PCS Survey and BMP program in response to NHDES requirements. Changes to the ratings may result in actions to reduce the susceptibility of contamination to the water supply.

4. MANAGEMENT PLAN

The fundamental goal of this WHPP Implementation Plan is to ensure that groundwater quality within the recharge area (i.e., WHPA) of supply wells (PW-1 and back-up well PW-2) is adequately protected. As described in Sections 2 and 3 of this Implementation Plan, water quality impacts within the WHPA can come from multiple potential sources. This WHPP Implementation Plan provides the mechanism to periodically identify, monitor, and report threats from these potential contamination sources. The Implementation Plan does not specifically detail the responses to be taken. Responses to threats, if any, will be dictated by the type and level of threat and the governing body that can most effectively mitigate the threat.

The NHDES groundwater withdrawal permit and special conditions for supplying water to the public from PW-1 and back-up well PW-2 outline the requirements and responsibilities of the Town. This section of the Implementation Plan summarizes those specific requirements and deliverables. Table 4-1 is a master list of WHPP activities along with a schedule for implementation. Items 7 through 13 on Table 4-1 specifically relate to the WHPP. Items 1 through 6 and item 14 on Table 4-1 provide the reader or user of this Implementation Plan with other important aspects required to operate the MWS in compliance with NHDES regulations. Item 15 on Table 4-1 refers to an Annual Report required by NHDES. This Annual Report includes documentation of all updates to the WHPP. It also includes other monitoring and operational reporting requirements not directly related to the WHPP. These are summarized in Section 4.3 to provide a complete summary of NHDES requirements to operate the MWS.

4.1 MANAGEMENT TEAM

The management team assigned to implement the WHPP is shown in Figure 4-1. The Team Lead is the Town Manager, David Stack (603.228.1187 x10) working under the direction of the Board of Selectmen. Mr. Stack will have overall responsibility for implementation of the WHPP, coordination, compliance, and reporting pursuant to NHDES permit regulations and special conditions. Mr. Stack's primary support team is shown on Figure 4-1. Each support team member's role is illustrated in items 7 through 13 on Table 4-1. The BDWPC and the Town Planning Board are also available as a resource/advisory group through the Board of Selectmen.

4.2 MANAGEMENT ACTIVITIES

WHPP activities (Items #7-13 on Table 4-1) are conducted on a periodic basis in accordance with NHDES requirements. Documentation of these activities is contained in Appendices to this Implementation Plan. When updated documents are produced, they are added to or replace the previous documents. The Town Manager/Team Lead shares the latest documentation with the NHDES as required and keeps the latest version of the Implementation Plan with the updated Appendices. This ensures a single source where quality control and compliance with regulations can be demonstrated. The following subsections further describe the WHPP activities summarized on Table 4-1.

4.2.1 Implementation & Enforcement of the "Aquifer Protection Ordinance"

A special condition of the NHDES (letter dated 5/7/10a) requires implementation and continuous enforcement of the Town's Aquifer Protection Ordinance. A current copy of the ordinance is contained in Appendix 4-1. Enforcement of the ordinance is the responsibility of the Town's Code Enforcement Officer under the supervision of the Town Manager. Updates to the ordinance or issues will be brought to the attention of NHDES in the Annual Report.

4.2.2 Implement the "Winter Maintenance Policy"

A special condition of the NHDES (letter dated 5/7/10a) requires implementation of the Town's "Winter Maintenance Policy". A current copy of the policy is contained in Appendix 4-2. Responsibility to implement the policy is the DPW. Actions taken by the DPW will be included in the Annual Report.

4.2.3 Catch Basin and Culvert Inspection and Maintenance Program

A special condition of the NHDES (letter dated 5/7/10a) requires the Town to implement an inspection and maintenance program for catch basins in the WHPA. A current copy of the program with inspection and cleaning records is contained in Appendix 4-3. Responsibility to implement the program is the DPW. Actions taken by the DPW will be included in the Annual Report.

4.2.4 Update the Potential Contamination Source Inventory (Env-Dw 302.09 and 302.19)

Every 3 years the PCS Inventory will be updated in coordination with NHDES. A windshield survey will be performed following receipt of the latest PCS Inventory from NHDES and changes (new PCSs or changes to a PCS based upon a windshield survey) will be noted. Newly identified PCSs will be visited to confirm contact information and status. The current PCS Inventory is contained in Appendix 4-4. Responsibility to assign personnel to update the PCS Inventory and conduct windshield surveys is the Town Manager. Updates will be added to the Annual Report.

4.2.5 Notification of PCSs (Env-Dw 302.21)

Every 3 years following the PCS Inventory update, existing and newly identified responsible parties of PCSs will be notified in accordance with the above referenced regulation. The contents of the notification letter is referenced in Env-Dw 302.21(a)(3) and includes:

- A statement that the property is in a wellhead protection area and is considered to have a potential for groundwater contamination;
- Notification that any non-permitted discharges to groundwater or contamination of groundwater is illegal under RSA 485-A:13
- A copy of groundwater education material that NHDES has developed or approved; and
- The name and telephone number of the water supplier and a contact at NHDES to whom questions can be referred.

The standard letter used to notify PCSs is included in Appendix 4-5 along with the current listing of contacts. Responsibility to make timely notifications following the PCS Inventory is the Town Manager. Notification letters will be maintained in a file managed by the Town Manager.

4.2.6 Best Management Practices Training

The NHDES will provide BMP training for inspections at PCSs (NHDES, 7 May 2010(a)). Training will be provided to Town personnel or representatives approved by the Town. Coordination with NHDES to arrange training is the responsibility of the Town Manager.

Documentation of BMP training of Town personnel or its representatives by NHDES is included in Appendix 4-6.

4.2.7 Implementation of Inspections for Best Management Practices (Env-Dw 302.09 and 302.20)

Inspections for BMPs will be performed at an interval of once every 3 years (see Table 4-1). In the case of hazardous waste generator sites, inspections will be conducted by assigned persons from the Fire Department in accordance with the WHPP (Stantec, p.45). A copy of the standard BMP inspection form provided by NHDES is included in Appendix 4-7. Copies of the completed inspection forms will be maintained in a file managed by the Town Manager. As inspections are completed, the Town Manager will meet with the BMP inspectors to identify issues, if any, and take action as necessary to meet the objectives of the WHPP.

4.3 MONITORING AND OPERATIONAL ACTIVITIES

In addition to the Town's responsibilities to implement a WHPP for the MWS, there are significant monitoring and operational requirements that the Town and its contract operator (Operator) need to perform to maintain the MWS in compliance with state statutes and NHDES regulations and special conditions. Some of the operational and reporting aspects of these are summarized in Table 4-2. Table 4-2 expands upon Item #4 in Table 4-1. It is provided in this WHPP Implementation Plan for informational purposes only. Monitoring and operational activities of the new MWS is not part of the WHPP Implementation Plan. However, they are relevant insofar as they can indicate whether or not the WHPP goals are being met.

4.4 TRAINING AND QUALITY CONTROL

The WHPP Implementation Plan is based on using Town resources, including volunteers, to perform the tasks necessary to meet WHPP goals. Effectively trained persons working on WHPP activities and producing documentation of those activities is critical to the success of this Implementation Plan. Training to ensure quality results falls under two categories:

- Specific training within the various Town Departments to ensure that respective jobs and daily responsibilities are performed competently; and
- BMP training by NHDES personnel for persons designated by the Town Manager to perform periodic BMP Inspections at PCS sites.

Ensuring that Town personnel are trained to perform their jobs is beyond the scope of this Implementation Plan. However, the level of training for BMP Inspections is within the scope of this Implementation Plan. If issues are identified in either of these categories that adversely impact meeting the goals of the WHPP and maintaining compliance with NHDES regulations, the Town Manager in coordination with the Board of Selectmen has the responsibility to address these issues.

If problems are identified that require additional expertise, the Town Manager in coordination with the Board of Selectmen has the authority to respond as needed.

This WHPP Implementation Plan and, in particular, Section 4 and the referenced Section 4 Appendices comprise the primary quality control mechanism to ensure compliance with NHDES requirements relative to the WHPP. This Implementation Plan is designed with Appendices that hold all updated documents relative to compliance with the WHPP. The advantages to this approach include:

- The latest WHPP deliverables and policies, plans or ordinances upon which the WHPP is based are located in one place. There is no need to go to multiple departments to cobble together information.
- Compliance with WHPP requirements is readily identified by review of the Appendices.
- There is no need to regularly update the Implementation Plan so long as the Appendices are up to date.
- The Appendices can be accessed to produce those WHPP elements of the Annual Report that the NHDES requires of the MWS.

Additional quality control occurs thru a team approach where problems can be identified from a variety of perspectives and expertise and appropriate responses can be made on a consensus basis.

5. EMERGENCY PLAN

In accordance with Env-Ws 360.15, the Town has prepared an emergency plan to address emergency situations relating to the Town Municipal Water System. Emergency situations by definition include the following:

- A failure of or significant interruption in key water treatment processes;
- A natural or man-made disaster that interrupts the water supply distribution system; or
- The accidental or intentional discharge of one or more chemicals or biological substances into the source water that significantly increases the potential for drinking water contamination.

The Emergency Plan, which is attached in Appendix 5-1 of this document, contains the necessary information for notifying interested parties and agencies as well as how the water supply needs of the service customers will be met on both a short-term and long- term basis. This Emergency Plan will be reviewed by the Town annually and be updated to reflect current information. The Town will file the most recent Emergency Plan with the Department of Environmental Services at least once every 6 years as specified in Env-Ws 360.15(g) thru (k).

The following subsections summarize key components of the Emergency Plan.

5.1 EMERGENCY RESPONSE

The overall responsibility for managing the water emergency is the responsibility of the Town Manager. The Town Manager, in coordination with the operator of the water system (the Operator), immediately notifies the Town Emergency Management Director, the DPW, the Health Officer, and the Police and Fire Department of the nature of the emergency. The Town Manager ensures that the Operator has notified the NHDES Drinking Water and Groundwater Bureau. The Town Manager remains the chief point of contact and lead coordinator among the interested parties, the media and the public. A complete description of the specific persons, their contact information and responsibilities and notification procedures are included in the Emergency Plan in Appendix 5-1.

5.2 SYSTEM DESCRIPTION

In accordance with Env-Ws 360.15(c)(9), the Emergency Plan includes a scaled plan of the water sources and system components consisting of treatment, distribution and storage facilities. Shutoff valve locations to isolate sections of the distribution system are also provided.

5.3 SHORT-TERM CONTINGENCY OPTIONS

Short-term measures that the Town could use during a water emergency are described in the Emergency Plan. They include, as appropriate for the type of emergency, the following:

- Institute a boil water order;
- Require the use of bottled water for consumption;
- Impose water use restrictions; and
- Purchase bulk water

These measures are described in the Emergency Plan and are considered to be temporary until the emergency has been eliminated or abated to a level where public health or safety is not compromised.

5.4 LONG-TERM WATER SUPPLY ALTERNATIVES

Long-term measures that the Town could use during a water emergency are described in the Emergency Plan. They include, as appropriate for the type of emergency, the following:

- Water conservation;
- Development of a new source(s) of water;
- Connection to an adjacent municipal water system

These measures are intended to result in a permanent solution to the particular emergency and, in most cases, will require a relatively long time to implement. The Emergency Plan (see Appendix 5-1) addresses some of the proactive measures that can be taken to minimize implementation time.

5.5 SUMMARY OF EMERGENCY PLAN

The Emergency Plan included in Appendix 5-1 has been prepared in accordance with Env-Ws 360.15. It provides detailed information regarding the chain-of-command, emergency

notification procedures, system components, and alternative measures to abate or eliminate the emergency on both a short-term and long-term basis. The Emergency Plan requires annual review by the Town (and the Operator) and update as necessary. It should be submitted to the NHDES at least every six (6) years.

The Emergency Plan is a stand-alone document for use by the Town and the Operator. It has been included in this WHPP Implementation Plan as a reference and insofar as it relates to the protection of the recharge area for well PW-1 and back-up well PW-2.

6. REFERENCES

Bow, Town of. 29 November 2010. *Town of Bow NH Winter Maintenance Policy*. See Board of Selectmen Approved Meeting Minutes, VI, for 29 November 2010.

Bow, Town of. 2004. *2004 Master Plan, Town of Bow, New Hampshire*.

Bow, Town of. 2011. *Zoning Ordinance, Articles 1-14 (Rev. 2011).*

Klubben, William and Kraybill, Richard. 15 June 2010. Meeting with Stephen Roy, New Hampshire Department of Environmental Services Drinking Water and Groundwater Bureau regarding the Wellhead Protection Program for Permit LGWP-2010-003 and Special Conditions in letter "a" dated 7 May 2010. See Minutes, Bow Development Commission, 21 July 2010.

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New Hampshire Department of Environmental Services. 7 May 2010 (b). Letter (7 May 2010) from Stephen Roy of the Drinking Water and Groundwater Bureau entitled "Large Groundwater Withdrawal Permit LGWP-2010-0003, New Annual Monitoring Report Submittal Requirements Electronic Data Reporting Program".

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New Hampshire Department of Environmental Services. 20 June 2013. E-mail from Christine Bowman to David Stack, Town Manager, Re: Wellhead Protection Program Requirements.

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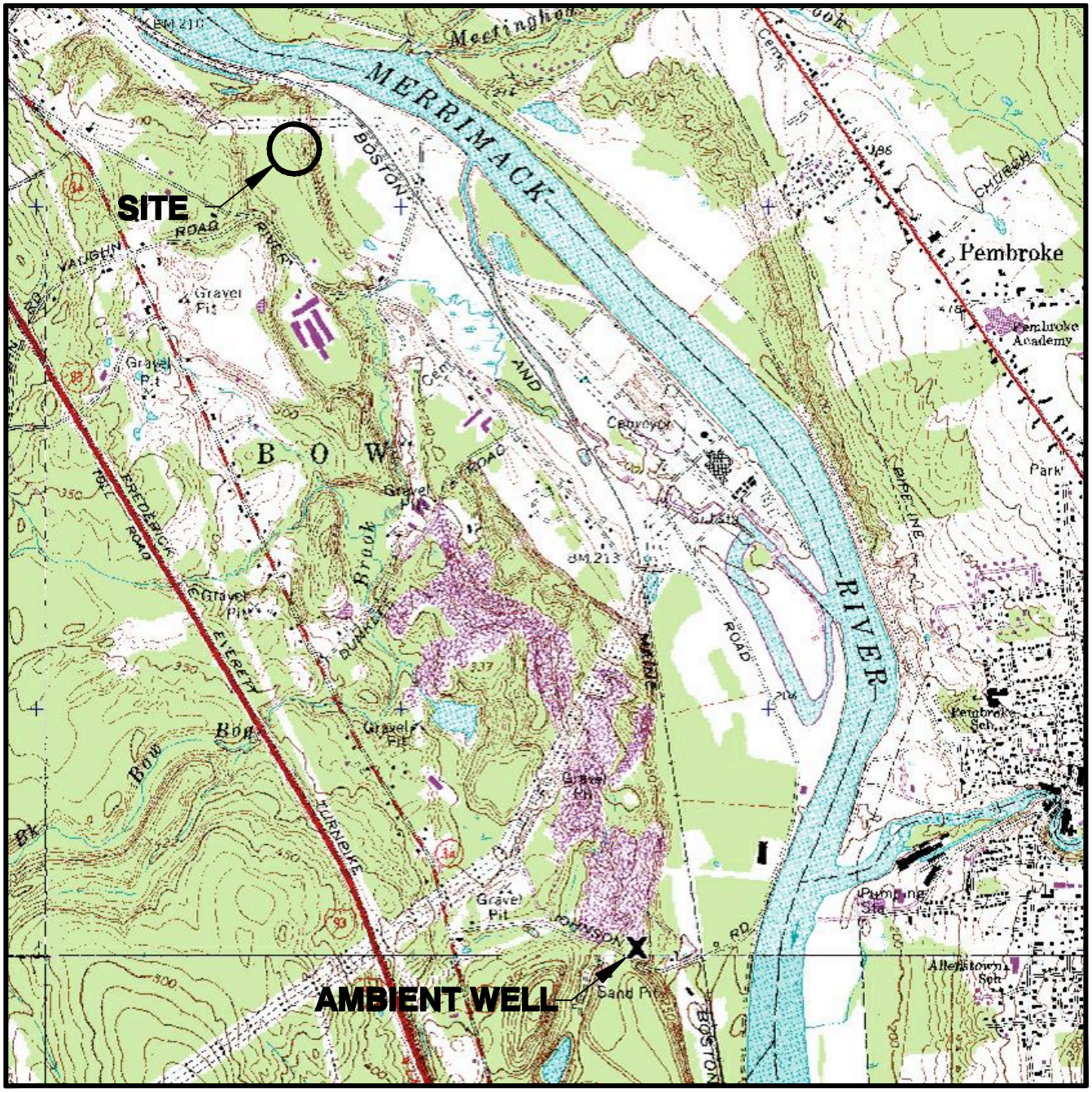
FIGURES

Title



MAP SOURCE:

TOPOZONE.COM

USGS SUNCOOK [NH] QUAD
1985

NORTH

2000 0 2000

Scale in feet

Stantec Consulting Services Inc.

Stantec

STANTEC LOCATION: AUBURN, NEW HAMPSHIRE				
DATE PREPARED: 12-1-06	DESIGNED BY: DFM	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
REVISION DATE: 8-21-09	REVISION NO: A	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
PROJECT NAME/FILE NAME: BOW WS/SITE		PROJECT NUMBER/PHASE: 191710001	SCALE: AS SHOWN	

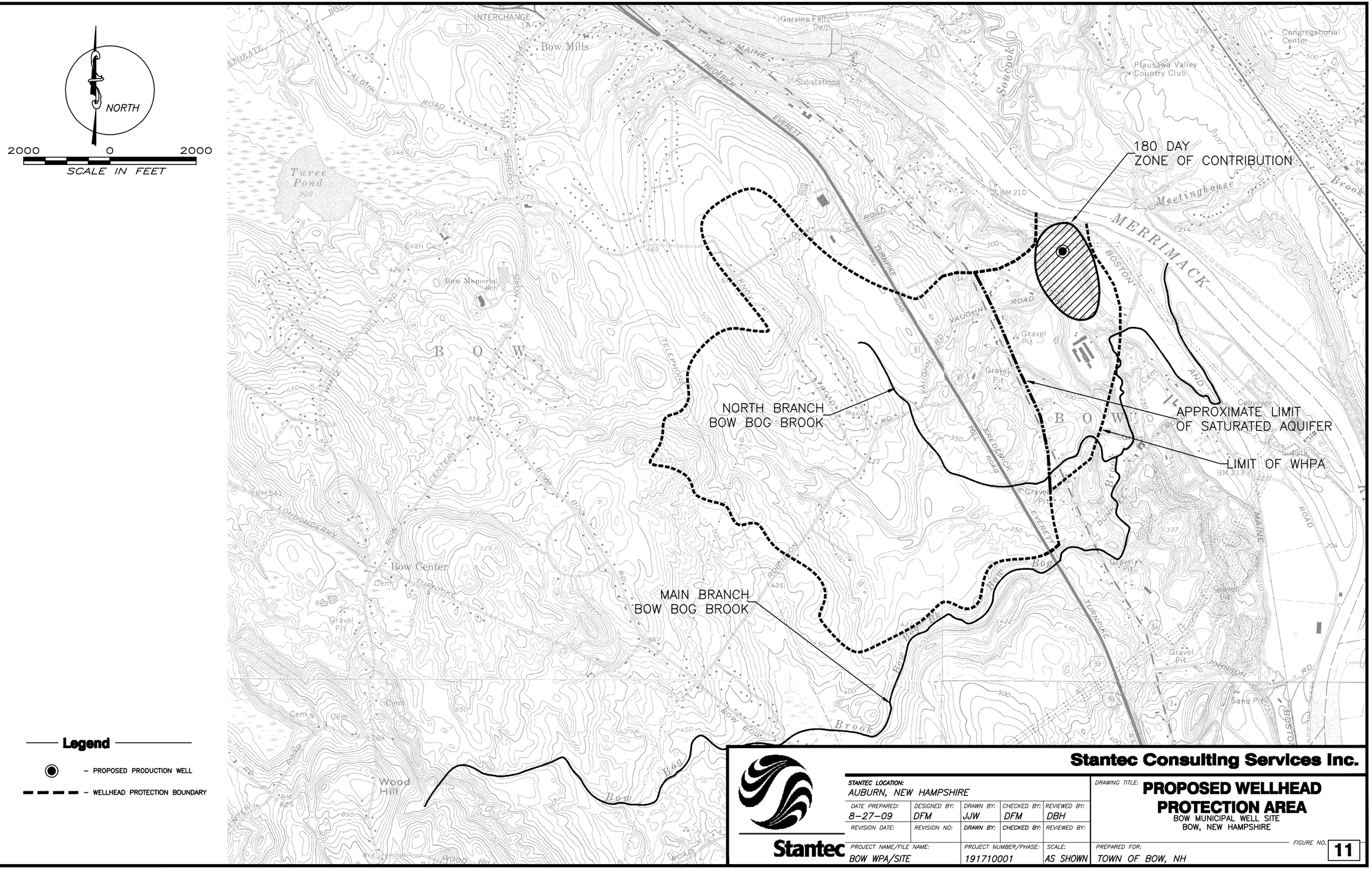
DRAWING TITLE:

SITE LOCATION PLAN

BOW WATER SUPPLY
BOW, NEW HAMPSHIRE

PREPARED FOR: TOWN OF BOW

FIGURE NO. 1



Stantec Consulting Services Inc.

STANTEC LOCATION: AUBURN, NEW HAMPSHIRE				
DATE PREPARED: 8-27-09	DESIGNED BY: DFM	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
REVISION DATE:	REVISION NO:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
PROJECT NAME/FILE NAME: BOW WPA/SITE		PROJECT NUMBER/PHASE: 191710001		SCALE: AS SHOWN

DRAWING TITLE: **PROPOSED WELLHEAD PROTECTION AREA**
BOW MUNICIPAL WELL SITE
BOW, NEW HAMPSHIRE

PREPARED FOR: TOWN OF BOW, NH

FIGURE NO. **11**

WHHP-IP Figure 1-3

PROPERTY TAX MAP FOR PW-1 and PW-2

OF

BOW

NEW HAMPSHIRE

LEGEND

- RAILROAD
- ROAD
- CLASS VI ROAD
- CLASS V ROAD
- RIGHT OF WAY
- UTILITY
- PROPERTY LINE
- TAX MAP BLOCK
- TOWNLINE
- WATER
- WETLAND
- TOWN PROPERTY

NOTES

THIS MAP IS BASED ON THE TOWN OF BOW PROPERTY MAPS
ORIGINAL PROPERTY MAPS WERE PREPARED IN 1981 BY
BELLANTONE, FOOTE, HOWARD INC.
DIGITIZED IN 2001 BY CARTOGRAPHIC ASSOCIATES, INC.
IT IS INTENDED FOR REFERENCE AND PLANNING PURPOSES ONLY.

2010 Tax Map

PRODUCED BY
CARTOGRAPHIC ASSOCIATES, INC.

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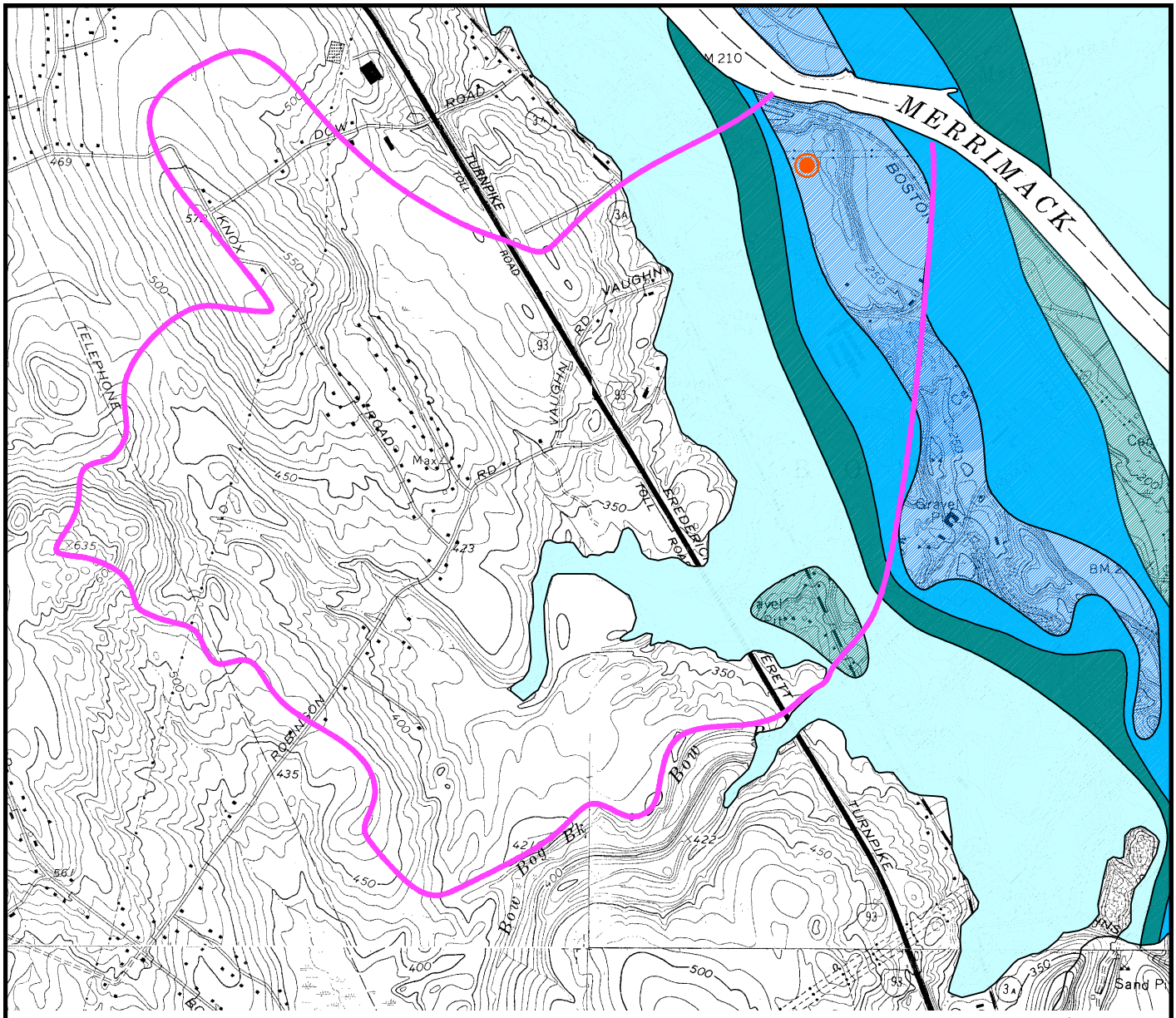


Legend

TRANSMISSIVITY OF
STRATIFIED–DRIFT AQUIFER
(ft squared per day) PER USGS

- LESS THAN 1000
- 1000 TO 2000
- 2000 TO 4000
- GREATER THAN 4000
- PROPOSED PRODUCTION WELL
- PRELIMINARY WELLHEAD PROTECTION BOUNDARY

NORTH

2000 0 2000

SCALE IN FEET

Stantec Consulting Services Inc.

Stantec

STANTEC LOCATION: AUBURN, NEW HAMPSHIRE				
DATE PREPARED: 8–21–09	DESIGNED BY: DFM	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
REVISION DATE:	REVISION NO:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
PROJECT NAME/FILE NAME: BOW WPA/SITE		PROJECT NUMBER/PHASE: 191710001	SCALE: AS SHOWN	PREPARED FOR: TOWN OF BOW, NH

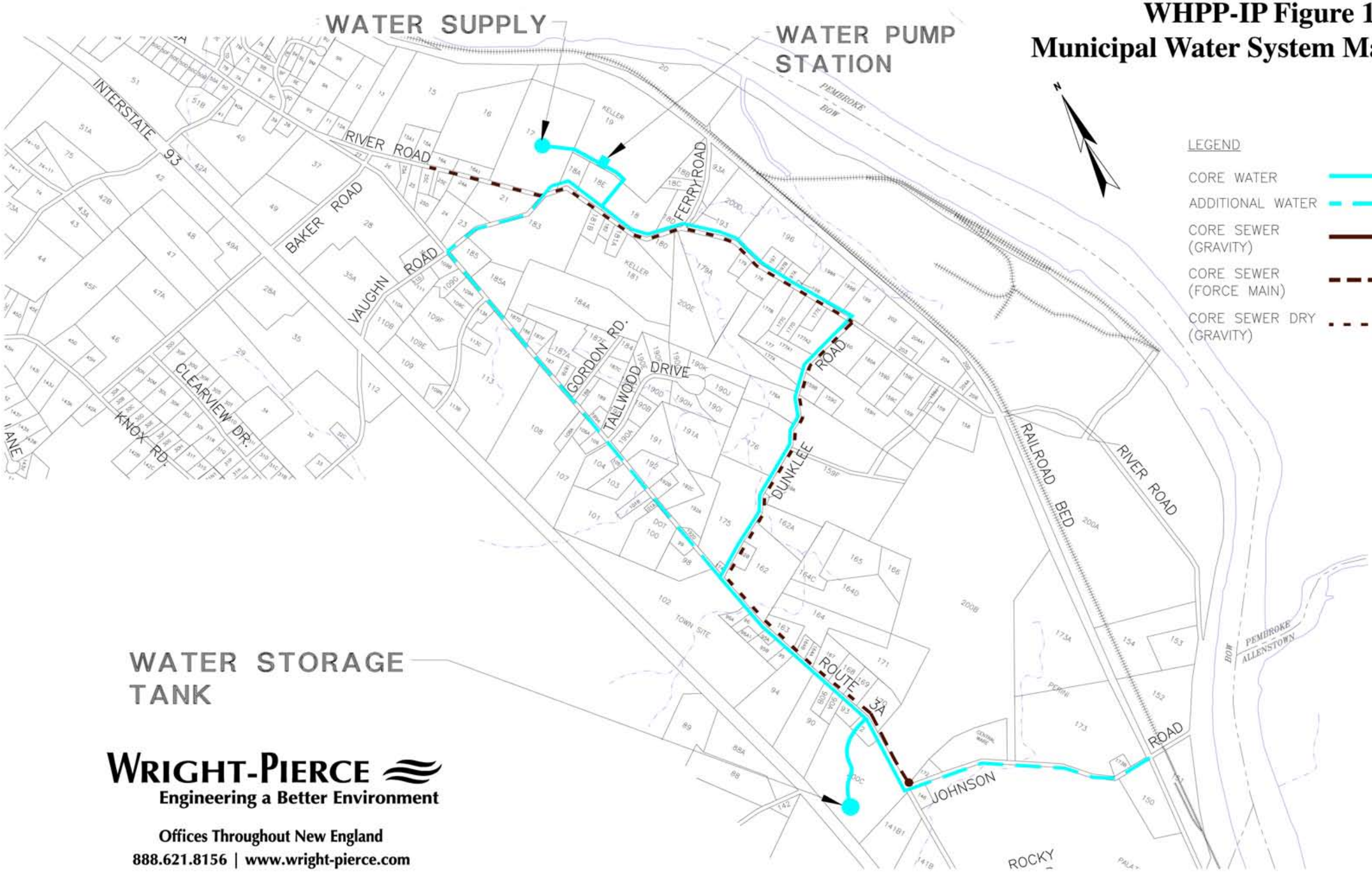
DRAWING TITLE:

AQUIFER BOUNDARY MAP

BOW MUNICIPAL WELL SITE
BOW, NEW HAMPSHIRE

FIGURE NO. 4

WHPP-IP Figure 1-5
Municipal Water System Map



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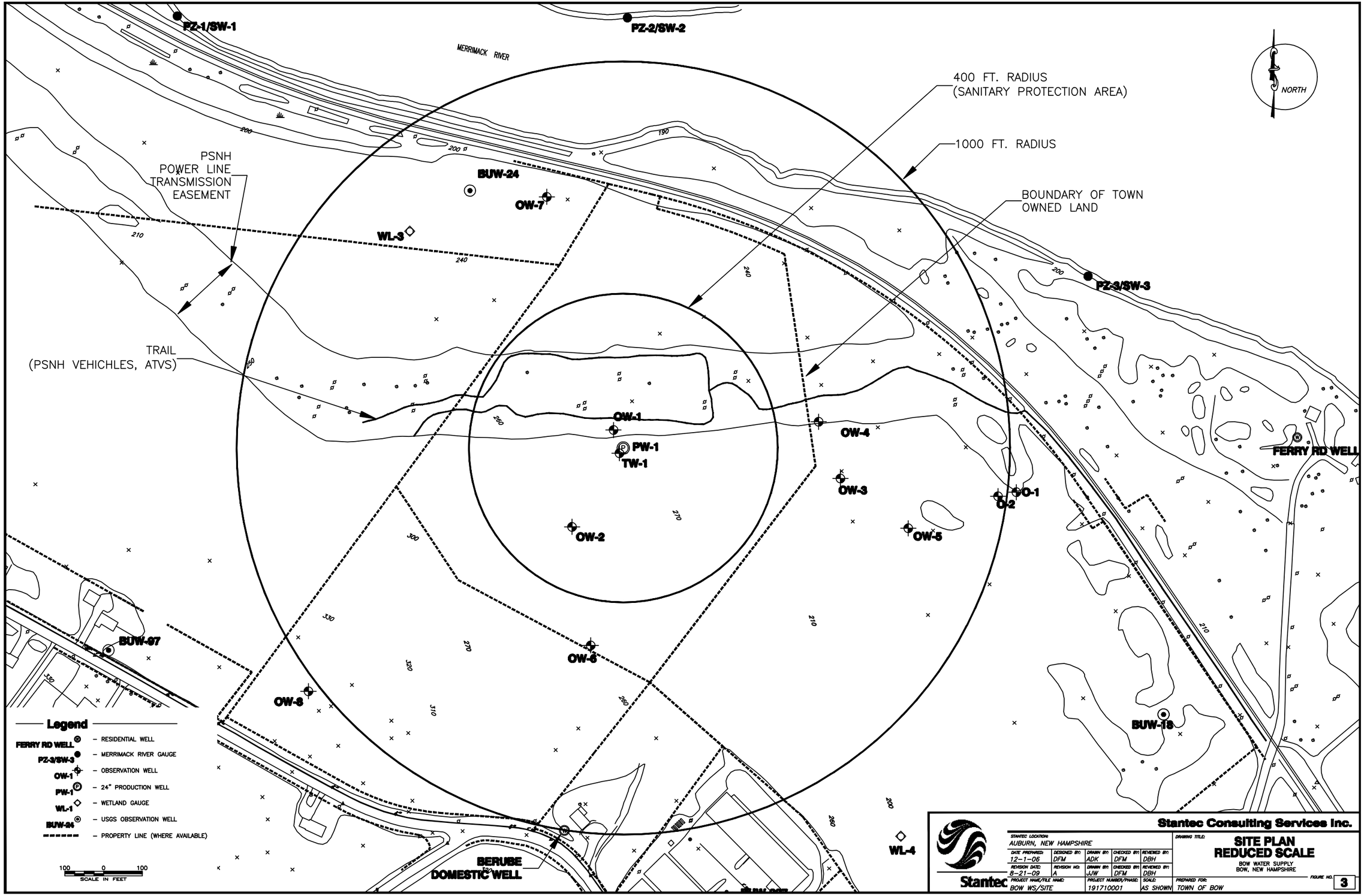
SEPTEMBER 2010

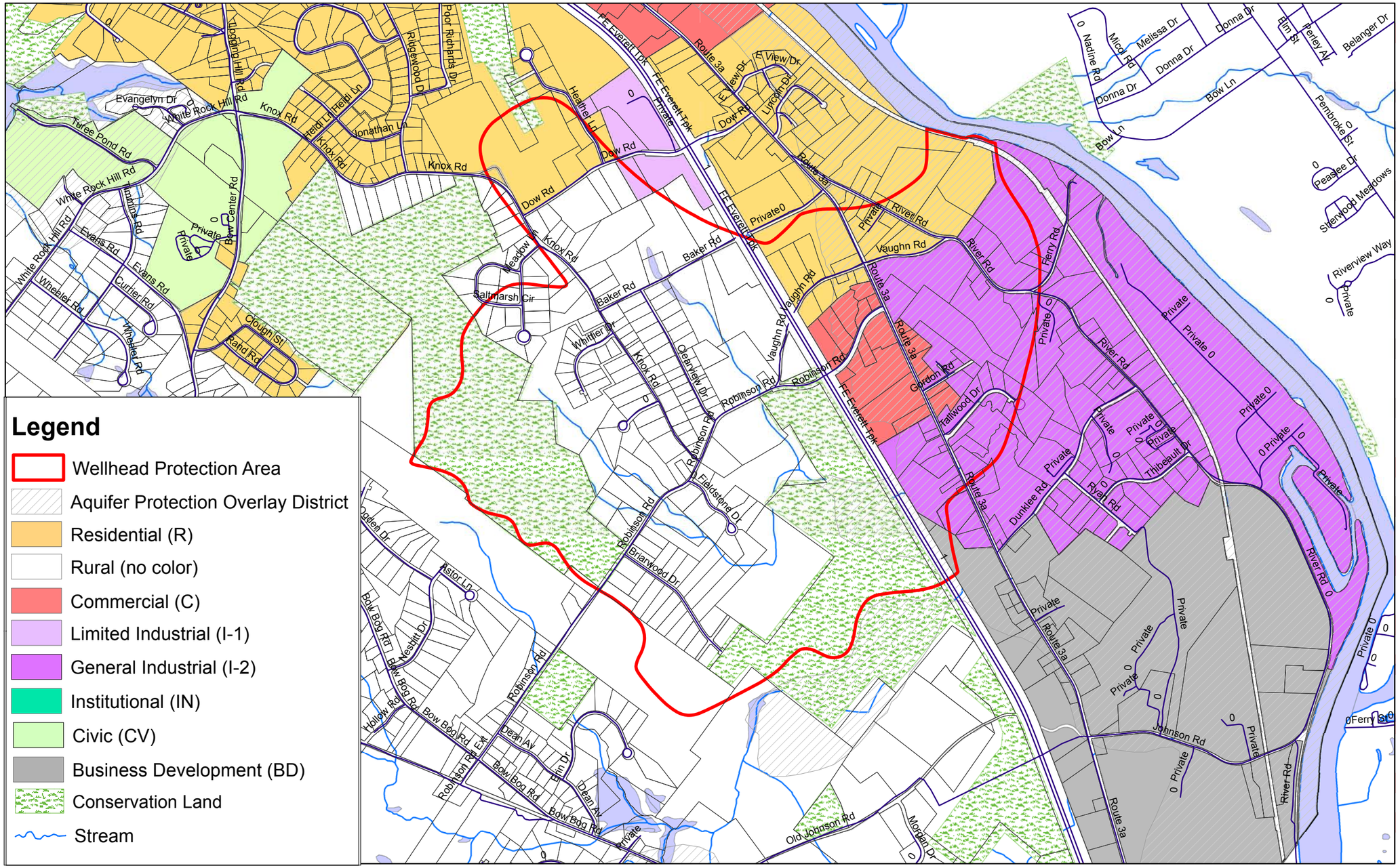


Stantec Consulting Services Inc.

STANTEC LOCATION: AUBURN, NEW HAMPSHIRE				DRAWING TITLE: SITE PLAN REDUCED SCALE BOW WATER SUPPLY BOW, NEW HAMPSHIRE
DATE PREPARED: 12-1-06	DESIGNED BY: DFM	DRAWN BY: ADK	CHECKED BY: DFM	REVIEWED BY: DBH
REVISION DATE: 8-21-09	REVISION NO: A	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
PROJECT NAME/FILE NAME: BOW WS/SITE		PROJECT NUMBER/PHASE: 191710001	SCALE: AS SHOWN	PREPARED FOR: TOWN OF BOW

FIGURE NO. 3

Wellhead Protection Area for Bow Municipal Wells with Aquifer Protection District, Zoning and Conservation Land

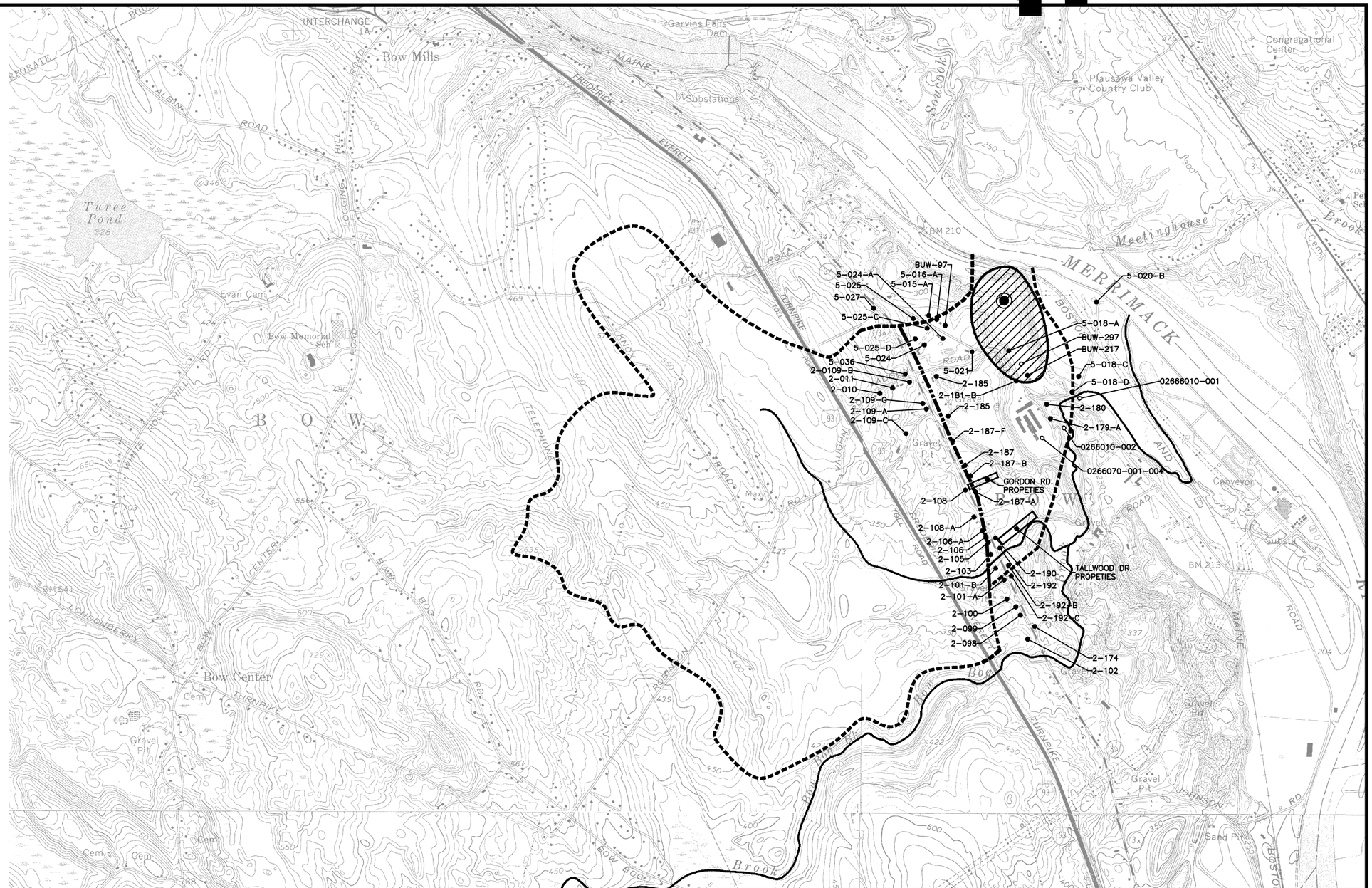


November 2011

NORTH

2000 0 2000

SCALE IN FEET



Legend

- PROPOSED PRODUCTION WELL
- WELLHEAD PROTECTION BOUNDARY
- PRIVATE WELLS
- PUBLIC WELLS

Stantec Consulting Services Inc.

Stantec

STANTEC LOCATION: AUBURN, NEW HAMPSHIRE				
DATE PREPARED: 8-27-09	DESIGNED BY: DFM	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
REVISION DATE:	REVISION NO:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
PROJECT NAME/FILE NAME: BOW WPA/SITE		PROJECT NUMBER/PHASE: 191710001	SCALE: AS SHOWN	

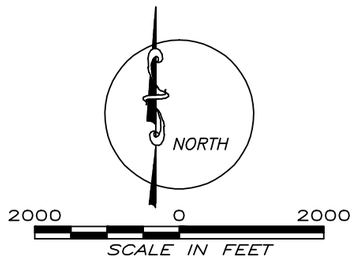
DRAWING TITLE:

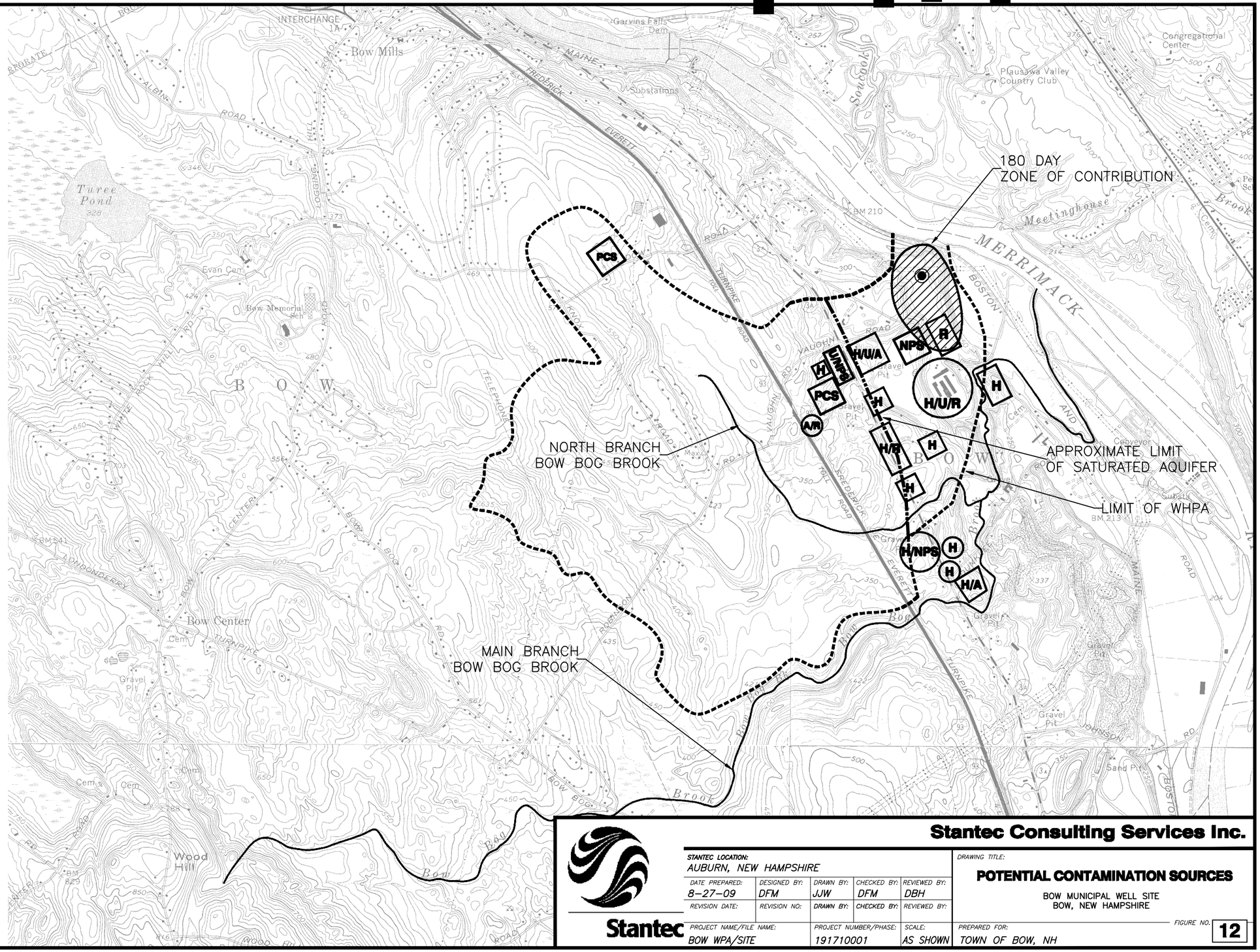
PRIVATE AND PUBLIC WELLS WITHIN WHPA

BOW MUNICIPAL WELL SITE
BOW, NEW HAMPSHIRE

PREPARED FOR: TOWN OF BOW, NH

FIGURE NO. 13





Legend

- **H** – HAZARDOUS WASTE GENERATOR
- **A** – ABOVEGROUND STORAGE TANK
- **U** – UNDERGROUND STORAGE TANK
- **R** – REMEDIATION SITE
- **NPS** – NON–POINT SOURCE
- **PCS** – LOCAL POTENTIAL CONTAMINATION SOURCE INVENTORY
- ◉ – PROPOSED PRODUCTION WELL
- – – – – WELLHEAD PROTECTION BOUNDARY

Stantec Consulting Services Inc.

Stantec

STANTEC LOCATION: AUBURN, NEW HAMPSHIRE				
DATE PREPARED: 8–27–09	DESIGNED BY: DFM	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DBH
REVISION DATE:	REVISION NO:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
PROJECT NAME/FILE NAME: BOW WPA/SITE		PROJECT NUMBER/PHASE: 191710001	SCALE: AS SHOWN	

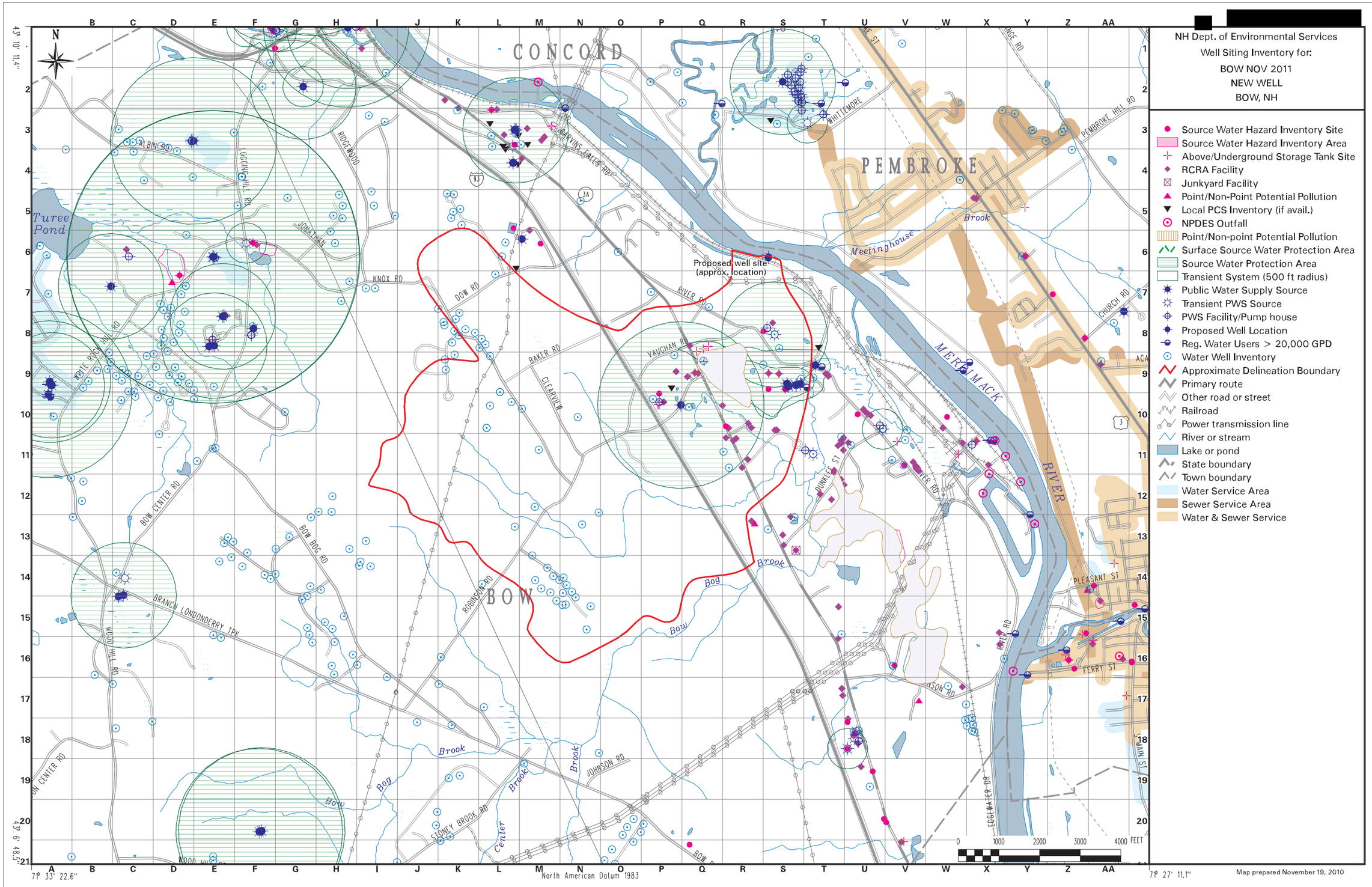
DRAWING TITLE:

POTENTIAL CONTAMINATION SOURCES

BOW MUNICIPAL WELL SITE
BOW, NEW HAMPSHIRE

PREPARED FOR: TOWN OF BOW, NH

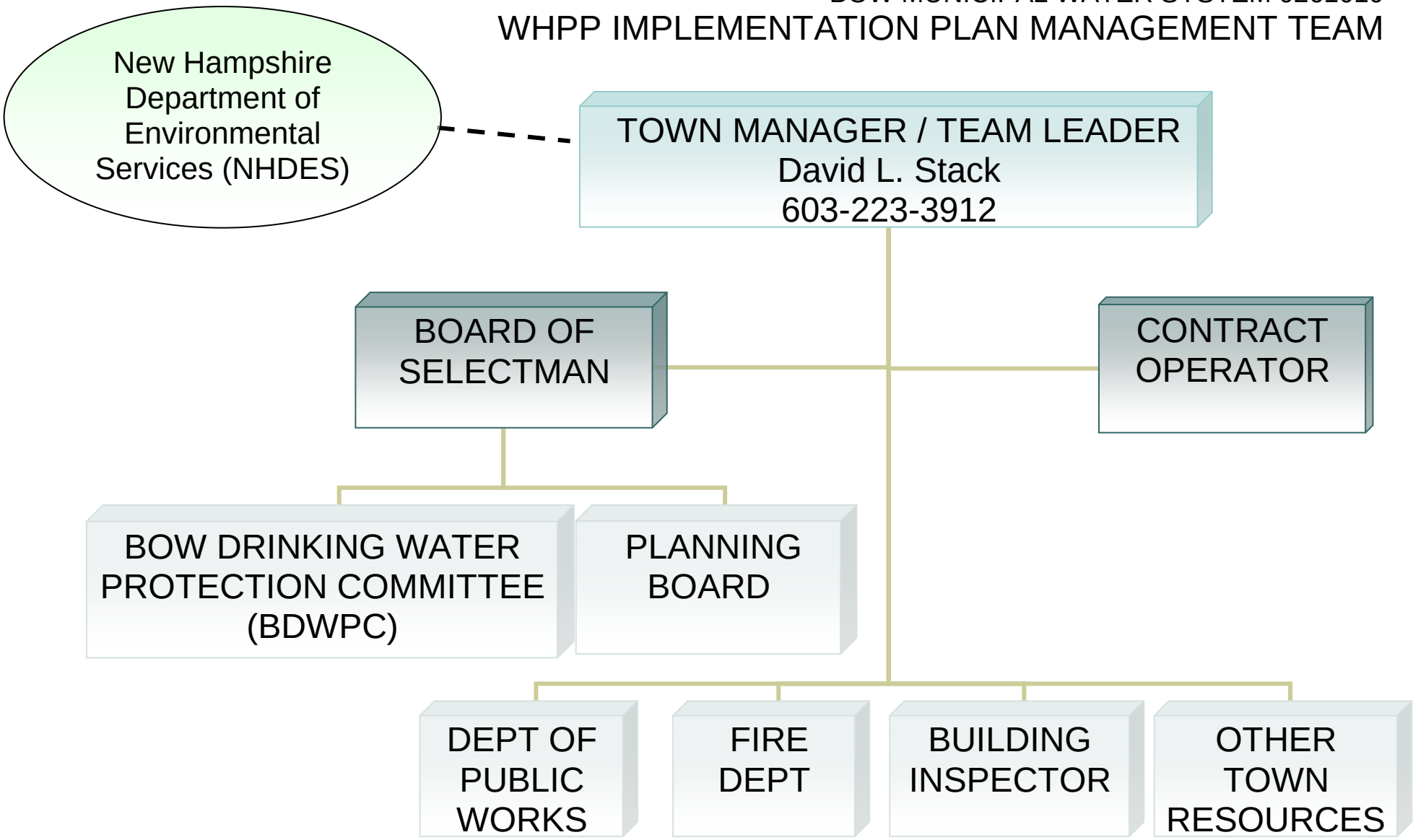
FIGURE NO. **12**



NH Dept. of Environmental Services
Well Siting Inventory for:
BOW NOV 2011
NEW WELL
BOW, NH

- Source Water Hazard Inventory Site
- Source Water Hazard Inventory Area
- Above/Underground Storage Tank Site
- RCRA Facility
- Junkyard Facility
- Point/Non-Point Potential Pollution
- Local PCS Inventory (if avail.)
- NPDES Outfall
- Point/Non-point Potential Pollution
- Surface Source Water Protection Area
- Source Water Protection Area
- Transient System (500 ft radius)
- Public Water Supply Source
- Transient PWS Source
- PWS Facility/Pump house
- Proposed Well Location
- Reg. Water Users > 20,000 GPD
- Water Well Inventory
- Approximate Delineation Boundary
- Primary route
- Other road or street
- Railroad
- Power transmission line
- River or stream
- Lake or pond
- State boundary
- Town boundary
- Water Service Area
- Sewer Service Area
- Water & Sewer Service

WHPP-IP FIGURE 4-1
BOW MUNICIPAL WATER SYSTEM 0261010
WHPP IMPLEMENTATION PLAN MANAGEMENT TEAM



TABLES

Table 2-1

Source Water Quality Parameters of interest

Parameter	Units	SMCL[1]	Production Well PW-1	Observation Well OW-4	Observation Well OW-6	Observation Well OW-8
Chloride	mg/L	250	230 – 430	<3 – 4	400 – 460	400 – 460
Sodium	mg/L	100-250	133 – 225	1.4 – 2.6	208 - 222	71 – 80
Iron	mg/L	0.3	<0.05 – 0.7	0.024–0.407	0.144 - 1.18	0.087–0.172
Manganese	mg/L	0.05	0.059–0.15	0.092-0.63	0.035-0.209	0.151-0.256
MtBE	µg/L	13	<0.5 - 0.7	0.9 – 27	0.9 – 17.6	<0.1
Radon	pCi/L	2,000	2,500	NA	NA	NA
pH	s.u.	6 - 9	5.8 – 6.2	5.0 – 7.3	5.8 – 7.6	5.8 – 6.0

Notes:

[1]= Federal SMCLs for aesthetic/taste except for MtBE which is a state health-based MCL, and state-based radon and sodium recommended maximum levels.

mg/L = milligrams per liter
µg/L = micrograms per liter
pCi/L = picocuries per liter
s.u. = standard units
SMCLs = secondary maximum contaminant levels
MtBE = methyl tertiary butyl ether
MCL = maximum containment levels
NA = not applicable

Table 2-2

LGWP-2010-0003 Water Quality Monitoring and Reporting

Parameter	Production Well PW-1	Distribution Entry Point (after treatment)	Observation Well OW-6	Observation Well OW-8	Observation Well OW-9*
Field					
Spec. Conductivity	X	--	X	X	X
Temperature	X	--	X	X	X
pH	X	--	X	X	X
Certified Laboratory					
Chloride	X	--	X	X	X
Sodium	X	--	X	X	X
Volatile Organic Compounds (VOC)	X	--	X	X	X
SDWA Compliance					
Per Public Water System "Master Sample Schedule"	--	X	--	--	--

Notes:

* = OW-9 New observation well to be installed prior to startup.
SDWA = Safe Drinking Water Act

SITE ID	SITE NAME	ADDRESS	TOWN	TYPE	STATUS	CONTACT ADDRESS & PHONE
REMEDIATION SITES						
199501029	SECOND STREET MOTORS. Now known as FIRST LINE AUTOMOTIVE	625 ROUTE 3A	BOW	REMEDIATION-LUST	CLOSED	DAVE BOYD 625 RTE 3A BOW NH 03304 Phone: 603-226-6648
199906043	RIVER ROAD BUSINESS BAY	29 RIVER ROAD	BOW	REMEDIATION-UIC	CLOSED	TINA LAWSON TREASURER 29 RIVER RD BOX 10 BOW NH 03304 Phone: 603-228-0500
199605014	PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	REMEDIATION-UIC	CLOSED	MATTHEW CHENEY FLEET MECH 12 ROBINSON RD BOW NH 03301 Phone: 603-228-0487
199110027	KELLER PRODUCTS	RIVER ROAD	BOW	REMEDIATION-UIC	REGISTRATION	DAVID GAMACHE EH &S SPECIALIST 38 RIVER RD BOW NH 03304 Phone: 603-627-7887 X5501
199810071	STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	REMEDIATION-OPUF, ETHER	CLOSED, CLOSED	DAVID GAMACHE SAFETY SPECIALIST 40B RIVER RD BOW NH 03304 Phone: 603-225-5570
UNDERGROUND STORAGE TANK (UST) FACILITIES						
111124	JP NOONAN TRANSPORTATION INC. Facility vacant	632 RTE 3A	BOW	UST	0 ACTIVE TANKS	JOHN STEPHENS 632 RTE 3A BOW NH 03301 Phone: 603-224-2640
111580	R S AUDLEY INC	609 RTE 3A	BOW	UST	3 ACTIVE TANKS	RICHARD HANSON 609 RTE 3A BOW NH 03304 Phone: 603-224-7724
110515	STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	UST	5 ACTIVE TANKS	DAVID GAMACHE SAFETY SPECIALIST 40B RIVER RD BOW NH 03304 Phone: 603-225-5570
ABOVE GROUND STORAGE TANK (AST) FACILITIES						

SITE ID	SITE NAME	ADDRESS	TOWN	TYPE	STATUS	CONTACT ADDRESS & PHONE
199605014	PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	AST	2 ACTIVE TANKS	TOWN OF BOW 10 GRANDVIEW RD BOW NH 03304 PHONE: 603-228-2207
980614A	R S AUDLEY INC	609 RTE 3A	BOW	AST	2 ACTIVE TANKS	R S AUDLEY INC 609 RTE 3A BOW NH 03304 PHONE: 603-224-7724
LOCAL POTENTIAL CONTAMINANT SOURCE (PCS) FACILITIES						
892	DYNAMIC FUSION/ SAWTECH SCIENTIFIC	14 DOW RD	BOW	LOCAL PCS INVENTORY	INACTIVE GENERATOR	14 DOW ROAD BOW, NH 03304 PHONE: (603) 228-1811
71	NORTHEAST AIRGAS. Moved, facility vacant.	10 ROBINSON RD	BOW	LOCAL PCS INVENTORY	INACTIVE GENERATOR	10 ROBINSON ROAD BOW, NH 03304 PHONE: (603) 229-0395
NON-POINT SOURCES						
617	BOW TECHNOLOGIES	3 ROBINSON RD	BOW	NON-POINT SOURCE	ACTIVE NON-COMMUNITY WATER SUPPLY	BOW TECHNOLOGIES CENTER NISHAN/CAROLYN NAHIKIAN PO BOX 330 EPSOM NH 03234 PHONE: 603-736-9348
618	STATE HIGHWAY GARAGE	670 ROUTE 3A	BOW	NON-POINT SOURCE	ACTIVE GENERATOR	ROBERT RICHARDS PO BOX 16476 HOOKSETT NH 03106 Phone: 603-485-9526
2265	UNNAMED		BOW	NON-POINT SOURCE		

SITE ID	SITE NAME	ADDRESS	TOWN	TYPE	STATUS	CONTACT ADDRESS & PHONE
HAZARDOUS WASTE GENERATORS						
NHD510167471	AUTOLOGIC LLC	7 GORDON RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	WILLIAM KIRBY OWNER 7 GORDON RD BOW NH 03304-3306 Phone: 603-224-2880
NHD986466076	BOW BUS GARAGE TOWN OF	12 ROBINSON RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	MATTHEW CHENEY FLEET MECH 12 ROBINSON RD BOW NH 03301 Phone: 603-228-0487
NHD510097579	BOW DPW	12 ROBINSON RD	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	TIM SWEENEY 10 GRANDVIEW RD BOW NH 03304 Phone: 603-228-2207
NHD510120157	BRODEN TRUCK REPAIR. Now known as Northeast Performance and Exhaust	630 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	DAVE HEMON 630 RTE 3A BOW NH 03301 Phone: 603-226-2816
NHD500023502	CONCORD AWNING & CANVAS INC	1 TALLWOOD DR	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	VIRGINIA GREENE TREASURER 1 TALLWOOD DR BOW NH 03304 Phone: 603-224-6880
NH5986485142	DANTRA EQUIPMENT. No longer here. Site now has Diedel Direct Trucks parked in back of private residence.	8 GORDON RD	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	SHAWN WELCH 8 GORDON RD BOW NH 03304 Phone: 603-226-0633
NHD510131584	GRANITE STATE TANK LINES. No longer in business. Appears to now be Chuck LaFleur in one of four suites.	5 TALLWOOD DR	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	BRIAN KENDRICK 5 TALLWOOD DR UNIT B BOW NH 03304 Phone: 603-224-2232
NHD510160120	J W FLEET & EQUIPMENT INC	621 RTE 3 A	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	JOSEPH W GRIGAS PRESIDENT 621 RTE 3A BOW NH 03304 Phone: 603-224-1145
NHD510057078	JP NOONAN TRANSPORTATION. Appears to be gone at this address.	632 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	JOHN STEPHENS 632 RTE 3A BOW NH 03301 Phone: 603-224-2640

SITE ID	SITE NAME	ADDRESS	TOWN	TYPE	STATUS	CONTACT ADDRESS & PHONE
NHD000791541	KALWALL CORP FLAT SHEET DIV	40 RIVER RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	DAVID GAMACHE EHS SPECIALIST 40 RIVER RD BOW NH 03304 Phone: 603-225-5570
NHD083396812	KELLER PRODUCTS INC	40 RIVER RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	DAVID GAMACHE EH &S SPECIALIST 38 RIVER RD BOW NH 03304 Phone: 603-627-7887 X5501
NHD510152606	LAKES FUEL INJECTION INC	42 DUNKLEE RD	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	ERIK SALVATO SVCS MGR 42 DUNKLEE RD BOW NH 03304-3303 Phone: 603-224-3331
NHD510119654	MORAN MOTOR WORKS. Appears to now be a private residence.	654 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	JOHN MORAN 654 RTE 3A BOW NH 03304 Phone: 603-485-3501
NHD500021795	NH DOT DISTRICT 5	670 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	ROBERT RICHARDS PO BOX 16476 HOOKSETT NH 03106 Phone: 603-485-9526
NHD510021439	PATSFIELD EXCAVATION INC. Now doing business as Chuck LaFleur, Inc. Trucking Services.	5 TALLWOOD DR	BOW	HAZARDOUS WASTE GENERATOR	DECLASSIFIED	SCOTT PATSFIELD PRESIDENT 43 ROBINSON RD BOW NH 03304 Phone: 603-224-3985
NHD510158298	QUALITY WOOD PRIMING INC	34 DUNKLEE RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	SCOTT PATSFIELD PRESIDENT 43 ROBINSON RD BOW NH 03304 Phone: 603-224-3985
NHD510004732	R S AUDLEY INC	609 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	NON-NOTIFIER	RICHARD HANSON 609 RTE 3A BOW NH 03304 Phone: 603-224-7724
NHD986486637	SCANADA INTERNATIONAL INC	8 ROBINSON RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	KLAUS HIERONYMUS GENERAL MGR 8 ROBINSON RD BOW NH 03304 Phone: 603-229-0014
NHD500011663	SCOTT LAWSON GROUP INC. Appears to be no longer in business	29 RIVER RD	BOW	HAZARDOUS WASTE GENERATOR	DECLASSIFIED	CHRISTINA SHEA PO BOX 3304 CONCORD NH 03302-3304 Phone: 603-228-3610

SITE ID	SITE NAME	ADDRESS	TOWN	TYPE	STATUS	CONTACT ADDRESS & PHONE
NHD510129687	SECOND STREET MOTOR SALES. Now doing business as First Line Automotive.	625 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	DAVE BOYD 625 RTE 3A BOW NH 03304 Phone: 603-226-6648
NHD500021746	STEEVES AUTO SALES. Appears to be no longer in business. However abandonded/junk vehicles visible in back.	629 HWY RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	JAMES STEEVES OWNER 629 HWY RTE 3A BOW NH 03304 Phone: 603-224-3657
NHD000791558	STRUCTURES UNLIMITED INC	40 RIVER RD	BOW	HAZARDOUS WASTE GENERATOR	ACTIVE	DAVID GAMACHE SAFETY SPECIALIST 40B RIVER RD BOW NH 03304 Phone: 603-225-5570
NHD986466969	TARGETT MOTORS. Now known as Northeast Performance and Exhaust	630 RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	HEATHER MACKENZIE 630 RTE 3A BOW NH 03301 Phone: 603-226-9362
NHD510121122	TIMPSONS RV CLINC	RTE 3A	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	ROBERT TIMPSON RTE 3A BOW NH 03304 Phone: 603-226-3531
NHD500020722	WELCHS GARAGE	4 ROBINSON RD	BOW	HAZARDOUS WASTE GENERATOR	INACTIVE	RICHARD WELCH 4 ROBINSON RD BOW NH 03304-4200 Phone: 603-225-6106

Source: Stantec, Table 7 (2009)

WHPP-IP TABLE 3-2
Inventory of Private and Public Water Supply Wells

Well_ID	Still-Present	Tax_Map_Lot	ALIAS	Name	Address	Use	Well Type	Date Installed	Well Depth	Well Diam	Casing Depth	Yield	Water Depth	Depth to Bedrock	#Wells on Property	WQ Probs	Can we Monitor	Comments
PRIVATE WATER SUPPLIES																		
5-027	Y	31-5-27		Eric & Cherilyn Anderson	4 River Road	Domestic	Dug	1700's	12	36	12	UNK	UNK	UNK	1	yes (Fe, Mn)	maybe	call to ask husband (Bow Selectman)
5-025	UNK	31-5-25		Dorothy Frost	12 River Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 1, no one home
5-025-D	UNK	31-5-25-D		Robert Loomis	14 River Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
5-025-C	UNK	31-5-25-C		John Huddleston	16 River Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
5-024	Y	31-5-24		Amy Morash	16-A River Road	Domestic	BRW	UNK	UNK	6	UNK	UNK	UNK	UNK	2	yes (Fe, Mn)	yes	Property may be sold by Fall
5-024-A	UNK	31-5-24-A		Donald Everett	18 River Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 1, no one home
5-021	UNK	31-5-21		Daniel Boone	24 River Road	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
5-015-A	Y	31-15-15-A		Robert and Linda Jo Demers	11 River Road	Domestic	BRW	UNK	210	6	120	4	UNK	90	1	yes (Fe, Mn)	yes	Call When ready
5-016-A	N	31-5-16-A		Joanne Bartlett	13 River Road	Domestic	BRW	1950's	210-220	6	UNK	UNK	UNK	UNK	1	no	no	Well Head Buried
5-016-A1	Y	31-5-16-A1	BUW 97	Dennis & Dionia Mosbeck	15 River Road	Domestic	BRW	UNK	UNK	6	UNK	UNK	UNK	UNK	1	yes (Fe, Mn)	possibly	Wife needs to contact husband who is in SE Asia
5-018-A	UNK	31-5-18-A		Donald Berube, Jr.	27 River Road	Domestic	BRW	1971	UNK	UNK	UNK	UNK	UNK	UNK	1	yes (Fe, Mn, Na, Cl, MtBE)	yes	Well buried during test - now exposed
2-181-B	Y	31-2-181-B		Shawn Collette	34 River Road	Domestic	BRW	UNK	260 +/-	6	UNK	UNK	UNK	UNK	1	yes (Fe, Mn)	no	
5-018	Y	36-5-18	BUW 217	YOUNG FURNITURE MFG INC	35 RIVER RD	Commercial	GPW	UNK	150	6	140	100	UNK	>150	1	yes (Fe, Mn)	yes	WELL IS UNDER PAVEMENT
2-180	UNK	36-2-180		Timothy Currier	42 River Road	Domstic	UNK	UNK	45	UNK	44	150	UNK	>150	UNK	UNK	UNK	not visited
2-179-A	UNK	36-2-179-A		New Siteworks LLC	54 River Road	Commercial	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Small run-down business plaza on-site, owner's name unavailable from tenants.
5-018-D	Y	36-5-18-D		Nick & Bridgett Kourtis	3 Ferry Road	Domestic	BRW	UNK	UNK	6	UNK	UNK	UNK	UNK	2	yes (Fe, Mn)	yes	Dug well (former water supply) across street adjacent to brook might be more suitable to monitor.
5-018-C	N	36-5-18-C		R & M Realty, Inc.	5 Ferry Road	Commercial	BRW	UNK	UNK	UNK	UNK	UNK	UNK	UNK	1	yes (Fe, Mn)	yes	Call when ready (Robert Therrien, owner). However, well could not be located during site walk, may be buried.
5-020-B	Y	36-5-20-B		Suzanna & John Zachistal	13 Ferry Road	Domestic	Dug	1760 +/-	35 +/-	48 +/-	35 +/-	9	25 +/-	UNK	1	yes (Fe, Mn)	yes	Owner **Intensly Desires** to be part of the pumping test
2-109-B	Y	2-109-B		Kristine Donaldson/Brian Murphy	15 Vaughn Road	Domestic	BRW	2001	400 +/-	6	UNK	UNK	UNK	UNK	UNK	yes (Fe, Mn)	yes	Work # 879-3774
2-0111	UNK	30-2-111		Michael Vaughn	17 Vaughn Road	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-0110	UNK	30-2-110		Richard Vaughn	19 Vaughn Road	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
5-036	UNK	30-5-36		Robert & Bridget Workman	18 Vaughn Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 2, no one home
5-035-A	UNK	5-035-A		James & Doris Anderson	22 Vaughn Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 2, no one home
5-035-A1	UNK	5-035-A1		Francis & Bridget Hahn	24 Vaughn Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 2, no one home
5-035-A2	UNK	5-035-A2		John Carr	26 Vaughn Road	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 2, no one home
2-109-C	N	2-109-C		John Kiley, Jr.	4 Robinson Road	Commercial	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	yes (Fe, Mn)	yes	Could not locate well during site walk. There is a gravel pond with clear water adjacent to building that could be used . Ask for Kevin.
2-109-F	Y	2-109-F		Scanada International, Inc.	8 Robinson Road	Commercial	BRW	UNK	100 +/-	6	UNK	UNK	UNK	UNK	1	yes (Fe, Mn)	yes	Ask for Klaus
2-109-E	Y	2-109-E		Kenneth & Cheryl Clapp	10 Robinson Road	Commercial	BRW	UNK	80 +/-	6	UNK	UNK	UNK	UNK	UNK	yes (Fe, Mn)	no	(Tenant, Northeast Airgas distributor)
2-185	Y	2-185		Pasami, LLC	609 Route 3-A	Commercial	BRW	UNK	UNK	UNK	UNK	UNK	UNK	UNK	1	yes (Fe, Mn)	yes	Contact: Damon Kenison
2-185-B	UNK	30-2-185-B		Mountain Woodlands, Inc	617 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-185-B	UNK	30-2-187-F		Seawall Realty LLC	621 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-187	UNK	35-2-187		Route 3 Realty LLC	623 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-187-B	UNK	35-2-187-B		Hrisi Maloutas	625 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-187-A	UNK	35-2-187-A		Keller Products	627 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-188	UNK	35-2-188		James Steeves	629 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-189	UNK	35-2-189		William Tagett	631 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-189-A	UNK	35-2-189-A		Marcelino Acebron	635 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-191	UNK	35-2-191		Royce Riddletts	643 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-192	UNK	35-2-192		Debra Hull	645 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-192-B	UNK	35-2-192-B		Herbert Cate	649 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-192-C	UNK	35-2-192-C		Donald Heath	651 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-174	UNK	35-2-174		Addison Grant	661 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-109-G	UNK	30-2-109G		Scanada International	628 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-109-A	Y	30-2-109-A		John Piers	630 Route 3-A	Commercial	BRW	UNK	500 +/-	UNK	UNK	UNK	UNK	UNK	UNK	yes (Fe, Mn)	yes	Tenant gave permission, need to contact owner
2-108	UNK	35-2-108		Erthalder Westover	644 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-108-A	UNK	35-2-108-A		Erthalder Westover	642 Route 3-A	Domestic	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	Stopped x 1, no one home
2-106-A	UNK	35-2-106-A		William Dio	650 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-106	UNK	35-2-106		Eugene Robinson	654 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-104	UNK	35-2-104		Alice Champigny	656 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-105	UNK	35-2-105		Alice Champigny	658 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-103	UNK	35-2-103		Joseph Champigy	662 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-101-B	UNK	35-2-101-B		Alison Hermanns	666 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-101-A	UNK	35-2-101-A		Countrywide Bank	668 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-100	UNK	35-2-100		State of NH (DOT District 5)	670 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	

Source: Table 8 (2009)

WHPP-IP TABLE 3-2
Inventory of Private and Public Water Supply Wells

Well_ID	Still-Present	Tax_Map_Lot	ALIAS	Name	Address	Use	Well Type	Date Installed	Well Depth	Well Diam	Casing Depth	Yield	Water Depth	Depth to Bedrock	#Wells on Property	WQ Probs	Can we Monitor	Comments
2-099	UNK	35-2-99		Barbara Moore	676 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-098	UNK	35-2-98		Heintz Clark	678 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-102	UNK	35-2-102		Town of Bow	680 Route 3-A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-187-E1	UNK	35-2-187-E1		Richard Goduti	5 Gordon Road	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-187-C	UNK	35-2-187-C		Bow Llandscape Supply LLC	8 Gordon Road	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190	UNK	35-2-190		Gary Greene	1 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190-C	UNK	35-2-190-C		Pro-Serve Properties LLC	3 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190-E	UNK	35-2-190-E		Rhonda Realty LLC	5 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190-F	UNK	35-2-190-F		Laurendeau Enterpirses LLC	7 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190-A	UNK	35-2-190-A		Gaetanne Realty LLC	2 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190-B	UNK	35-2-190-B		MAD Investment Group LLC	4 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	
2-190-J	UNK	35-2-190-J		Filedhouse Sports Inc	12 Tallwood Drive	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	

PUBLIC WATER SUPPLIES

0266230-001		31-5-18-E		RIVER ROAD BUSINESS BAY	29 RIVER RD	Non-Community Transient	BRW	UNK	263	UNK	163	40	UNK	>150	1	UNK	UNK	
0266010-001		36-2-200-D		PSNH /MERRIMACK STATION	97 RIVER RD	Non-Community Non-Transient	GPW	UNK	45	UNK	UNK	200	UNK	>150	1	UNK	UNK	
0266010-002		36-2-180		PSNH /MERRIMACK STATION	97 RIVER RD	Non-Community Non-Transient	GPW	UNK	70	UNK	UNK	205	UNK	>150	1	UNK	UNK	
0266070-001		36-2-181		KELLER PRODUCTS INC	38 RIVER RD	Non-Community Non-Transient	GPW	UNK	144	UNK	UNK	61	UNK	>150	4	UNK	UNK	
0266070-002		36-2-181		KELLER PRODUCTS INC	38 RIVER RD	Non-Community Non-Transient	GPW	UNK	133	UNK	UNK	60	UNK	>150		UNK	UNK	
0266070-003		36-2-181		KELLER PRODUCTS INC	38 RIVER RD	Non-Community Non-Transient	GPW	UNK	130	UNK	UNK	43	UNK	>150		UNK	UNK	
0266070-004		36-2-181		KELLER PRODUCTS INC	38 RIVER RD	Non-Community Non-Transient	GPW	UNK	125	UNK	UNK	22	UNK	>150		UNK	UNK	

Source: Table 8 (2009)

WHPP IP

SYSTEM NAME: BOW NOV 2010
ADDRESS: NEW WELL
TOWN: BOW

Notes:
1. Report prepared November 19, 2010 by the NHDES Drinking Water and Groundwater Bureau.
2. The map-cell column in the report indicates which 1000-foot grid cell the site or facility is located on the accompanying map. For example, a map-cell value of "G-11" indicates column "G" and row "11".
3. Please refer to Attachment A for a description of Hazard Inventory Sites Land Use Codes and their associated potential risk.

Source Water Hazard Inventory Sites

This includes all Groundwater Hazard Inventory, Remediation Sites, and Initial Response Spill Sites regulated by NHDES to ensure water resource protection.

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	PROJECT TYPE
S-08	199906043	RIVER ROAD BUSINESS GROUP 29 RIVER ROAD BOW	UIC (INACTIVE) Risk: 8
S-09	199810071	STRUCTURES UNLIMITED INC 38 RIVER RD BOW	OPUF (INACTIVE) Risk: 8 ETHER (INACTIVE) Risk: 8
S-09	199110027	KELLER PRODUCTS RIVER ROAD BOW TAX MAP: 36, LOT: 181	UIC Risk: 2 Staff: REGISTRATION
P-10	199605014	PUBLIC WORKS FACILITY 12 ROBINSON RD BOW TAX MAP: 30, LOT: BLOCK 2 LOT 109	UIC (INACTIVE) Risk: 8
R-10	199501029	SECOND STREET MOTORS ROUTE 3A BOW TAX MAP: 35, LOT: BLOCK 2 LOT 187B	LUST (INACTIVE) Risk: 8

Aboveground Storage Tank Facilities

These are facilities where there are, or where in the case of inactive sites, aboveground storage tanks. If there is a documented release from a tank, it becomes a LAST project type and is also listed in the Source Water Hazard Inventory.

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	# TANKS
Q-08	980614A	R S AUDLEY INC 609 RTE 3A BOW TAX MAP: 31, LOT: 1831185	TANKS: 2

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	# TANKS
P-10	199605014, 199605014	PUBLIC WORKS FACILITY 12 ROBINSON RD BOW TAX MAP: 30, LOT: 109	TANKS: 2

Underground Storage Tank Facilities

These are facilities where there are, or where in the case of inactive sites, underground storage tanks. If there is a documented release from a tank, it becomes a LUST project type and is also listed in the Source Water Hazard Inventory.

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	# TANKS
Q-08	0111580	R S AUDLEY INC 609 RTE 3A BOW TAX MAP: 2, LOT: 185&185A	TANKS: 3
Q-08	0111580	R S AUDLEY INC 609 RTE 3A BOW TAX MAP: 2, LOT: 185&185A	TANKS: 3
Q-09	0111580	R S AUDLEY INC 609 RTE 3A BOW TAX MAP: 2, LOT: 185&185A	TANKS: 3
Q-09	0111124	JP NOONAN TRANSPORTATION INC RTE 3A BOW TAX MAP: BLOCK 2, LOT: 109G	TANKS: 0 (INACTIVE)
S-09	0110515	STRUCTURES UNLIMITED INC 38 RIVER RD BOW TAX MAP: 2, LOT: 181	TANKS: 5
S-09	0110515	STRUCTURES UNLIMITED INC 38 RIVER RD BOW TAX MAP: 2, LOT: 181	TANKS: 5
S-09	0110515	STRUCTURES UNLIMITED INC 38 RIVER RD BOW TAX MAP: 1, LOT: 181	TANKS: 5

Automobile Salvage Yard Facilities

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	STATUS
		<< NO FACILITIES PRESENT >>	

Local Potential Contamination Source Inventory Sites

Includes potential contamination sources within a source water protection area. The sites were located by Public Water Systems applying for a sampling waiver, or by NHDES-WSEB staff during "windshield surveys".

MAP CELL	SITE#	SITE NAME AND ADDRESS	PROJECT TYPE
P-09	waiver71	NORTHEAST AIRGAS 10 ROBINSON RD BOW	GSR

National Pollutant Discharge Elimination System (NPDES) Outfalls

All facilities which discharge any pollutant from point sources to surface waters (directly or indirectly) are required to obtain a federal permit from the US Environmental Protection Agency and a State Water Discharge Permit from NHDES.

MAP CELL	OUTFALL ID#	FACILITY NAME AND ADDRESS	STATUS TYPE CATEGORY WATER BODY
		<< NO OUTFALLS PRESENT >>	

Point/Non-point Potential Pollution Sources

These include local land-use inventories performed by the Regional Planning Commission in 1995.

MAP CELL	SITE#	SITE NAME AND ADDRESS	PROJECT TYPE
Q-08/ R-10	151-27	<UNNAMED SITE> BOW	MS
Q-09	151-19	BOW TECHNOLOGIES BOW	SD

Resource Conservation & Recovery Act (RCRA) Sites

These are facilities that generate hazardous waste. If a release is documented, it is also listed under the Source Water Hazard Inventory Sites.

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	STATUS REGULATED GEN. TYPE
Q-08	NHD510004732	AUDLEY INC 609 RTE 3A BOW	INACTIVE STATE REGULATED NONE
S-08	NHD500011663	SCOTT LAWSON GROUP INC 29 RIVER RD BOW	DECLASSIFIED RCRA REGULATED SQG(CESQG)

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	STATUS REGULATED GEN. TYPE
P-09	NHD986486637	SCANADA INTERNATIONAL INC 8 ROBINSON RD BOW	ACTIVE RCRA REGULATED NONE
Q-09	NHD510120157	BRODEN TRUCK REPAIR 630 RTE 3A BOW	INACTIVE STATE REGULATED SQG(CESQG)
Q-09	NHD986466969	TARGETT MOTORS 630 RTE 3A BOW	INACTIVE RCRA REGULATED SQG(CESQG)
Q-09	NHD500020722	WELCHS GARAGE 4 ROBINSON RD BOW	INACTIVE RCRA REGULATED SQG(CESQG)
S-09	NHD083396812	KELLER PRODUCTS INC 38 RIVER RD BOW	ACTIVE RCRA REGULATED SQG(CESQG)
S-09	NHD000791541	KALWALL CORP FLAT SHEET DIV 40 RIVER RD BOW	ACTIVE RCRA REGULATED FQG2(SQG)
S-09	NHD000791558	STRUCTURES UNLIMITED INC 40 RIVER RD BOW	ACTIVE RCRA REGULATED FQG2(SQG)
P-10	NHD510097579	BOW DPW 12 ROBINSON RD BOW	INACTIVE RCRA REGULATED SQG(CESQG)
P-10	NHD986466076	BOW BUS GARAGE TOWN OF 12 ROBINSON RD BOW	ACTIVE RCRA REGULATED NONE
R-10	NH5986485142	DANTRA EQUIPMENT 8 GORDON RD BOW	INACTIVE RCRA REGULATED SQG(CESQG)
R-10	NHD510129687	SECOND STREET MOTOR SALES 625 RTE 3A BOW	INACTIVE STATE REGULATED SQG(CESQG)
R-10	NHD510160120	J W FLEET & EQUIPMENT INC 621 RTE 3 A BOW	ACTIVE RCRA REGULATED NONE
R-10	NHD510167471	AUTOLOGIC LLC 7 GORDON RD BOW	ACTIVE RCRA REGULATED SQG(CESQG)
S-10	NHD510021439	PATSFIELD EXCAVATION INC 5 TALLWOOD DR BOW	DECLASSIFIED STATE REGULATED NONE
S-10	NHD510131584	GRANITE STATE TANK LINES 5 TALLWOOD DR BOW	INACTIVE STATE REGULATED SQG(CESQG)
R-11	NHD510119654	MORAN MOTOR WORKS 654 RTE 3A BOW	INACTIVE STATE REGULATED SQG(CESQG)
R-11	NHD500021746	STEEVES AUTO SALES 629 HWY RTE 3A BOW	INACTIVE RCRA REGULATED NONE

MAP CELL	FACILITY SITE#	FACILITY NAME AND ADDRESS	STATUS REGULATED GEN. TYPE
R-11	NHD500023502	CONCORD AWNING & CANVAS INC 1 TALLWOOD DR BOW	ACTIVE RCRA REGULATED SQG(CESQG)
R-11	NHD510057078	JP NOONAN TRANSPORTATION 632 RTE 3A BOW	INACTIVE SQG(CESQG)
R-11	NHD510121122	TIMPSONS RV CLINC RTE 3A BOW	INACTIVE STATE REGULATED SQG(CESQG)

Registered Water Users

"Use of water" includes the withdrawal of water from the ground or surface water body, the delivery of water from another supplier to the user indicated, the release of water from the user indicated to another facility, and/or the return of water to the environment.

MAP CELL	SDID	FACILITY NAME AND ADDRESS	ACTION TYPE WATER BODY
T-09	20151-S03	MERRIMACK GENERATING STA JOHNSON ROAD RFD #3 BOW	WITHDRAWAL POWER FOSSIL-FUEL WELL #2 SECONDARY SOURCE

Water Well Inventory

Inventory of privately owned water wells registered with the NHDES Geology Unit since 1984. Note that only 30% of all wells in the inventory have been field located.

MAP CELL	WRB#	WELL OWNER AND ADDRESS	DATE OF COMPLETION
L-07	027.0140	HODSDEN DOW RD BOW	06/12/1986 Map B-5, Parcel 74
Q-07	027.0085	MOSBECK RIVER RD BOW	10/24/1985 Map B-5, Parcel 16-A1
K-08	027.0035	THOMPSON DOW RD BOW	08/08/1984 Map B-5, Parcel 45-A
K-08	027.0061	MCKIBLE KNOX RD BOW	05/11/1985 Map B-5, Parcel 45-B
K-08	027.0021	HOLDEN KNOX RD BOW	11/17/1984
K-08	027.0191	HOLDEN KNOX RD BOW	10/15/1986 Map B-5, Parcel 45-D

MAP CELL	WRB#	WELL OWNER AND ADDRESS	DATE OF COMPLETION
L-08	027.0139	LABONTY KNOX RD BOW	06/06/1986 Map B-5, Parcel 45-E
L-08	027.0260	ROLPH KNOX RD BOW	05/14/1987 Map B-3, Parcel 143-I
L-08	027.0288	POWERS KNOX RD BOW	01/01/1987 Map B-5, Parcel 45-F
S-08	027.0230	YOUNG FURNITURE MFG INC RIVER RD BOW	05/19/1986 Map B-5, Parcel 18
S-08	027.0329	RIVER RD BUSINESS BAYS RIVER RD BOW	07/31/1987 Map B-5, Parcel 18-E
K-09	027.0440	RICHARDS WOODSIDE CIR BOW	08/16/1989 Map B-3, Parcel 143-F2
K-09	027.0483	WINEGAR SALTMARSH CIR BOW	09/21/1990
L-09	027.1300	JEFF KNIGHT KNOX RD BOW	08/08/2007
L-09	027.1135	DM CARRIER WHITTIER DR BOW	09/13/2001
L-09	027.1131	DUHAMEL WHITTIER DR BOW	09/13/2001
P-09	027.1338	VAUGHN VAUGHN RD BOW	01/03/2009 Map 30, Parcel 2-110
Q-09	027.1342	AUDLEY CONSTRUCTION RTE 3A BOW	12/01/2009 Map 31, Parcel 185
S-09	027.1282	SCANADA INTERNATIONAL INC ROBINSON RD BOW	08/23/2006
S-09	027.0178	WHEELER RIVER RD BOW	07/07/1986 Map B-2, Parcel 180
L-10	027.1136	D M CARRIER CONSTR WHITTIER DR BOW	09/17/2001
L-10	027.1132	FISCHER WHITTIER DR BOW	09/17/2001
L-10	027.1141	D M CARRIER CONSTR WHITTIER DR BOW	06/28/2002
L-10	027.1161	DM CARRIER WHITTIER DR BOW	05/12/2003

MAP CELL	WRB#	WELL OWNER AND ADDRESS	DATE OF COMPLETION
M-10	027.1299	KEARNS KNOX RD BOW	06/06/2007
N-10	027.1139	COLT WHITTIER DR BOW	07/11/2001
P-10	027.0316	HEWS BROS ASSOC ROBINSON RD BOW	08/20/1987 Map B-2, Parcel 109
Q-10	027.0159	BOW TECHNOLOGY CENTER ROBINSON RD BOW	05/19/1986 Map B-2, Parcel 113
M-11	027.1333	WILLOW GRASS HOMES LLC ALEXANDER LN BOW	10/14/2008 Map 30-3, Parcel 141-G
R-11	027.0105	WESTOVER RTE 3A BOW	11/18/1985 Map B-2, Parcel 108
R-11	027.0338	CHAMPIGNY RTE 3A BOW	04/06/1988 Map B-2, Parcel 107
M-12	027.1335	CHERRY HILL HOMES ROBINSON RD BOW	11/14/2008 Map 30, Parcel 139-C LOT 3
N-12	027.0408	PATSFIELD ROBINSON RD BOW	10/15/1987 Map B-2, Parcel 116
L-13	027.1331	NORTHVIEW HOMES ROBINSON RD BOW	06/17/2008 Map 30, Parcel 3-139A
N-13	027.1330	NERBONNE FIELDSTONE DR BOW	08/19/2008 Map 30, Parcel 116-K
M-14	027.0019	OAKRIDGE BRIARWOOD DR BOW	10/04/1984 Map B-2, Parcel 120-V
M-14	027.0025	OAKRIDGE BLDRS BRIARWOOD DR BOW	04/08/1985 Map B-2, Parcel 120-J
M-14	027.0018	OAKRIDGE BRIARWOOD DR BOW	10/04/1984 Map B-2, Parcel 120-I
M-14	027.0007	OAKRIDGE BLDRS BRIARWOOD DR BOW	07/21/1984 Map B-2, Parcel 120-W
M-14	027.0004	OAKRIDGE BLDRS BRIARWOOD DR BOW	07/11/1984 Map B-2, Parcel 120-H
M-14	027.0005	OAKRIDGE BLDRS BRIARWOOD DR BOW	07/12/1984 Map B-2, Parcel 120-X
M-14	027.0006	OAKRIDGE BLDRS BRIARWOOD DR BOW	07/17/1984 Map B-2, Parcel 120

MAP CELL	WRB#	WELL OWNER AND ADDRESS	DATE OF COMPLETION
N-14	027.0076	OAKRIDGE BLDRS BRIARWOOD DR BOW	08/21/1985 Map B-2, Parcel 120-S
N-14	027.0080	OAKRIDGE BLDRS BRIARWOOD DR BOW	10/22/1985 Map B-2, Parcel 120-L
N-14	027.0081	OAKRIDGE BLDRS BRIARWOOD DR BOW	10/22/1985 Map B-2, Parcel 120-K
N-14	027.0077	GAGNON BRIARWOOD DR BOW	08/22/1985 Map B-2, Parcel 120-M
M-15	027.0026	OAKRIDGE BLDRS BRIARWOOD DR BOW	04/08/1985 Map B-2, Parcel 120-U
N-15	027.0030	OAKRIDGE BLDRS SPRING HILL BOW	05/21/1985 Map B-2, Parcel 120-T
N-15	027.0079	PELLETIER BRIARWOOD DR BOW	10/22/1985 Map B-2, Parcel 120-O
N-15	027.0146	MILLER BRIARWOOD DR BOW	06/24/1986 Map B-2, Parcel 120-R
N-15	027.0029	OAKRIDGE BLDRS SPRING HILL BOW	05/21/1985 Map B-2, Parcel 120-P
N-15	027.0118	KANE BRIARWOOD DR BOW	01/13/1986 Map B-2, Parcel 120-N

Public Water Supply Sources and Facilities

Notes:
1. The map-cell value (indicating which 1000-foot grid cell the source or facility is located on the accompanying map) is shown in parentheses in the PWSID field of the report.
2. Please refer to Attachment B for a description of the report fields and the field values.

PWSID	SYSTEM NAME AND ADDRESS	SYS. TYPE	SYS. ACTIVE	SRC. TYPE	SRC. ACTIVE	SRC. REC.	WELL TYPE	WELL DEPTH	POP. SERVED
0266230-001 (S-08)	RIVER ROAD BUSINESS BAY 29 RIVER RD BOW	N	A	G	A	SG	BRW	263	45
0266230-501 (S-08)	RIVER ROAD BUSINESS BAY 29 RIVER RD BOW	N	A	E	A	PT		0	45
0266010-002 (S-09)	PSNH /MERRIMACK STATION 97 RIVER RD BOW	P	A	G	A	SG	GPW	70	104
0266070-004 (S-09)	KELLER PRODUCTS 38 RIVER RD BOW	P	A	G	A	SG	GPW	125	100
0266070-501 (S-09)	KELLER PRODUCTS 38 RIVER RD BOW	P	A	E	A	PT		0	100
0266070-003 (S-09)	KELLER PRODUCTS 38 RIVER RD BOW	P	A	G	A	SG	GPW	130	100
0266070-002 (S-09)	KELLER PRODUCTS 38 RIVER RD BOW	P	A	G	A	SG	GPW	133	100
0266070-001 (S-09)	KELLER PRODUCTS 38 RIVER RD BOW	P	A	G	A	SG	GPW	144	100
0266110-001 (P-10)	BOW TECHNOLOGIES CENTER 3 ROBINSON RD BOW	P	A	G	A	SG	BRW	600	34
0269070-501 (P-10)	POLICE /PUBLIC WORKS DEPT 12 ROBINSON RD BOW	N	A	E	A	PT		0	35

DISCLAIMER: The coverages presented in this program are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. Feature attribute data are periodically (approximately once a month) updated from associated DES databases. The NH Department of Environmental Services is not responsible for the use or interpretation of this information.

TABLE 3-4 WELLHEAD PROTECTION AREA CHARACTERISTICS

This part of the assessment describes the susceptibility of the source with respect to a number of factors evaluated by NHDES.

System Name / PWS ID: Bow Municipal Water System PWS #0261010 **Page 1**

Sources: River Road Wells PW-1, PW-2

Susceptibility Factor	Susceptibility			Comments
	LOW	**MEDIUM**	**HIGH**	
1. Confirmed contaminant detects of concern in source water. Excludes naturally occurring substances.	No current detects from anthropogenic sources (e.g., VOC, SOC, or metals) [ ]	*No medium criterion – source will rank either low or high for this concern.* [ ]	Current detects from anthropogenic sources (e.g., VOC SOC, or metals). [x]	MtBE detections in monitoring wells.
2. Well integrity (sanitary seal, drainage problems, or violations of the sanitary radius).	No unresolved problems noted during sanitary survey. [x]	*No medium criterion – source will rank either low or high for this concern.* [ ]	Problems noted and remain since last sanitary survey. [ ]	.
3. Sanitary radius (75' to 400' from well).	Free from development except that associated with the well. [x]	Development other than that associated with the well but no sewer line, septic system, or regulated substance storage. [ ]	Sewer line(s), septic system(s), or regulated substance storage other than that associated with the well. [ ]	
4. Known sources of anthropogenic contamination (not covered below) within the wellhead protection area (WHPA).	None present in WHPA. [x]	One or more within the WHPA but not within 1000' of the well. [ ]	One or more within the WHPA and within 1000' of the well. [ ]	
5. Potential sources of anthropogenic contamination (not covered below) within the WHPA.	None present within the portion of the WHPA that is within 1000' of the well. [ ]	10 or fewer within the portion of the WHPA that is within 1000' of the well. [x]	More than 10 within the portion of the WHPA that is within 1000' of the well. [ ]	- MtBE detections. - I-93 and Rte 3A beyond 1000', some parking areas <1000'. Aquifer has been impacted by road salt.
6. Numbered state highways or active railroads in WHPA. Transportation corridors increase the risk of accidental releases reaching the source.	None present in WHPA. [ ]	One or more within the WHPA but not within 1000' of the well. [ ]	One or more within the WHPA and within 1000' of the well. [x]	Active railroad corridor.

System Name / PWS ID: Bow Municipal Water System PWS #0261010

Sources: River Road Wells PW-1, PW-2

Susceptibility Factor	Susceptibility			Comments
	LOW	**MEDIUM**	**HIGH**	
7. Routine pesticide application in WHPA. Application prohibited in sanitary radius.	No application sites in WHPA [x]	Application sites in WHPA but not within 500' of the well. [ ]	Application sites in WHPA but not within 500' of the well. [ ]	
8. Septic systems or sewer lines located in the WHPA.	No septic systems or sewer lines located within 500' of well. Low density of septic systems (fewer than 30) in remainder of WHPA. [ ]	Fewer than 10 septic systems and no sewer line located within 500' of well and fewer than 30 septic systems in remainder of WHPA. [ ]	10 or more septic systems or any sewer line located within 500' of well and/or high density of septic systems (more than 30) in remainder of WHPA. [x]	More than 30 residential septic systems within WHPA but beyond 500'.
9. Urban land cover.	Less than 10% of WHPA has urban land cover and less than 10% of WHPA within 1000' of well has urban land cover. [x]	Less than 10% of WHPA has urban land cover but 10% of more of WHPA within 1000' of well has urban land cover. [ ]	10% or more of WHPA has urban land cover [ ]	
10. Agricultural land cover. Potential contamination from nitrate fertilizers.	No agricultural land cover in WHPA. [ ]	Less than 10% agricultural land cover in WHPA. [x]	10% or more agricultural land cover in WHPA. [ ]	Farm land at Tax Map 30, Blk 2, Lt 116-A, 117; Blk 5, Lt 31, 32, 32-A.
11. Farms with 10 or more outdoor animal units. Potential contamination from nitrates, *E.coli* and viruses.	None present in WHPA [ ]	One or more within the WHPA but none within 1000' of the well. [x]	One or more within the WHPA and within 1000' of the well. [ ]	Animal grazing at Tax Map 30, Blk 2, Lt 116-A, 117.
12. Wastewater treatment, spray irrigation, lagoons.	None within the WHPA. [x]	One or more within the WHPA but none within 1000' of the well [ ]	One or more within the WHPA and within 1000' of the well. [ ]	
13. Dry weather sewage discharge.	None detected within the WHPA. [x]	One or more within the WHPA but none within 1000' of the well. [ ]	One or more within the WHPA and within 1000' of the well. [ ]	

Number of criteria for which this source rated Low susceptibility: 7

Number of criteria for which this source rated Medium susceptibility: 3

Number of criteria for which this source rated High susceptibility: 3

	WHPP IMPLEMENTATION PLAN ACTIVITY	COMMENTS	RESPONSIBLE LEAD	2012										MONTHLY/ANNUAL DUE DATES AFTER DECEMBER 2012
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Complete Construction		Construction Contractor		xxxxx									
2	Shakedown Operation		Construction Contractor and Operator		xxxxx	xxxxx	xxxxx							
3	Initial Connections and Service	System is on-line with customers starting 2 July 2012	Contractor and Operator					xxxxx						
4	Monitoring of water quality and levels and public notifications	See Schedule of Monitoring and Operational Activities for details	Town Manager/Operator											
5	Implement Water Conservation Plan approved 29 September 2009	In accordance with Env-Wq 2101 and NHDES letter dated 6 May 2010	Town Manager/Operator											Every 3 years-May 2013; 2016; 2019
6	Startup Notification to NHDES	When well becomes "active"(2) notify Linda Thompson at linda.thompson@des.nh.gov (Letter NHDES, 5/7/10a)	Town Manager/Operator					xxxxx						
7	Implement and Enforce Aquifer Protection Ordinance	Continuous (Letter NHDES, 5/7/10a)	Town Manager/Community											
8	Implement adopted 'Reduced Sand and Salt Policy'	Continuous (Letter NHDES, 5/7/10a)	Town Manager/Public Works (1)											
9	Implement Inspection and Maintenance Program for Catch Basins and Culverts	Every 2 years (Letter NHDES, 5/7/10a)	Town Manager/Public Works (1)											Rev 3-Every 2 years - December 2020; 2022; 2024; 2026
10	Update PCS Inventory including windshield survey	Every 3 years(3). Starting 90 days from May 2010 (Env-Dw 302.25)	Town Manager/Operator					xxxxx	xxxxx					Rev 3-July - August 2020,2023,2026
11	Notification of Requirements to PCSs	Every 3 years starting 90 days after startup of PW-1 (Env-Dw 302.32)	Town Manager/Operator							xxxxx				Rev3- By September 2020,2023,2026
12	BMP Training by NHDES	As Needed; contact Pierce Rigrod@des.nh.gov (271-0688) or	Town Manager/Operator/Fire											As Needed
13	Inspection Program for BMPs	Every 3 years(3) starting within 1 year of May 2010 (Letter NHDES, 5/7/10a)	Town Manager/Operator/Fire								xxxxx	xxxxx		Rev.3- By October 1, 2020;2023;2026
14	Annual Report/Review Emergency Plan Annually	Documenting all updates to WHPP	Town Manager/Operator/ BDWPC										xxxxx	Rev 3-December 2019; 2020; 2021; 2022

NOTES:

1-Responsible Leads stipulated in NHDES letter 10 May 2010(a). Notify NHDES of proposed exceptions.

2-Assumes "active" and "startup of the sytem" both mean the time that finished water is pumped into the distribution system for consumption. PW-1activated 2 July 2012. Finished water is pumped into the distribution system for public use.

3-Two-year schedule stipulated in NHDES letter dated 7 May 2010(a). NHDES revised BMP inspections to 3 year schedule as documented in 20 June 2013 e-mail from C. Bowman.

4-NHDES letter dated 7 May 2010(a). One of two 7 May 2010 letters from NHDES-(a) refers to letter titled "Large Well Siting Approval/Large Groundwater Withdrawal Permit LGWP-2010-0003"; (b) refers to letter titled "New Annual Monitoring Report Requirements-Electronic Data Reporting Program"

NHDES = New Hampshire Department of Environmental Services
PCS = Potential Contaminant Sources
BMP = Best Management Practices
WHPP = Wellhead Protection Program
BDWPC= Bow Drinking Water Protection Committee

WELL	PARAMETER	RULE OR STATUTE	SOURCE REFERENCE	FREQUENCY	REPORTING REQUIREMENTS	CONTACT INFORMATION
WATER QUALITY						
PW-1 (raw)	E. coli	Env-Dw 717.07(a)	NHDES (7 May 10a) Letter	Monthly for 6 months starting 30 days before startup	To NHDES as part of GWR-Investigative Monitoring (see Item 5 on p. 3 of NHDES 7 May 10a Letter)	
PW-1 (raw)	Volatile Organic Compounds, Sodium and Chloride (VOCs, Na, Cl)		NHDES (7 May 10a) Letter	Monthly for 24 months starting 30 days before startup	Monthly to S. Roy at NHDES and summarized in Annual Report	
OW-6, OW-8, OW-9	VOCs (Method 524), Na, Cl, field: specific conductivity, temperature, pH		LGWP-2010-0003 Item 4(b)&(c) p. 2-3	Within 1 month prior to startup of PW-1 and quarterly thereafter in Feb, May, Aug, and Nov	Provide in Annual Report by 31 January of each year. If any VOCs exceed AGWQS, notify NHDES within 2 weeks of receipt of results from lab	
WITHDRAWAL VOLUMES/RATES/LEVELS						
PW-1	Record water levels with pressure transducer and data logger		NHDES (7 May 10a) Letter; NHDES (7 May 10b) Letter	Continuously	Annual Electronic Data Report submitted electronically along with both an electronic and hard copy of Annual Report	Christine Bowman (603) 271-8866 christine.bowman@des.nh.gov or Stephen Roy at (603) 271.3918 stephen.roy@des.nh.gov
PW-1	Metering Requirements	Env-Wq 2101	LGWP-2010-0003 Item 3, p. 2	Meter continously and report 24-hour peak volume and total volume each month	Quarterly Water Use Reporting and Annual Report by 31 January of each year	Derek Bennett (603) 271-6685 derek.bennett@des.nh.gov
OW-6, OW-8, OW-9	Record water levels with electronic water level meter or pressure transducer and data logger		LGWP-2010-0003 Item 4(a) p. 2, see also NHDES (7 May 10b) Letter	Twice per week starting 1 month prior to start-up	Annual Electronic Data Report submitted electronically along with both an electronic and hard copy of Annual Report	Christine Bowman (603) 271-8866 christine.bowman@des.nh.gov or Stephen Roy at (603) 271.3918 stephen.roy@des.nh.gov
OTHER						
System Requirements	Comply with laws and regulations at all times	Env-Wq 403 & RSA 485-C	LGWP-2010-0003 Item #1, p. 2			
Individual Public Notification Letters	Notify all groundwater users within the influence area of PW-1		LGWP-2010-0003, Item #5(b), p. 3-4 and Figure 10 in 2 March 2010 Stantec Report	Prior to start up of PW-1	See complete requirements Item #5(b) of LGWP-2010-0003 but it includes providing NHDES with copies of letters w/certified mail receipts	
Water Conservation	Implement the approved Water Conservation Plan dated 29 September 2009	Env-Wq 2101	LGWP-2010-0003 Item #2, p. 2. See also NHDES 6 May 2010 Letter			
Register Source	Register with the Water Use Registration and Reporting Program	RSA 488	See also LGWP-2010-0003, Item #6, p. 4			
Connection Requirements	Comply with NH Administrative Rules	Env-Ws 374	NHDES 7 May 2010a Letter, p. 4 & 5	Prior to connecting PW-1 to the Water System	Provide schematic with details specified in source reference	Dan Dudley (603)271-2953 daniel.dudley@des.nh.gov
Startup Notification to NHDES	When well becomes "active"** notify Linda Thompson (603) 271-3544 linda.thompson@des.nh.gov (Letter NHDES, 5/7/10a)		NHDES 7 May 2010a Letter, p. 4		One time notification for NHDES issuance of Master Sampling Schedule	additional contact is Tricia Madore (603) 271-3907 tricia.madore@des.nh.gov
OTHER (continued)						
Emergency Plan	Comply with NH Administrative Rules	Env-Dw 302.26 & Env-Ws 360.15	NHDES 7 May 2010a Letter, p. 5	Review Annually	Update and submit to NHDES prior to connecting PW-1 to the Water System and once every 6 years thereafter	Johnna McKenna (603)271-7017 johnna.mckenna@des.nh.gov
Permit Lapse (PW-1)	If PW-1 is not connected to water system in 4 years (by 7 May 2014), permit lapses.	Env-Dw 302.24(e)	NHDES 7 May 2010a Letter, Item #6, p. 3		Satisfy requirements of Env-Dw 302.24(f) to regain approval	
Permit Renewal (System)	Apply for renewal by 16 April 2019 (1 year before 20 year permit expiration)		LGWP-2010-0003, Item #7, p. 4		Renewal application due by 16 April 2019	
Mitigation Requirements	Response to adverse impacts	Eng-Wq 403 & RSA 485-C:21, V-c	LGWP-2010-0003, Item #5a & c, p. 3-4	As identified during operations	Response to NHDES notification within 48 hours	
Decommissioning Observation Wells O-1, O-2, OW-1, OW-2, OW-3, OW-4, OW-5	Properly abandon/seal observation wells that are no longer useful and, based on their construction, pose a concern for water quality protection of PW-1		12 August 2011 e-mail from Stephen Roy (NHDES) to Gary Smith (Wright-Pierce)			

WELL	PARAMETER	RULE OR STATUTE	SOURCE REFERENCE	FREQUENCY	REPORTING REQUIREMENTS	CONTACT INFORMATION
			REFERENCES			
LGWP-2010-0003	Large Groundwater Withdrawal Permit (1,008,000 maximum over any 24-hour period); permit issued 15 April 2010; expiration date 16 April 2020	The actual permit				
NHDES (6 May 10) Letter	Bow Municipal Water System (EPA ID: New System) Water Conservation Plan	Water Conservation Plan approval letter with reporting requirements every 3 years				
NHDES (7 May 10a) Letter	Letter titled "Large Well Siting Approval/Large Groundwater Withdrawal Permit LGWP-2010-0003"	Special Conditions associated with the permit				
NHDES (7 May 10b) Letter	Letter titled "New Annual Monitoring Report Requirements-Electronic Data Reporting Program	Format requirements for the electronic data reporting program that comprises part of the Annual Report due by 31 January of each year				

Notes:
VOC = volatile organic compounds
NHDES = New Hampshire Department of Environmental Services
AGWQS = Ambient Groundwater Quality Standards
LGWP = Large Groundwater Withdrawal Permit
EPA ID = PWS # 0261010 (Issued upon system startup)
NHDES letter dated 7 May 2010(a). One of two 7 May 2010 letters from NHDES-(a) refers to letter titled "Large Well Siting Approval/Large Groundwater Withdrawal Permit LGWP-2010-0003"; (b) refers to letter titled "New Annual Monitoring Report Requirements-Electronic Data Reporting Program"

APPENDIX 1-1

NHDES LARGE GROUNDWATER WITHDRAWAL PERMIT PW-1 AND MAY 2010 AND AUGUST 2011 LETTERS OF CONDITIONS FOR PW-1 AND BACK-UP WELL PW-2

The

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

hereby issues

LARGE GROUNDWATER WITHDRAWAL PERMIT

NO. LGWP-2010-0003

to the permittee

TOWN OF BOW
10 GRANDVIEW ROAD
BOW, NH 03304
(603-228-1187)

for the withdrawal of the following volume of groundwater from the following well for the purpose of community water supply:

PW-1 1,008,000 gallons over any 24-hour period;

Date of Issuance: April 15, 2010
Date of Expiration: April 16, 2020

Pursuant to authority in N.H. RSA 485-C:21, the New Hampshire Department of Environmental Services (NHDES), hereby grants this permit to withdraw groundwater from well PW-1 subject to the following conditions:

1. The permittee shall comply with the requirements of Env-Wq 403 and RSA 485-C at all times.

2. Water Conservation: The permittee shall implement the approved Water Conservation Plan, dated September 29, 2009, in accordance with Env-Wq 2101 and NHDES' conditional approval dated May 6, 2010.

3. Metering Requirements: Withdrawals from the source must be metered at all times. All meters must be selected, installed, tested, and maintained in accordance with the AWWA M6 manual as referenced in Env-Wq 2101. The permittee shall provide NHDES with a certificate of calibration and performance specifications for each meter. The permittee shall document and maintain records of all meter maintenance and calibration activities and submit this information to NHDES in an annual report by January 31 of each year. The permittee shall read source water meters to adequately report the following volumes to the reporting program referenced in condition No. 6 of this permit:

   a) The 24-hour peak day volume withdrawn from the source during each month; and

   b) The cumulative total volume withdrawn from the source during each month.

4. Monitoring and Reporting Requirements: The permittee shall establish and maintain the monitoring and reporting program as described below.

   a) Groundwater Level Monitoring : The permittee shall use electronic water level meters or install pressure transducers and data loggers and measure water levels at a frequency of at least twice per week at on-site overburden monitoring wells OW-6, OW-8 and OW-9 [new well] starting one month prior to initiating the withdrawal from PW-1.

      The installation of well OW-9 shall be performed as described in a letter dated March 2, 2010 submitted by Stantec to NHDES and incorporated herein by reference. If OW-9 can not be located at its target location due to site constraints, the permittee must seek prior approval from NHDES for an alternative location. The permittee shall provide NHDES with soil boring data, monitoring well construction details, and a well completion report within 30 days following the installation of OW-9.

      All water level monitoring shall be completed by a person who can demonstrate, by education or experience, competency in collecting and reporting hydrogeologic measurements.

      Monitoring well locations and frequency may be added or changed if the water level data obtained as part of the monitoring program contradicts the information in the permittee's application, or if additional data points are required to assess the potential for adverse impacts to occur.

   b) Water Quality Monitoring: The permittee shall collect water quality samples from on-site overburden monitoring wells OW-6, OW-8 and OW-9 [new well] at the following frequency:

i. Within the month prior to initiating the withdrawal from production well PW-1; and

ii. Quarterly (four times per year in the months of February, May, August and November) after start-up of production well PW-1.

All samples collected shall be analyzed for volatile organic compounds (VOCs by method 524), sodium and chloride, and field measured for specific conductance, temperature and pH. The sampling methodology for all samples collected shall conform to standard low-flow sampling techniques or an equivalent method.

All water quality sampling shall be completed by a person who can demonstrate, by education or experience, competency in collecting and recording water quality samples.

Water quality sampling frequency, parameters and locations may be added or changed if the water quality results contradict the information in the permittee's application, or if additional sampling is required to assess the potential for adverse impacts to occur.

In the event that results from quarterly VOC sampling of the monitoring wells indicate the presence of a compound that exceeds New Hampshire Ambient Groundwater Quality Standards, the permittee shall notify NHDES within two weeks of receipt of the water quality results.

c) Reporting Requirements: A monitoring report and all monitoring data shall be submitted to NHDES annually by January 31 of each year. The annual monitoring report shall note any relevant observations that may affect the water level measurements or water quality results and include all field notes documenting the monitoring activities for the preceding year. All field notes shall be signed and dated by the personnel responsible for collecting measurements. The annual report shall include all analytical laboratory results.

The annual monitoring report and all monitoring data collected per this section shall be submitted in an electronic format and hard copy format. All water level monitoring data collected per section 4a above shall be submitted in an electronic format only.

5. Mitigation Requirements

a) In the event that adverse impacts occur, the permittee shall comply with all of the requirements below and with the impact mitigation and source replacement requirements of Env-Wq 403.

b) Prior to initiating the large groundwater withdrawal, the permittee shall notify any lot owner with a private or public well within the area identified as the influence area of well PW-1 on Figure 10, titled "Projected Water Level Elevation Contour at 180-Days", included in the Final Report Addendum titled "Response to Final Report – Large Groundwater Withdrawal Permit Application. Town of Bow Proposed Municipal Water Supply Well, Anderson Property, New System Bow,

New Hampshire" prepared by Stantec dated March 2, 2010. The permittee shall provide a copy of the notification letter and copies of certified return mail receipts to NHDES. The permittee shall explain to lot owners with wells in the identified area that their well may be influenced by the withdrawal at well PW-1. The permittee shall provide these owners with contact information for both the permittee and NHDES in the event they believe they may be adversely impacted by the withdrawal.

c) Where the status of an unanticipated impact is not clear, the permittee shall gather information needed to quantify the impact and determine its status relative to adverse impact criteria defined under RSA 485-C:21, V-c and provide this information to NHDES within 48 hours of being notified by NHDES. A verified adverse impact shall be mitigated in accordance with Env-Wq 403.

6. The permittee shall register its new source of water with the Water Use Registration and Reporting Program and maintain the water use reporting requirements established by RSA 488 and this permit.

7. The permittee shall apply for renewal of this permit at least 365 days prior to its expiration date. The permittee shall continue to comply with all conditions in this permit until the permit is renewed or the facility is closed in accordance with all applicable requirements, regardless of whether a renewal application is filed.

Any person aggrieved by any terms or conditions of this permit may appeal in accordance with RSA 485-C:21,VI within 30 days.

Harry T. Stewart, P.E.,
Director Water Division

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The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

May 6, 2010

James Pitts
Town of Bow
10 Grandview Road
Bow, NH 03304

Subject: **Bow, NH: Bow Municipal Water System (EPAID: New System)**
Water Conservation Plan

Dear Mr. Pitts,

The New Hampshire Department of Environmental Services ("Department") has completed its review of a water conservation plan submitted by Wright-Pierce on behalf of the Town of Bow relative to the proposed municipal water system in Bow, NH. The plan was received on September 29, 2009 and submitted to fulfill the requirements of Env-Wq 2101, *Water Conservation Rules*. Public notification was completed on April 15, 2010 and recipients had an opportunity to provide comment on the conservation plan until May, 6 2010. The Department did not receive any comments on the proposed plan.

The purpose of this letter is to approve the September 29th, 2010 water conservation plan. Every three years from the date of this letter, the water system shall provide the Department with a report explaining how compliance with the water conservation rules and water conservation plan is being achieved.

If you have any questions about this approval or water conservation in general, please contact me at 603-271-6685 or email me at derek.bennett@des.nh.gov.

Sincerely,

Derek S. Bennett
Water Use & Conservation Program
Drinking Water and Groundwater Bureau

Ec: Steve Roy - NHDES, Drinking Water and Groundwater Bureau
Bob Mann - NHDES, Drinking Water and Groundwater Bureau

Cc: Robert Williamson - Wright Pierce
Michael Tardiff - Central NH Regional Planning Commission
Donald Moore - Stantec

DES Web Site: www.des.nh.gov
P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095
Telephone: (603) 271-2513 Fax: (603) 271-5171 TDD Access: Relay NH 1-800-735-2964

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

May 7, 2010

Bill Klubben
Town of Bow
10 Grandview Road
Bow, NH 03304

RE: Large Well Siting Approval/Large Groundwater Withdrawal Permit LGWP-2010-0003
Town of Bow, New System
River Road Well [PW-1]
Bow, New Hampshire

Dear Mr. Klubben:

The New Hampshire Department of Environmental Services (NHDES) has conditionally issued to the Town of Bow (Bow) the following: 1) an approval of a new large community production well (the River Road Well) in accordance with New Hampshire Administrative Rules Env-Dw 302, *Large Production Wells for Community Water Systems*; and 2) a large groundwater withdrawal permit for the River Road Well in accordance with RSA 485-C:21, *Approval for Large Groundwater Withdrawals* and New Hampshire Administrative Rules Env-Wq 403, *Large Groundwater Withdrawals*. The approval and permit are based on information prepared for Bow by Stantec Consulting Services, Inc. [Stantec] (formerly Jacques Whitford).

Bow is seeking approval of the River Road Well (designated PW-1) at a production rate of 1,008,000 gallons per day (gpd) or 700 gallons per minute (gpm) over a 24-hour period. The River Road Well is located approximately one mile south of Bow Junction in a wooded area on the west bank of the Merrimack River, east of a travel corridor defined by River Road, Routes 3/3A and I-93. The purpose of developing this new community production well is to provide a primary source of water for a new community water system.

CONDITIONAL APPROVAL

This decision to conditionally approve PW-1 is based on information contained in the following documents:

1. Preliminary application report titled "Preliminary Report for 1.0 MGD Municipal Supply Well in Bow, NH" (Preliminary Application), prepared by Wright-Pierce dated September 23, 2003.

2. Numerous data summaries and report revisions subsequent to the Preliminary Application submitted by various entities through April 2006.

3. Data package submittals and letter reports on results of supplemental water quality sampling rounds prepared by Jacques Whitford dated March 2007, May 2007 and June 2009.

DES Web Site: www.des.nh.gov
P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095
Telephone: (603) 271-2513 Fax: (603) 271-5171 TDD Access: Relay NH 1-800-735-2964

4. Final report titled "Env-Dw 302 Final Report and Env-Ws 388 Large Groundwater Withdrawal Permit Application, River Road Well, Bow, New Hampshire" (Final Report) prepared for Bow by Stantec, dated October 26, 2009.

5. Final report addendum titled "Response to Final Report – Large Groundwater Withdrawal Permit Application. Town of Bow Proposed Municipal Water Supply Well, Anderson Property, New System Bow, New Hampshire" prepared by Stantec dated March 2, 2010 with supporting submittals dated through March 23, 2010.

The following requirements are associated with the approval of PW 1 for use as a large production well for a community water system and must be complied with as a condition of approval:

1) Bow must maintain a wellhead protection program for the Wellhead Protection Area (WHPA) for PW-1 consisting of those provisions of the approved program described in Section 17 of the Final Report and its addendum, to include:

- Implementation and enforcement of the 'Aquifer Protection Ordinance' put in place by Bow in 2009;
- Updating the potential contaminant source inventories required by Env-Dw 302.09 and 302.19 at intervals no greater than two years starting 90 days from the date of this letter;
- Completing written notification requirements to the owner of each known and potential contamination source listed in the inventories at intervals no greater than three years as required by Env-Dw 302.21(a)(2) starting 90 days from the start up of PW-1;
- Implementation of an inspection program for Best Management Practices [BMP] for preventing groundwater contamination at intervals no greater than two years as required by Env-Dw 302.21(b), starting within one year of the date of this letter. The BMP inspection program will be conducted by the town in conjunction with training and support from NHDES;
- Implementation of an inspection and maintenance program for all catch basins and culverts within the WHPA of the well. This program will be conducted every two years by the Town of Bow Department of Public Works and include cleaning of these structures, as necessary, with equipment that was recently obtained by the town; and
- Implementation of the recently developed and adopted 'Reduced Sand and Salt Policy' for the town maintained roads. The program is intended to reduce the proportion of salt applied to town roads for winter maintenance relative to sand and will be implemented and tracked by the town public works office.

The town will provide a summary of WHPA program activities with the annual report required by the associated large groundwater withdrawal permit (LGWP-2010-0003) for PW-1.

2) Bow shall adhere to the following monitoring conditions for PW-1:

a. Bow shall collect monthly, (raw) source water quality samples from PW-1 starting the month before the well is brought online and continuing for a period of two years. Each sample shall be analyzed for volatile organic compounds (VOCs), sodium and chloride. Results of the water quality sampling must be forwarded to NHDES (to the

attention of Stephen Roy) when available each month; and summarized and included in the annual report associated with the large groundwater withdrawal permit; and

b. Bow shall instrument PW-1 with a pressure transducer and data logger to record groundwater levels continuously once it is brought online.

3) NHDES approved a waiver of the requirements of Env-Dw 302.06(d) for the area of the 400-foot sanitary protective area (SPA) radius for PW-1 with an active power transmission corridor owned by PSNH, based on the Joint Use Agreement that was executed between Bow and PSNH on November 8, 2005. Note that compliance with SPA activities will be a checklist item during future sanitary surveys of the water system.

4) Bow must implement and adhere to the conditions of Large Groundwater Withdrawal Permit No. LGWP-2010-0003, which is attached to this document, and NHDES' conditional approval, dated May 6, 2010, of the Water Conservation Plan, dated September 29, 2009.

5) In accordance with Env-Dw 717.07(a), *Groundwater Monitoring and Treatment*, Bow must collect raw water samples from PW-1 and have the samples analyzed for *E. coli* using a method that provides enumeration. Sampling of raw water collected from the well shall be conducted for 6 consecutive months, with the first month's sample taken within 30 days prior to placing the source in service and providing water to the public. All raw water samples must be taken before any treatment. Results shall be reported to NHDES as part of the GWR-Investigative Monitoring required to demonstrate that the source water is free from fecal contamination and that 4-log treatment is not required. A special analysis request form for these samples is available linked to the water system's Master Sampling Schedule, which is available through the Public Water System Query on New Hampshire Department of Environmental Services' One Stop Data and Information website at http://www2.des.state.nh.us/OneStop/Public_Water_Systems_Query.aspx.

6) Approval for PW-1 as a large production well for a community water system shall lapse four years from the date of this letter if the well is not connected to the water system within that time, in accordance with Env-Dw 302.24(e). If approval lapses, Bow must satisfy the requirements of Env-Dw 302.24(f) to regain approval.

SOURCE SPECIFICATIONS

Table 1, below, summarizes specifications for PW-1. The Permitted Production Volume is the maximum volume of groundwater allowed by NHDES to be pumped from the water supply production well in any 24-hour period. The Sanitary Protective Area is a circle, centered on the well, with the radius listed in Table 1. The location of PW-1 and the WHPA delineated for the well are illustrated on the attached map titled "Figure 11. Proposed Wellhead Protection Area" included in the Final Report.

Table 1

Source Name	Well Status	Permitted Production Volume	Sanitary Protective Area Radius	Wellhead Protection Area	Source Description
River Road Well [PW-1]	New	1,008,000 gallons per 24-hour period	400 feet	As shown on Figure 11	Approximately 1,000 feet east of River Road

CHEMICAL MONITORING PROGRAM

A water quality sampling program was conducted as part of the well siting approval for PW-1. A total of three water quality samples were collected from PW-1 during the well's pumping test program. Results of the water quality sampling program indicate that each parameter, with the exception of manganese, pH and chloride, was below the applicable Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL).

The SMCL for manganese is 0.05 milligrams per liter (mg/l); testing results showed that concentrations of manganese in water derived from PW-1 ranged from 0.059 mg/l to 0.114 mg/l over the course of the pumping test program. Based on the limited water quality data, the concentration of manganese derived from the well may increase over time and treatment may be desired. The SMCL range for pH is 6.5 to 8.5; testing results show that the water derived from PW-1 is slightly acidic and has a pH in the range of 5.8 to 6.2, which is less than the lower limit of the SMCL range. Sodium and chloride were also at elevated concentrations in water produced by PW-1 with chloride slightly above its SMCL of 250 mg/l. MTBE was also detected in the well water at concentrations slightly below 1 microgram per liter (µg/l), and, as such, necessitates ongoing monitoring as part of this approval (see condition No. 2 above).

Results of the water quality sampling program also indicate that the concentration of radon is elevated in water derived from PW-1 (at 2,500 picocuries per liter [pCi/L]). Although there is currently no state- or federally-enforced drinking water standard for radon, NHDES recommends that Bow consider options for reducing the concentration of radon in the water supply (note that NHDES' current recommendation for maximum radon concentration is 2,000 pCi/L.

You must notify NHDES when PW-1 becomes active by contacting Linda Thompson of the Drinking Water and Groundwater Bureau at (603) 271-3544 or linda.thompson@des.nh.gov. Once you notify NHDES that the well is active, Chemical Monitoring staff will contact you with an updated Master Sampling schedule. If you have any questions about the Chemical Monitoring requirements, contact Tricia Madore at (603) 271-3907 or tricia.madore@des.nh.gov. Please note that NHDES may initiate enforcement action if the system fails to implement a chemical monitoring program when the well becomes active.

CONNECTION REQUIREMENTS

Please note that the connection of the well to the water system and treatment facilities must comply with the requirements of New Hampshire Administrative Rules Env-Ws 374, *Design Standards For Large*

Public Water Systems. Prior to connecting the well to the water system, provide a schematic depicting the source meter(s), chemical monitoring program sampling location, and any required treatment system, including the storage location of chemicals, chemical feed equipment, motor controls, and instrumentation. Please forward this information and any questions you may have regarding connecting the well to the water system to the attention of Robert Mann at NHDES at (603) 271-2953 or robert.mann@des.nh.gov.

EMERGENCY PLAN

Bow shall develop an emergency plan for the water system in accordance with New Hampshire Administrative Rules Env-Dw 302.26 and Env-Ws 360.15. This plan shall continue to be updated and submitted to NHDES once every 6 years and shall be reviewed annually by the system and updated as needed. As a new system, Bow shall submit an Emergency Plan with the water system design approval package referenced above, and must have an approved emergency plan in place prior to bringing the water system online. The plan, once in place, will be a checklist item during each sanitary survey of the water system and lack of an up-to-date plan will be a survey deficiency. Guidance documents and other emergency planning information and materials are available through the NHDES website located at http://des.nh.gov/organization/divisions/water/dwgb/index.htm [see 'Programs']. You may want to contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov for more information or assistance in completing emergency planning for the water system.

ELECTRONIC DATA REPORTING PROGRAM

Please note that water level data collected as a condition of the attached large groundwater withdrawal permit, as specified in section No. 4 titled "Monitoring and Reporting Requirements," shall be submitted annually to NHDES in an electronic format. The requirements and specifications of the electronic data reporting program are summarized in the attached letter and associated guidelines document.

If you have any questions about this approval or the attached permit or any other groundwater permitting issues, please contact me at (603) 271-3918 or stephen.roy@des.nh.gov.

Sincerely,

Stephen Roy
Drinking Water and Groundwater Bureau

Attachments: Large Groundwater Withdrawal Permit No. LGWP-2010-0003
Project Narrative

Enclosures: Figure 11. Proposed Wellhead Protection Area
Electronic Data Reporting Program Letter and Guidelines Document

cc: David Hill, Don Moore, Stantec
Town of Pembroke
Shaun Dunn, Meeting House Water Company, Pembroke
Christine Bowman, Derek Bennett, Brandon Kernen, Robert Mann, Linda Thompson, Donna Jones, Johnna McKenna, George Hastings, Jennifer Thompson, Selina Makofsky, Deb McDonnell; NHDES (email)

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The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

May 7, 2010

Bill Klubben
Town of Bow
10 Grandview Road
Bow, NH 03304

RE: Town of Bow, New Water System
Large Groundwater Withdrawal Permit LGWP-2010-0003
New Annual Monitoring Report Submittal Requirements
Electronic Data Reporting Program

Dear Mr. Klubben:

The purpose of this letter is to further stipulate the format of the reporting requirement for the annual monitoring report associated with the Town of Bow's large groundwater withdrawal permit LGWP-2010-0003. Part of the annual monitoring report submitted to meet the conditions of your large groundwater withdrawal permit must be submitted in an electronic format. This electronic data reporting program will streamline the data management and handling process for permit holders; while enabling NHDES to optimize its data review, storage, retrieval and response process.

Dependent on observations made during the pumping test program for your permit, and the associated evaluation of potential impacts from the groundwater withdrawal, the annual monitoring report required to be submitted as a condition of your permit may include any combination of the following types of data records:

Item No.	Type of Record
1.	Water level measurements from: a. On-site production wells, b. On-site monitoring wells, c. Off-site monitoring wells, d. Off-site private wells, e. Shallow piezometers, and/or f. Staff gages installed in surface water features;
2.	Well operation schedules and withdrawal rates;
3.	Water quality results from various sampling locations;
4.	Annual wetland plot monitoring results;
5.	Weather records (precipitation amounts, temperature, barometric pressure, etc.);
6.	Stream flow measurements from weirs or other stream flow recorders;
7.	Figures, plots, graphs and summary tables of the recorded data over time that support the conclusions made as a result of the monitoring program; and
8.	Report text that describes trends, notes site-specific observations, and assesses the potential for adverse impacts based on all of the data collected.

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Telephone: (603) 271-2513 Fax: (603) 271-5171 TDD Access: Relay NH 1-800-735-2964

The electronic data reporting program described herein shall apply to ***water level related data only*** (i.e., those data listed under Item No. 1 above). Specifically, this reporting requirement applies to the 'raw' water level measurements collected to meet the conditions of your permit. Any other types of data recorded as part of your permit (like those listed in items No. 2 through 8) shall continue to be submitted with the annual monitoring report in accordance with the conditions of your permit. A detailed description of the data reporting file, its data fields, the acceptable format for each field, and a list of the monitoring points for which you should submit electronic data are provided in the attached guidelines document (see Table No. 2).

Please note that water level measurements collected as part of monitoring a wetland plot (e.g., from small-diameter hand-pushed piezometers), if required per the conditions of your permit, should not be submitted electronically as "water level data." You should continue to submit this data with your annual monitoring report, unless the monitoring point is listed in Table No. 2 in the guidelines document.

The electronic data reporting file described in the guidelines document is available for download at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/lg_withdrawals/index.htm by clicking on the "Electronic Data Reporting File Template" link in the "Forms/Applications" section. Please note that the electronic data files will be imported into a NHDES database. For this reason, observance of the prescribed file format is required. If electronic data files are submitted in an inconsistent format, you and/or your representative may be notified to reformat and resubmit the data files.

In addition to submitting water level data electronically to NHDES, please also submit an electronic copy of your entire annual monitoring report in Portable Document Format (PDF). If possible, the entire report should be included in one PDF file and not split between multiple PDF files; and, the PDF file should be optimized for web viewing. At a minimum, please ensure that the file size is as small as possible. At this time, please also continue to submit a hard copy (paper submittal) of your annual monitoring report to NHDES.

The electronic reporting requirements described above are effective as of the date of this letter, and shall apply to all future annual monitoring reports submitted to NHDES per the conditions of your large groundwater withdrawal permit. All electronic files should be submitted to me on CD, DVD, or via email (see address below).

Please feel free to contact me at (603) 271-8866 or christine.bowman@des.nh.gov or Stephen Roy at (603) 271-3918 or stephen.roy@des.nh.gov, with any questions you may have regarding these reporting requirements and any other questions you may have about the groundwater withdrawal permitting process.

Sincerely,

Stephen Roy
Drinking Water and Groundwater Bureau

Attachment: Electronic Data Reporting Guidelines

cc: David Hill, Don Moore; Stantec
Christine Bowman; NHDES

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LARGE GROUNDWATER WITHDRAWAL PERMIT
ELECTRONIC DATA REPORTING GUIDELINES
May 7, 2010

The following table is an example of the electronic data reporting file used to report water level-related data from field measurements or automated recording devices. The file entitled "LGWP_Electronic_Data_Reporting_File_Template.xls" is a spreadsheet in Microsoft Excel file format. The reporting file is provided in MS Excel spreadsheet format for your convenience only; however, using it is not a requirement. If data is submitted in a spreadsheet format, however, all data should be contained in one worksheet and not split between multiple worksheets. If a different product is used, then it must contain the same column header names shown below and be submitted as a "text" file with either comma- or tab-delimited variables.

Table 1. Example electronic data reporting file.

Stano	Station_Alias	Date	Water_Level_Depth	Comment	Depth_Method
18015	PW-3	7/3/2007 10:30	38.020	Ref pt=TOC	ELECTRIC-TAPE MEASUREMENT
18015	PW-3	7/18/2007 14:30	40.150	Ref pt=TOC	ELECTRIC-TAPE MEASUREMENT
18015	PW-3	7/23/2007 18:30	43.120	Ref pt=TOC	ELECTRIC-TAPE MEASUREMENT
18120	Map112Lot10	7/15/2007 10:30	81.025	Ref pt=TOC	TRANSDUCER
18120	Map112Lot10	7/15/2007 14:30	81.035	Ref pt=TOC	TRANSDUCER
19030	SG-2	7/3/2007 9:00	3.220	Ref pt=TOS	NON-RECORDING GAGE
19030	SG-2	8/3/2007 9:00	4.340	Ref pt=TOS	NON-RECORDING GAGE

The following are descriptions and data types for the columns shown in Table No. 1 above.

Stano: (short for Station Number) This is a unique, fixed number assigned to each water level monitoring location included in your large groundwater withdrawal permit. This number is assigned by DES and *can not be changed or edited.* As shown in the example above, this number needs to appear in each row that contains a water level measurement for a given location, and must be present in all electronic submittals. Table No. 2 below contains the DES-assigned station numbers for monitoring points included in your permit that shall be used in all future submittals.

Table.2. Station numbers and names assigned to your permit.

Station_Alias	Stano
PW-1	18246
OW-6	18247
OW-8	18248
OW-9	18249

Station_Alias: This column is a text string that, essentially, is a name for each water level monitoring location included in your large groundwater withdrawal permit. Its length can not exceed 256 *characters*. The names listed under the Station_Alias column header in Table No. 2 above were chosen based on names used in the permit application submitted for the withdrawal. You have the option of changing/editing the Station_Alias names shown above to something that is more convenient; however, please ensure that regardless of the name given to a monitoring location, its data is always assigned to its proper station number (Stano). For instances where water level monitoring in private water supply wells is required by your permit, DES suggests that the name of the private well owner *not* be included in Station_Alias; rather, tax map and lot or other identifier (e.g., WRB # [State Well ID #]) be used.

Date: As shown in Table No. 1, this data column shall be in the format of DATE TIME, where DATE is in the form of mm/dd/yyyy, and TIME is in the form of hh:mm and referenced to a 24-hour clock or "military" time, i.e. do not include an "AM" or "PM." Note also that there shall be one space between the DATE and TIME entries.

Water_Level_Depth: Water_Level_Depth is the depth to water in feet when measured from the reference point (z-positive downward). Common reference points are top-of-casing, top-of-stake or top-of-PVC, etc. Please note that if water levels are recorded electronically using a pressure transducer that operates in a different "mode" (for example, it records height of water column above the device, or water level referenced to a site-specific datum), the water level data will need to be transformed to depth to water from the reference point prior to reporting to DES.

The format of Water_Level_Depth is numeric and can be up to eight digits, with no more than three digits to the right of the decimal point. Note that the decimal point is not counted as a digit.

Please note that, if for some reason, water levels were not recorded at a monitoring location included in your permit due to access limitations, equipment malfunction, monitoring oversight, etc.; just describe and provide the reason for the absent data in the full-text portion of the annual report. ***Do Not*** input a non-numeric entry into this column like NM (not measured) or NR (not recorded) for absent data.

Comment: This column is a text column with space for up to 256 ***characters***. Comments can relate to any location-specific information necessary to qualify the depth to water measurement, and are based largely on the professional judgment of the individual data collector. Common comments include identification of a location's reference point for measurements, observed condition of the monitoring point when measurement was collected, noted problems with recording device when measurement was recorded, etc.

Depth_Method: This column is a text column and the following four entries are the **only valid entries allowed.** These entries are listed in the worksheet titled "Depth_Method List" in the provided spreadsheet.

- TRANSDUCER: for a water level measurement recorded with an electronic pressure transducer commonly installed in a well or piezometer.
- ELECTRIC-TAPE MEASUREMENT: for a water level measurement recorded with an electric water level tape measure in a well or piezometer. Commonly these tape measures are equipped with a metallic probe or tip that contains a conductivity-bridge circuit that chimes or beeps when submerged in water.
- NON-RECORDING GAGE: for a water level measurement recorded off of a calibrated staff/stream gage or non-marked stake installed in a surface water body. This entry is not commonly applicable to wells.
- OTHER: for all other water level measurement methods. Please describe the method in the **Comment** column.

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

August 12, 2011

David Stack, Town Manager
Town of Bow
~~10 Grandview Road~~
Bow, NH 03304

RE: Large Community Well Siting Approval for Back-Up Well PW-2
Town of Bow, New System
River Road Back-Up Well [PW-2]
Bow, New Hampshire

Dear Mr. Stack:

The New Hampshire Department of Environmental Services (NHDES) has issued to the Town of Bow (Bow) a conditional approval of one new large community production well (PW-2). This approval is based on a review of materials submitted to meet the requirements of New Hampshire Administrative Rules Env-Dw 302, *Large Production Wells for Community Water Systems*; Env-Wq 403, *Large Groundwater Withdrawals*; and RSA 485-C:22, *Exemptions for Large Groundwater Withdrawals from Replacement Wells*. The purpose of the subject well is to provide redundancy for Bow's primary production well, PW-1, which was approved by NHDES in a letter dated May 7, 2010 and has a permitted production volume of 1,008,000 gallons per day (gpd), or 700 gallons per minute (gpm) over a 24-hour period.

In reference to the materials submitted in support of Bow's well siting application for PW-2, NHDES offers the following:

- Results of the pumping test and associated water level and water quality monitoring indicate that PW-2 meets the definition of a replacement well (i.e., back-up well) and meets the exemption criteria for large groundwater withdrawals from replacement wells, in accordance with RSA 485-C:22.

CONDITIONAL APPROVAL

This decision to conditionally approve PW-2 is based on information contained in the following materials:

1. Submittal titled "Brief Work Plan - River Road Backup Well, Bow, New Hampshire" prepared for Bow by Wright-Pierce, dated February 2, 2011.

2. Final Report titled "Backup Large Production Well PW 2, Town of Bow, New Hampshire" prepared for Bow by Wright-Pierce, dated July 29, 2011.

The following requirements are associated with the approval of PW-2 for use as a large production well for a community water system and must be complied with as a condition of approval:

1) Bow must maintain a wellhead protection program (WHPP) for the Wellhead Protection Area (WHPA) of PW-2. The WHPA of the subject well is the same as the WHPA for PW-1 as shown in NHDES' records and database. The WHPP shall be the same as for PW-1, as described in condition No. 1 of NHDES' well siting approval for PW-1, dated May 7, 2010.

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2) NHDES approves a waiver of the requirements of Env-Dw 302.06(d) for the area of the 400-foot radius sanitary protective area (SPA) of PW-2 with an active power transmission corridor owned by PSNH, based on the Joint Use Agreement that was executed between Bow and PSNH on November 8, 2005. Note that compliance with SPA activities will be a checklist item during future sanitary surveys of the water system.

3) Bow shall instrument PW-2 with a pressure transducer and data logger to record groundwater levels continuously once the well is brought online.

4) Bow must implement and adhere to the conditions of their Large Groundwater Withdrawal Permit No. LGWP-2010-0003, issued by NHDES on April 15, 2010, and NHDES' conditional approval, dated May 6, 2010, of the Water Conservation Plan, dated September 29, 2009.

5) Withdrawals from PW-2 must be metered at all times. All meters must be selected, installed, tested, and maintained in accordance with the AWWA M6 manual as referenced in Env-Wq 2101. Bow must provide NHDES with a certificate of calibration and performance specifications for each meter. Bow must document and maintain records of all meter maintenance and calibration activities and submit this information to NHDES in the annual report required by condition No. 4c of their Large Groundwater Withdrawal Permit No. LGWP-2010-0003. Bow must read source water meters to adequately report the following volumes to the reporting program referenced in condition No. 6 of this approval:

   a. The 24-hour peak day volume withdrawn from the source during each month; and

   b. The cumulative total volume withdrawn from the source during each month.

6) Bow must register its new source of water with the NHDES Water Use Registration and Reporting Program and maintain the water use reporting requirements established by RSA 488 and this approval.

7) Bow shall adhere to the water quality monitoring requirements for PW-1; as described in condition No. 2a of NHDES' well siting approval for PW-1, dated May 7, 2010.

8) In accordance with Env-Dw 717.07(a), *Groundwater Monitoring and Treatment*, Bow must collect raw water samples from PW-2 and have the samples analyzed for *E. coli* using a method that provides enumeration. Sampling of raw water collected from the well shall be conducted for 6 consecutive months, with the first month's sample taken within 30 days prior to placing the source in service and providing water to the public. All raw water samples must be taken before any treatment. Results shall be reported to NHDES as part of the GWR-Investigative Monitoring required to demonstrate that the source water is free from fecal contamination and that 4-log treatment is not required. A special analysis request form for these samples is available linked to the water system's Master Sampling Schedule, which is available through the Public Water System Query on NHDES' One Stop Data and Information website at http://www2.des.state.nh.us/OneStop/Public_Water_Systems_Query.aspx.

9) Approval for PW-2 as a large production well for a community water system shall lapse four years from the date of this letter if the well is not connected to the water system within that time, in accordance with Env-Dw 302.24(e). If approval lapses, Bow must satisfy the requirements of Env-Dw 302.24(f) to regain approval.

SOURCE SPECIFICATIONS

Table 1, below, summarizes specifications for PW-2. The Permitted Production Volume is the maximum volume of groundwater allowed by NHDES to be pumped from the water supply production well in any 24-hour period. The Sanitary Protective Area is a circle, centered on the well, with the radius listed in Table 1.

Table 1

Source Name	Well Status	Permitted Production Volume	Sanitary Protective Area Radius	Wellhead Protection Area	Source Description
River Road Back-Up Well [PW-2]	New [back-up well to River Road Well PW-1]	1,008,000 gallons per 24-hour period[1]	400 feet	Same as for PW-1 [see condition No. 1 above]	Approximately 1,000 feet east of River Road

1 **NOTE: As PW-2 is a back-up well for PW-1, the permitted production volume of 1,008,000 gpd (or 700 gpm) is the maximum allowable cumulative volume of groundwater that can be pumped from the PW-1/PW-2 'well field' regardless if the wells are pumped jointly or individually.**

CHEMICAL MONITORING PROGRAM

A water quality sampling program was conducted as part of the well siting approval for PW-2. One comprehensive water quality sample was collected from PW-2 on May 17, 2011 near the end of the 5-day pumping period of the pumping test program. Two additional samples for the analysis of sodium, chloride, and MTBE were collected during the pumping test program after two and 72 hours of pumping. Results of the water quality sampling program indicate that each parameter, with the exception of manganese, pH and chloride, was below the applicable Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL).

The SMCL for manganese is 0.05 milligrams per liter (mg/l); testing results showed that the concentration of manganese in water derived from PW-2 equaled 0.051 mg/l. Based on the limited water quality data available from the pumping test programs of PW-1 and PW-2, the concentration of manganese derived from the well(s) may increase over time and treatment may be desired. The SMCL range for pH is 6.5 to 8.5; testing results showed that the water derived from PW-2 is slightly acidic and had a pH equal to 6.0 near the end of the pumping test program, which is less than the lower limit of the SMCL range. Sodium and chloride were also detected at elevated concentrations in water produced by PW-2 with chloride concentrations greater than (or near) the SMCL of 250 mg/l. MTBE was also detected in the well water at concentrations between 0.9 and 1.9 micrograms per liter (µg/l); ongoing monitoring of MTBE concentrations in groundwater derived from the site is required as part of the approval for PW-1 (see condition No. 7 above).

Results of the water quality sampling program also indicate that the concentration of radon is elevated in water derived from PW-2 (at 1,754 picocuries per liter [pCi/L]). Although there is currently no state- or federally-enforced drinking water standard for radon, NHDES recommends that Bow consider options for reducing the concentration of radon in the water supply (note that NHDES' current recommendation for the maximum radon concentration is 2,000 pCi/L).

You must notify NHDES when PW-2 becomes active by contacting Linda Thompson of the Drinking Water and Groundwater Bureau at (603) 271-3544 or linda.thompson@des.nh.gov. Once you notify NHDES that the well is active, Chemical Monitoring staff will contact you with an updated Master Sampling schedule. If you have any questions about the Chemical Monitoring requirements, contact Tricia Madore at (603) 271-3907 or tricia.madore@des.nh.gov. Please note that NHDES may initiate enforcement action if the system fails to implement a chemical monitoring program when the well becomes active.

CONNECTION REQUIREMENTS

Please note that the connection of the well to the water system and treatment facilities must comply with the requirements of New Hampshire Administrative Rules Env-Ws 374, *Design Standards For Large Public Water Systems.* Prior to connecting the well to the water system, provide a schematic depicting the source meter(s), chemical monitoring program sampling location, and any required treatment system, including the storage location of chemicals, chemical feed equipment, motor controls, and instrumentation. Please forward this information and any questions you may have regarding connecting the well to the water system to the attention of Daniel Dudley at NHDES at (603) 271-2953 or daniel.dudley@des.nh.gov.

EMERGENCY PLAN

Bow shall develop an emergency plan for the water system in accordance with New Hampshire Administrative Rules Env-Dw 302.26 and Env-Ws 360.15. This plan shall continue to be updated and submitted to NHDES once every 6 years and shall be reviewed annually by the system and updated as needed. As a new system, Bow shall submit an Emergency Plan with the water system design approval package referenced above, and must have an approved emergency plan in place prior to bringing the water system online. The plan, once in place, will be a checklist item during each sanitary survey of the water system and lack of an up-to-date plan will be a survey deficiency. Guidance documents and other emergency planning information and materials are available through the NHDES website located at http://des.nh.gov/organization/divisions/water/dwgb/index.htm [see 'Programs']. You may want to contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov for more information or assistance in completing emergency planning for the water system.

ELECTRONIC DATA REPORTING PROGRAM

Please note that groundwater level data collected per the following requirements shall be submitted annually to NHDES in an electronic format: 1) condition No. 3 of this approval; 2) condition No. 2b of NHDES' well siting approval for PW-1, dated May 7, 2010; and 3) section No. 4 of Bow's Large Groundwater Withdrawal Permit No. LGWP-2010-0003, issued on April 15, 2010. The requirements and specifications of the electronic data reporting program are summarized in the attached letter and associated guidelines document. Please note, these documents have been revised from those issued by NHDES as part of the approval for PW-1.

If you have any questions about this approval or any other groundwater permitting issues, please contact me at (603) 271-8866 or christine.bowman@des.nh.gov or Stephen Roy at (603) 271-3918 or stephen.roy@des.nh.gov.

Sincerely,

Christine Bowman, Drinking Water and Groundwater Bureau

Enclosures: Revised Electronic Data Reporting Program Letter and Guidelines Document

cc: Gary Smith, Wright-Pierce
Stephen Roy, Derek Bennett, Daniel Dudley, Johnna McKenna, Linda Thompson, Selina Makofsky, Donna Jones, Genevieve Al-Egaily; NHDES (email)

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From: Bowman, Christine
Sent: Thursday, June 20, 2013 1:49 PM
To: 'David L. Stack'
Cc: 'Bill Klubben'; 'sharkins@rhwhite.com'; Roy, Stephen; McKenna, Johnna; Morgan, Diana
Subject: Follow up to meeting on 19th - Wellhead Protection Program Requirements

Dave,

I am following up on our meeting yesterday, specifically in regard to the requirements of Bow's Wellhead Protection Program (WHPP) for the Wellhead Protection Area (WHPA) of Wells PW-1 and PW-2. Following is a summary of the items that must be completed to fulfill the requirements and maintain compliance with Bow's community well siting approvals.

1. Updating the potential contaminant source (PCS) inventory of the WHPA – Attached to this email, please find copies of the inventory compiled by Stantec in October 2009, and a current DES GIS inventory (the map I had at the meeting, with the associated report). Bow will have to put these two inventories together and perform a windshield survey of the WHPA to confirm the PCSs and identify any new ones. DES will update its GIS coverage of PCSs based on the information you provide in response to this item.

2. Completing written notification requirements to the owner of each PCS in the WHPA – Information about completing this requirement, including a sample letter and instructions, is available on DES' website at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/well_siting/index.htm. Scroll down to 'Technical Assistance' and under 'Wellhead Protection Program Materials' click on 'Large Systems.' **The mailing shall be completed no later than July 15, 2013.**

3. Best Management Practice (BMP) Training and Inspections – Please contact my colleague Diana Morgan at (603) 271-2947 or diana.morgan@des.nh.gov as soon as possible to finalize plans for receiving BMP inspection training. As we discussed in the meeting, given the number of facilities that will likely require inspection, you may wish to have multiple people trained. Diana is copied on this email and can help you facilitate training at businesses on your PCS inventory. Information about completing this requirement is also available on DES' website in the above-referenced document. Note that the PCS mailing should be completed first, as the letter includes language notifying businesses of the forthcoming inspections. **The inspections shall be completed no later than September 29, 2013 (90 days from July 1, 2013).**

In regard to the frequency of completing items No. 1 and 3 above, Bow originally proposed to complete them every 2 years and DES accepted this proposal and included it in Bow's community well siting approvals. However, in keeping in line with the requirements of Env-Dw 302.21 and DES' tracking of WHPP requirements for large community water systems, DES hereby changes the frequency to every 3 years.

In reference to Bow's catch basin and culvert inspection and maintenance program, please provide me an example copy of the form that is completed upon completion of cleaning/inspection.

If you have any questions, please feel free to call or email me.

Sincerely,

Christine

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Christine Bowman
Large Community Well Siting/Large Groundwater Withdrawal Permitting
Drinking Water and Groundwater Bureau
NH Department of Environmental Services
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APPENDIX 3-1

TABLE OF USE REGULATIONS
(SECTION 5.11 OF THE ZONING ORDINANCE)

Appendix 3-1

Permitted Uses by Zoning District in WHPA

Land Use	Permitted Uses in Zoning District*
Commercial	Hospitals; residential care facilities; social, fraternal clubs, lodges; municipal and public works facilities; essential public utilities and appurtenances; publicly owned recreation facilities; commercial outdoor recreational facility; indoor commercial recreational facility; movie theater or concert hall; golf courses; general professional, business, financial, or government offices; medical, dental, or health care offices; banks; retail sales and rental of goods and merchandise; personal and business services; hotels, motels, and inns; animal hospital; mortuary or funeral homes; auction and auction houses; restaurants; motor vehicle sales and rental up to 13,000 pounds GVW (gross vehicle weight); sales and installation of vehicle parts and accessories; motor vehicle repairs and maintenance; gasoline sales; car wash and truck wash; bus or train station; marina; sales of construction equipment and/or materials up to 15,000 square feet with no outdoor display or storage; laboratory or research facility; livestock; silviculture operations; commercial greenhouses including wholesale and retail sales; home occupation; cottage industry; accessory structures and facilities; grazing, care, raising, and/or keeping livestock for personal use; accessory dwelling units; storage and use of a registered boat, recreational vehicle, camping trailer, or motor vehicle; dwelling unit for resident caretaker or security personnel; farm or roadside stand; signs; and child day care center.
General Industrial District	Hospitals, residential care facility, libraries and museums, social, fraternal clubs and lodges; municipal and public works facilities, essential public utilities and appurtenances; home based day care, publicly owned recreation facility, commercial outdoor recreational facility; indoor commercial recreation facility; movie theater or concert hall; golf course; general professional, business, financial, or governmental offices; medical, dental, or health care offices; banks; retail sales and rental of goods and merchandise; personal and business services; hotels, motels, and inns; animal hospitals; mortuary or funeral homes; auction and auction houses; mini-storage; restaurants; motor vehicle sales and rental up to 13,000 pounds gross vehicle weight (GVW); sales and installation of vehicle parts and accessories; motor vehicle repairs and maintenance; gasoline sales; car wash and truck wash; motor or rail freight terminal; bus or train station; marina; manufacturing, processing, repairing, and assembling goods and merchandise; warehouse and storage of non-flammable, non-explosive goods; sales of construction equipment and/or materials with outdoor display and storage; contractor's yard or tradesman's shop; laboratory or research facility; livestock; silviculture operations; commercial greenhouses including wholesale and retail sales; home occupation; cottage industry; accessory structures and facilities; grazing, care, raising, and/or keeping of livestock for personal use; storage and use of a registered boat, recreational vehicle, camping trailer, or motor vehicle; dwelling unit for resident caretaker or security personnel; farm or roadside stand; signs; and child day care center.
Residential	The following are permitted uses in the Residential District: single family residential; duplex or two-family residential; housing for the elderly; planned open space residential development; home based day care; publicly owned recreation facility; livestock; silviculture operations; home occupation; accessory structures and facilities; grazing, care, raising, and/or keeping livestock for personal use; storage and use of a registered boat, recreational vehicle, camping trailer, or motor vehicle; farm or roadside stand; and signs.

Appendix 3-1
Permitted Uses by Zoning District in WHPA
(continued)

Rural	Single-family residential; duplex or two- family residential; housing for the elderly; manufactured housing subdivision; planned open space residential development; home-based day care; publicly owned recreation facility; agriculture; horticulture; livestock; silviculture operations; home occupations; accessory structures and facilities; grazing, care, raising, and/or keeping of livestock for personal use; storage and use of a registered boat, recreational vehicle, camping trailer, or motor vehicle; farm or roadside stand; and signs.
* Additional uses are permitted with a special exception.	

Notes:

Source: 2004 Bow Master Plan, Current Land Use chapter

ZONING ORDINANCE

TOWN of BOW, NEW HAMPSHIRE

Article 15. Business Development District
and
Article 16 Impact Fee Ordinance and Methodology Reports

ARE PUBLISHED SEPARATELY

ADOPTED AND REVISED THROUGH MARCH, 2015

use permits if so required. Where multiple structures containing dwelling units are permitted on a single lot, each structure containing dwelling units shall meet minimum lot size requirements as if it were on a separate lot. Where approved by Site Plan Review, each structure on such lot need not meet frontage requirements as if it were on a separate lot.

5.11 Table of Use Regulations

In the Base Districts as established in Article 4, ESTABLISHMENT OF ZONING DISTRICTS AND ZONING MAP, of this Ordinance, no building, structure or land shall be used or occupied except as set forth in the following Table of Use Regulations, subject to all other provisions and standards of this Ordinance, and other local, state, and federal laws, rules and regulations. The Table of Use Regulations is divided into two parts, one for principal uses, and the other for accessory uses.

PRINCIPAL USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
A. RESIDENTIAL										
1. Single Family	P	P	P	-	-	-	-	-	-	
2. Duplex or Two-Family	P	P	-	-	-	-	-	-	-	Section 7.05
3. Multi-Family	S	S	-	-	-	-	-	-	-	Section 7.05
4. Housing for the Elderly	P	P	P	-	-	-	P	-	-	Section 7.05
5. Manufactured Housing Park	C	-	-	-	-	-	-	-	-	Section 7.03
6. Manufactured Housing Subdivision	P	-	-	-	-	-	-	-	-	Section 7.03
7. Boarding or Rooming House	S	S	S	-	-	-	-	-	-	
8. Open Space Residential Development	P	P	P	-	-	-	-	-	-	Section 7.02
B. PUBLIC AND INSTITUTIONAL										
1. Churches	S	S	S	S	S	S	S	S	S	
2. Public or Private Schools	S	S	S	S	S	S	S	S	P	
3. Hospitals	-	-	-	P	P	P	-	P	P	
4. Residential Care Facility	S	S	S	P	P	P	P	P	P	RSA 151:2 I (e)
5. Child Day Care Center	-	-	-	S	S	S	P	P	P	Section 7.08
6. Adult Day Care Facility	-	-	-	S	S	S	-	S	P	RSA 151:2 I (f)
7. Libraries and Museums	-	-	-	S	P	P	P	P	P	
8. Social, Fraternal Clubs and Lodges	-	-	-	P	P	P	S	S	P	
9. Municipal & Public Works Facilities	S	S	S	P	P	P	P	P	P	
10. Cemeteries	S	S	S	S	S	S	S	S	S	
11. Essential Public Utilities and Appurtenances	S	S	S	P	P	P	P	P	P	Section 7.12
12. Home Based Day Care (see RSA 672:1V-a)	P	P	P	S	S	S	S	S	S	

PRINCIPAL USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
C. RECREATION AND ENTERTAINMENT										
1. Publicly Owned Recreation Facility	P	P	P	P	P	P	P	P	P	
2. Commercial Outdoor Recreational Facility	S	S	S	P	P	P	-	-	P	
3. Indoor Commercial Recreational Facility	-	-	-	P	P	P	C	-	P	
4. Movie Theater or Concert Hall	-	-	-	P	P	P	S	S	P	
5. Campgrounds or Youth Camps	S	-	-	-	-	-	-	-	-	Section 7.21
6. Golf Courses	S	S	S	S	S	S	-	-	S	
D. OFFICES										
1. General Professional, Business, Financial, or Government Offices	-	-	-	P	P	P	P	P	P	
2. Medical, Dental or Health Care Offices	-	-	-	P	P	P	P	P	P	
3. Banks	-	-	-	P	P	P	P	P	P	

Legend of Districts

RU	=	Rural
R	=	Residential
R-1	=	Residential One Family
C	=	Commercial
CV	=	Civic
I-1	=	Limited Industrial
I-2	=	General Industrial
IN	=	Institutional
BD	=	Business Development

Legend of Uses

dash	=	Not permitted
C	=	Conditional Use Permit required
P	=	Permitted Use
S	=	Special Exception required

PRINCIPAL USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
E. COMMERCIAL										
1. Retail Sales and Rental of Goods and Merchandise										
a. Less than 6000 SF of floor area	-	-	-	P	P	P	P	P	P	
b. No floor area limit	-	-	-	P	P	P	S	S	P	
2. Personal and Business Services	-	-	-	P	P	P	P	P	P	
3. Hotels, Motels, and Inns	-	-	-	P	P	P	S	S	P	
4. Animal Hospital	-	-	-	P	P	P	-	-	P	Section 7.09
5. Commercial Kennels	-	-	-	S	S	S	P	P	S	Section 7.09
6. Mortuary or Funeral Homes	-	-	-	S	-	S	-	S	S	
7. Auction and Auction Houses	-	-	-	P	P	P	S	S	P	
8. Mini-Storage	-	-	-	S	P	P	-	-	P	
F. RESTAURANTS										
1. Within a fully enclosed structure	-	-	-	P	P	P	P	P	P	
2. With service outside	-	-	-	P	S	P	S	S	P	

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PRINCIPAL USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
G. AUTOMOTIVE & TRANSPORTATION										
1. Motor Vehicle Sales and Rental	-	-	-	P	S	S	-	-	S	
2. Sales and Installation of Vehicle Parts and Accessories	-	-	-	P	S	P	-	-	P	
3. Motor Vehicle Repairs and Maintenance	-	-	-	P	P	P	-	-	P	
4. Gasoline Sales	-	-	-	P	P	S	-	-	S	
5. Car Wash and Truck Wash	-	-	-	P	P	S	S	S	S	
6. Motor or Rail Freight Terminal	-	-	-	S	P	P	-	-	P	
7. Bus or Train Station	-	-	-	P	P	P	-	-	P	
8. Sales or Rental of Recreational Vehicles, Camping Trailers, or Boats, including Servicing & Repair	-	-	-	P	S	S	-	-	S	
9. Marina (including the servicing and repair of boats)	-	-	-	P	P	P	-	-	P	
10. Heliport and Airstrip	-	-	-	S	S	S	S	S	S	Section 7.19

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PRINCIPAL USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
H. INDUSTRIAL										
1. Manufacturing, Processing, Repairing, and Assembling Goods and Merchandise	-	-	-	S	P	P	-	-	P	Section 7.12
2. Warehousing and Storage of Non-Flammable, Non-Explosive Goods	-	-	-	S	P	P	-	-	P	Section 7.12
3. Bulk Storage of Fuels, Chemicals, or Flammable Materials	-	-	-	-	S	S	-	-	S	Section 7.12
4a. Sales of Construction Equipment and/or Materials with Outdoor Display or Storage	-	-	-	S	-	P	-	-	P	
4b. Sales of Construction Equipment and/or Materials up to 15,000 SF with no Outdoor Display or Storage	-	-	-	P	P	P	-	-	P	
5. Materials Recycling Center	-	-	-	-	S	S	-	-	S	
6a. Removal and Excavation of Earth Materials	S	-	-	-	S	S	-	-	S	Section 7.14
6b. Minor / Pre-development Excavation of Earth Materials	C	C	C	C	C	C	C	C	C	Section 7.14
7. Processing of Earth Materials	-	-	-	-	S	S	-	-	S	
8. Planing Mill or Sawmill	S	-	-	-	-	S	-	-	S	Section 7.13
9a. Contractor s Yard	-	-	-	-	-	P	-	-	S	
9b. Tradesman s Shop	-	-	-	P	P	P	-	-	P	
10. Laboratory or Research Facility	-	-	-	P	P	P	-	-	P	
11. Junk Yard	-	-	-	-	-	S	-	-	S	Section 7.17
12. Commercial Electricity Generation	-	-	-	S	S	P	S	S	P	

PRINCIPAL USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
I. AGRICULTURAL										
1. Farming and Agricultural Operations										
a. Agricultural	P	S	S	S	S	S	S	S	S	
b. Horticultural	P	S	S	S	S	S	S	S	S	
c. Livestock	P	P	P	-	-	-	-	-	-	Section 7.18
2. Silvicultural Operations	P	P	P	P	P	P	P	P	P	
3. Stables and Equestrian Facilities	C	S	S	-	-	-	-	-	-	Section 7.18
4. Commercial Greenhouses including Wholesale and Retail Sales	S	S	S	P	P	P	-	-	P	
J. MISCELLANEOUS										
1. Condominium Conversion	S	S	S	S	S	S	S	S	S	
2. Radio or Television Tower or Antenna or Personal Wireless Service Facility	C	C	C	C	C	C	C	C	C	Section 7.10
3. Sexually Oriented Businesses	-	-	-	-	-	C	-	-	-	Section 7.11

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ACCESSORY USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
A. RESIDENTIAL										
1. Home Occupation	P	P	P	P	P	P	P	P	P	Section 7.06
2. Cottage Industry	S	S	S	P	P	P	P	P	P	Section 7.07
3. Storage of Equipment / Surplus Associated with an Off-Premise Occupation	S	S	S	S	S	S	-	-	S	
4. Accessory Structures and Facilities including but not limited to Tool Sheds, Greenhouses, Swimming Pools, and Tennis Courts	P	P	P	P	P	P	P	P	P	Section 7.15
5. Grazing, Care, Raising, and/or Keeping of Livestock for Personal Use	P	P	P	P	S	S	S	S	S	Section 7.18
6. Accessory Dwelling Units	P	S	S	P	S	S	S	-	-	Section 7.04
7. Home Based Day Care (RSA 672:1 V-a)	P	P	P	P	P	P	P	P	P	Section 7.08
8. Storage and Use of a Registered Boat, Recreational Vehicle, Camping Trailer, or Motor Vehicle	P	P	P	P	P	P	P	P	P	Section 7.17
B. NON-RESIDENTIAL										
1. Drive In or Drive Through	-	-	-	S	S	S	S	S	S	
2. Dwelling Unit for Resident Caretaker or Security Personnel	-	-	-	S	S	S	S	S	S	Section 7.26
3. Farm or Roadside Stand	P	P	P	P	P	P	-	-	P	Section 7.15

ACCESSORY USES	DISTRICTS RU	R	R-1	C	I-1	I-2	CV	IN	BD	Supplementary Regulations Reference
C. RESIDENTIAL AND NON-RESIDENTIAL										
1. Signs	P	P	P	P	P	P	P	P	P	Article 8
2. Child Day Care Center	S	S	S	P	P	P	P	P	P	Section 7.08
3. Small Wind Energy Systems	P	P	P	P	P	P	P	P	P	Section 7.25
4. Small Electricity Generation	P	P	P	P	P	P	P	P	P	

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APPENDIX 4-1

TOWN OF BOW AQUIFER PROTECTION ORDINANCE

ARTICLE 4. ESTABLISHMENT OF DISTRICTS AND ZONING MAP

4.01 Establishment of Districts and Statement of Purpose of Each

A. Base Districts

All of the land in the Town of Bow is hereby divided into the following Base Districts for the purposes so stated, and as shown on the Official Zoning Map (Section 4.02A):

1. Rural (RU) District - The Rural District is designed to accommodate a range of residential uses at low densities in a rural environment where sewer service is not available or anticipated, as indicated in the Master Plan, Agriculture, forestry, recreation, and other low intensity uses are permissible in the RU District.

2. Residential (R) District - The Residential District is designed to accommodate a range of residential uses at low densities in areas where sewer service is available or the extension of such is anticipated at some future time, as indicated in the Master Plan.

3. Residential One Family (R-1) District - The Residential One District is designed to accommodate one-family residential uses at low densities.

4. Commercial (C) District - The Commercial District is designed to allow a broad range of commercial uses including retail, service, offices, restaurants, recreational, institutional, and transportation-related uses in areas along arterial roads where sewer service is available or the extension of such is anticipated at some future time, as indicated in the Master Plan.

5. Limited Industrial (I-1) District - The Limited Industrial District is intended to accommodate office and industrial uses in areas where sewer service is available or the extension of such is anticipated at some future time, as indicated in the Master Plan.

6. General Industrial (I-2) District - The General Industrial District is designed to include offices and industrial uses, and some limited commercial uses, in an area in which the extension of sewer service is anticipated at some future time, as indicated in the Master Plan.

7. Civic (CV) District - The Civic District is intended to define a town center which will accommodate institutional office uses together with small retail and service uses in an area where sewer service is available or the extension of such is anticipated at some future time, as indicated in the Master Plan.

8. Institutional (IN) District - The Institutional District is designed to accommodate office and institutional uses in an area where sewer service is available.

9. Business Development (BD) District [ARTICLE 16 PUBLISHED SEPARATELY] - The purpose of the Business Development District Ordinance is to attract

environmentally acceptable commercial, industrial, recreational, and institutional uses to the District; to encourage diversity in the community tax base through appropriate flexibility in land use and land use development; to optimize financial return on public infrastructure investments and expenditures, including municipal sewer, municipal water supply, and public highways; to minimize adverse traffic impacts on Route 3-A, future interstate highway interchanges, and surrounding local streets and roadways; and to preserve valuable historical, cultural, and natural features within the District and to minimize adverse environmental impacts to water and air, while reducing light and noise pollution, flooding, clear cutting of vegetation, and the blocking of scenic views.

B. Overlay Districts

Certain lands within the Town of Bow are hereby included in the following Overlay Districts for the purposes so stated, and as shown on the Official Zoning Map (Section 4.02A). The Overlay Districts are superimposed upon the Base Districts so that the regulations pertaining to the Overlay Districts shall be in addition to the regulations of the Base Districts such that land so encumbered may be used if and to the extent that such use is permitted in the applicable Base and Overlay Districts. Where regulations differ between the Base and Overlay Districts, the regulations that are more restrictive or impose the higher standards shall control.

1. Wetlands Conservation (WC) District - The purpose of the Wetlands Conservation District, in the interest of the public health and welfare, is to protect and regulate the use of wetlands and wetland buffer areas in the Town of Bow. The WC District is intended to:

   a. Control the development of structures and land uses within the WC District that would contribute to the pollution of surface waters and groundwater;

   b. Prevent the destruction of wetlands which provide flood protections, ground water recharge, pollution abatement, and the augmentation of stream flow during dry periods, and which are important for such other reasons cited in RSA 482-A:1;

   c. Prevent unnecessary or excessive expenses to the Town to provide and maintain essential services and utilities which arise because of unwise use of water resources;

   d. Encourage those uses that can be appropriately and safely located in the WC District;

   e. Protect potential water supplies and existing aquifers (water bearing stratum) and aquifer recharge areas;

   f. Preserve and enhance those aesthetic values associated with the Surface Waters and Wetlands of the Town;

   g. Protect wildlife habitats and maintain ecological balances; and

h. Protect unique and unusual natural areas.

2. Floodplain (F) District - Certain areas of the Town of Bow, New Hampshire are subject to periodic flooding, causing serious damages to properties within these areas. Relief is available in the form of flood insurance as authorized by the National Flood Insurance Act of 1968. Therefore, the Town of Bow, New Hampshire has chosen to become a participating community in the National Flood Insurance Program, and agrees to comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended) as detailed in this Floodplain Management Ordinance.

   The Floodplain District is established for the following purposes:

   a. To reduce the hazards of floods upon the public health, safety, and welfare;

   b. To protect floodplain occupants from a flood that is or may be caused by their own land use;

   c. To protect the public from the burden of extraordinary financial expenditures for flood control and relief; and

   d. To protect the capacity of floodplain areas to absorb, transmit, and store runoff.

3. Aquifer Protection (AP) District - The Aquifer Protection District is established for the following purposes:

   a. To preserve and maintain the existing and potential groundwater supplies, aquifers, and groundwater recharge areas of the Town, and protect them from adverse development or land-use practices;

   b. To preserve and protect present and potential sources of drinking water supply for the public health and safety; and

   c. To conserve the natural resources of the Town of Bow.

4.02 Zoning Map

A. Official Zoning Map

The Official Zoning Map shall consist of a set of maps that, taken together, display the boundaries of all of the Districts within the Town of Bow. Individual maps that comprise the Official Zoning Map are as follows:

1. The Zoning Map of the Town of Bow, N.H., displays the boundaries of all of the Base Districts.

2. The Bow Wetlands Map displays the approximate boundaries of prime and other major wetlands within the Wetlands Conservation (WC) District.

3. The Flood Insurance Rate Map (FIRM) as published by the Federal Emergency Management Agency for the National Flood Insurance Program, effective on April 19, 2010 (adopted by Board of Selectmen on March 9, 2010 - Resolution 2010-1), display the boundaries of, and special limits within, the Floodplain (F) District.

4. The Aquifer Protection (AP) District is displayed on Aquifer Map of Bow New Hampshire produced by Cartographic Associates, Inc (CAI). The map is overlaid on the Town Tax Map composite which is annually updated by CAI. The location and extent of aquifers in Bow was taken from Town of Bow, New Hampshire Proposed Aquifer Protection Overlay District Map as shown in the Bow Master Plan Future Land Use Chapter, produced by Central NH Regional Planning Commission, September 2004. The Commission drew the aquifer information from Geohydrology and Water Quality of Stratified-Drift Aquifers in the Upper Merrimack River Basin, South-Central New Hampshire by US Geological Survey 95-4123 and from Aquifer Evaluation Investigation and Development of Groundwater Protection Program Bow, New Hampshire by SEA Consultants Inc, 1987. In addition, the AP District shall include the area on the map identified as Proposed Wellhead Protection Area on Figure 11 of the October 16, 2009 Final Report for Large Production Well for Community Water System (Env-Ws 302 Final Report & Env-Ws 388 Large Withdrawal Permit application River Road Well) by Stantec Consulting Services, Inc, such map having been overlaid on the Town Tax Map composite by the Central NH Regional Planning Commission in October 2010 and included as Figure 3-1 of the Well Head Protection Program Implementation Plan approved by the Board of Selectmen on September 27, 2011. The Aquifer Protection Overlay District Map is hereby adopted as part of this Ordinance and is on file at the Bow Municipal Building.

B. Amendments to the Official Zoning Map

Whenever amendments are adopted that change District boundaries, whether a Base or Overlay District, the Official Zoning Map shall be revised to reflect such amendments, and the date of adoption shall be duly noted on said Map.

C. Interpretation of District Boundaries

1. The location of District boundaries shall be as shown on the Official Zoning Map or as otherwise described in this Ordinance.

2. Where any uncertainty exists with respect to the boundary of any District as shown on the Official Zoning Map, the following rules shall apply:

   a. Where a boundary is indicated as a highway, street, alley, railroad, watercourse or Town Boundary, it shall be construed to be the centerline thereof or such Town Boundary;

   b. Where a boundary is indicated as approximately parallel to a highway, street, alley, railroad, watercourse or Town Boundary, it shall be construed as parallel thereto and such distance from the centerline thereof as shown on the Official Zoning Map;

c. If no dimension is given on the Official Zoning Map, the location of any boundary shall be determined by use of the scale shown on the Official Zoning Map.

d. Where a boundary coincides within ten (10) feet or less with a lot line, the boundary shall be construed to be the lot line; and

e. All boundary questions not covered by (a) through (d) above shall be resolved by the Board of Adjustment.

10.03 Aquifer Protection (AP) District

Definition Section (applicable to the AP District)

Aquifer - a geologic formation composed of rock, sand, or gravel that contains significant amounts of potentially recoverable water.

Gasoline station - means that portion of a property where petroleum products are received by tank vessel, pipeline, tank car, or tank vehicle and distributed for the purposes of retail sale.

Groundwater - subsurface water that occurs beneath the water table in soils and geologic formations.

Impervious - not readily permitting the infiltration of water.

Impervious surface - a surface through which regulated substances cannot pass when spilled. Impervious surfaces include concrete unless unsealed cracks or holes are present. Asphalt; earthen, wooden, or gravel surfaces; or other surfaces which could react with or dissolve when in contact with the substances stored on them are not considered impervious surfaces.

Junkyard - a place as defined in RSA 236:112, I.

Outdoor storage - storage of materials where they are not protected from the elements by a roof, walls, and a floor with an impervious surface.

Petroleum bulk plant (up to 20,000 gal/day) or terminal (over 20,000 gal/day) - means that portion of the property where petroleum products are received by tank vessel, pipeline, tank car, or tank vehicle and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel, pipeline tank car, tank vehicle, portable tank, or container.

Public water system - a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Regulated substance - petroleum, petroleum products, and substances listed under 40 CFR 302, current edition, excluding the following substances: (1) ammonia, (2) sodium hypochlorite, (3) sodium hydroxide, (4) acetic acid, (5) sulfuric acid, (6) potassium hydroxide, (7) potassium permanganate, and (8) propane and other liquefied fuels which exist as gases at normal atmospheric temperature and pressure.

Sanitary protective radius - The area around a public water supply well which must be maintained in its natural state as required by Env-Dw 301 or Env-Dw 302 (for community water systems); Env-Dw 372.12 and Env-Dw 372.13 (for other public water systems).

Secondary containment - a structure such as a berm or dike with an impervious surface which is adequate to hold at least 110% of the volume of the largest regulated substances

container that will be stored there.

Solid Waste Landfill - a facility as defined in Env-Sw 103.32.

Stratified-drift aquifer - A geologic formation of predominantly well-sorted sediment deposited by or in bodies of glacial meltwater, including gravel, sand, silt, or clay, which contains sufficient saturated permeable material to yield significant quantities of water to wells.

Surface water - those portions of waters of the state as defined by RSA 485-A:2, XIV.

Waste-water or Septage Lagoon - a place where industrial waste, septage, or sewage, as defined in RSA 485-A:2, VI, IX-a, & X, is stored and / or treated, as regulated by Env-Wq 700 (see 702.36 & 710.06 - 13) and Env-Wq 1600 (see 1602.23)

Wellhead protection area - The surface and subsurface area surrounding a water well or wellfield supplying a community or non-transient non-community public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield.

A. Authority for the AP District

The AP District is adopted pursuant to Section 1.03, Authority, of this Ordinance, and in accordance with the provisions of RSA 674:21, Innovative Land Use Controls. The AP District is considered to be an innovative land use control as environmental characteristics zoning. Within the AP District, the Planning Board is authorized to administer and grant conditional use permits in accordance with Article 12, Conditional Use Permits, of this Ordinance.

B. Establishment of the AP District

1. The AP District is established in accordance with, and for the purposes so stated in Section 4.01, Establishment of Districts and Statement of Purpose of Each, of this Ordinance, and encompasses lands as indicated in Section 4.02, Zoning Map, of this Ordinance.

2. If new data on local hydrogeology and topography, acceptable to the Planning Board, would lead to a different location of the boundary of the AP District, the Planning Board upon application shall grant a conditional use permit, thereby deeming the revised boundary location to be the correct legal boundary for purposes of this Section. Upon request of an applicant, the Planning Board may engage a licensed professional engineer or hydrogeologist, at the applicant's expense, to conduct such a boundary analysis or, in the alternative, the applicant may retain a licensed engineer or hydrologist acceptable to the Planning Board to conduct such analysis.

C. Applicability

This Ordinance applies to all uses in the Aquifer Protection District, except for those uses exempt under Section I. Exemptions of this Ordinance.

D. Performance Standards

The following Performance Standards apply to all uses in the Aquifer Protection District unless exempt under Section I. Exemptions:

1. For any use that will render impervious more than 15% or more than 2,500 square feet of any lot, whichever is greater, a stormwater management plan shall be prepared which the planning board determines is consistent with New Hampshire Stormwater Manual, December 2008, Volumes II and III.

2. Conditional uses, as defined under Section G. Conditional Uses shall have a current National Pollutant Discharge Elimination System permit or develop stormwater management and pollution prevention plans and include information consistent with Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices. (US EPA, 1992) The plan shall contain provisions to:

   a. Minimize the release of regulated substances into stormwater, through a source control plan that identifies pollution prevention measures;

   b. Prevent recharge to groundwater that will result in violation of Ambient Groundwater Quality Standards (Env-Wq 402.06) at the property boundary;

   c. Stipulate that expansion or redevelopment activities shall require an amended stormwater plan and may not infiltrate stormwater through areas containing contaminated soils. The applicant may submit a Phase I Assessment in conformance with ASTM E 1527-05, also referred to as All Appropriate Inquiry (AAI) to demonstrate that such infiltration will not result in a violation of Ambient Groundwater Quality Standards.

3. Animal manures, fertilizers, and compost must be stored in accordance with Manual of Best Management Practices for Agriculture in New Hampshire, NH Department of Agriculture, Markets, and Food, June 2011 and any subsequent revisions;

4. All regulated substances stored in containers with a capacity of 5 gallons or more must be stored in product-tight containers on an impervious surface designed and maintained to prevent flow to exposed soils, floor drains, and outside drains;

5. Facilities where regulated substances are stored must be secured against unauthorized entry by means of a door and/or gate that is locked when authorized personnel are not present and must be inspected weekly by the facility owner;

6. Outdoor storage areas for regulated substances, associated material or waste must be protected from exposure to precipitation and must be located at least 50 feet from surface water or storm drains, at least 75 feet from private wells, and outside the

sanitary protective radius of wells used by public water systems;

7. Secondary containment must be provided for outdoor storage systems for regulated substances if an aggregate of 275 gallons or more of regulated substances are stored outdoors on any particular property. Secondary containment shall also be provided for outdoor conveyance systems;

8. Containers in which regulated substances are stored must be clearly and visibly labeled and must be kept closed and sealed when material is not being transferred from one container to another;

9. Prior to any land disturbing activities, all inactive wells on the property, not in use or properly maintained at the time the plan is submitted, shall be considered abandoned and must be sealed in accordance with We 604 of the New Hampshire Water Well Board Rules;

10. Disposal of stumps is permitted for same site disposal of stumps generated on site where a minimum separation of four feet (4') is maintained between stumps and estimated seasonal high water.

E. Permitted Uses

All uses permitted by right or allowed by special exception in the underlying district are permitted in the Aquifer Protection District unless they are Prohibited Uses or Conditional Uses. All uses must comply with the Performance Standards unless specifically exempt under Section I. Exemptions.

F. Prohibited Uses

The following uses are prohibited in the Aquifer Protection District.

1. The establishment of a hazardous waste disposal facility as defined under RSA 147-A;

2. The establishment of a Solid Waste Landfill;

3. The outdoor storage of road salt or other deicing chemicals in bulk, except for use on the site on which it is stored;

4. The establishment of a Junkyard;

5. Disposal of snow or ice, which is cleared from roadways and/or motor vehicle parking areas, from another lot or parcel;

6. The establishment of a Wastewater or Septage Lagoon, except for discharge to the ground approved by NHDES for treatment of groundwater;

7. The establishment of a petroleum bulk plant or terminal;

8. The establishment of gasoline stations;

9. The disposal of sewage sludge or biosolids.

G. Conditional Uses

An Aquifer Protection Conditional Use Permit (CUP) is subject to the provisions of Article 12 of this Ordinance, except where modified below. The Planning Board may grant a CUP for a use that is otherwise permitted within the underlying district, if the permitted use is involved in one or more of the following:

1. Storage, handling, and use of regulated substances in quantities exceeding 100 gallons or 800 pounds dry weight at any one time, provided that an adequate spill prevention, control and countermeasure (SPCC) plan is approved by the local Fire Department;

   a. The Spill Prevention, Control and Countermeasure (SPCC) Plan shall be submitted to the Fire Chief who shall determine whether the plan will prevent, contain, and minimize releases from ordinary or catastrophic events such as spills, floods or fires that may cause large releases of regulated substances. It shall include:

   (1) A description of the physical layout and a facility diagram, including all surrounding surface waters and wellhead protection areas.

   (2) Contact list and phone numbers for the facility response coordinator, cleanup contractors, and all appropriate federal, state, and local agencies who must be contacted in case of a release to the environment.

   (3) A list of all regulated substances in containers of 55 gallons or greater in use and locations of use and storage;

   (4) A prediction of the direction, rate of flow, and total quantity of regulated substance that could be released where experience indicates a potential for equipment failure.

   (5) A description of containment and/or diversionary structures or equipment to prevent regulated substances from infiltrating into the ground.

2. The expansion of a Solid Waste Landfill;

3. The expansion of outdoor operations of a Junkyard;

4. The expansion of a Wastewater or Septage Lagoon;

5. The expansion of a petroleum bulk plant or terminal;

6. The expansion of a gasoline station; and

7. The expansion of any other non-conforming use.

For Aquifer Protection CUP applications that involve development subject to Site Plan Review approval, the application shall be subject to Section 12.02 A of this Ordinance.

For all other Aquifer Protection CUP applications, the activity or development subject to CUP approval shall be accurately sketched on a copy of the recorded site plan or plan of similar reliability. Six full scale copies and one copy reduced to 11" X 17" paper shall be submitted. For Aquifer Protection CUP applications for which a recorded site plan is not available, six copies of a legible, accurate sketch of the activity or development subject to CUP approval and existing improvements shall be submitted. At least one copy shall be reduced to 11" X 17" paper.

In granting such approval the Planning Board must first determine that the proposed use is not a new prohibited use and will be in compliance with Section D. Performance Standards as well as all applicable local, state and federal requirements. The Planning Board may, at its discretion, require a performance guarantee or bond, in an amount and with surety conditions satisfactory to the Board, to be posted to ensure completion of construction of any facilities required for compliance with the Performance Standards.

H. Existing Nonconforming Uses

Existing nonconforming uses may continue without expanding or changing to another nonconforming use, unless allowed by CUP, but must be in compliance with all applicable state and federal requirements, including Env-Wq 401, Best Management Practices Rules.

I. Exemptions

The following uses are exempt from the specified provisions of this ordinance as long as they are in compliance with all applicable local, state, and federal requirements:

1. Any private residence is exempt from all Performance Standards;

2. Any business or facility where regulated substances are stored in containers with a capacity of 5 gallons or less is exempt from Section D. Performance Standards 5 through 8;

3. Storage of heating fuels for on-site use or fuels for emergency electric generation, provided that storage tanks are indoors on a concrete floor or have corrosion control, leak detection, and secondary containment in place, is exempt from Section D. Performance Standards 5;

4. Storage of motor fuel in tanks attached to vehicles and fitted with permanent fuel lines to enable the fuel to be used by that vehicle is exempt from Section D. Performance Standards 5 through 8;

5. Storage and use of office supplies is exempt from Section D. Performance Standards 5 through 8;

6. Temporary storage for up to one year of construction materials on a site where they are to be used is exempt from Section D. Performance Standards 5 through 8;

7. The sale, transportation, and use of pesticides as defined in RSA 430:29 XXVI are exempt from all provisions of this ordinance;

8. Household hazardous waste collection projects regulated under Env-Hw 401.03(b)(1) and 501.01(b) are exempt from Section D. Performance Standards 5 through 8;

9. Underground storage tank systems and aboveground storage tank systems that are in compliance with applicable state rules are exempt from inspections under Section K. Maintenance and Inspection of this ordinance.

J. Relationship between State and Local Requirements

Where both the State and the municipality have existing requirements the more stringent shall govern.

K. Maintenance and Inspection

1. For uses requiring planning board approval for any reason, a narrative description of maintenance requirements for structures required to comply with Performance Standards shall be recorded so as to run with the land on which such structures are located, at the Registry of Deeds for Merrimack County. The description so prepared shall comply with the requirements of RSA 478:4-a.

2. Inspections may be required to verify compliance with Performance Standards. Such inspections shall be performed by the Building Inspector or designee at reasonable times with prior notice to the landowner.

3. All properties within the Aquifer Protection District known to the Building Inspector or designee as using or storing regulated substances in containers with a capacity of 5 gallons or more, except for facilities where all regulated substances storage is exempt from this Ordinance under Section I. Exemptions, shall be subject to inspections under this Article.

4. The Town may require a fee for compliance inspections. The fee shall be paid by the property owner. A fee schedule shall be established by the Board of Selectmen as provided for in RSA 41-9:a.

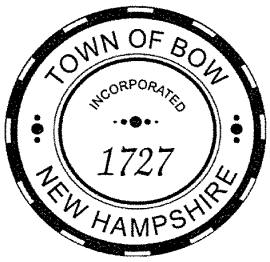
L. Enforcement Procedures and Penalties

Any violation of the requirements of this ordinance shall be subject to the enforcement procedures and penalties detailed in **14.07 Violations**.

M. State Rules, Regulations, and Statutes
The applicability of State Rules, Regulations, and Statutes shall be as amended from time to time.

APPENDIX 4-2

TOWN OF BOW WINTER MAINTENANCE POLICY



TOWN OF BOW NH

WINTER MAINTENANCE POLICY

Adopted: NOVEMBER 1997
Updated: DECEMBER 2008
Updated: NOVEMBER 2010
Updated: OCTOBER 2015 and APPROVED 10-27-15 SELECTMEN

OBJECTIVE AND EQUIPMENT

The Town of Bow winter maintenance objective is to provide safe travel for the public under all weather and road conditions. The Department of Public Works prepares for Winter Operations year-round. The salt shed, and equipment is serviced and inspected in the summer in preparation for safe and clear road conditions in the colder months.

The Public Works Department has available sixteen (16) pieces of equipment to assist with winter road conditions. Each piece of snow tackling equipment is assigned duties for snow storms. Of the sixteen snow tackling pieces, eleven (11) are equipped to spread sand or salt. When conditions warrant all eleven are activated.

The town is divided up into eleven (11) snow plow routes. These routes are designed to take approximately the same amount of time to complete. The routes cover all areas of town and priorities are given to main roads and school bus routes. The Loader and Backhoe are used to load sand/ salt materials, plow out fire hydrants in the commercial district and assist the Grader with large storms plowing out all Town facility parking lots including plowing at all the Town of Bow's schools. When snow accumulations become overwhelming the Loader and the Grader are used to assist the plow trucks to "open up" their routes.

Time needed to sand and plow all the roads in town is approximately 3-4 hours when all equipment is "in-service" and there are no unforeseen emergency breakdowns. When rescheduling plowing priorities due to equipment breakdowns, delays in service become the challenge for the department to manage.

UNDERSTANDING WINTER MAINTENANCE

Winter maintenance is not a science but an art; no two storms are the same. New Hampshire winter weather is often unpredictable. If the weather forecasters with their computer models, radar, and satellite imaging can't predict accurately, local public works departments are unable to pre-plan their strategy.

Bow Public Works Department spreads a combination of sand and salt mixture at the onset of the storm; we try to do this as soon as the storm starts. The material spread creates a brine between the snow and the road surface, as well as producing an abrasive action for traction. Sometimes the sand / salt mixture ratio needs adjustment in the amount of salt added to the sand and this is determined by temperature, moisture content of the snow, intensity of the storm, time of the storm and predicted accumulation of snow. The brine produced by the salt prevents hard packed snow from sticking to the road and allows the plowing operation to be effective in clearing the road. The close proximity of pre-sanding and plowing does not significantly reduce the effectiveness of this operation.

Plowing commences immediately following or sometimes during the pre-sanding operations. We continue plowing through out the storm. There are times during the storm when additional sand or salt or a combination of both is spread to facilitate travel. The end of the storm does not mean the end of the plowing operation. Every road must be plowed once the snow stops, the plowing may take as long as five (5) hours. The result of the delay between the end of the snow and the end of the plowing operation is; driveways that have been plowed have a mound of snow at their entrance protruding into the "traveled way" that needs to be cleared and some roads are clear and others are still snow covered.

During the final plow route inspection the plows widen intersections by pushing snow back, turn-a-rounds are cleared and material (sand - salt - or a combination) is spread.

After we have completed road maintenance, equipment is assigned to the various parking lots that need attention. The trucks that are the first to complete their road maintenance work are then assigned to parking lot clearing. We do our best to maintain an open lane around all the schools municipal buildings during the storm for fire protection and emergency use.

The day following the storm trucks and other heavy equipment are assigned duties of shelving (cutting down) the snow banks, as well as pushing back cull-d-sacs and turn-a-rounds. These operations may result in unintentionally depositing snow in driveways.

School closings or delayed openings are decided by the Superintendent of Schools. The Public Works Department reports current road conditions and maintenance operations information at 5:00 A.M. to the superintendent of schools. The superintendent uses this report as well as other sources to make his determination on the opening or delaying of school.

SNOW PLOWING

Sanding and snow plowing will commence as soon as there are slick or slippery road conditions. Plowing will continue for the duration of the storm. Main roads and school bus routes* will receive priority. All roads will be plowed in an order, determined by importance to community and public safety.

Road ways will be cleared from outside edge of shoulder to outside edge of shoulder. Every effort will be made to do as little damage to shoulders and abutting landscaped areas as possible. The responsibility for the repair of private property placed in the Town of Bow's right of way rests with the abutting land owner, or person placing obstructions within the right of way.

RSA 236:39 provides Civil Liability. If any person shall place any obstruction in a highway, or cause any defect, insufficiency or want of repair of a highway which renders it unsuitable for public travel, without authority, he shall be liable to the state, and to the town for all damages to other highways, and for all damages and costs which the town shall be compelled to pay to any person injured by such obstruction, defect, insufficiency or want to repair. In addition a person may be criminally liable for willfully injuring a highway RSA 236:38.

*Bus routes will only be given priority when school is in session or has a delayed opening.

Plowing before there is sufficient frost in the ground or after frost has left the ground causes damage to everything the plow comes in contact with, this includes roads, shoulders, lawns and landscaped road sides. Plowing at these times may be unavoidable; every effort will be made to minimize damage.

Plowing after the snow has stopped will continue until as much snow as possible has been removed from the roadways. This may seem redundant but is done to minimize the effects of melting and re-freezing of residual snow cover.
Parking areas at all emergency operations facilities will be plowed and treated as soon as possible and practical after the roads have been plowed and treated. Parking and infrastructure for municipal and school buildings that are in constant use will have priority over the occasionally used municipal facilities.

The day after the storm, retreatment of salt / sand materials will be conducted at "cold spots" or iced over areas followed by road widening, turn around areas, cull-d-sac's and shelving will take place. Hydrants and water holes will be plowed open as soon as possible.

Full effort plowing will take place during commuting hours and day light hours, if the storm is of extended duration the crew may be divided into shifts during the overnight hours allowing rest for the drivers. Extended breaks may be necessary during the overnight hours if the storm will not allow the employees an opportunity to go home for a four (4) hour respite.

Mail boxes damaged by direct contact with the plow or wing will be repaired or replaced by the town. Mail boxes damaged by the force or weight of snow and deemed to be in ill repair are the responsibility of the owner. Other obstacles placed in the Town's right of way will be at the discretion of the owner and their sole responsibility to repair or remove if requested.

All town ordinances and state laws dealing with snow removal, placement of snow, or interfering with snow removal will be enforced.

TREATING OF ROADS

Sanding and Salting

The treatment of roads with sand or salt is what produces the difference between bare or snow packed pavement. The use of chemicals to remove snow and ice from roadways has been a common practice in New England and New Hampshire for many years. Many large cities make an effort to remove snow with just chemicals when possible. This practice of chemicals on the roadways is accepted because of the configuration of their streets, drainage systems and inability to store snow. Towns like Bow use a combination of chemicals, sand and plowing to provide safe travel.

The Town of Bow current Public Works Department Employees have become, State certified under the *"Green Snow Pro"* training program implemented by the NH Department of Environment Services and UNH. This program was established in 2012 and focuses on proper application standards to apply salt and chemical treatment to roads as sparingly as possible under varying winter conditions contributing to reduction of salt contamination to the environment, watersheds, as well as private and public wells.

Treatment of all roads will start as soon as practical at the onset of snow or ice. All roads will be treated by applying sand and salt to the center of the roads, some roads with a severe incline or dangerous curves may be treated in the center of each lane going in both directions. Once treatment is complete roads will probably not be treated again until the end of the storm, the exception to this would be snow/ice/road conditions during the storm that at the discretion of the supervisor would pose a greater than expected hazard.

At the termination of the storm, salt may be spread at a rate of 250 pounds per lane mile to aid in the removal of snow or ice that cannot be removed by plowing.

Road surface conditions will vary according to traffic volume, temperature, shaded areas and direction (NSEW) the road faces. Roads facing south will melt easier than roads facing north. Roads with more traffic will clear before roads with fewer cars; the action of traffic activates the chemicals and spreads the melting effect over a wider area of the road.

Ice and freezing rain storms will be treated with a more concentrated mixture or a heavier application of material, and treatment will continue for the duration of the storm.

Dirt roads will be treated with straight sand unless icing becomes an issue at which time a very minute amount of salt will be mixed into the sand to "break" the ice layer.

All parking areas will also be treated in the same manner as the paved roads; this includes all paved municipal and school properties.

Materials Used in Treating Snow and Ice

Sodium Chloride (Salt): The most common and cost effective material used to melt snow and ice when temperatures are above twenty (20) degrees F.

Magnesium Chloride Acetate: Magnesium at this time is considered an environmentally friendly, but costly substitute for salt.

Calcium Chloride: Calcium is a chemical which melts ice at a lower temperature than salt. Calcium is much more corrosive than salt.

Sand: Sand is an abrasive that is used alone or mixed with a chemical to speed melting, sand by its self will not melt snow or ice, at low temperatures sand will not adhere to ice.

FACTS, FIGURES, QUESTIONS & SUGGESTIONS

Questions

Q. Why is snow pushed into my driveway by the plow?
A. It is unavoidable; the plowing of roads and streets is done with right hand discharge plows, after the storm the cutting down of snow banks is done by right hand discharge wings.

Q. Can I, as a resident push or shovel snow from my property onto the street?
A. No! A town ordinance restricts this act.

Q. If I can't make it up my driveway may I park on the side of the road?
A. No! No vehicle may park on the road or right of way in a manor so as to hamper snow removal or sanding, the vehicle may be towed at the owners expense.

Q. May I park at the end of my driveway so I don't have to shovel so much snow?
A. Yes, if you do not hinder snow removal, parking too close to the road will probably warrant a call from the Police Department requesting you move further into your driveway.

Q. Do some roads get priority during storms?
A. Yes. Main roads and school bus routes are given priority.

Q. Do Selectmen get their roads plowed first?
A. No.

Q. Will the Town push the snow back to my mailbox?
A. When possible we do, we try to stay far enough away to prevent damage during the plowing operation.

Q. What should I do if my mail box gets knocked down?
A. Examine the box and support, if it is evident that it was hit by the plow call the public works department, if there is no evidence of the plow coming in direct contact with the box or post it will be considered to be in poor repair and must be repaired by the home owner. If the plow did strike the box or post, it will be repaired or replaced by the Town.

Q. **Where should I place my containers for curbside pickup during snow and ice storms?**
A. In your driveway at least as far off the road as your mail box is.

Q. **If I get stuck will a town snow plow pull me out?**
A. No, our insurance will not allow it.

SUGGESTIONS

1. Check your car before bad weather strikes, tires, battery, belts, hoses, and wiper blades, defroster and antifreeze.
2. Make sure you have good snow tires, studded are best.
3. Keep jumper cables and windshield washer fluid in your car.
4. An emergency kit with, blanket, sand, shovel, flash light and first aid supplies should be kept in your car.
5. Clear your car (not just your windshield) of snow before you start driving.
6. Dress warmly, you may have to walk if you break down or get stuck. Keep your gas tank at least 1/2 full; this will eliminate condensation in your gas tank.
7. Listen to weather forecasts before a trip.
8. Reduce speed during stormy weather.
9. Always wear your seat belt.
10. Mail boxes should be set back from the road, the front of the mail box should be at the outside edge of the shoulder (14 feet from the center of the road).
11. Children should be made aware of the dangers of playing around or in snow banks.
12. Wires taken down by storms should be considered alive.(do not touch them)
13. Limit travel during storms, especially ice or freezing rain storms.

FIGURES

Salt Averages $55 a ton

Calcium Chloride costs $225.00 a ton

Magnesium Chloride Acetate costs $300.00 a ton

Sand costs $5.60 a ton $3.50 cu. yard screening service

FACTS

88.3% of all injury accidents during winter storms can be avoided by deicing roadways.
75% of all fender benders or sliding accidents can be prevented by deicing roads.
Fuel consumption increases from 12% to 54% when driving on snow covered roads.
One (1) foot snow fall over a square mile produces 17.4 million gallons of water.
Bow plow trucks average 3 miles per gallon when plowing.

POLICY STATEMENT

This policy is intended as a guide only, weather, road conditions and equipment serviceability may alter planned strategies. Availability of personal, length and time of storms may impact this policy. We intend to give the traveling public the service they insist on, with the understanding that outside circumstances are beyond our control.

APPENDIX 4-3

CATCH BASIN AND CULVERT INSPECTION PROGRAM AND RECORDS FOR WHPA

Best Management Practices for Catch Basin Cleaning
Town of Bow, NH
Department of Public Works

Evaluation:

Before removing sediment from Catch Basins, Public Works staff shall evaluate the catch basin for any evidence that the sediment and debris was polluted by a spill of oil or other hazardous substance.
Public Works staff conducting a field evaluation should be aware of sediment with obvious contamination, such as unusual color, staining, corrosion, unusual odors, fumes and oily sheen. In the case of discovering pollutants, employees shall contact the Department Head for Proper Direction of Managing the Pollutant

Maintenance:

Catch Basin Maintenance should be performed starting at the bottom of the drainage system and continuing in an up-stream manner for the reason of sediment control.

Decanting of liquids back into the catch basin system that it was taken from is allowed as part of the maintenance of the system with practices of sediment control understanding in use.
Inflatable pipe plugs may be used for flow control while pumping out catch basins. (Care must be taken when releasing plugs so as to not loose the plug.)

Inspection forms shall be kept and managed with files kept in the office of Public Works.

Disposal:

Disposal of debris (silt & sand) shall be discharged into the *"Drying Bed"* at the Allen road gravel pit.
The material in the drying pit shall be cleaned out when moisture in the material has completely evaporated .The material then will be disposed of in the same manner as ditching material, and used as solid fill.

Lynnworddrainagebestmanagement

Drainage Maintenance

Date _____

Inspection Form

Road Name. _____

Inspected by : _____

___ CATCH BASIN ID # _____

___ DROP INLET ID # _____

___ CULVERT ID # _____

___ MAN HOLE _____

Condition:

__ OK

__ Repairs Needed

Culvert Type:

__ Plastic __ Aluminum Diameter _____

__ Galvanized __ Concreate Length : _____

Road Position:

__ Left Edge __ Right Edge __ Other

__ In Road Left __ In Road Right

__ Off Road __ Cross Culvert

Surface Inlet Type :

__ Grate

__ C - Top

__ Man Hole

Outlet Condition:

__ OK

__ Needs Ditching

__ Settlement Pond

__Private Property outside RIGHT of WAY

__ Wetland Sensitivity

Est. time spent for cleaning _____

Est. of material in system full_____ half_____ quarter___

Location : _____

_____

_____

_____

Comments:

CULVERTS IN WELL HEAD PROTECTION AREA

DATE		ROAD NAME	INSPECTED BY	CATCH BASIN	DROP INLET	MAN HOLE	CULVERT TYPE	ROAD POSITION	SURFACE INLET TYPE	OUTLET COND	EST HRS	COMMENTS	NUMBER	PLOW ROUTE	CLEANED	
04/30/12	WH	MEADOW LANE	MARK/COREY	X			PLASTC 18"	RT EDGE	GRATE	OK	0.20	4'SUMP CMT STR CMB	91	GNDVIEW	skip 1 yr, 2013,14,15	
		CORNER MEADOW LANE/KNOX RD														
04/30/12	WH	MEADOW LANE #2	MARK/COREY	X			PLASTC 18"	RT EDGE	GRATE	OK	0.10	1/4 5' SUMP CMTS,CMB	92	GNDVIEW	2013,14,15 dkip 1 yr	
04/30/12	WH	MEADOW LANE #4	MARK/COREY	X			PLASTC 18"	RT EDGE	C-TOP	OK	0.30	1/2 5' SUMP CSCB	93	GNDVIEW	skip 1 yr, 2013,14,15	
04/30/12	WH	SALTMARSH CIR #8	MARK/COREY	X			CONRTE 15	OFF RD	C-TOP	OK	0.30	FULL 4' SUMP CSCB	94	GNDVIEW	skip 1 yr, 2013,14,15	
7/29/2013	WH	SALTMARSH CR #10	MARK/BOB				CONCR 12"	RT EDGE	C-TOP	OK	1.00	FULL 3' SUMP CSCB	~~358~~	KNOX	skip 1 yr, 2013,14,15	
				X				OFF RD					now 94A			
5/2/2012	WH	SALTMARSH CIR #6	MARK/COREY	X			MAN HOLE			UNABLE	TO	GET COVER OFF	95	GNDVIEW	skip 1 yr, 2013,14,15	
5/2/2012	WH	MEADOW LN #6	MARK/COREY	X			CONCRT 15	RT EDGE	WELL CVR	OK	0.30	FULL 5' SUMP CS CB	96	GNDVIEW	skip 1 yr, 2013,14,15	
5/2/2012	WH	SALTMARSH CIR	MARK/COREY	X			CONCRT 15	OFF RD	C-TOP	OK	0.30	FULL 4' SUM CS CB	97	GNDVIEW	skip 1 yr, 2013,14,15	
		CORNER OF MEADOW	LN/SALMSH CIR													
5/2/2012	WH	MEADOW LN #13	MARK/COREY	X			CONCRT 15	RT EDGE	C-TOP	OK	0.30	4' SUMP BB CSRK CB	98	GNDVIEW	skip 1 yr, 2013,14,15	
		ACROSS										FULL				
5/2/2012	WH	MEADOW LN #12	MARK/COREY	X			CONCRT 15	RT EDGE	C-TOP	OK	0.30	FULL 5'SUMP CS CB	99	GNDVIEW	skip 1 yr, 2013,14,15	
		RT SIDE BEGIN OF CR														
5/2/2012	WH	MEADOW LN	MARK/COREY	X				OFF RD	C-TOP	PVT PRT TO IT	BK SD WITH	OF CIRCL CAN'T GET VAC TRK OS ROW	100	GNDVIEW	2013,2015,2016,hard to do with vac truck on circle	
5/2/2012	WH	MEADOW LN #3	MARK/COREY	X			CONCRT 15	RT EDGE	NONE	OK	0.10	STN	101	GNDVIEW	BOTTOM REPAIRED 12/12 2013,14,15,16,cleaned	
5/2/2012	WH	MEADOW LN #1	MARK/COREY	X			CONCRT 15	RT EDGE	NONE	OK	0.10	STO	102	GNDVIEW	BOTTOM REPAIRED 12/12 2013,14,15,16,cleaned	
5/2/2012	WH	WHITTIER DR #1	MARK/COREY	X			PLST 15	OTHER	GRATE	OK	0.10	1/4 CMT STR CMT B	103	GNDVIEW	2013,14,15,16	
		CENTER ISLAND														
5/2/2012	WH	WHITTIER DR BY #1	MARK/COREY	X			PLST 15"	OTHER	GRATE	NEEDS	0.10	1/4 2"SUMP CMT STR	104	GNDVIEW	2013,14,15,16	
		CENTER ISLAND		PVT	PRTY	OS	ROW WETLAND SENSITIVITY			DITCHG		CMT BTM				
6/12/2012	WH	BRIARWOOD DR #1	MARK/COREY			X	GALV 12"	RT EDGE	C-TOP	OK	0.15	1/4 FL NO SUMP BBCB	183	BOW BOG	7/25/2013	skip 1 yr 2014,15,16
		ACROSS FROM #1														
6/12/2012	WH	BRIARWOOD DR	MARK/COREY			X	GALV 12"	RT EDGE	C-TOP	OK	0.20	1/2 FL 3' SUMP BB CB	184	BOW BOG	7/15/2013	2014,15,16
6/13/2012	WH	BRIARWOOD DR #8	MARK/COREY			X	GALV 12"	RT EDGE	C-TOP	OK	0.30	3 1/2' SUMP BB CS CB	185	BOW BOG	7/25/2013	2014,15,16
6/13/2012	WH	BRIARWOOD DR #8	MARK/COREY`			X	GALV 20"	RT EDGE	C-TOP	OK	0.30	1/2 FUL 3' SUMP BB	186	BOW BOG	7/25/2013	2014,15,16
									PVT PTY	OS ROW		CS CB				

CULVERTS IN WELL HEAD PROTECTION AREA

DATE		ROAD NAME	INSPECTED BY	CATCH BASIN	DROP INLET	MAN HOLE	CULVERT TYPE	ROAD POSITION	SURFACE INLET TYPE	OUTLET COND	EST HRS	COMMENTS	NUMBER	PLOW ROUTE	CLEANED	
6/13/2012	WH	BRIARWOOD DR #7	MARK/COREY			X	GALV 15"	RT EDGE	C-TOP	OK	0.30	FULL NO SUMP BBCB	187	BOW BOG	7/25/2013	2014,15,16
6/13/2012	WH	BRIARWOOD DR #3	MARK/COREY			X	GALV 15"	RT EDGE	C-TOP	OK	0.20	1/2 FL NO SUMP BB CB	188	BOW BOG	7/25/2013	2014,15,16
6/13/2012	WH	CLEARVIEW DR #27	MARK/COREY				GALV 12"	RT EDGE	CMT CVR	OK	0.15	1/4 FL 12" SUMP	189	BOW BOG	7/24/2013	2014,15,16
				X						WELL TIL	GRAVEL BTM	4" PLSTC CELLAR DRAIN		BOTTOM REPAIRED 12/12		
6/13/2012	WH	CLEARVIEW DR #25	MARK/COREY			X	GALV 12"	RT EDGE	C-TOP	NDS DTCH	0.20	CSCB	190	BOW BOG	7/24/2013	2014,15,16
								ROUND CM	COVER	PVT PTY	OS ROW					
6/13/2012	WH	CLEARVIEW DR #19	MARK/COREY			X	GALV 12"	RT EDGE	C-TOP	OK	0.20	1/2 FL 18"SUMP BBSB	191	BOW BOG	BOTTOM REPAIRED 12/12	
								RND CMT	COVER	PV PTY	OSROW			†	2013,2014,2015,2016,
6/13/2012	WH	CLEARVIEW DR	MARK/COREY			X	GALV 12"	RT EDGE	C-TOP	NDS DTCH	0.20	1/2 FL 2' SUMP BBSB	192	BOW BOG	BOTTOM REPAIRED 12/12	
								RND CMT	COVER	PVT PRTY	OSROW				7/24/2013	dkip 1 yr, 2014,15,16
8/27/12	WH	KNOX RD	MARK/COREY			X	ALUM 15"	RT EDGE	C-TOP	OK	0.30	FL 18" SUMP BB CB	351	KNOX	11/5/13	2014,15,16
		ACROSS FROM #59										CAN'T GET TO IT	OK	FOR NOW		
7/29/2013	WH	MEADOW LANE #2	MARK/BOB				PLST	RT EDGE	GRATE	OK	0.15	CB	~~354~~	KNOX See 91		
		CORN KNOX/MEADOW		X												
7/29/2013	WH	MEADOW LANE #2	MARK/BOB				PLST 15"	RT EDGE	GRATE	OK	0.15	24" SUMP CS CB	~~355~~	KNOX See 92		
		LOWER SIDE #2		X												
7/29/2013	WH	MEADOW LN #4	MARK/BOB				PLST 15"	RT EDGE	C-TOP	OK	0.20	CSCB	~~356~~	KNOX See93		
				X												
7/29/2013	WH	SALTMARSH CR #8	MARK/BOB				CONCR 12"	RT EDGE	C-TOP	OK	0.15	24" SUMP CSCB	~~357~~	KNOX See 94		
				X				OFF ROAD								
~~7/29/2013~~	~~WH~~	~~SALTMARSH CR #10~~	~~MARK/BOB~~				~~CONCR 12"~~	~~RT EDGE~~	~~C-TOP~~	~~OK~~	~~1.00~~	~~FULL 3' SUMP CSCB~~	~~358~~	KNOX-		
				~~X~~				~~OFF RD~~						now 94A		
7/29/2013	WH	MEADOW LN	MARK/BOB				CONCR 12"	OTHER	C-TOP	OK	0.20	1/4 FL 24" SUMP CSCB	359	KNOX	2013skip 1 yr 2014,15,16	
		CNR SLTMSH/MEADOW		X												
7/29/2013	WH	MEADOW LN ACR #13	MARK/BOB				CONCR 12"	RT EDGE	C-TOP	OK	0.50	FL 3' SUMP CS CB	~~360~~	KNOX See 98		
				X												
7/29/2013	WH	MEADOW LANE	MARK/BOB				CONCR 12"	OTHER	C-TOP	OK	0.50	FL 3" SUMP CSCB	361	KNOX	2013skip 1 yr 2014,15,16	
		ENTRANCE OF CIRCL		X												
7/25/2013	WH	GORDON RD	MARK/BOB				GALV 15"	OTHR	GRATE	NEEDS		10" SUMP BRICKS CB	364	RIVER ROAD	failing 6/11/14 Tim called NHDOT	
				X						DITCHN		WET LAN SENSITIVE				
7/25/2013	WH ?	EAST VIEW DR #10 UPF	MARK/BOB				ALUM 12"	RT EDGE	C-TOP	OK	0.15	1/4 FL 8" SUMP BB CB	365	RIVER ROAD	2013,14,15,16,15,16	Noel put new C-top
		GOING DOWN HILL		X												

CULVERTS IN WELL HEAD PROTECTION AREA

DATE		ROAD NAME	INSPECTED BY	CATCH BASIN	DROP INLET	MAN HOLE	CULVERT TYPE	ROAD POSITION	SURFACE INLET TYPE	OUTLET COND	EST HRS	COMMENTS	NUMBER	PLOW ROUTE	CLEANED	
7/25/13	WH	EASTVIEW #10 LOV	MARK/BOB	X			ALUM 12"	RT EDGE	C-TOP	OK	0.15	1/4 FL 8" SUMP BB	366	RIVER ROAD	2013,14,15,16	
															needs C-top	Noel says done
7/25/13	WH	EASTVIEW #7	MARK/BOB	X			GAVL 12"	RT EDGW	MANHL	OK	0.15	1/4 FL 12" SUMP	367	RIVER ROAD	2013,14,15	6/11/14
												PIPE CB				
7/25/2013	WH	WHITTIER DR	MARK/BOB				PLST 12"	CENTER	GRATE	OK	0.15	1/4 FL NO SUMP CSCB	368	WHT RCK	2013,14,15,16	
				X												
7/25/2013	WH	WHITTIER DR	MARK/BOB				PLST 15"	CTR ISL	GRATE	NEEDS			369	WHT RCK	2013,14,15,16	
				X						DTCH		LAND				
7/18/2013	WH	THIBEAULT DRIVE	MARK/MIKE		NEW	8 SIDED	12" STEEL	WELL	GRATE	OK	0.90	2.5' SUMP 8 SIDED CS	370	RIVER RD	2013skip 1 yr2014,15,16	
		CORNOR 82 RIVER RD	NEW	X				OTHER		1/4 FULL		1.5"STONE NO				
												PIPLE				
7/16/2013	WH	THIBEAULT DRIVE	MARK/MIKE		NEW	8 SIDED	12" STEEL	WELL	GRATE	OK	0.20	2.5' SUMP 8 SIDED CS	371	RIVER RD	2013skip 1 yr 2014,15,16	
		CORNER RIVER RD BY STOP SIGN		X				RT EDGE		1/4 FULL		1.5"STONE NO				
			NEW									PIPE 1/4 FL				
7/17/13	WH	JUNIPER #3	MARK/BOB	X			ALUM 12"	RT EDGE	C-TOP	OK	0.20	2' SUMP CS BB CMT	372	RIVER RD	2013,14,15,16	
		AT THE END OF ROAD							PRV PRTY	OS ROW	1/4 FULL				SKIP 1 YR	
7/17/13	WH	JUNIPER #4	MARK/BOB	X			ALUM 12"	RT EDGE	GRATE	OK	0.20	1/4 FULL 24" SUMP				
												CMT BOT	373	RIVER RD	2013,14,15,16	
												1/4 FL				SKIP 1 YR
7/17/13		LINCOLN DRIVE	MARK/BOB	X			STEEL 12"	RT EDGE	GRATE	NEEDS	0.10	18" SUMP CB NO	374	RIVER RD	2013,14,15,16	
		1ST CATCH BASIN PAST JUNIPER ON THE CORNER								DITCHING		1/2 FL		needs ditching 2014		SKIP 1 YR
7/15/2013	WH	RIVER ROAD	MARK/BOB				15" PLASTC	RT EDGE`	GRATE	OK	0.20	NO SUMP BB CB	375	RIVER RD	2013,14,15,16	
		ACROSS FROM DUNKLEE (GYMNASTI(		X								FULL			btokrn c-top cover	
7/15/2013	WH	RIVER RD	MARK/BOB				15" PLASTI	RT EDGE	GRATE	OK	0.20	12" SUMP CS CB	376	RIVER RD	2013,14,15,16	
		NO OF GRANITE STATE GYMNASTICS		X								FULL				
7/16/2013	WH	RIVER RD # 65	MARK/MIKE				15" PLST	RT EDGE	GRATE	OK	0.15	18" SUMP CS CB	377	RIVER RD	2013,14,15,16	
				X								1/4 FL				
7/16/2013	WH	RIVER RD #57	MARK/MIKE				15" PLST	RTEDGE	GRATE	OK	0.20	12" SUMP CS CB	378	RIVER RD	2013,14,15,16	
		ACROSS FROM CEME	NEW	X								1/2 FL				
7/16/2013	WH	RIVER RD/RECYC CTR	MARK/MIKE				18" PLST	RT EDGE	GRATE	OK	0.20	2' SUMP CS CB	379	RIVER RD	2013,14,15,16	
			NEW	X								1/2 FL				
7/16/2013	WH	RIVER RD #78	MARK/MIKE				STEEL COVERED		GRATE	OK	0.20	BTM	380	RIVER RD	2013,14,15,16	
				X			ASPHALT	RT EDGE				1/2 FL				
7/14/2013	WH	RIVER RD	MARK/BOB				18" PLAST	RT EDGE	GRATE	OK	0.10	NO SUMP CS CB	381	RIVER RD	2013,14,15,16	
		ON DRY BRIDGE ON POWER PLANT SI		X					PRV PRTY	OS ROW	1/4 FULL					
7/24/2013	WH	RIVER RD	MARK/BOB				18" PLST	RT EDGE	GRATE	OK	0.15	NO SUMP CS CB	382	RIVER RD	2013,14,15,16	
		NO BOUND LANE BY LOG CABIN		X												

CULVERTS IN WELL HEAD PROTECTION AREA

DATE		ROAD NAME	INSPECTED BY	CATCH BASIN	DROP INLET	MAN HOLE	CULVERT TYPE	ROAD POSITION	SURFACE INLET TYPE	OUTLET COND	EST HRS	COMMENTS	NUMBER	PLOW ROUTE	CLEANED
7/24/2013	WH	DUNKLEE RD	MARK/BOB				18" PLST	OFF RD	GRATE	OK	0.30	BOTTM	383	RIVER RD	2013,14,15,16
		BY ARCH EQUIP ACCESS RD ON WEST		X											
7/24/2013	WH	DUNKLEE RD	MARK/BOB				18" PLST	OFF RD	GRATE	OK	0.30	BTM	384	RIVER RD	2013,14,15,16
		ACROSS FROM ARCH EQUIP WEST BO		X								BOTTOM			
7/24/2013	WH	DUNKLEE RD	MARK/BOB				18" PLST	RT EDGE	GRATE	OK	0.20	6" SUMP CS CB	385	RIVER RD	2013,14,15,16
		SAME SIDE AS ARCH EQUP		X								1/2 FL			
7/24/2013	WH	DUNKLEE RD #11	MARK/BOB				18" PLST	RT EDGE	GRATE	OK	0.30	FULL 8" SUMP CS CB	386	RIVER RD	2013,14,15,16
				X											
7/15/2013	WH	RIVER RD	MARK/BOB				12" PLST	RT EDGE	GRATE	OK	0.15	1/4 FL NO SUMP CS CB	387	RIVER RD	2013,14,15,16
				X		GREEN PIPE (SEWER PIPE?)									
7/15/2013	WH	RIVER RD	MARK/BOB				15" PLST	OTHER	GRATE	OK	0.15	1/4 FL NO SUMP BB CB	388	RIVER RD	2013,14,15,16
		CORNER OF DUNKLEE AND RIVER		X											
7/15/2013	WH	RIVER RD #70	MARK/BOB				15" PLST	RT EDGE	GRATE	OK	0.20	FL 18" SUMP CS CB	389	RIVER RD	2013,14,15,16
				X											
7/15/2013	WH	RIVER RD	MARK/BOB				15" PLST	RT EDGE	GRATE	OK	0.20	FULL 12" SUMP CS CB	390	RIVER RD	2013,14,15,16
		ACROSS FROM #70													
7/15/2013	WH	RIVER RD #57	MARK/BOB				15" PLST	RT EDGE	GRATE	UNKN	0.20	FULL 12" SUMP CS CB	391	RIVER RD	2013,14,15,16
				X				OTHER	PRV PRTY	OS ROW					
7/15/2013	WH	RIVER RD #56	MARK/BOB				15" PLST	RT EDGE	GRATE	OK	0.20	FULL 24" SUMP CS CB	392	RIVER RD	2013,14,15,16
				X											
6/7/2013	WH	RIVER RD	MARK/COREY				18" ALUM	RT EDGE	C-TOP	OK	0.60	FULL NO SUMP BB CB	393	RIVER RD	2013,14,15,16
		1ST CATCH BASIN PAST KALWALL'S D		X											
6/7/2013	WH	RIVER RD	MARK/COREY				18" ALUM	RT EDGE	C-TOP	OK	0.10	12" SUM BB CB	394	RIVER RD	2013,14,15,16
		2ND CATCH BASIN PAST KALWALL'S D		X											2015 broken C-top
6/7/2013	WH	RIVER RD	MARK/COREY				15" ALUM	RT EDGE	C-TOP	OK	0.30	FULL 6" SUMP BB CB	395	RIVER RD	2013,14,15,16
		3RD CATCH BASIN FROM KALWALL'S D		X											
6/7/2013	WH	RIVER RD	MARK/COREY				18"	RT EDGE	C-TOP	OK	0.30	FULL 10" SUMP BB CB	396	RIVER RD	2013,14,15,16
		4TH DOWN FROM KALWALL'S DRIVEW		X					WET LAND SENSITIVITY						
5/13/15	WH	VAUGHN RD #11 BY	MARK/BOB	X				OFF RD	GRATE	OK		CEM STRUT CB	468	RIVER ROAD	NEW 2015 2016
		AUDLEY'S	DRYWELL												NO PIPE DRY WELL
7/31/13	WH	MEADOW LN #8		X			12' CONC	RT EDGE	BIG WELL COVER	OK	0.20	1/2 FL 3' SUMP CS	415	KNOX	2013skip 1yr 2014,15,16
6/4/14	WH	ROBINSON ROAD	MARK/BOB	X									455	BOW BOG	,14,15,16
		CORNER OF 3-A													NEW 2014

CULVERTS IN WELL HEAD PROTECTION AREA

DATE		ROAD NAME	INSPECTED BY	CATCH BASIN	DROP INLET	MAN HOLE	CULVERT TYPE	ROAD POSITION	SURFACE INLET TYPE	OUTLET COND	EST HRS	COMMENTS	NUMBER	PLOW ROUTE	CLEANED
2015	WH	BUS PARKING LOT (	MARK/BOB	X			15' 12' PL	OFF ROA	GRATE	FULL	0.30	2'SUMP CS CB	473	UPPER PARKING	NEW 2015,16
		DPW												LOT SE CORNER	
2015	WH	BUS PARKING LOT (	MARK/BOB	X			15' GAVL	OFF ROA	GRATE	OK	0.30	2'SUMP CSCB	474	UPPER PARKING	NEW 2015,16
		DPW												IN FT BUS #10	
2015	WH	BUS PARKING LOT (	MARK/BOB	X			12" PLST	OFF ROA	GRATE	OK	0.15	5"SUMP BB CB	475	UPPER PARK LOT	NEW 2015,16
		DPW													

	DPW	GR	LOCATION	OUTLET & AREA			
ROAD	CB#				2018		
					cleaning		
Dunnmoore	176	1	S.corner of Dunnmoor& Bow Bog Rd	176-177 to open ditch to the north	Jun-18		
					Jun-18		
3-6 Dunnmoore	178-179	1	Dunnmoore befor circle	178-179 to open ditch in circle to other side of circle to a marsh	Jun-18		
					Jun-18		
Nesbitt Dr	157-158	1	Corner of Nisbitt and Bow Bog Road	157-158 to open ditch in front of #3	Jun-18		
					Jun-18		
Laurel Dr	122,116	1	Laurel Dr to Crocket	CB 122, 112,116,115,114, open ditch into brook	Jun-18		
	115-114				Jun-18		
					Jun-18		
Crocket Dr	121,117	1	Crocket Dr	CB 121-117- to open ditch in #12 crocket yard	Jun-18		
					Jun-18		
Crocket Dr	118,-120	1	Crocket Dr	CB 118,119,120 to open ditch on #14 side	Jun-18		
					Jun-18		
Laurell Dr	123-123B	1	Laurell Dr	123-123B 124-155 to open ditch in #6 yard	Jun-18		
					Jun-18		
4 Laurell Dr	128	1	Laurell Dr	128 Corsses Laurell Dr to open ditch	Jun-18		
					Jun-18		
3 Laurll Dr	126-127	1	Laurell Dr	127-126 to open ditch	Jun-18		
					Jun-18		
5 Dean Ave	182	1	Dean Ave	CB# 182 to open ditch to the north of #5 then crosses	Jun-18		
				Dean Ave to #4 yard	Jun-18		
					Jun-18		
#14,18,20-22 by				CB#159-160-161-161-163 to open ditch that crosses Dean	Jun-18		
the swamp Dean A	159-163	1	Dean Ave	Ave to swamp	Jun-18		
					Jun-18		
Rosewood	170-171	1	Rosewood & Bow Bog	CB#171-170 to the north to often ditch on Bow Bog Road	Jun-18		
					Jun-18		
Peeslee Dr	164-165q	1	Peeslee Dr end of first Island	CB #165 cosses south to CB #164 crosses Peeslee outside	Jun-18		
				to Open ditch	Jun-18		
					Jun-18		
Peeslee Dr	166	1	Peeslee 200' before #60 in the island	CB166 crosses Peeslee to open ditch on #60 property 200'	Jun-18		
				before	Jun-18		
66 Peesled Dr	167	1	in center island across from #66	CB#168 to retention pond in front of #84	Jun-18		
					Jun-18		
Moragn Drive	172-175	1	Morgan Drive	CB# 172-175 to open ditch into Retention Pond	Jun-18		
					Jun-18		
South Bow Road	145-135	1	South Bow Road	145 to 135 to open ditch in front of #71 S. Bow Road	Jun-18		
					Jun-18		
Risingwood Dr.	105,106,	1	Risingwood to culdersack	106-107 to open ditch onto #16 Risingwood yard	Jun-18		
	107				Jun-18		
					Jun-18		
80 Wood Hill Rd	432	1	80 Wood Hill Road	432 crosses Wood Hill to open ditch on #81 Wood Hill	Jun-18		
					Jun-18		
10 Rand Road	108	1	10 Rand Road	108 to open ditch on property lint to #8 and #10	Jun-18		
					Jun-18		
20 Rand Rod	109	1	infront of #20 across from street	CB#109 crosses Rand Rd to open ditch into #20 Rand Road	Jun-18		
					Jun-18		
4 Jones Road	110	1	infront of #4 Jones Road	CB#110 runs alongside of Jones Road CrossesRand Rd to	Jun-18		
				open ditch	Jun-18		
					Jun-18		
WhiteRock Hill	131	1	Corner of White Rock Hill & Branch	CB#131 crosses White Rock to open ditch on class 6 part of	Jun-18		
			Londonderry East at stop sign	Branch Londonderry	Jun-18		
					Jun-18		
WhiteRock Hill	130	1	4 White Rock 104 White Rock Hill Rd	CB#130 to open ditch in backyard behind shed	Jun-18		
			e=by end of s tonewall		Jun-18		
					Jun-18		
Shoreview Dr	25	1	3 Shoresview Dr #3 Shoreview Dr	CB#25 to open ditch to the north ouerside of house	Jun-18		
					Jun-18		
Shoreview Dr	47	1	8 Shorview corner of Driveway	CB#47 crosses Shoreview to open ditch at #55 Shoreview Dr	Jun-18		
					Jun-18		
Shoreview Dr	24	1	100" from corner of Blueberry on	CB#24 crosses shoreview to open ditch by Pole #4	Jun-18		
			Shoreview Dr.		Jun-18		
					Jun-18		
Shoreview Dr	23	1	11 Shoreview Drive	CB# 23 crosses shoreview to open ditchin #14 Shoreview Dr.	Jun-18		
					Jun-18		
Albin Road	66-75	1	12,14,16,18 &24 Albin Road	CB# 66,67,68,69,670, 75 crosses Albin Rod to open	Jun-18		
				ditch at corner of Melanie & Albin Concord side of Melanie	Jun-18		
					Jun-18		
Albin Road	71,72,74	1	46, 28,26 Albin Road	CB 71,72,17 to peon ditch into #29 Albin Road	Jun-18		
					Jun-18		
Woodland Circle	89	1	Woodland circle 50' in from Albin Road	CB #89 crosses Woodland to open ditch	Jun-18		
					Jun-18		
Woodland Circle	81-90	1	Woodland Cir at Intersection of Wilderness	CB #81-90 to open ditch 200'along Wilderness Lane	Jun-18		
					Jun-18		
Turee View	78-80	1	Turee View	CB #79-80 to open ditch below #3	Jun-18		
					Jun-18		
Turee View	77-78	1	Turee View	CB# 456,457,112,113,325,326,327,328 to open ditch at #41	Jun-18		
				White Rock Hill Road	Jun-18		
					Jun-18		
Bow Bus Parking	473	1	Upper Parking Lot SE Corner	to the east to retention pond	Jun-18		
	474	1	Upper parking lot in front of Bus #10	to the east to retention pond	Jun-18		
	475	1	Upper Parking Lot	to the east to retention pond	Jun-18		
					Jun-18		

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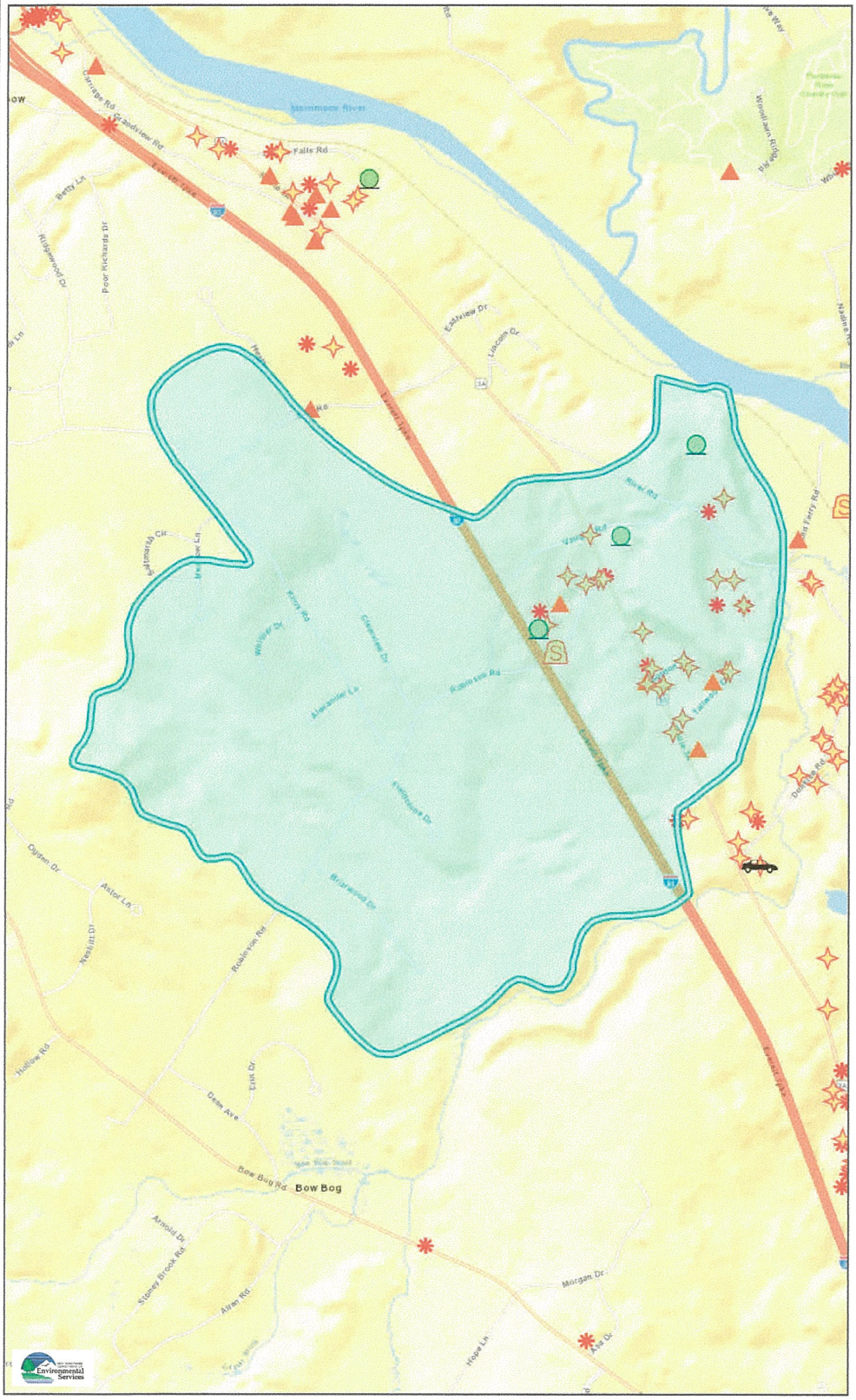
	DPW	GR	LOCATION	OUTLET & AREA			
ROAD	CB#				2018		
Meadow Lane	91	1	Corner Meadow & knox	Goes to #2 Meadow Lane	Jun-18		
	92	1	Meadow Lane #2	Goes to #4 Meadow Lane	Jun-18		
	93	1	Meadow Lane #4	Goes to CB #93	Jun-18		
					Jun-18		
Saltmarsh Cir	94	1	#8 Saltmarch Cir	dumps out on #8 300' out from catch basin	Jun-18		
					Jun-18		
Saltmarsh Cir	94A	1	#10 Saltmarch Cir	North to #94A CB	Jun-18		
Saltmarsh Cir	95	1	#6 Saltmarch Cir	Wst to #94A CB	Jun-18		
Meadow Lane	96	1	#6 Meadow Lane	S. to CB#415	Jun-18		
					Jun-18		
Bow Bus parking	473	1	Upper parlking lot SE Corner	to the east to retention pond	Jun-18		
	474	1	Upper parking lot in front of bus#70	to the east to retention pond	Jun-18		
	475	1	Upper parking lot in front of bus#70	to the east to retention pond	Jun-18		
					Jun-18		
Meadow Lane	91	1	Corner medadow & know	goes to #2 Meadow lane	Jun-18		
	92	1	Meadow lane #2	goes to #4 Meadow lane	Jun-18		
	93	1	Meadow Lane #4	goes to CB #93	Jun-18		
					Jun-18		
Saltmarsh Cir	94	1	#8 Saltmarsh circ	dumps out on #8 300' from catch basin	Jun-18		
Saltmarsh Cir	94A	1	#10 Saltmarsh Circle	north to #94A CB	Jun-18		
Saltmarsh Cir	95	1	#6 Saltmarsh Circle	West to #94A CB	Jun-18		
Meadow Lane	96	1	6 Meadow Lane	S to CB#415	Jun-18		
Meadow Lane	97	1	Corner of Meadow & Saltmarsh	CB 97 to CB 98	Jun-18		
Meadow Lane	98	1	Across form #13 Meadow Lane	CB 98 to CB99	Jun-18		
Meadlow Lane	99	1	Rt side beginning of circle	CB99 to 100	Jun-18		
Meadow Lane	100	1	in circle	Dumps out to the south into #14 yard	Jun-18		
Meadlow Lane	101	1	#3 meadow before driveway	dumps into drop inlet #CB97	Jun-18		
Meadow Lane	102	1	#1 Meadow Lane, Before Driveway		Jun-18		
			ceop inlet	goes to #101			
					Jun-18		
Whittier Drive	103	1	First Center Island	goes to CB 104	Jun-18		
Whitter Drive	104	1	2nd Center Island	goes SE to open ditch	Jun-18		
Briarwood Dr	183	1	Across from #1	S to #CB184	Jun-18		
Briarwood Dr	184	1	6 Briarwood	S to CB#185	Jun-18		
Briarwood Dr	185	1	8 Briarwood		Jun-18		
Briarwood Dr	186	1	12 Briarwood	crosses Briarwood to the East after ditch into #11 yard	Jun-18		
Briarwood Dr	187	1	7 Briarwood	dumps to the East open ditch	Jun-18		
Briarwood Dr	188	1	3 Briarwood	Crosses to CB#185	Jun-18		
Clearview	189	1	27 Clearview Dr	crosses hammerhead and opne to ditch on Baker Road	Jun-18		
Clearview	190	1	25 Clearview Dr.	crosses to 22 driveway	Jun-18		
Clearview	191	1	19 Clearview Dr	E across Clearview to open ditch	Jun-18		
Clearview	192	1	17 Clearview Dr	E across Clearview to open ditch	Jun-18		
Gordon Road	364	1	3A & Gordon at stop sign north	South to outlet then East to brook	Jun-18		
Knox Road	351	1	Across from #59 Knox Road	Crosses Knox Road to #59 goes 500' in back	Jun-18		
Eastview Dr	365	1	Above #10 Eastview Dr	NE to CB #366	Jun-18		
Eastview Dr	366	1	Below # 10 Eastview Dr	N. to open ditch over banking	Jun-18		
Eastview Dr	367	1	#7 Eastview Dr	S to CB#365	Jun-18		
Whittier Dr	368	1	1 Whittier Dr	to the W to CB#369	Jun-18		
Whittier Dr	369	1	1 Whittier Dr	S to open ditch into #1 Whittier Dr.	Jun-18		
Thibeault Dr	370	1	Corner of River & Thibeault at #82 River	crosses River Rd tp open ditch	Jun-18		
Thibeault Dr	371	1	Thibeault at River by stop sign	W to CB#370	Jun-18		
					Jun-18		

2
9/1/2019

APPENDIX 4-4

CURRENT POTENTIAL CONTAMINATION SOURCE INVENTORY

Bow Municipal Water System (0261010-001 and 002)



Legend

- Aboveground Storage Tank
- Automobile Salvage Yards
- Hazardous Waste Generato
- Local Potential Contaminatic Sources
- Remediation Sites
- Solid Waste Facilities

Map Scale

1: 25,977

Map Generated: 12/3/2018

Notes

Potential Contaminant Source Inventory Map
This map shows the New Hampshire Department of Environmental Services (NHDES) geospatial data which is critical to groundwater withdrawal permitting. The tables below list data sites that intersect the 4000 foot buffer of the proposed new well location. A table will be blank if there is no data within the buffer.

Automobile Salvage Yard Facility

FACILITY NAME	ADDRESS	TOWN	STATUS	DES ID

Local Potential Contaminant Sources

PCS NAME	ADDRESS	TOWN	PROJECT TYPE
NORTHEAST AIRGAS	10 ROBINSON RD	BOW	GSR
EXTREME MACHINES	1188 ROUTE 3A	BOW	VSR
FOCUS AUTOMOTIVE	1235 ROUTE 3A	BOW	VSR
SAM'S EURO AUTO CARE	3 TALLWOOD RD	BOW	VSR

Source Water Hazards Inventory and Remediation Sites

FACILITY	ADDRESS	TOWN	SITE NUMBER	PROJECT TYPE	RISK	STAFF
KELLER PRODUCTS	RIVER ROAD	BOW	199110027	UIC	2	REGISTRATION
SECOND STREET MOTORS	ROUTE 3A	BOW	199501829	LUST	6	CLOSED
PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	199605014	UIC	6	CLOSED
STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	199810071	OPUF	6	CLOSED
STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	199810071	ETHER	6	CLOSED
RIVER ROAD BUSINESS GROUP	29 RIVER ROAD	BOW	199906043	UIC	6	CLOSED
SCANADA PROPERTY	628 ROUTE 3	BOW	200306926			

RCRA Hazardous Waste Generators

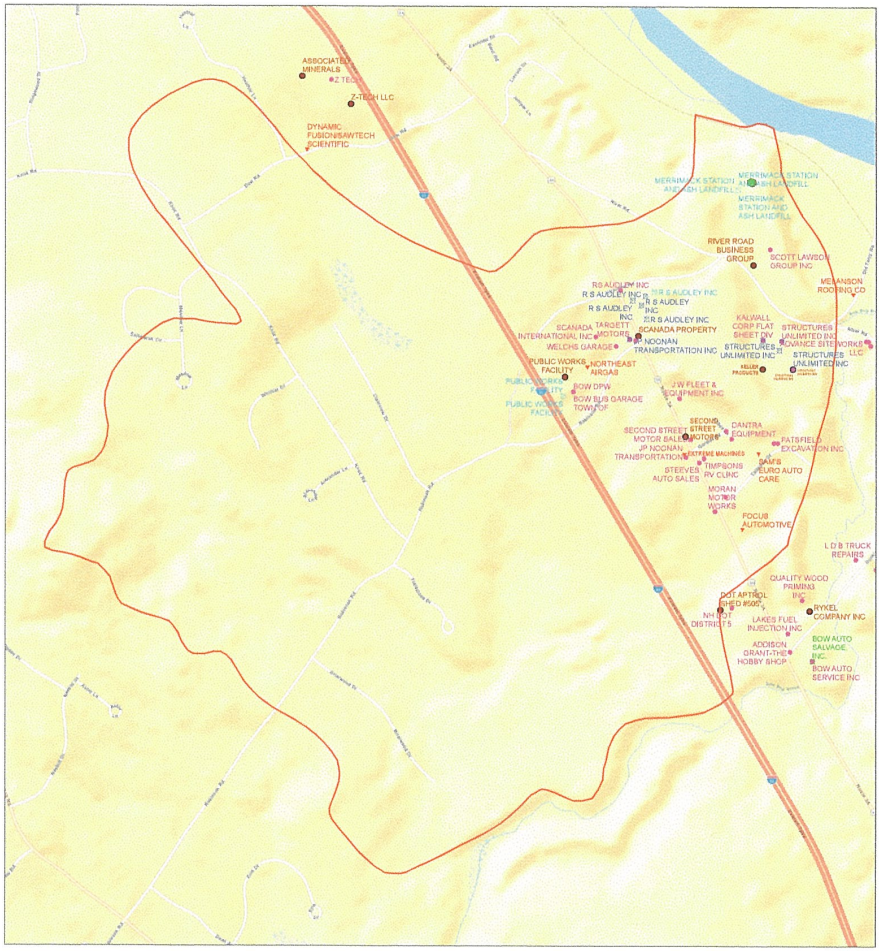
SITE NAME	ADDRESS	TOWN	RCRA ID	GENERATOR TYPE	STATUS
KELLER PRODUCTS INC	170 RIVER RD	BOW	NHD983396812	RCRA REGULATED	ACTIVE
STRUCTURES UNLIMITED INC	172 RIVER RD	BOW	NHD000791558	RCRA REGULATED	ACTIVE
KALWALL CORP FLAT SHEET DIV	160 RIVER RD	BOW	NHD000791541	RCRA REGULATED	ACTIVE
TARGETT MOTORS	630 RTE 3A	BOW	NHD986466968	RCRA REGULATED	INACTIVE
SECOND STREET MOTOR SALES	625 RTE 3A	BOW	NHD610126687	STATE REGULATED	INACTIVE
MORAN MOTOR WORKS	654 RTE 3A	BOW	NHD610116654	STATE REGULATED	INACTIVE
WELCHS GARAGE	4 ROBINSON RD	BOW	NHD000020722	RCRA REGULATED	INACTIVE
SCANADA INTERNATIONAL INC	8 ROBINSON RD	BOW	NHD986486837	RCRA REGULATED	ACTIVE
BOW BUS GARAGE TOWN OF	12 ROBINSON RD	BOW	NHD986466076	RCRA REGULATED	ACTIVE
DANTRA EQUIPMENT	8 GORDON RD	BOW	NHD986485142	RCRA REGULATED	INACTIVE
TIMPSONS RV CLINC	RTE 3A	BOW	NHD610121122	STATE REGULATED	INACTIVE
SCOTT LAWSON GROUP INC	29 RIVER RD	BOW	NHD000011663	RCRA REGULATED	DECLASSIFIED
STEEVES AUTO SALES	629 HWY RTE 3A	BOW	NHD000021746	RCRA REGULATED	INACTIVE
BRODEN TRUCK REPAIR	630 RTE 3A	BOW	NHD610120157	STATE REGULATED	INACTIVE
CONCORD AWNING & CANVAS	1 TALLWOOD DR	BOW	NHD600023502	RCRA REGULATED	ACTIVE
PATSFIELD EXCAVATION INC	5 TALLWOOD DR	BOW	NHD610021439	STATE REGULATED	DECLASSIFIED
GRANITE STATE TANK LINES	5 TALLWOOD DR	BOW	NHD610131584	STATE REGULATED	INACTIVE
RS AUDLEY INC	1113 RTE 3A	BOW	NHD610094732	STATE REGULATED	ACTIVE
JP NOONAN TRANSPORTATION	632 RTE 3A	BOW	NHD610057078		INACTIVE
BOW DPW	12 ROBINSON RD	BOW	NHD610097579	RCRA REGULATED	INACTIVE
J W FLEET & EQUIPMENT INC	621 RTE 3 A	BOW	NHD610160120	RCRA REGULATED	ACTIVE
AUTOLOGIC LLC	7 GORDON RD	BOW	NHD610167471	RCRA REGULATED	INACTIVE

Underground Storage Tanks

FACILITY NAME	ADDRESS	TOWN	SITE NUMBER	FACILITY TYPE	NUMBER OF TANKS
JP NOONAN TRANSPORTATION INC	RTE 3A	BOW	199605061	TRUCKING / TRANSPORT	
R S AUDLEY INC	609 RTE 3A	BOW	199806014	CONTRACTOR	
STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	199810071	INDUSTRIAL	
STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	199810071	INDUSTRIAL	
STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	199810071	INDUSTRIAL	
STRUCTURES UNLIMITED INC	38 RIVER RD	BOW	199810071	INDUSTRIAL	
R S AUDLEY INC	609 RTE 3A	BOW	199806014	CONTRACTOR	
R S AUDLEY INC	609 RTE 3A	BOW	199806014	CONTRACTOR	
R S AUDLEY INC	609 RTE 3A	BOW	199806014	CONTRACTOR	

Aboveground Storage Tanks

FACILITY NAME	ADDRESS	TOWN	SITE NUMBER	FACILITY TYPE	NUMBER OF TANKS
MERRIMACK STATION AND ASH LANDFILL	431 (FORMERLY 97) RIVER RD	BOW	198400065	UTILITIES	
MERRIMACK STATION AND ASH LANDFILL	431 (FORMERLY 97) RIVER RD	BOW	198400065	OTHER	
MERRIMACK STATION AND ASH LANDFILL	431 (FORMERLY 97) RIVER RD	BOW	198400065	UTILITIES	
MERRIMACK STATION AND ASH LANDFILL	431 (FORMERLY 97) RIVER RD	BOW	198400065	UTILITIES	
MERRIMACK STATION AND ASH LANDFILL	431 (FORMERLY 97) RIVER RD	BOW	198400065	OTHER	
MERRIMACK STATION AND ASH LANDFILL	431 (FORMERLY 97) RIVER RD	BOW	198400065	UTILITIES	
PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	199605014	RECYCLING CENTER	
PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	199605014	LOCAL GOVERNMENT	
PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	199605014	RECYCLING CENTER	
PUBLIC WORKS FACILITY	12 ROBINSON RD	BOW	199605014	LOCAL GOVERNMENT	
R S AUDLEY INC	609 RTE 3A	BOW	199806014	CONTRACTOR	



NEW HAMPSHIRE DEPARTMENT OF Environmental Services

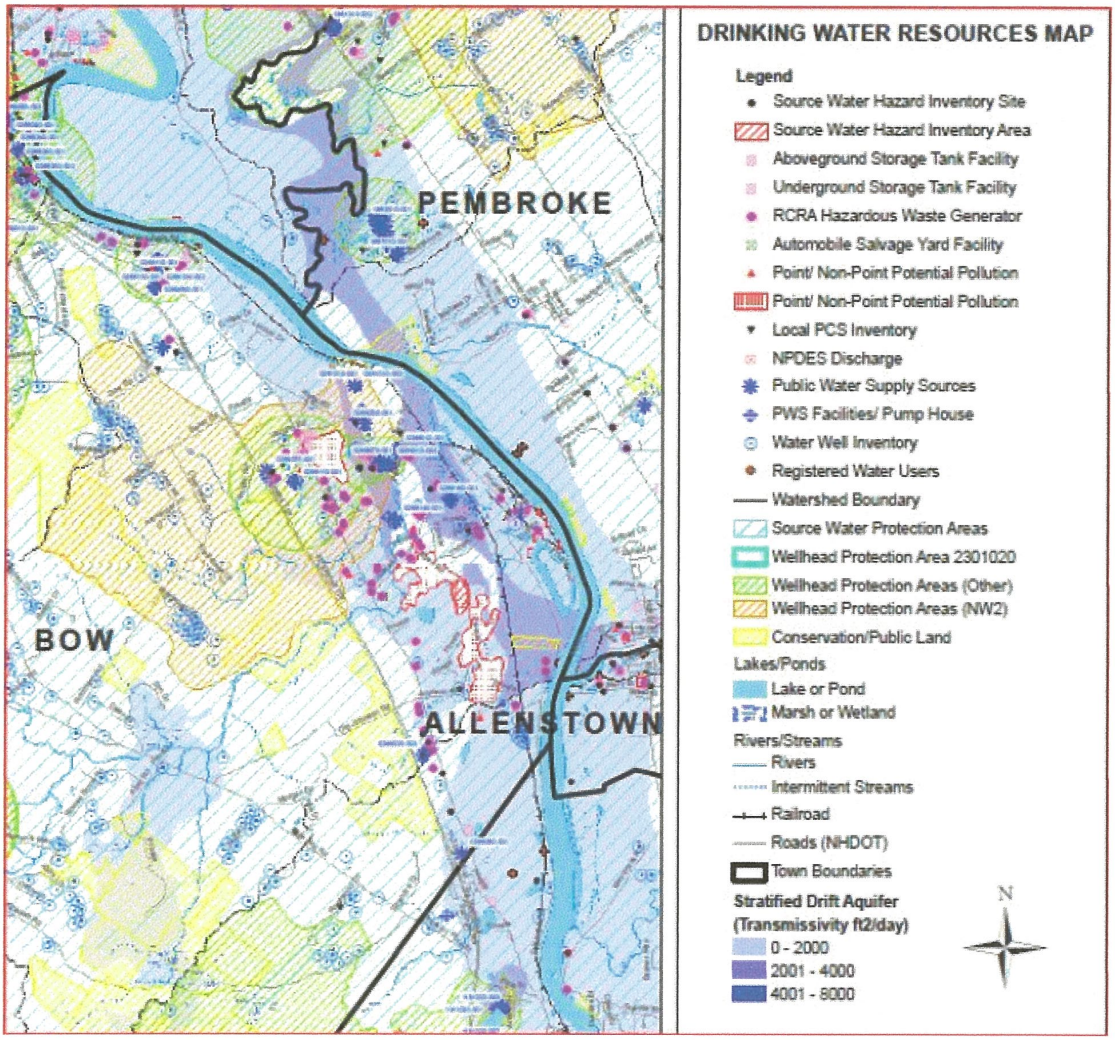
Legend
- Well Location
- Well Location Buffer
- Aboveground Storage Tank Facility
- Automobile Salvage Yard Facility
- Local Potential Contamination Sources Inventory
- RCRA Hazardous Waste Generator Points
- RCRA Hazardous Waste Generators Area
- Source Water Hazard Inventory Points
- Source Water Hazard Inventory Area
- Underground Storage Tank Facility

N

600 Feet

NOTE: The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes. For more information, please contact the Community Well Siting Program at 603-271-4566.

Date: 12/11/2018


PEMBROKE
BOW
ALLENSTOWN
DRINKING WATER RESOURCES MAP
Legend
Source Water Hazard Inventory Site
Source Water Hazard Inventory Area
Aboveground Storage Tank Facility
Underground Storage Tank Facility
RCRA Hazardous Waste Generator
Automobile Salvage Yard Facility
Point/ Non-Point Potential Pollution
Point/ Non-Point Potential Pollution
Local PCS Inventory
NPDES Discharge
Public Water Supply Sources
PWS Facilities/ Pump House
Water Well Inventory
Registered Water Users
Watershed Boundary
Source Water Protection Areas
Wellhead Protection Area 2301020
Wellhead Protection Areas (Other)
Wellhead Protection Areas (NW2)
Conservation/Public Land
Lakes/Ponds
Lake or Pond
Marsh or Wetland
Rivers/Streams
Rivers
Intermittent Streams
Railroad
Roads (NHDOT)
Town Boundaries
Stratified Drift Aquifer
(Transmissivity ft2/day)
0 - 2000
2001 - 4000
4001 - 8000
N

New Well Siting Best Management Practice (BMP) Questionnaire For Large New Community Water Systems/Sources

A component of the wellhead protection program implementation, required by Env-Dw 302: *Site Selection of Large Production Wells for Community Water Systems,* is to conduct BMP surveys at potential contamination sources (PCSs). The surveys are conducted to ensure that each PCS is complying with New Hampshire's BMP Rules, Env-Wq 401, so that the risk of groundwater and/or surface water contamination in the source protection area is minimized.

System Name: Bow Municipal Water System EPA #: 0261010 Date: 02/04/2019

1. **Are there potential contamination sources (PCSs) within your source protection area that require BMP surveys by your system?** **X Yes** ☐ **No**

2. **If you answered yes above, is your system current with its BMP survey obligations per Env-Dw 302.21 *Wellhead Protection Requirements*?** **X Yes** ☐ **No**

3. **Please list the facility name and date of visitation from the latest round of surveys** (if more space is needed please feel free to use the back of this sheet).

Facility Name	Facility Description	Date Surveyed
Amoskeg Maintenance	Commercial Maintenance Services	12/27/17
Autologic	Auto Repair Shop	01/12/18
Dempsey Automotive	Auto Repair Shop	12/27/17
Extreme Machines	Auto Repairs and Sales	12/27/19
Focus Automotive, Inc.	Auto Repair Shop	01/05/18
Iron Works Fire Protection	Fire Protection Safety Design	12/27/17
Kalwall Corp – Flatsheet Division	Lamination Manufacturing	11/14/17
Line-X of Merrimack Valley	Coat truck beds with protective liner	12/27/17
Structures Unlimited, Inc	Fabricate metal structure	11/14/17

Dan Mattus / Adam Bertrand / Sarah Duffy WhiteWater Inc. **Nov & Dec 2017 / Jan 2018**

Name and Signature of person conducting the BMP Inspections **Date**

Have you been trained for BMP inspections by DES staff? **Yes** **No**
If so, when? June 2017

Assistance in achieving BMP compliance is available from DES by contacting Diana Morgan at 271-2947 or diana.morgan@des.nh.gov .

Please return completed form to Diana Morgan at NHDES-DWGB, PO Box 95, Concord, NH 03302

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INVENTORY OF POTENTIAL AND KNOWN CONTANMINENT SOURCES (PCS Sites)

Bow Municipal Water System, Bow NH
PWS ID: 0261010
Verified and/or Identified During Windshield Survey's

SITE ID	SITE NAME SITE ADDRESS	TYPE	STATUS	CONTACT NAME CONTACT PHONE	CONATACT ADDRESS
Above Ground Storage Tank Facilities					
199605014	Bow Public Works Facility 12 Robinson Road Bow NH	AST	Active	Dave Stack 603-228-2207	Town of Bow 10 Grandview Road Bow NH 03304
980614A	R S Audley 609 Rte 3A Bow NH	AST	Active		R S Audley 609 Rte 3A Bow NH
Remediation Sites(REM-)					
199501029	Second Steet Motors aka- First Line Automotive 625 Rte 3A Bow, NH	REM-LUST	Active	Dave Boyd 603-226-6648	Second Steet Motors aka- First Line Automotive 625 Rte 3A Bow, NH
199906043	AHHA Properties, LLC 29 River Rd. Bow, NH	REM-UIC	Active		AHHA Properties, LLC PO Box 1630 Concord, NH 03302
199605014	Bow Public Works Facility 12 Robinson Road Bow NH	REM-UIC	Active	Matthew Cheney 603-228-0487	Bow Public Works Facility 12 Robinson Road Bow NH
199110027	Keller Products River Rd. Bow, NH	REM-UIC	Active	David Gamache 603-627-7887 x5501	David Gamache EH&S Specialist 38 River Rd. Bow NH 03304
199810071	Structures Unlimited, Inc. 38 River Rd. Bow, NH	REM-OPUF ETHER	Active	Kathleen Harvey 603-627-7887 X5500	Kathleen Harvey, EHS 40B River Rd. Bow NH 03304
Underground Storage Tank(UST)Facilities					
111124	JP Noonan Trans., Inc. 632 Rte 3A Bow, NH	UST	Vacant	John Stephens 603-224-2640	JP Noonan Trans., Inc. 632 Rte 3A Bow, NH
111580	R S Audley 609 Rte 3A Bow NH	UST	Active	Richard Hanson 603-224-7724	R S Audley 609 Rte 3A Bow NH
110515	Structures Unlimited, Inc. 38 River Rd. Bow, NH	UST	Active	Kathleen Harvey 603-627-7887 X5500	Kathleen Harvey, EHS 40B River Rd. Bow NH 03304

Hazardous Waste Generators(HWG)

NHD510167471	Autologic, LLC 7 Gordon Rd. Bow, NH	HWG	Active	William Kirby 603-224-2880	Autologic, LLC 7 Gordon Rd. Bow, NH
NHD986466076	Town of Bow Bus Garage 12 Robinson Rd. Bow, NH	HWG	Active	Matthew Cheney 603-228-0487	Town of Bow Bus Garage 12 Robinson Rd. Bow, NH
NHD510097579	Town of Bow, DPW 12 Robinson Rd. Bow, NH	HWG	Active	Tim Sweeney 603-228-2207	Town of Bow, DPW 12 Robinson Rd. Bow, NH
NHD510120157	Broden Truck Repair Northeast Perf & Exhaust 630 Rte 3A Bow, NH	HWG	Active	Dave Hemon 603-226-2816	Broden Truck Repair Northeast Perf & Exhaust 630 Rte 3A Bow, NH
NHD50023502	Concord Awning 1 Tallwood Dr. Bow, NH	HWG	Active	Virginia Greene 603-224-6880	Concord Awning 1 Tallwood Dr. Bow, NH
NH5986485142	Dantra Equipment 8 Gordon Rd. Bow, NH	HWG	Active	Shawn Welch 603-226-0633	Dantra Equipment 8 Gordon Rd. Bow, NH
NHD510131584	Damon Insulation 5 Tallwood Dr. Bow, NH	HWG	Active	Brian Kendrick 603-224-2232	Damon Insulation 5 Tallwood Dr. Bow, NH
NHD510160120	J W Fleet & Equipment, Inc 621 Rte 3A Bow, NH	HWG	Active	Joseph W Grigas 603-224-1145	J W Fleet & Equipment, Inc 621 Rte 3A Bow, NH
Added 2013	Bow Landscaping 6 Gordon Rd. Bow, NH	HWG	Active		Bow Landscaping 6 Gordon Rd. Bow, NH
Added 2013	Young Furniture 35 River Rd. Bow, NH	HWG	Active		Young Furniture 35 River Rd. Bow, NH
NHD510057078	JP Noonan Trans., Inc. 632 Rte 3A Bow, NH	HWG	Vacant	John Stephens 603-224-2640	JP Noonan Trans., Inc. 632 Rte 3A Bow, NH
NHD510057078	JP Noonan Trans., Inc. 632 Rte 3A Bow, NH	HWG	Vacant	John Stephens 603-224-2640	JP Noonan Trans., Inc. 632 Rte 3A Bow, NH
NHD000791541	Kalwall Corp Flat Sheet Div 40 River Rd. Bow, NH	HWG	Active	Kathleen Harvey 603-627-7887 X5500	Kathleen Harvey, EHS 40B River Rd. Bow NH 03304
NHD083396812	Keller Products, Inc 40 River Rd. Bow, NH	HWG	Active	David Gamache 603-627-7887 X5501	David Gamache EH&S Specialist 38 River Rd. Bow NH 03304

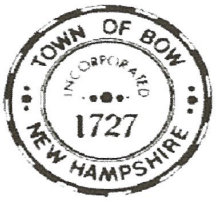
NHD510152606	Lakes Fuel Injection, Inc. 10 Dunklee Rd Bow, NH	HWG	Active	Erik Salvato 603-224-3331	Lakes Fuel Injection, Inc. 10 Dunklee Rd Bow, NH
NHD510119654	Moran Motor Works 654 Rte 3A Bow, NH	HWG	Inactive	John Moran 603-485-3501	Moran Motor Works 654 Rte 3A Bow, NH
NHD500021795	NH DOT District 5 670 Rte 3A Bow, NH	HWG	Active	Richard Roberts 603-485-9526	Robert Richards PO Box 16476 Hooksett, NH 03106
NHD500021795	Patsfield Excavation DBA Chuck LeFleur, Inc. 5 Tallwood Dr. Bow, NH	HWG	De-classified	Scott Patsfield 603-224-3985	Scott Patsfield 43 Robinson Rd. Bow NH 03304
NHD510158298	Quality Wood Priming, Inc. 34 Dunklee Rd. Bow, NH	HWG	Active	Scott Patsfield 603-224-3985	Scott Patsfield 43 Robinson Rd. Bow NH 03304
NHD510004732	R S Audley 609 Rte 3A Bow NH	HWG	Non-Notifier	Richard Hanson 603-224-7724	R S Audley 609 Rte 3A Bow NH
Added 2013	Targett Motors 631 Rte 3A Bow, NH	HWG	Active		Targett Motors 631 Rte 3A Bow, NH
Added 2013	Focus Auto 645 Rte 3A Bow, NH	HWG	Active		Focus Auto 645 Rte 3A Bow, NH
NHD986486637	Scanada International 8 Robinson Rd. Bow, NH	HWG	Active	Klaus Hieronymus 603-229-0014	Scanada International 8 Robinson Rd. Bow, NH
NHD500011663	Scott Lawson Group, Inc. 29 River Rd. Bow, NH	HWG	De-classified	Christina Shea 603-228-3610	Christina Shea PO Box 3304 Concord, NH 03302
NHD510129687	Second Street Motor Sales nka-First Line Automotive 625 Rte 3A Bow, NH	HWG	Active	Dave Boyd 603-226-6648	Second Street Motor Sales nka-First Line Automotive 625 Rte 3A Bow, NH
NHD500021746	Steeves Auto Sales 629 HWY Rte 3A Bow, NH	HWG	Active	James Steeves 603-224-3657	Steeves Auto Sales 629 HWY Rte 3A Bow, NH
NHD000791558	Structures Unlimited, Inc. 38 River Rd. Bow, NH	HWG	Active	David Gamache 603-225-5570	David Gamache EH&S Specialist 38 River Rd. Bow NH 03304
NHD986466969	Targett Motors kna-Northeast Perf & Exhaust 630 Rte 3A Bow NH	HWG	Active	Heather MacKenzie 603-226-9362	Targett Motors kna-Northeast Perf & Exhaust 630 Rte 3A Bow NH

NHD510121122	Timpson's RV Clinic Rte 3A Bow, NH	HWG	Not Found	Robert Timpson 603-226-3531	Timpson's RV Clinic Rte 3A Bow, NH
NHD50020722	Welch's Garage 4 Robinson Rd. Bow, NH	HWG	Active	Richard Welch 603-225-6106	Welch's Garage 4 Robinson Rd. Bow, NH
Added 2013	Line-X 617 Rte 3A Bow, NH	HWG	Active		Line-X 617 Rte 3A Bow, NH
Added 2013	Extreme Machines 644 Rte 3A Bow, NH	HWG	Active		Extreme Machines 644 Rte 3A Bow, NH
Added 2013	Strip Mall Suites 3 Tallwood Dr. Bow, NH	HWG	Active		Strip Mall Suites 3 Tallwood Dr. Bow, NH
Added 2013	Strip Mall Suites 7 Tallwood Dr. Bow, NH	HWG	Active		Strip Mall Suites 7 Tallwood Dr. Bow, NH
Added 2013	Field House Sports 12 Tallwood Dr. Bow, NH	HWG	Active		Field House Sports 12 Tallwood Dr. Bow, NH
Local Potential Contaminant Source Facilities (PCS)					
892	Dynamic Fusion/Sawtech Sci. Gerrity Industries 14 Dow Rd. Bow, NH	PCS	Active		Dynamic Fusion/Sawtech Sci. Gerrity Industries 14 Dow Rd. Bow, NH
71	Complete Truck Repair 10 Robinson Rd. Bow, NH	PCS	Active		Complete Truck Repair 10 Robinson Rd. Bow, NH
Non-Point Sources(NPS)					
617	Bow Technologies 3 Robinson Rd. Bow, NH	NPS	Active Non Comm	Carolyn Nahikian 603-736-9348	Bow Technologies PO Box 330 Epsom, NH 03234
618	State Highway Garage 670 Rte 3A Bow, NH	NPS	Active	Robert Richards 603-485-9526	Robert Richards PO Box 16476 Hooksett, NH 03106

APPENDIX 4-5

STANDARD NOTIFICATION LETTER FOR PCSs AND CURRENT LIST OF CONTACTS

WhiteWater
WATER & WASTEWATER SOLUTIONS



October 4, 2017

Current Owner
Structures Unlimited
166 River Road
Bow, NH 03304

RE: *Structures Unlimited*
Present use: Manufacturing

Dear Facility Owner,

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water. If we are all careful, we can protect our current or future sources of drinking water from contamination.

Your facility has been identified as being located in the area from which water flows into the wells supplying the Bow, NH Municipal Water System. As such, it is important that you are aware that the present use of your property listed above has the potential to affect the quality of the water. Your activity could also affect the water quality of your own well if you have one.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden chemicals or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down their toilet, sink drain, or onto the ground.

To help you avoid activities that could threaten water quality, we are enclosing an informational flyer, a copy of the State Best Management Practices for Groundwater Protection rules (Env-Wq 401) and an Inspection Form and Instructions for Best Management Practice (BMP) Compliance that can be used to perform a self-audit. Compliance with these rules is mandatory if you use, store, handle or dispose of regulated substances in greater-than-household quantities. Any discharges, without a DES permit, to groundwater or contamination of groundwater is illegal under RSA 485-A:13 and Env-Ws 1500. By complying with these rules and implementing the suggested practices contained on the flyer you will help us to protect our wells while at the same time reducing your own environmental liability.

Providing you with this information is the first phase of a protection program we are undertaking to protect water quality. The next step is to perform a compliance inspection to ensure that you are in compliance with the enclosed rules. A representative from WhiteWater will be coming to your facility on October 14th. Please contact us at 774-633-6712 or 508-612-5583 during normal business hours if you a certain time or if rescheduling is required to a different day. We urge you to perform a self-audit with the attached inspection form so that any violations of the rules can be remedied before my visit. This will also allow you to clarify any questions you may have.

Please contact Adam Bertrand (774-633-6712) or Daniel Mattus (508-612-5583) with any questions, concerns or scheduling conflicts. Also, feel free to call the N.H. Department of Environmental Services at 603-271-0688. We need your help to protect this valuable source of drinking water! Thank you.

Sincerely,
WhiteWater, Inc.

Enclosures: Flyer, BMP Rules, Inspection Form and Instructions for BMP Compliance

WhiteWater
WATER & WASTEWATER SOLUTIONS

TOWN OF BOW INCORPORATED 1727 NEW HAMPSHIRE

September 15, 2017

Current Resident
XX Route 3A
Bow, NH 03304

Dear Homeowner/Business Owner,

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water for the Bow Municipal Water System. If we are all careful, substances that could pollute our drinking water will never find their way to our drinking water supply.

Your property is located within the area from which water flows into the Bow Municipal Water Supply drinking water wells. As such, it is important that you are aware that what you do on your property could affect the quality of the water our system uses. Your activities can also affect the water quality on your own property.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden or lawn chemicals, or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down their toilet, sink, or onto the ground. By following the chemical storage, handling, and disposal tips on the enclosed flyers, you can avoid activities that could threaten water quality. Please take the time to review and follow the instructions on the flyers. We need your help to protect this valuable source of drinking water. The management and users of this public water supply appreciate your cooperation.

Sincerely,
WhiteWater, Inc

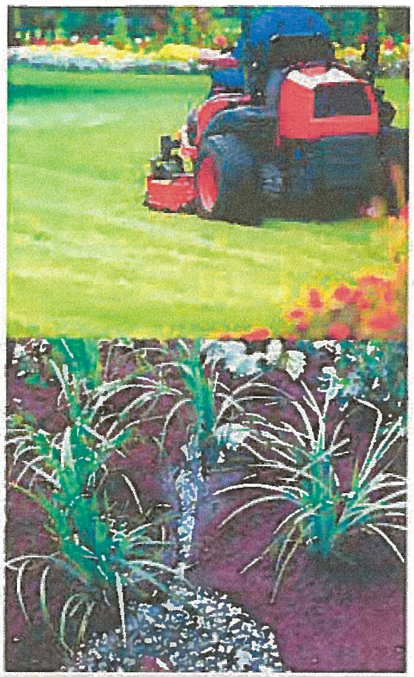
Eric Burkett
Manger, Water

Enclosures: Got Clean Water?
Protecting Your Drinking Water.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Protecting Your Drinking Water:

Through Better Land and Yard Care



You live in an area that contributes water to a lake, river or groundwater that is used as a source of drinking water. Drinking water can be easily contaminated by chemicals when not properly managed or used. Use fertilizers, pesticides, and other outdoor chemicals when necessary and in accordance with product instructions to limit the potential for harmful substances to affect the quality of your drinking water.

How Can You Protect Your Drinking Water?

When caring for your lawns and gardens keep these tips in mind...

- Fertilizers should not be applied within 25 feet of lakes, wetlands and streams.
- Measure the area of your lawn to fertilize and determine the right amount of fertilizer to buy and apply.
- Calibrate or test your spreader to ensure it is releasing the right amount of fertilizer.
- Follow package directions on pesticides, fertilizers, herbicides in order to use as little as possible.
- Consider slow or controlled release nitrogen sources of fertilizer found at garden stores.
- Avoid using fertilizers if heavy rains are anticipated, as the nutrients will be flushed from the lawn into waterways.
- Test your lawn's soil every two years to determine how much fertilizer is needed before applying.
- Avoid over-buying or over-using pesticides or hazardous chemicals. More is not necessarily better.

Reduce Runoff and Conserve Water!

- Use only what you need. If your gardens need watering, use a hose with a hand nozzle. Your gardens will get just what they need, when they need it.
- Soak up the rain! Install rain barrels to capture water from gutters for later use and install rain gardens to soak up stormwater before it makes it to the storm drains. Go to soaknh.org.

For more information visit NH DES des.nh.gov/ (search "*lawn care*") or NH Cooperative Extension's lawn care webpage, see http://extension.unh.edu/Lawns

Contact the Drinking Water Source Protection Program at (603) 271-7061

Is Gasoline Contaminating Your Drinking Water?

Gasoline is one of the most dangerous products commonly found around the home, yet people often store and use it with little care. Some of the chemicals in gasoline have been found in drinking water with increasing frequency, including benzene, toluene and MtBE (Methyl t-Butyl Ether), which is *easily dissolved in water* and is a possible carcinogen. Even a gasoline spills as small as a gallon can contaminate your drinking water wells or a public water supply.

To Protect Your Drinking Water From Gasoline

Avoid Spilling Gasoline on the Ground, Especially Near Wells

- Don't drain gasoline from lawn mowers, snow blowers, etc. onto the ground.
- Don't burn brush with gasoline.
- Don't top off your fuel tank.
- Keep refueling and engine work away from water supply wells, and if possible, over a concrete floor or similar barrier. Immediately clean up any gas or oil spills.

Avoid Spilling Gasoline in Lakes, Ponds, and Rivers

- Keep special gasoline-absorbing pads on your gas-powered boat and know how to use them.
- If you own a larger boat, make sure it has no-spill tank vents.
- Fill portable tanks from outboard boat engines on shore.
- Refuel snowmobiles and ice augers on shore; do not take gasoline storage tanks onto ice-covered ponds.

Store Gasoline Properly

- Use a clearly labeled container made for gasoline and with a spout to avoid spills.
- Keep gasoline containers in a dry, well ventilated shed or detached garage away from water supply wells. Don't keep metal gasoline cans on a dirt floor for extended periods.

Dispose of Waste Gasoline Properly

- Handle old or dirty gasoline as hazardous waste. Bring it to a household hazardous waste collection center in a proper gasoline container.

If a spill occurs: For *any size* spill that is not immediately cleaned up, first contact your local 911 responder or fire department, then call the DES emergency spill number at (603) 271-3899 (Mon-Fri, 8-4), or weekends and evenings at (603) 223-4381 (NH State Police).

Revised August 2011

Got Clean Drinking Water?

It's up to you!

The DOs and DON'Ts for maintaining clean Drinking Water

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

For more information please contact the Drinking Water Source Protection Program at (603) 271-7061 or visit our website: http://des.nh.gov/organization/divisions/water/dwgb/dwspp/index.htm.

Where does your drinking water come from?

Your drinking water comes from either groundwater or surface water. Groundwater is the water that flows through the spaces between soil particles and through fractures in rock. It comes from rain and snowmelt percolating through the ground. Surface water comes from rainfall and snowmelt running over land and from *groundwater* seepage into lakes, rivers and reservoirs.

Why should you be concerned?

While some pollutants, such as bacteria, viruses and phosphorus, can be reduced by passing through soil under certain conditions, groundwater can be easily contaminated by chemicals and oils. Surface water is also affected by soil and pollutants picked up as water flows over land.

Keep Household Hazardous Wastes Out of your Drinking Water! Such as ...
Automotive Fluids • Auto Batteries • Used Motor Oil
Oil-Based Paint • Paint Thinner • Antifreeze
Pesticides • Cleaning products • Gasoline

DO –

- Use non-toxic and less-toxic alternatives to pesticides and household chemicals.
- Take leftover household chemicals to your town's household hazardous waste collection day.
- Follow package directions on pesticides, fertilizers and other household chemicals.
- Check your underground fuel storage tank (UST) frequently for leaks. If a UST is more than 20 years old, replace it with an aboveground storage tank that has a concrete slab underneath it, a cover and secondary containment.
- Take care of your septic system. Inspect it every year and get it pumped out every 3-5 years.
- Avoid damage to your leach field and distribution lines by keeping vehicles, livestock and other heavy objects off of them.
- Test soil every two years to determine existing nutrient levels and pH before applying fertilizers.
- Use slow or controlled release nitrogen sources of fertilizer.
- Measure the area of your lawn to be fertilized to determine how much to use and calibrate or adjust spreader settings to match the recommended rate for fertilizers.
- Use drip pans large enough to contain motor vehicle or power equipment fluids being replaced or drained.
- Fully drain oil over a drip pan or pail before disposal. Most solid waste transfer stations accept used oil filters for recycling. Store and transport used oil filters in a covered leak-proof container until disposal.
- Keep absorbent materials such as rags, pads, "Speedi-Dry" or kitty litter near the work area and clean up all spills as soon as they occur.
- Dispose of all used absorbents immediately in a leak-proof container.
- Refuel or repair engines over an impervious surface, such as a concrete floor or tarp.
- Drain all fluids from motor vehicle parts before removing them from the vehicle.
- Follow medicine disposal guidelines described at www.nh.gov/medsafety.

DON'T –

- Buy more pesticides or hazardous chemicals than you need.
- Dispose of hazardous chemicals by pouring them down the drain or onto the ground.
- Over-use pesticides or household chemicals. More is not necessarily better.
- Have your UST removed by a contractor who is not familiar with state guidelines for UST removal.
- Overload your septic system with solids by using a garbage disposal, unless the system is specifically designed for one.
- Pour chemicals down the sink or toilet.
- Use septic system cleaners or additives containing acids or chemical solvents such as trichloroethylene (TCE).
- Use fertilizers if heavy rains are anticipated as the nutrients will be flushed from the lawn into drains and low areas.
- Apply fertilizers within 25 feet of most lakes and streams.

Town of Bow – Best management Practices Inspections Summary

PCS	Date Inspected	Follow up Letter Sent	BMP Compliance
Amoskeg Maintenance	12/27/2017	1/9/2018	Compliant
Autologic	1/12/2018	1/15/2018	Env-Wq 401.04 (c) (e) (h) (1-2) Waste Oil stored outside- removed 1/16/2018 Env-Wq- 401.09 (a) (b) Post release response information Sent items to be posted with letter 1/12/2018
Dempsey Automotive	12/27/2017	1/9/2018	Env-Wq 401.04(e) Storage containers not clearly labeled, requested labels in letter 1/9/2018 Env-Wq- 401.09 (a) (b) Post release response information Sent items to be posted with letter 1/19/2018
Extreme Machines	12/27/2017	1/9/2018	Env-Wq- 401.09 (a) (b) Post release response information Sent items to be posted with letter 1/9/2018
Focus Automotive Inc.	1/5/2018	1/9/2018	Env-Wq- 401.09 (a) (b) Post release response information Sent items to be posted with letter 1/5/2018
Iron Works Fire Protection	12/27/2017	1/9/2018	Compliant
Line-X of Merrimack Valley	12/27/2017	1/9/2018	Env-Wq- 401.09 (a) (b) Post release response information Sent items to be posted with letter 1/9/2018
Kalwall Corp -Flat sheet Division	11/14/2017	1/29/2018	Env-Wq 401.04(f) Drip pan needed under spigots- outlined in letter 1/29/2018
Structures Unlimited	11/14/2017	1/29/2018	Compliant

BOW RESIDENTIAL MAILING LIST

Name	Number	Street Name	Town	State	Zip	Type
Current Resident	14	Vaughn Road	Bow	NH	03304	Residence
Current Resident	15	Vaughn Road	Bow	NH	03304	Residence
Current Resident	17	Vaughn Road	Bow	NH	03304	Residence
Current Resident	18	Vaughn Road	Bow	NH	03304	Residence
Current Resident	19	Vaughn Road	Bow	NH	03304	Residence
Current Resident	22	Vaughn Road	Bow	NH	03304	Residence
Current Resident	24	Vaughn Road	Bow	NH	03304	Residence
Current Resident	25	Vaughn Road	Bow	NH	03304	Residence
Current Resident	26	Vaughn Road	Bow	NH	03304	Residence
Current Resident	27	Vaughn Road	Bow	NH	03304	Residence
Current Resident	24	River Road	Bow	NH	03304	Residence
Current Resident	33	River Road	Bow	NH	03304	Residence
Current Resident	50	River Road	Bow	NH	03304	Residence
Current Resident	58	River Road	Bow	NH	03304	Residence
Current Resident	59	River Road	Bow	NH	03304	Residence
Current Resident	62	River Road	Bow	NH	03304	Residence
Current Resident	63	River Road	Bow	NH	03304	Residence
Current Resident	66	River Road	Bow	NH	03304	Residence
Current Resident	72	River Road	Bow	NH	03304	Residence
Current Resident	74	River Road	Bow	NH	03304	Residence
Current Resident	77	River Road	Bow	NH	03304	Residence
Current Resident	84	River Road	Bow	NH	03304	Residence
Current Resident	108	River Road	Bow	NH	03304	Residence
Current Resident	135	River Road	Bow	NH	03304	Residence
Current Resident	154	River Road	Bow	NH	03304	Residence
Current Resident	188	River Road	Bow	NH	03304	Residence
Current Resident	15	Dow Road	Bow	NH	03304	Residence
Current Resident	18	Dow Road	Bow	NH	03304	Residence
Current Resident	93	Dow Road	Bow	NH	03304	Residence
Current Resident	97	Dow Road	Bow	NH	03304	Residence
Current Resident	103	Dow Road	Bow	NH	03304	Residence
Current Resident	122	Dow Road	Bow	NH	03304	Residence

Current Resident	123	Dow Road	Bow	NH	03304	Residence
Current Resident	140	Dow Road	Bow	NH	03304	Residence
Current Resident	153	Dow Road	Bow	NH	03304	Residence
Current Resident	171	Dow Road	Bow	NH	03304	Residence
Current Resident	1	Clearview Drive	Bow	NH	03304	Residence
Current Resident	2	Clearview Drive	Bow	NH	03304	Residence
Current Resident	3	Clearview Drive	Bow	NH	03304	Residence
Current Resident	4	Clearview Drive	Bow	NH	03304	Residence
Current Resident	5	Clearview Drive	Bow	NH	03304	Residence
Current Resident	6	Clearview Drive	Bow	NH	03304	Residence
Current Resident	7	Clearview Drive	Bow	NH	03304	Residence
Current Resident	8	Clearview Drive	Bow	NH	03304	Residence
Current Resident	9	Clearview Drive	Bow	NH	03304	Residence
Current Resident	10	Clearview Drive	Bow	NH	03304	Residence
Current Resident	11	Clearview Drive	Bow	NH	03304	Residence
Current Resident	12	Clearview Drive	Bow	NH	03304	Residence
Current Resident	13	Clearview Drive	Bow	NH	03304	Residence
Current Resident	14	Clearview Drive	Bow	NH	03304	Residence
Current Resident	15	Clearview Drive	Bow	NH	03304	Residence
Current Resident	16	Clearview Drive	Bow	NH	03304	Residence
Current Resident	17	Clearview Drive	Bow	NH	03304	Residence
Current Resident	18	Clearview Drive	Bow	NH	03304	Residence
Current Resident	19	Clearview Drive	Bow	NH	03304	Residence
Current Resident	20	Clearview Drive	Bow	NH	03304	Residence
Current Resident	21	Clearview Drive	Bow	NH	03304	Residence
Current Resident	22	Clearview Drive	Bow	NH	03304	Residence
Current Resident	23	Clearview Drive	Bow	NH	03304	Residence
Current Resident	24	Clearview Drive	Bow	NH	03304	Residence
Current Resident	25	Clearview Drive	Bow	NH	03304	Residence
Current Resident	26	Clearview Drive	Bow	NH	03304	Residence
Current Resident	27	Clearview Drive	Bow	NH	03304	Residence
Current Resident	18	Robinson Road	Bow	NH	03304	Residence
Current Resident	20	Robinson Road	Bow	NH	03304	Residence
Current Resident	24	Robinson Road	Bow	NH	03304	Residence

Current Resident	30	Robinson Road	Bow	NH	03304	Residence
Current Resident	36	Robinson Road	Bow	NH	03304	Residence
Current Resident	37	Robinson Road	Bow	NH	03304	Residence
Current Resident	42	Robinson Road	Bow	NH	03304	Residence
Current Resident	46	Robinson Road	Bow	NH	03304	Residence
Current Resident	48	Robinson Road	Bow	NH	03304	Residence
Current Resident	50	Robinson Road	Bow	NH	03304	Residence
Current Resident	47	Robinson Road	Bow	NH	03304	Residence
Current Resident	49	Robinson Road	Bow	NH	03304	Residence
Current Resident	51	Robinson Road	Bow	NH	03304	Residence
Current Resident	54	Robinson Road	Bow	NH	03304	Residence
Current Resident	53	Robinson Road	Bow	NH	03304	Residence
Current Resident	58	Robinson Road	Bow	NH	03304	Residence
Current Resident	59	Robinson Road	Bow	NH	03304	Residence
Current Resident	61	Robinson Road	Bow	NH	03304	Residence
Current Resident	63	Robinson Road	Bow	NH	03304	Residence
Current Resident	68	Robinson Road	Bow	NH	03304	Residence
Current Resident	70	Robinson Road	Bow	NH	03304	Residence
Current Resident	72	Robinson Road	Bow	NH	03304	Residence
Current Resident	80	Robinson Road	Bow	NH	03304	Residence
Current Resident	82	Robinson Road	Bow	NH	03304	Residence
Current Resident	1	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	3	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	4	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	5	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	6	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	7	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	8	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	9	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	10	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	11	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	12	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	13	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	14	Briarwood Drive	Bow	NH	03304	Residence

Current Resident	15	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	16	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	17	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	18	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	20	Briarwood Drive	Bow	NH	03304	Residence
Current Resident	2	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	5	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	6	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	8	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	9	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	10	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	7	Fieldstone Drive	Bow	NH	03304	Residence
Current Resident	50	Knox Road	Bow	NH	03304	Residence
Current Resident	52	Knox Road	Bow	NH	03304	Residence
Current Resident	54	Knox Road	Bow	NH	03304	Residence
Current Resident	51	Knox Road	Bow	NH	03304	Residence
Current Resident	56	Knox Road	Bow	NH	03304	Residence
Current Resident	58	Knox Road	Bow	NH	03304	Residence
Current Resident	55	Knox Road	Bow	NH	03304	Residence
Current Resident	60	Knox Road	Bow	NH	03304	Residence
Current Resident	57	Knox Road	Bow	NH	03304	Residence
Current Resident	59	Knox Road	Bow	NH	03304	Residence
Current Resident	61	Knox Road	Bow	NH	03304	Residence
Current Resident	63	Knox Road	Bow	NH	03304	Residence
Current Resident	66	Knox Road	Bow	NH	03304	Residence
Current Resident	68	Knox Road	Bow	NH	03304	Residence
Current Resident	65	Knox Road	Bow	NH	03304	Residence
Current Resident	70	Knox Road	Bow	NH	03304	Residence
Current Resident	67	Knox Road	Bow	NH	03304	Residence
Current Resident	73	Knox Road	Bow	NH	03304	Residence
Current Resident	77	Knox Road	Bow	NH	03304	Residence
Current Resident	86	Knox Road	Bow	NH	03304	Residence
Current Resident	79	Knox Road	Bow	NH	03304	Residence
Current Resident	81	Knox Road	Bow	NH	03304	Residence

Current Resident	83	Knox Road	Bow	NH	03304	Residence
Current Resident	85	Knox Road	Bow	NH	03304	Residence
Current Resident	94	Knox Road	Bow	NH	03304	Residence
Current Resident	87	Knox Road	Bow	NH	03304	Residence
Current Resident	89	Knox Road	Bow	NH	03304	Residence
Current Resident	96	Knox Road	Bow	NH	03304	Residence
Current Resident	91	Knox Road	Bow	NH	03304	Residence
Current Resident	98	Knox Road	Bow	NH	03304	Residence
Current Resident	93	Knox Road	Bow	NH	03304	Residence
Current Resident	100	Knox Road	Bow	NH	03304	Residence
Current Resident	95	Knox Road	Bow	NH	03304	Residence
Current Resident	97	Knox Road	Bow	NH	03304	Residence
Current Resident	99	Knox Road	Bow	NH	03304	Residence
Current Resident	106	Knox Road	Bow	NH	03304	Residence
Current Resident	101	Knox Road	Bow	NH	03304	Residence
Current Resident	110	Knox Road	Bow	NH	03304	Residence
Current Resident	103	Knox Road	Bow	NH	03304	Residence
Current Resident	6	Meadow Lane	Bow	NH	03304	Residence
Current Resident	7	Meadow Lane	Bow	NH	03304	Residence
Current Resident	9	Meadow Lane	Bow	NH	03304	Residence
Current Resident	11	Meadow Lane	Bow	NH	03304	Residence
Current Resident	13	Meadow Lane	Bow	NH	03304	Residence
Current Resident	12	Meadow Lane	Bow	NH	03304	Residence
Current Resident	14	Meadow Lane	Bow	NH	03304	Residence
Current Resident	15	Meadow Lane	Bow	NH	03304	Residence
Current Resident	14	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	7	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	12	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	5	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	8	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	6	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	4	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	2	Saltmarsh Cir.	Bow	NH	03304	Residence
Current Resident	3	Saltmarsh Cir.	Bow	NH	03304	Residence

Current Resident	1238	Route 3A	Bow	NH	03304	Residence
Current Resident	1239	Route 3A	Bow	NH	03304	Residence
Current Resident	1231	Route 3A	Bow	NH	03304	Residence
Current Resident	1228	Route 3A	Bow	NH	03304	Residence
Current Resident	1214	Route 3A	Bow	NH	03304	Residence
Current Resident	1212	Route 3A	Bow	NH	03304	Residence
Current Resident	1209	Route 3A	Bow	NH	03304	Residence
Current Resident	1199	Route 3A	Bow	NH	03304	Residence
Current Resident	1189	Route 3A	Bow	NH	03304	Residence
Current Resident	1167	Route 3A	Bow	NH	03304	Residence
Current Resident	1143	Route 3A	Bow	NH	03304	Residence

Town of Bow BMS

Number	Street Name	Unit #	Type	Name	Complex
75-81	Dow		Business	Cintas Linen Service	Grainite State Dist. Center
75-81	Dow		Business	NH Bindery	Grainite State Dist. Center
75-81	Dow		Business	Tilson Tech.	Grainite State Dist. Center
75-81	Dow		Business	Cintas Fire Protection	Grainite State Dist. Center
75-81	Dow		Business	Boars Head	Grainite State Dist. Center
2	Dow		Business	St. Gobian	
	Robinson	B-1	Business	Compass Behavior Stragles	Bow Technologies Center
	Robinson	B-3 / B-4 / B-6	Business	Vintage Sports Restoration	Bow Technologies Center
	Robinson	A-1	Business	Little Sprouts Childcare	Bow Technologies Center
	Robinson	A-1 2nd floor	Business	Monadnock	Bow Technologies Center
	Robinson	A-4	Business	Iron Works Fire Protection	Bow Technologies Center
	Robinson	A-5	Business		

APPENDIX 4-6

DOCUMENTATION OF BMP TRAINING OF INSPECTORS BY NHDES

From: Davidson, Tyler
Sent: Wednesday, June 12, 2019 12:35 PM
To: Klevens, Cynthia
Subject: Bow BMP Training Certificates

Hi Cindy,
Our BMP Inspector database indicates that the following personnel are/were affiliated with the Town of Bow, and received training on the indicated dates:

Name	Affiliation	Training Date
Noel Gourley	Bow DPW	6/7/17
Todd Drew	Bow DPW	6/7/17
Adam Bertrand	Whitewater Inc.	6/7/17
Dan Mattus	Whitewater Inc.	6/7/17
Eric Burkett	Whitewater Inc.	6/7/17
Mitchell Harrington	Bow Fire Department	8/14/13

Certificates showing completion of the BMP Inspection Training on the indicated dates are attached. It does not appear that we were providing certificates (or they weren't saved) back in 2013, so I do not have a certificate for Mitchell Harrington. Please let me know if you would like me to create one for him; I can have Pierce sign it when he returns to the office.

Please let me know if this is what you are looking for, or if you need anything else!
Thank you,

Tyler J. Davidson
Source Protection Specialist
Drinking Water & Groundwater Bureau
New Hampshire Department of Environmental Services
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095
P: (603) 271-3906
F: (603) 271-0656
tyler.davidson@des.nh.gov

New Hampshire Department of Environmental Services
Drinking Water & Groundwater Bureau

CERTIFIES THAT

Noel R. Gourley

HAS BEEN AWARDED 2.0 TRAINING CONTACT HOURS FOR SUCCESSFULLY COMPLETING THE

BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION TRAINING

6/7/2017

Kim Bourgouin, NH DES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

New Hampshire Department of Environmental Services
Drinking Water & Groundwater Bureau

CERTIFIES THAT

Adam Bertrand

HAS BEEN AWARDED 2.0 TRAINING CONTACT HOURS FOR SUCCESSFULLY COMPLETING THE

BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION TRAINING

6/7/2017

Kim Bourgouin, NH DES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

New Hampshire Department of Environmental Services
Drinking Water & Groundwater Bureau

CERTIFIES THAT

Daniel Mattus

HAS BEEN AWARDED 2.0 TRAINING CONTACT HOURS FOR SUCCESSFULLY COMPLETING THE

BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION TRAINING

6/7/2017

Kim Bourgouin, NH DES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

New Hampshire Department of Environmental Services
Drinking Water & Groundwater Bureau

CERTIFIES THAT

Mitchell Harrington

HAS SUCCESSFULLY COMPLETED THE

BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION TRAINING

8/14/2013

Tyler Davidson, NHDES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

APPENDIX 4-7

COPY OF STANDARD BMP INSPECTION FORM

Inspection Form and Instructions for Best Management Practice (BMP) Compliance

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

BMP inspections are conducted at facilities using more than household quantities of regulated substances in conjunction with local efforts to protect sources of drinking water. The inspections are conducted to ensure that each potential contamination source (PCS) is complying with New Hampshire's BMPs for Preventing Groundwater Contamination Rule, Env-Wq 401, so that the risk of groundwater and/or surface water contamination in the source protection area is minimized.

Section 1. Inspection Preparation

Follow the steps in this section to ensure that your inspections are conducted in a thorough and professional manner and to minimize the inconvenience to the PCS.

1. **Know the BMP Rules.** Knowledge of the Env-Wq 401 BMP rules will enable you to *know what to look for* during a inspection. It is important to conduct your inspections as efficiently as possible so that you don't waste your time or that of the PCS. Knowing the BMP rules will speed up an inspection, prevent oversights, and is essential to discuss compliance issues.

2. **Be sure each PCS** has received a copy of the Env-Wq 401 BMP rules and a DES fact sheet summarizing the BMP Rules *in advance* of your appointment to do the inspection. Ask them to read the rules and offer to answer any questions before the inspection. Many PCSs become more comfortable about an inspection after realizing the "common sense" approach of the BMP rules. Bring several BMP fact sheets to each inspection to distribute to the PCS representative(s).

3. **Know your Source Water Protection Area.** During an inspection keep in mind where the PCS is situated relative to your source(s). This may help you make site-specific decisions about compliance issues. Bring a map showing your protection area(s) to the inspection so the PCS can see that they are located inside the protection area.

4. **Know your Source Water Protection Area Management Plan.** Keep in mind the compliance mechanism of your management plan. One of the most commonly asked questions by PCSs is "How are the BMP rules enforced?" so you should be able to explain how you will achieve compliance with BMP violations. Emphasize that you will seek the *least costly and most practical* way to achieve compliance. Voluntary compliance is always the goal.

5. **Find out as much as you can about a PCS before you go** to the inspection. It saves time to know site -specific background information, such as: what type of sewage disposal system does the PCS have; how long has the PCS been in business; and what was the historic usage of the PCS' property. Also, before the inspection, think about site-specific concerns pertaining to the storage, handling and disposal of regulated materials. For example, before conducting an inspection at a printing company, anticipate that you will need to know how they store, handle and dispose of ink products. Knowing key background data and anticipating site-specific compliance concerns will help prevent oversights and will make the inspection more efficient.

6. **Be sure that the PCS understands** that a BMP inspection is mutually beneficial. Explain that the Env-Wq 401 rules apply to all PCSs in New Hampshire, not just the ones within a source protection area. Also, explain that compliance with BMP rules may benefit them by: improving their environmental practices; reducing their overall environmental liability; and perhaps minimizing potential cleanup costs by preventing a release of hazardous substances. Your water system benefits from improved protection of your drinking water sources and reduced sampling costs.

7. If at all possible, **fill out Sections 2, 3, and 4 of this form before you go** to the PCS. Most PCS representatives are busy and will appreciate whatever you can do to minimize your time there. This is a good time to think about the site-specific concerns mentioned in (5) above.

8. **Know the BMP inspection form.** During an inspection, it is not always possible to fill out the form in the same order as the questions are written. Knowing the form makes it much easier to "skip around" while you are touring a facility.

Section 2.
Record of Inspection

Fill out Sections 2 and 3 prior to each inspection.

Inspection Date	
Potential Contamination Source (PCS)	
Town where PCS is Located	
Agency Conducting Inspection	
Name and Title of Person(s) Performing Inspection	.
	.
	.
Name and Title of Person(s) Giving Information about the PCS	.
	.
	.

Section 3.
Potential Contamination Source (PCS) Information

Update this section for each 3-year inspection.

PCS Name		
PCS Address		
PCS Phone Number		
PCS Tax Map and Lot Number	**Tax Map**	**Lot no.**
PCS Owner		
PCS Owner Address (If different from above)		
General Description of Business		

Section 4.
Inventory Verification

An "inventory verification" is conducted before the actual inspection to find out if the PCS uses greater than household quantities of regulated substances, thereby making it subject to the Env-Wq 401 BMP rules. If the PCS does not use greater than household quantities of regulated substances, answer "no" in Step C. and do not complete the rest of this form. This verification may be performed by phone.

Complete Steps A., B., and C. below

Step A. - What **regulated substances** does the PCS use, handle, or store?

The best way to complete this section is to ask the PCS contact to fill out the chart below. **If possible, arrange to have the PCS fill out this chart before you arrive to do the inspection.** If not done earlier, this section is filled out as the first task of your inspection. Quantities listed below only need to be **estimates** of maximum quantities on hand at any one time. Any chemicals stored in regulated tanks should be included on this chart.

Regulated Substance	Quantity (gallons)	Regulated Substance	Quantity (gallons)
Transmission and brake fluid		Cleaners and Disinfectants	
Radiator coolants		De-icing salt	
Hydraulic fluid		Refrigerants	
Motor oil		Fertilizer	
Waste oil		Pesticides and herbicides	
Gasoline or jet fuel		Photo processing chemicals	
Diesel Fuel and kerosene		Printing ink	
#2 Heating oil		Lye or caustic soda	
Grease and lubricants		Metal buffing compounds	
Degreasers		PCBs (bulk)	
Battery acid (bulk)		Products labeled poison	
Rustproofers		List **other products you think are hazardous**, below:	
Car wash products		1.	
Asphalt and roofing tar		2.	
Paint, stain, urethane		3.	
Thinner, wood stripper		4.	
Waterproofing chemicals		5.	
Dry-Cleaning Fluids		6.	

Section 4.
Inventory Verification

Step B. - What **regulated substance wastes** does the PCS produce?

The second part of the inventory verification is to find out if the PCS produces any regulated substance wastes and, if so, **how they are disposed.** As done for Section A, if possible arrange to have the chart below filled out by the PCS contact prior to your inspection. If not done ahead of time, fill out the chart after you look over the results of Section A. For example, if the PCS is a machine shop that uses cutting oils and degreasing solvents, then the chart below must indicate how they dispose of their waste oils and used solvents. Do not list non-hazardous wastes, such as refuse and paper on this chart. Estimates of quantities generated per year are adequate.

Type of Waste	Quantity Generated per Year	Disposal Method
1.		
2.		
3.		
4.		
5.		

Step C. - Are **greater than household quantities** of regulated substances or wastes used, handled, or stored?

(Check the appropriate box below)

If all containers at the PCS are **less than 5 gallons**, check "NO" below

√ **Check Below**

	YES	**Greater than household quantities** of regulated substances or wastes **are used, handled, or stored** so conduct an inspection to determine compliance with BMP rules.
	NO	**Greater than household quantities** of regulated substances or wastes **are not used, handled, or stored** so do not conduct an inspection to determine compliance with BMP rules.

If you **checked "NO" above**, do not continue with the inspection because the inventory verification indicated that regulated substances are not used by the PCS.

If you **checked "YES" above**, complete the rest of this form, which contains a series of questions that need to be answered to assess if the PCS is in compliance with the BMP rules. Be sure that you answer all of the questions – indicate "n/a" if that is the correct answer.

PCSs that have underground tanks, but no other containers larger than 5 gallons are **special cases**. If a PCS fits that description, you should not conduct a full inspection. List the USTs in Section 7, verify that the USTs are registered with the DES, and then **stop the inspection.** Convenience stores and self-service gas stations are common examples.

Section 5.
Regulated Substance Storage Areas

If you observe a BMP violation during an inspection, point it out to the PCS contact and discuss it right away - **inspections are meant to benefit both parties.**

Storage practices of regulated substances, whether raw materials or wastes, are a major focus of the BMP rules. Therefore, one of the most important tasks of an inspection is to observe all areas where the regulated substances listed in Section 4 - Steps A and B are stored. **Ask the PCS contact where they store** their regulated substances and list them below. Then be sure to carefully observe each interior and exterior storage area to see if their storage practices comply with the BMP rules. Consider at all times during your observations that you are looking for practices that could lead to a potential release of hazardous substances to the environment. Use common sense.

Step A. - List and briefly describe **all on-site storage areas** below.

Exterior Storage Areas

1.
2.
3.
4.

Interior Storage Areas

1.
2.
3.
4.

Summary of **Env-Wq 401 BMP rules pertaining to storage** of regulated substances

- ❑ Secure storage areas against unauthorized entry.
- ❑ Store regulated substances on an impervious surface.
- ❑ Inspect storage areas weekly.
- ❑ Cover regulated containers in outdoor storage areas.
- ❑ Regulated containers in outdoor storage areas must be more than 50 feet from surface water, 50 feet from storm drains, 75 feet from private wells, and more than 400 feet from public wells.
- ❑ Secondary containment is required for outdoor storage of regulated containers. On-premise use heating oil tanks are exempted, however, containment is still recommended.
- ❑ Regulated containers should be clearly and visibly labeled.

A **regulated container** is a container with a capacity of 5 gallons or more that contains hazardous substances. Multiple 5-gallon containers of a regulated substance may qualify the facility as a PCS.

Secondary containment means an impervious structure adequate to hold 110% of the volume of a regulated container.

Section 5.
Regulated Substance Storage Areas

Proceed at a comfortable pace as you tour a facility. You may miss key observations if you go too fast.

Step B. - Questions to ask when observing **outdoor storage areas.**

Wooden floors with earth beneath are not impervious surfaces.

Storage of Regulated Substances in outdoor storage areas (refer to Env-Wq 401.04)

* Yes No N/A Env-Wq 401.04(b) **1.** Do the outdoor storage area(s) have an impervious surface under the regulated substances?
Describe: _____

* Yes No N/A Env-Wq 401.04(c) **2.** Is the outdoor storage area(s) secured against unauthorized entry (fence, surveillance, etc.)?
Describe: _____

* Yes No N/A Env-Wq 401.04(d) **3.** Is the outdoor storage area(s) inspected at least weekly for signs of spills?

* Yes No N/A Env-Wq 401.04(d) **4.** Is there sufficient space between large containers to allow for inspections?

* Yes No N/A Env-Wq 401.04(e) **5.** Is each regulated container clearly and visibly labeled with the name of material?

* Yes No N/A Env-Wq 401.04(f) **6.** Is each container closed and sealed or equipped with a drip pan beneath a spigot, valve or pump?

* Yes No N/A Env-Wq 401.04(g) **7.** Is spill control and containment equipment (i.e. absorbents) available in the outdoor storage area?

* Yes No N/A Env-Wq 401.04(h)(2) **8.** Are regulated substances that are stored outside covered?
Describe: _____

A cover must be permanent and large enough to keep a container fully protected from rain and snow.

* Yes No N/A Env-Wq 401.04(h)(4) **9.** Are regulated substances which are stored outside > 50 feet from a surface water body or > 75 feet from a private well?

* Yes No N/A Env-Wq 401.04(h)(4) **10.** Are regulated substances that are stored outside > 50 feet from a storm drain?
If no, is secondary containment present? _____

* Yes No N/A Env-Wq 401.04(h)(4) **11.** Are regulated substances in outdoor storage areas stored outside the protective radius of public water supply wells? (radius is usually 400' - contact 271-0688 with questions)

* Yes No N/A Env-Wq 401.04(h)(1) **12.** Do regulated containers in outside storage areas have secondary containment?

Transfer (Handling) of Regulated Substances in outdoor storage areas (refer to Env-Wq 401.05)

During an inspection, it is important to find out and understand **where and how** the PCS handles regulated substances. Observe all areas where fluids are used, or moved to and from.

* Yes No N/A Env-Wq 401.05(a) **13.** Are regulated substances in outdoor storage areas transferred using funnels and drip pans or other spill-safe devices?

* Yes No N/A Env-Wq 401.05(b) **14.** Are regulated substances in outdoor storage areas transferred over impervious surfaces?
Describe: _____

Section 5.
Regulated Substance Storage Areas

Release Response Information
(refer to Env-Wq 401.09)

Release response information should be easy to find, clearly visible, and easy to read. If necessary, give a blank DES response form to the PCS contact. The form works best if copied onto brightly colored paper and placed in a clear plastic sleeve.

* Yes No N/A Env-Wq 401.09(b) **15.** Is there adequate information posted at each outdoor storage area that indicates what should be done and who should be contacted in the event of a spill or other emergency?

Yes No N/A **16.** Did you recommend to the PCS that they post the DES release response form in outdoor storage areas?

Step C. - Questions to ask when observing **indoor storage areas.**

Storage of Regulated Substances in Indoor Storage Areas (refer to Env-Wq 401.04).

* Yes No N/A Env-Wq 401.04(b) **1.** Does the indoor storage area(s) have an impervious surface under the regulated substances? Describe: _____

* Yes No N/A Env-Wq 401.04(c) **2.** Is the indoor storage area(s) secured against unauthorized entry (locked building, etc.)? Describe: _____

* Yes No N/A Env-Wq 401.04(d) **3.** Is the indoor storage area(s) inspected weekly for signs of spills?

* Yes No N/A Env-Wq 401.04(d) **4.** Is there sufficient space between large containers to allow for inspections?

* Yes No N/A Env-Wq 401.04(e) **5.** Is each regulated container clearly and visibly labeled with the name of material?

* Yes No N/A Env-Wq 401.04(f) **6.** Is each container closed and sealed or equipped with a drip pan beneath a spigot or pump?

* Yes No N/A Env-Wq 401.04(g) **7.** Is spill control and containment equipment (i.e. absorbents) available in the indoor storage area?

Transfer (Handling) of Regulated Substances in indoor storage areas (refer to Env-Wq 401.05)

* Yes No N/A Env-Wq 401.05(a) **8.** Are regulated substances in indoor storage areas transferred using funnels and drip pans or other spill-safe devices?

* Yes No N/A Env-Wq 401.05(b) **9.** Are regulated substances in indoor storage areas transferred over impervious surfaces? Describe: _____
_____

Release Response Information in indoor storage areas (refer to Env-Wq 401.09)

* Yes No N/A Env-Wq 401.09(b) **10.** Is there adequate information posted at each storage area that indicates what should be done and who should be contacted in the event of a spill or other emergency?

Yes No N/A **11.** Did you recommend to the PCS that they post the DES release response form in indoor storage areas?

Section 6.
Floor Drains and Work Sinks

Floor drains can be small and easily hidden from view, so be sure to **ask the PCS contact** if any floor drains are present at the facility. Do not assume that you will observe all drains.

Floor drains and work sinks are focuses of the BMP rules because they can be means by which hazardous substances are released to the environment. It is vital to know where floor drains and work sinks discharge. PCS background information is useful here because floor drains in an older building are more likely to discharge to a drywell or to an unknown point than those in a newer building. Env-Ws 1503.04 (c) prohibits discharges through floor drains to the environment. For this section, you need to know if the PCS is serviced by a sanitary sewer or by a septic system. Keep in mind that floor drains can range in size from circular drains a few inches in diameter to trench drains many feet in length.

Step A. - Floor Drains (refer to Env-Wq 401.06)

Answer questions 1- 6 below

Concentrate on floor drains located **near regulated substances**. Drains in non-hazardous areas like bathrooms, kitchens or cafeterias are not covered by the Env-Wq 401 BMP rules.

Yes No **1.** Is the facility connected to a sanitary sewer?

Yes No **2.** Are there any on-site septic systems?

Yes No **3.** Are there any floor drains at the facility?

Observe each floor drain for **visible stains.** Note any stains in the chart below.

If you **answered "YES" to 3., above**, list their locations and briefly describe, below

list of **Floor Drains** at the PCS

1.	4.
2.	5.
3.	6.

Floor Drain Discharge Points (circle all that apply and describe in the box)

Unknown Holding Tank Sanitary Sewer Septic System Drywell Stream or Wetland

Yes No N/A **4.** If you circled unknown above, did you require that the PCS **determine the discharge point** of their floor drains?

* Yes No N/A **5.** Are the floor drains **authorized to discharge** by any of the following (check all that apply)?
Env-Wq 401.06

_____ Underground Injection Control (UIC) Registration	_____ National Pollution Discharge Elimination System Permit
_____ Holding Tank Registration	other
_____ Discharge Authorization from local treatment plant	other

Yes No N/A **6.** Did you ask to see the permits to verify their existence?

Floor drains and work sinks **cannot discharge** into or onto the ground or water without a permit.

Section 6.
Floor Drains and Work Sinks

Step B. - Work Sinks (refer to Env-Wq 401.07)

Env-Wq 401.03(k) defines work sink as a basin necessary to perform a task or process that requires a regulated substance, such as parts washing. Sinks used exclusively for hand washing are excluded from the inspection unless they are stained or located near where regulated substances are used. Observe sinks for visible staining. Many facilities have devices for parts cleaning that utilize a self-contained, recirculating system for degreasing solvent. Consider these devices a work sink, but note the self-containment feature in the chart below. Self-contained degreasing sinks comply with BMP rules.

Answer questions 1 - 4 below

Yes No **1.** Are there any work sinks used for non-hand washing purposes at the facility?

If you **answered "YES" to question 1**, list their locations and briefly describe, below

List of **Work Sinks** at the PCS

1.	4.
2.	5.
3.	6.

Work Sink Discharge Points (circle all that apply and describe in the box)

Unknown Holding Tank Self-Contained Sanitary Sewer Septic System Drywell Stream or Wetland

Yes No N/A **2.** If you circled unknown, above, did you require that the PCS **determine the discharge point** of their work sinks? Report all unknown discharge locations to the DES/UIC Program at 271-2858.

* Yes No N/A **3.** Are all the work sinks **authorized to discharge** by any of the following (check all that apply)?
Env-Wq 401.07

_____ Underground Injection Control (UIC) Registration	_____ National Pollution Discharge Elimination System Permit
_____ Holding Tank Registration	other
_____ Discharge authorization from local treatment plant	other

Yes No N/A **4.** Did you ask to see the permits to verify their existence?

Section 7. Storage Tanks

Underground tanks cannot be directly observed, so simply list them and check their registration status. **Observe all fueling areas.** Keep in mind that the Env-Wq 401 BMP rules require that fueling be conducted on an impervious surface.

Storage tanks are either underground or aboveground. A tank is considered underground if more than 10% of its capacity is below grade. Env-Wq 401 BMP rules do not encompass all regulations pertaining to tanks; both underground and aboveground tanks are regulated apart from the BMP rules. However, because tanks have the potential to adversely impact the environment you must observe all PCS tanks and associated fueling and filling areas during an inspection. List all tanks at the PCS and find out if they are registered with the DES. BMP issues applicable to tanks may include impervious surfaces, secondary containment, covers, and setbacks from surface water and wells. Be sure to keep these issues in mind while observing tanks.

Step A. - Underground Storage Tanks (USTs)

USTs are regulated by NH UST rules Env-Or 400.

Partial Summary of UST Regulations

- Non-residential USTs that contain other regulated materials (such as gasoline or chemicals) and are larger than 110 gallons must be registered with the DES.
- Non-residential heating oil USTs that are larger than 110 gallons must be registered with the DES if other USTs are on the site that must be registered.

Answer questions 1 - 6 below.

Yes No **1.** Are any USTs located at the PCS? If "YES", list them below.

List of **USTs** at the PCS

Contents	Capacity (gal.)	Age	Contents	Capacity (gal.)	Age
1.			5.		
2.			6.		
3.			7.		
4.			8.		

* Yes No N/A Unknown **2.** Are the USTs at the PCS registered with the DES?
Env-Wm 1401

Yes No N/A. **3.** If you answered "unknown" or "no" to question 2, did you require the PCS to determine or correct its UST registration status, if applicable?

* Yes No N/A **4.** Does the PCS conduct fueling operations from its USTs over an impervious surface?
Env-Wq 401.04(b)

* Yes No N/A **5.** Is spill control and containment equipment (i.e. absorbents) available near the USTs (especially where fueling takes place)?
Env-Wq 401.04(g)

* Yes No N/A **6.** Is release response information posted near the USTs?
Env-Wq 401.09

Section 7.
Storage Tanks

Tanks in basements are aboveground tanks if they are above the floor.

ASTs are regulated by NH AST rules Env-Or 300.

Step B. - Aboveground Storage Tanks (ASTs)

Partial Summary of AST Regulations

- A single AST with a capacity larger than 660 gallons must be registered with the DES.
- Two or more ASTs with a total storage capacity larger than 1,320 gallons must be registered with DES.
- ASTs with a capacity of 10,000 gallons or less storing **fuel oil used only to heat an on-site structure** do not have to be registered.
- ASTs with a capacity less than 660 gallons are subject to BMP rules.

Answer questions 1 - 8 below.

Yes No **1.** Are any ASTs at the PCS? If "YES", list below

List of **ASTs at the PCS**

Contents	Capacity (gal.)	Age	Contents	Capacity (gal.)	Age
1.			5.		
2.			6.		
3.			7.		
4.			8.		

* Yes No N/A Unknown **2.** Are the ASTs at the PCS registered with the DES?
Env-Wm 1402

Yes No N/A. **3.** If you answered "unknown" or "no" above, did you require the PCS to determine or correct its AST registration status, if applicable?

* Yes No N/A **4.** Does the PCS conduct fueling operations from its ASTs over an impervious surface?
Env-Wq 401.04(b)

* Yes No N/A **5.** Is release response information posted near the ASTs?
Env-Wq 401.09

* Yes No N/A **6.** Is spill control and containment equipment (i.e. absorbents) available near the ASTs?
Env-Wq 401.04(g)

* Yes No N/A **7.** Do the ASTs at the PCS (including those that do not require registration) have a cover (i.e. roof) if outside, secondary containment and/or a spill prevention control and countermeasure plan (SPCC)? Describe below.
Env-Wq 401.04(h)(1)

_____

_____

* Yes No N/A **8.** Do all portable, outdoor ASTs meet the BMP setbacks from surface water (>50 feet) and private wells (>75 feet)? If no, describe below.
Env-Wq 401.04(h)(4)

_____

_____

Section 8. Final Questions

Fill out this section **before you leave the site.** Don't rely on your memory to complete this form. Site specific information is easy to forget or to confuse with other facilities so fill out this form completely and have all your questions answered before leaving.

Yes No **1.** Do any on-site septic system(s) or drywell(s) accept any non-sanitary discharges not previously mentioned? If **yes,** describe below.

Yes No **2.** Are there any other non-sanitary discharges not previously mentioned? If **yes,** describe below.

Yes No **3.** Did the inspection indicate any other practices or findings that you want to discuss with the DES? If **yes,** describe below and call 271-0688for further assistance.

Section 9. Follow-up Procedures

Before you leave the site, inform the PCS representative that within 30 days you will get back to them in writing with the results of the inspection.

- If you **circled "No"** to any question with an asterisk (*) beside it, or **circled "Yes"** to any question in Section 8, then the PCS is not in compliance with the referenced BMP or tank rule.

- If a BMP is **not in compliance** with a BMP or tank rule, you should notify them in writing within 30 days of the inspection. Written notification should include suggestions about how to correct non-compliance issues as well as reasonable deadlines. Refer to the booklet "Managing Groundwater Protection Areas - Guidance and Sample Letters" for assistance. Call the DES at 271-0688 for a copy of this booklet.
- A PCS should be notified in writing within 30 days even if no BMP rule violations were observed.
- It is not necessary to submit copies of completed inspection forms to the DES. However, be certain to keep them in your files for reference. A copy of a completed inspection form can be provided to a PCS if requested.

Please call the DES Source Water Protection Program at 271-0688 if you need training, assistance or have any questions.

APPENDIX 5-1

EMERGENCY PLAN

Bow, NH Municipal Water System

Emergency Response Plan

Per NH Administrative Rule Env-Ws 360.15

June 2012
Rev May 15, 2013

For submittal to:
NH Department of Environmental Services
Drinking Water & Groundwater Bureau
PO Box 95, Concord, NH 03302-0095
Attention: Johnna McKenna
(603) 271-7017, (603) 271-0656 (fax)
johnna.mckenna@des.nh.gov

HOW TO USE THIS DOCUMENT

- Instructions provided by NHDES Drinking Water and Groundwater Bureau -
http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-08-14.doc.

Safe and reliable drinking water is vital to every community. Emergency response planning is an essential part of managing a drinking water system. An emergency plan helps to establish a protocol for the management and staff of a water system to follow during an emergency, and helps a water system reduce its vulnerability to emergencies.

New Hampshire Administrative Rule, Env-Ws 360.15 Emergency Plans for Community Water Systems, requires community public water systems to have a formal emergency plan. **Emergency plans for community systems must be reviewed annually by the water system and submitted to the Department of Environmental Services upon at least every six years beginning March 2003.**

Additionally, the Emergency Response Plan will be subject to review during periodic NH DES Sanitary Surveys and lack of one will be enforced as a significant deficiency.

This Emergency Plan should be kept with a bright cover page so it is easy to locate. Every page in the plan includes the latest revision date, page number and system name in case pages become loose.

TABLE OF CONTENTS

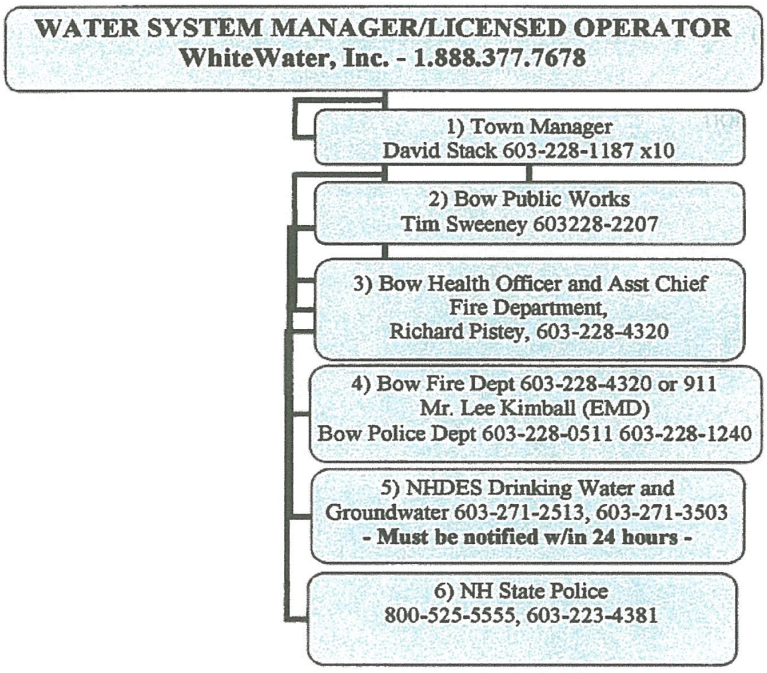
0261010 Bow Municipal Water System
Emergency Response Plan

Section 1. System Identification

System EPA Number	0261010	
System Name	Bow Municipal Water System	
System Address	10 Grandview Road	
Town	Bow, NH 03304	
Source ID/Type/Description/Well Yield	001 GPW1 – Production Well #1	700 gpm
Source ID/Type/Description/Well Yield	002 GPW2 – Production Well #2	700gpm
Population Served/# Service Connections	# of people: <500	# of connections: ~100*
Name, Title, E-mail and Phone Number of person responsible for maintaining this emergency plan.	Lee Kimball Town of Bow Emergency Management Director	Tel: 603-228-4320 or 911 Fax: 603-228-1674 mail@bowfiredepartment.org (Home) 603.226.3670 (Mobile) 603.568.8096

*New water system, currently with 0 customers, projections of 100 customers within 1 year.

Section 2. Chain-of-Command



Responsibilities

Bow Town Manager

1. Overall responsibility for managing the water emergency.
2. Immediately notifies the Town EMD, DPW, Health Officer, Police and Fire of the existence of a water emergency. Also ensures that the State Drinking Water and Groundwater Bureau have been notified by the Water System Contract Operator.
3. Remains available as the main contact person to respond to media inquiries, approval of public notice contents and procedures for distribution including Boil Orders, Water Use Restrictions, and other notifications.
4. Serves as lead coordinator with the State, Contract Operator, and other Town officials.

Bow DPW Director

1. Make available and coordinate use of system equipment such as keys, maps, tools, spare parts, vehicles, and backhoe during an emergency.
2. Oversee service/repair efforts.
3. As necessary assist water system operator with return to normal operation procedures.

Bow Emergency Management Director

1. Implements and oversee system user notification procedure.
2. Implement unique system user notification procedure.
3. Implement notification of abutting public water system.
4. If necessary, represent the system as spokesperson to all outside parties including the media.
5. Be responsible for and maintain up-to-date notification lists and notification tree contacts.
6. If necessary, oversee and implement boil order and alternate water procedures plus water use restrictions.

Bow Municipal Water System Contract Operator (WhiteWater, Inc.)

1. Be available to communicate to the Town Manager, DPW and Emergency Management personnel status updates in a timely manner.
2. Be available as necessary to provide hands-on knowledge of system components.
3. Be available as necessary to provide specialized repair of system components such as pumps, water treatment devices and valves.
4. Be available as necessary to take water samples and to transport them to a certified laboratory for analyses.
5. Oversee and coordinate the return to normal operation.

Bow Health Officer

1. Make available and coordinate use of system equipment such as keys, maps, tools, spare parts, vehicles, and backhoe during an emergency.
2. Oversee service/repair efforts.
3. As necessary assist water system operator with return to normal operation procedures.

Bow Municipal Water System Users

1. Immediately notify the Town Manager of the presence of a water emergency.
2. Heed notifications and recommendations issued by the water system, including Boil Order Notices, Water Conservation and Water Use Restrictions.

Section 3. Emergency Notification Procedures

In the event of any water emergency affecting the water system, the "Chain-of-Command" detailed in Section 2 will be followed for communications with Town officials, the Contract Operator, and the State of New Hampshire. The Town Manager or in his absence, the Director of Public Works, will determine when and what communications will be issued. Due to the water system size, notifications will be accomplished primarily through announcements in the Concord Monitor, local radio and television coverage, the Town Website, Contract Operator's website, phone calls to customers and customer email lists. If the emergency requires issuance of a **Boil Order** (*E.coli* bacteria detection) or **Do Not Drink Order** (nitrate / nitrite detection above the maximum contaminant levels), the procedures and templates detailed in Section 3A shall be followed. The Contract Operator will be responsible to maintain a written log of events and actions taken to address the emergency. Additional items to document are costs for supplies and equipment, and tracking of labor performed (including volunteers) throughout the emergency. These records will also help in receiving reimbursement from State and Federal funds when applicable.

This emergency plan includes the following notification protocols:

(1) Delegating the responsibility to oversee and accomplish notification:

a) **Town Manager (primary); Director of Public Works (alternate)**

b) **Contract Operator** – Maintain / report chronological log of water related events until the emergency is addressed and the water system returns to normal operations.

(2) Establishing the process of notification to quickly disseminate information to appropriate parties:

a) Chain-of-Command notification for Water System Representatives

b) Provide story/press release to the Concord Monitor, local television and radio stations, Town's Website, Contract Operator's website, customer phone calls and customer email list for notification of Water System Customers. Door to Door Notices will be delivered to customers with Special Needs.

(3) Assembling lists of appropriate parties to contact:

a) **Notification lists included in this Emergency Response Plan**

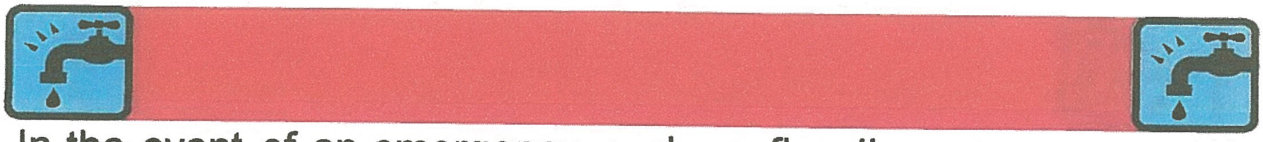
b) **Notification card posting at the Water Treatment Facility** (see sample below)

(4) Plan for Alternate Communications in the event of a Power Outage or lack of Internet:

a) **Radio and television Public Service Announcements**

b) **Door-to-door notification**

c) **Use of signage and/or electronic sign boards strategically located within the Town.**

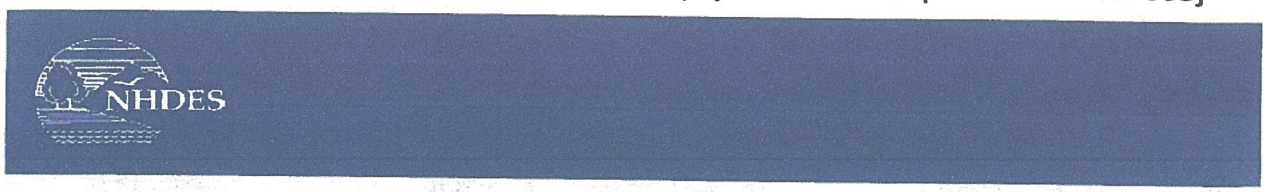


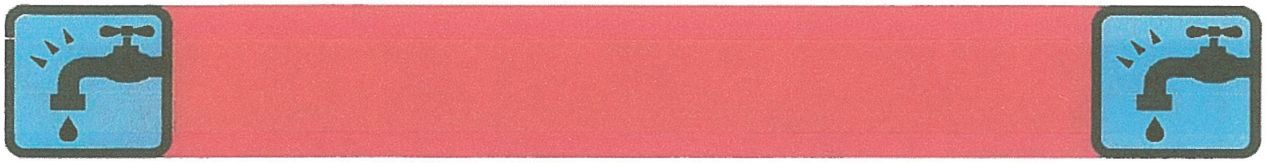
In the event of an emergency such as flooding, power outage, tampering, contamination, or loss of key facilities:

- Implement the system's emergency response plan and contact local first responders as necessary.
- Call the DES Drinking Water & Groundwater Bureau within 24 hours (or sooner) at:

(603) 271-2513*

{It is required and DES may be able to help you obtain important resources}





Emergency calls to DWGB:(603) 271-2513 or (603) 271-3503*
Security calls to DWGB:(603) 271-7017 or above numbers*

OtherimportantDESnumbers*:

Lab .....(603) 271-3445
Spills; hazardous materials & petroleum.....(603) 271-3899
Dam failures .....(603) 271-3406
Toxic air releases .....(603) 271-1370
Wastewater operations .....(603) 271-2001
Lake issues ..... (603) 271-3414 or (603) 419-9325 (weekends)

*After hours, contact DES via the NH State Police at 603-223-4381 and ask for the on-call person at DES.

Section 3.a. Boil Orders / Do Not Drink Orders

A water emergency may occur if the drinking water source or distribution system has been contaminated with microbiological pathogens or certain chemicals. NH DES Drinking Water and Groundwater staff will issue a Boil Order or Do Not Drink Order **within 24 hours of notification from the laboratory of a positive *E.coli* bacteria, Nitrate/Nitrite or other acute contaminants above their respective maximum contaminant levels**. The state will notify both the Owner (Town Manager) and the Primary Operator (Contract Operator) directly via telephone as well as email / fax with specific Public Notification procedures and language in accordance with Federal and State regulations. **Please note that the decision to LIFT a Boil Order/Do Not Drink Order must be made by NH DES.**

In the absence of a state directive, or in the event of a voluntary advisory, the Town Manager or in his absence, the Director of Public Works, will be responsible for issuing a Boil Order or Do Not Drink Order in response to notification of the presence of acute contaminants in the system. The same Public Notification procedures and health language will be used as if the advisory were required by State or federal regulations.

Once the decision is made to issue a Boil Order or Do Not Drink Order, the Town Manager will direct the Contract Operations staff to **prepare and distribute notices to all water system customers within 24 hours of this decision.** Notices will be distributed via websites, **customer email distribution lists, customer phone calls, and coverage by the local television and radio stations**in addition to printing in the Concord Monitor. Customers with Special Needs will be notified via door-to-door hand delivery and via the Town website. Public notice templates may be found on the DES website at
http://des.nh.gov/organization/divisions/water/dwgb/forms/index.htm including door hangers (see example below).

WARNING

BOIL ORDER NOTICE

BOIL YOUR WATER BEFORE USING

The _____ water system is contaminated with:
☐ Fecal Coliform ☐ E. coli bacteria
☐ Other: _____
and were found in the water system from samples collected on: _____

These bacteria can make you sick, and are a particular concern for people with weakened immune systems.

Boiling kills bacteria and other organisms in the water.

- ➔ Bring all water to a boil.
- ➔ Let it boil vigorously for 2 minutes.
- ➔ Let water cool before using.
- ➔ Or use bottled water.

Pre-boiled or bottled water should be for drinking, brushing teeth, washing vegetables, washing dishes, making infant formula, all food preparation and consumption, and making or using ice until further notice. See DES fact sheet WD-WSEB-4-12 "Frequently Asked Questions About Boil Orders" for more information. General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 800-426-4791.

What Happened? *Bacterial contamination can occur when saturated run-off raises the drinking water source (for example following heavy rains). It can also happen due to a break in the distribution system (pipes) or a failure in the water treatment process.*

What Does This Mean? Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these waters can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly and people with severely compromised immune systems. The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

Steps We Are Taking _____
_____
_____

We anticipate resolving the problem within: _____

How Long Will the Boil Order Remain in Effect? This advisory will remain in effect until additional samples no longer show the presence of the bacteria. You will be notified when the water quality problem is corrected. Until that time, the water should be boiled as described above.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

For More Information Please Contact:
Water System: _____
DPW: _____
Contact: _____
Telephone: _____
Address: _____
Date Distributed: _____

* *Only text in blue can be changed.* Bold text must remain unchanged, this language is mandatory.

The following pages include commonly used templates to assist water systems in meeting their public notice requirements. Certain parts of a template may need to be modified to reflect the particular circumstances of individual cases. The instructions accompanying each template should be carefully read because certain public notice language is mandatory and cannot be changed.

DIRECTIONS FOR ISSUING A BOIL ORDER

NOTICE SHALL BE GIVEN TO ALL CONSUMERS WITHIN 24 HOURS AS SPECIFIED BELOW

A boil order shall be issued as soon as possible, but no later than **24 hours** after the owner of a water system learns that a water sample has shown the presence of fecal coliform or E. coli bacteria. The boil order shall remain in effect until a minimum of two consecutive sets of samples show the absence of total, fecal, and E. coli bacteria; the source of the contamination has been identified and corrected; and DES notifies the system owner that the boil order may be lifted. Proof of public notice of the boil order, as described below, shall be completed and sent to DES within **10 days** of issuing the boil order notice.

Public water systems must provide the boil order notice in a form and manner reasonably calculated to reach all persons served. Thus, water systems must use, at a minimum, one or more of the following forms of delivery:

1. Immediately furnish a copy of the notice to the radio and television stations that broadcast to the area served by the public water system;
2. Posting of the notice in conspicuous locations throughout the area served by the water system;
3. Door-to-door hand delivery of notice; or
4. Publication of the notice for three consecutive days in a daily newspaper of general circulation that serves the area of the water system.

Additional methods (e.g., electronic mail, delivery of multiple copies to hospitals and schools), may be needed since the notice must be provided in a manner reasonably calculated to reach all persons served.

The language in italics on the reverse side must remain unchanged. **This language is mandatory.**

Submitting Proof of Public Notice of the Boil Order to DES:
Within **10 days** after issuing the boil order, the owner of the water system shall provide proof of issuance to DES. Proof of issuance of the boil order shall consist of a copy of the boil order notice that was distributed or posted, **AND** the following completed certification:

CERTIFICATION

I hereby affirm that the boil order notice has been provided to consumers in accordance with the delivery, content, and deadline requirements in NH Admin. Rule Env-Ws 351, as outlined above.

DES's Drinking Water and Groundwater Bureau was consulted on _____
(date)

First Delivery Method Used: _____ Date: _____

Second Delivery Method Used (IF needed): _____ Date: _____

_____ _____ _____
Signature of Water System Owner Water System Name Date

Proof of boil order issuance should be faxed to (603) 271-3490 or mailed to:
Department of Environmental Services
DWGB - Bacteria Monitoring Section
PO Box 95
Concord, NH 03302-0095
Page 1 of 2

BOIL ORDER NOTICE

This water supply is contaminated with fecal coliform or E. coli bacteria
BOIL YOUR WATER BEFORE USING

Fecal coliform or E. coli bacteria were found in the _____water system from samples collected on _____. These bacteria can make you sick, and are a particular concern for people with weakened immune systems.

What does this mean?
Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

What happened?
Bacterial contamination can occur when increased run-off enters the drinking water source (for example, following heavy rains). It can also happen due to a break in the distribution system (pipes) or a failure in the water treatment process.

What should I do?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for 2 minutes, and let it cool before using, or use bottled water. Pre-boiled or bottled water should be used for drinking, brushing teeth, washing vegetables, food preparation, washing dishes, making infant formula, and making ice **until further notice.** Boiling kills bacteria and other organisms in the water.

General guidelines on ways to lessen the risk of infection by microbes are available from the EPA Safe Drinking Water Hotline at 1(800) 426-4791. **You will be notified when the water quality problem is corrected. Until that time, the water should be boiled as described above.**

Steps We Are Taking: _____
(describe corrective action(s) such as chlorination and flushing, switching to another source, etc)

We anticipate resolving the problem within_____. For more information, please
(estimated time frame)

contact _____of _____ at _____
(name of contact) (name of system or company) (telephone #)

or _____.
(address)

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

EPA #: Date distributed:

DIRECTIONS FOR ISSUING PUBLIC NOTICE - NITRATE MCL VIOLATION

PUBLIC NOTICE SHALL BE GIVEN TO ALL CONSUMERS AS SPECIFIED BELOW

Notice shall be provided as soon as possible, but no later than **24 hours** after learning of the acute nitrate MCL violation. Proof of public notice, as described below, shall be completed and sent to DES within **10 days** of providing public notice.

Public water systems must provide notice in a form and manner reasonably calculated to reach all persons served. Thus, water systems must use, at a minimum, one or more of the following forms of delivery:

1. Immediately furnish a copy of the notice to the radio and television stations that broadcast to the area served by the public water system.
2. Posting of the notice in conspicuous locations throughout the area served by the water system.
3. Direct or door-to-door delivery of the notice.
4. Publication of the notice for 3 consecutive days in a daily newspaper of general circulation that serves the area of the water system.

Additional methods (e.g., electronic mail, delivery of multiple copies to hospitals or schools), may be needed since the notice must be provided in a manner reasonably calculated to reach all persons served.

The language in italics on the reverse side must remain unchanged. **This language is mandatory.**

Corrective Action
In your notice, describe corrective actions being taken by the water system, such as investigating treatment options, hiring a consultant, or purchasing water from another water system.

Submitting Proof of Public Notice to DES
Within **10 days** after issuing the notice, the owner of the water system shall provide proof of public notice to DES. Proof of public notice shall consist of a copy of the notice that was distributed or posted, or each of the 3 full pages of newspaper articles, and the following completed certification:

CERTIFICATION

I hereby affirm that public notice has been provided to consumers in accordance with the delivery, content, and deadline requirements in NH Admin. Rule Env-Ws 351, as outlined above.

DES' Drinking Water and Groundwater Bureau was consulted on _____
(date)

First Delivery Method Used: _____ Date: _____

Second Delivery Method Used (IF needed): _____ Date: _____

Signature of Water System Owner	Water System Name	Date

Proof of public notification should be faxed to (603) 271-5171 OR mailed to:
Chemical Monitoring Section
Department of Environmental Services
Drinking Water and Groundwater Bureau
PO Box 95
Concord, NH 03302-0095
Page 1 of 2

DRINKING WATER WARNING

DO NOT GIVE THIS WATER TO INFANTS UNDER 6 MONTHS OLD OR USE IT TO MAKE INFANT FORMULA

_____ **Has Levels of Nitrate Above Drinking Water Standards**
(name of water system)

What does this mean?
Water sample results collected on _____ showed a nitrate level of _____.
(date) (level and units)
This is above the nitrate standard, or maximum contaminant level, of 10 mg/L (10 parts per million). Nitrate in drinking water is a serious health concern for pregnant women and infants less than six months old.

What should I do?

DO NOT GIVE THE WATER TO INFANTS. Infants below the age of 6 months who drink water containing nitrate in excess of the maximum contaminant level could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. Blue baby syndrome is indicated by blueness of the skin. Symptoms in infants can develop rapidly, with health deteriorating over a period of days. If symptoms occur, seek medical attention immediately.

Water, juice, and formula for children under 6 months of age should not be prepared with this tap water. Bottled water or other water low in nitrates should be used for infants until further notice.

DO NOT BOIL THE WATER. Boiling, freezing, filtering, or letting water stand does **not** reduce the nitrate level. Excessive boiling can make the nitrates more concentrated, because nitrates remain behind when the water evaporates.

Adults and children older than six months can drink the tap water (nitrate is a concern for infants because they can't process nitrates in the same way adults can). However, if you are pregnant or have specific health concerns, you may wish to consult your health care professional. General health related questions may be directed to Dave Gordon of the DES Bureau of Environmental and Occupational Health at (603) 271-4608.

What happened?
Nitrate in drinking water can come from natural, industrial, or agricultural sources (including septic systems and run-off). Levels of nitrate in drinking water can vary throughout the year.

Steps We Are Taking: _____
(describe corrective action such as hiring a consultant, investigation treatment options, etc.)

We anticipate resolving the problem within _____. For more information, please contact
(estimated time frame)
_____ of _____ at _____
(name of contact) (system or company) (telephone number)
or _____.
(address)

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

EPA #: _____ Date distributed: _____

Page 2 of 2

Local Notification List

FIRE (day) 603-228-4320	FIRE (night) 911
POLICE (day) 603-228-0511, 228-1240	POLICE (night) 911
Ambulance service (day) 603-228-4320	Ambulance service (night) 911
Local Emergency Management Office (day) 603-228-4320	Local Emergency Management Office (night) 911
Local Health Officer (day) 603-228-4320, 228-1187	Local Health Officer (night) 911
Local Newspaper (day)	Local Newspaper (night)
City/Town Officials (day) 603-228-1187 x10 (Town Mgr.)	City/Town Officials (night)
Local Radio Station (day)	Local Radio Station (night)
Power Company (day)	Power Company (night)
Neighboring Water System (day)	Neighboring Water System (night)
Other	Other

State Notification List

State Police 603-223-4381
Drinking Water and Groundwater Bureau 603-271-2513 or 603-271-3503
Bureau of Emergency Management 603-271-2231 or 1-800-852-3792
Health and Human Services 603-271-4496

Service/Repair Notification List* ALL CALLS TO CONTRACT OPERATOR WHITEWATER, INC. 1.888.377.7678

Electrician (day) Griffin Electric 603.834.4024	Electrician (night)
Plumber (day) Bow Plumbing & Heating 603.225.6924	Plumber (night)
Pump Specialist (day) Water System Operators 603.428.3525	Pump Specialist (night)
Soil Excavator (day) SUR West 603.357.7950	Soil Excavator (night)
Hydrogeologic Consultant (day) Wright-Pierce 603.430.3728	Hydrogeologic Consultant (night)
Emergency Response Consultant (day)	Emergency Response Consultant (night)
Equipment Rental (day) Dantra Equip. Rentals 603.226.0633	Equipment Rental (night)
Laboratory (day) Nelson Analytical Lab 603.622.0200	Laboratory (night)
Other	Other

* Include company and contact names with phone numbers so that the person calling knows who they are trying to reach.

Section 3.b. Critical Users

In a water emergency, priority notice will be given to users with unique or special water needs. Unique or special users may include customers with a specific medical condition, schools, daycares, fire departments, nursing homes, elderly housing facilities, and hospitals. This is especially important since some schools may be used as emergency shelters for a community. Water systems must identify and maintain an up-to-date list of service customers with unique water needs and make provisions for priority notice and safe and adequate water supply to them.

NO UNIQUE WATER USERS IDENTIFIED AT THIS TIME. SPECIAL NEEDS CUSTOMERS WILL BE IDENTIFIED AS PART OF THE NEW CUSTOMER SIGN-UP PROCESS.

EXAMPLE
Unique Water System Customer
The Bow Municipal Water System has (UNKNOWN – NEW SYSTEM) water system user(s) who requires potable water for medical reasons. During emergencies causing interruption of service, the Contract Operator is responsible for providing priority notification to this person. Priority notification will also be given to this person for boil orders and alternate water will be supplied on a priority basis. If this person cannot be reached by telephone, then a visit to the home will be made. This person is included on our notification list.

Section 3.c. Mutual Aid

1. **PURCHASE BACKUP WATER SUPPLY FROM HOOKSETT VILLAGE WATER PRECINCT / RTE 3A (SEE RECORD DRAWINGS ON FILE)**
   Using existing 6-inch hydrant on Rte 3A, PEU Westco Community Water System, directly behind I-93 Northbound State of NH Liquor Store, extend approximately 1 mile of 8-inch "yellow mine pipe" to connect to the Bow Municipal system at Johnson Road. The elevation difference is +/- 100 ft for gravity feed into the Bow distribution piping. The Hooksett Village water system has 2 water storage tanks supplying this area of the Hooksett systems: Hooksett Village Standpipe (200,000 gal at 420 ft overflow elevation), and Central Hooksett Granite Hill Tank (400,000 gal at 560 ft overflow elevation).
2. **CONCORD WATER DEPARTMENT MUTUAL AID FOR EQUIPMENT RESOURCES** (no current agreement)
3. **PEMBROKE WATER WORKS** (no current agreement)
4. **NH PUBLIC WORKS MUTUAL AID** (Bow is a member in good standing)

Section 4. System Components

Section 4.a. Equipment & Chemicals

**Attached: General process schematic, list of main system facilities / major equipment, and MSDS sheets.

1. **SYSTEM CHEMICALS**
   a. CALCIUM HYPOCHLORITE – 65%
   b. POTASSIUM HYDROXIDE – 45%
   c. HYDROFLUOROSILICIC ACID – (equipment currently not installed/chemical not in use)

It is essential that a water system have accurate up-to-date information about its facilities, equipment, and design. This information will help facilitate repair in case of an emergency and will also be valuable in assessing the systems vulnerability to an emergency. Include all repair equipment that can be used and what might need to be purchased, borrowed or rented, especially if the person in charge of the equipment is not available during an emergency. During a wide spread emergency deliveries may be effected.

List at least each active well, each operable inactive well, total production capacity of each active and operable inactive well, each storage tank, capacity of each storage tank, each treatment facility, each pump house, important repair equipment, and chemicals. For systems that have atmospheric storage tanks indicate whether or not it is equipped with a capped and lockable fill pipe to accommodate tank truck water delivery.

SYSTEM COMPONENT LISTING:

1. **Production Well #1 –1.008 million gallons per day (MGD) maximum 24-hour production.**
2. **Production Well #2 – 1.008 MGD maximum 24-hour production.**
3. **Water Treatment Facility located at 29 River Road behind the River Road Business Bays equipped with emergency/back-up generator and 100,000 gallon treated water clearwell.**
4. ***Single 1,000,000 gallon atmospheric concrete storage tank located off Route 3A (near#688 Route 3A)***
5. **Corrosion control and disinfection treatment systems located inside each pumphouse with a minimum 30 day supply of each chemical.**
6. **Service trucks carry necessary repair equipment and materials for routine maintenance.**
7. **4.85 miles of water main (12" & 16")**
8. **63 fire hydrants**
9. **65 inline valves**
10. **Fire flows (est.) = 1,500 – 3,500 gpm**

Section 4.b. System Record Drawings (As-Built Plans)

As-built or record drawings provide a long term record of the location of critical system infrastructure, especially underground facilities. These records are currently required by NH DES construction and operational standards. Because of their important role for efficient and reliable operations and maintenance as-built drawings should include: all distribution mains; service lines and shutoffs; all blowoffs, hydrants and valves; type, size and depth of pipe; and other

utilities. Each of the items listed should have two ties to fixed objects. Please note that effective March 31, 2009, NH DES sanitary surveyors will begin listing the lack of as-built plans as a deficiency.

The following Record Drawings are available at the locations noted. Electronic copies are maintained by the Town Planning Department. A copy has been filed with NH DES.

Water Treatment Facility (copy 1), DPW (copy 2), and Town Manager's Office (copy 3)

- WATER DISTRIBUTION PLAN
- WATER TREATMENT PLAN
- ELECTRICAL SCHEMATIC
- STORAGE TANK SITE PLAN
- TOPO OF PRODUCTION WELL SITE INCLUDING SANITARY PROTECTIVE AREA
- BACKUP WATER SUPPLY RECORD DRAWING PLAN (HOOKSETT WESTCO CWS, CONCORD BOW JUNCTION AREA)

Section 4.c. System Demand

During a water emergency, a water system may need to reduce its demand or utilize its excess capacity to continue to provide safe water to its users. The table below looks at how much capacity your system has compared to what your demand is and figures out how many days of water you will have during an emergency. Remember that this information may change during different times of the year or day.

What is the total production capacity of this system?	Gallons per day = 700 gpm / 1MGD
What is the total storage capacity of this system?	Gallons = 1 Million gallons
What is the average daily demand of this system?	Gallons per day = 100,000 gpd
What is the maximum daily demand of this system?	Gallons per day = 100,000 gpd
Estimated Available Water (divide total storage capacity by average daily demand)	Days = 10 days

Section 5. Alternate Water Source

SEE SECTION 3C – MUTUAL AID WITH HOOKSETT VILLAGE WATER PRECINCT.

Section 5.a. Bulk and/or Bottled Water –

USE OF A BULK TANKER TRUCK SET-UP TO PUMP APPROVED DRINKING WATER FROM THE TANKER TRUCKS INTO THE STORAGE TANK AT THE STORAGE TANK OR THROUGH A SPECIFIED FIRE HYDRANT TO MAINTAIN A SPECIFIED

WATER LEVEL IN THE TANK. USE AND LOCATION OF BOTTLED WATER DISTRIBUTION TO BE DETERMINED BY THE TOWN MANAGER.

Section 5.b. Interconnections with Adjacent Water Systems

FUTURE INTERCONNECTIONS WITH HOOKSETT VILLAGE WATER PRECINCT AND CITY OF CONCORD WATER DEPT. ARE BEING EVALUATED.

Section 5.c. New Source / Reactivation – N/A

Section 6. Alternate Power Supply

EMERGENCY GENERATOR EQUIPMENT – BOW MUNICIPAL WATER SYSTEM

The Bow Water Treatment Facility includes one permanent Kohler 150 REZG natural gas powered generator with a Kohler automatic transfer switch. This generator is sized to run both well pumps, all chemical feed systems, and the treatment plant SCADA indefinitely utilizing natural gas. The generator will be maintained semi-annually and tested quarterly.

Section 7. Water Use Restrictions

- **IMPLEMENTATION OF WATER RESTRICTIONS**

The Bow Board of Selectman will implement the following water restrictions as necessary in the event of a water system emergency:

1. Watering gardens, lawns and other landscaped areas will be restricted at a minimum or banned entirely.
2. Washing cars, trucks, boats, RVs, etc., will be restricted at a minimum or banned entirely.
3. Using water from a hose to rinse or clean sidewalks, driveways, decks, etc. will be restricted at a minimum or banned entirely.
4. Filling swimming pools will be restricted at a minimum or banned entirely.
5. Residents will be required to follow indoor water use restrictions adopted from NH DES Fact Sheet WD-DWGB-26-2 that lists water efficiency practices for indoor domestic water use.
6. In a prolonged or dire emergency requiring reliance on bulk water, rationing will be implemented.

If an emergency necessitates shutting down one of our wells, the excess capacity in the remaining well will be used to supply our system. Similarly, with all wells operational our excess capacity allows us to meet average daily demand while absorbing significant reduction in pumping volumes. Despite our excess capacity, the Board of Selectman will implement at its discretion water conservation measures during an emergency. For most emergencies, it will be adequate to implement restriction measures 1, 2, 3, and 4 above. The Board of Selectman will decide whether measures 1 through 4 will be restrictions or bans. System demand is greatest in the summer months. Consequently, we estimate that if an emergency occurs in the summer, by implementing measures 1 through 4 as bans, average daily summer demand would immediately be reduced by approximately 30 to 40 percent. This would reduce our average daily summer demand, below the capacity of of our wells and well below the total production capacity of our system. Additional demand reductions would be achieved by implementing step 5. Water restriction options are more limited during a winter emergency although this is balanced by the lower overall daily demand. In the event of a severe emergency necessitating the use of bulk truck delivery of water, measures 1 through 4 will be instituted as bans, and measure 6 will be put into effect. If that happens, measure 6 will supersede measure 5. Rationing per household will be computed to reduce our daily demand to less than 6,000 gallons (average truckload of water). At that rate, when full our total storage capacity would provide for over 4 days of consumption, which more than doubles our average number of storage-days.

The Town Manager under instruction from the Board of Selectman will implement water restriction notification. If necessary, the Water System Operator will assist the Town Manager. The Town Manager will use the same telephone/email tree and notice posting system described in Section 3 to implement and cancel water restriction measures.

Section 8. Return to Normal Operation

There should be an orderly and efficient transition back and forth from normal to emergency operations back to normal operations. This will assure continuity of operations and provide direction on when to execute emergency procedures. Designate one person who will make the decision. This is important so that only one key person is making the decision and that they are working with the proper agencies to ensure that the water is safe to drink again following an emergency.

THE TOWN MANAGER WILL APPROVE THE RETURN TO NORMAL OPERATIONS BASED ON CONSULTATION WITH THE WATER SYSTEM CONTRACT OPERATOR AND THE TOWN EMERGENCY

MANAGEMENT DIRECTOR. IN THE TOWN MANAGER'S ABSENCE THE DIRECTOR OF PUBLIC WORKS WILL APPROVE THE RETURN TO NORMAL OPERATIONS.

Section 9. Vulnerability Assessment

Env-Ws 360.15 does not require you to submit a vulnerability assessment as discussed in this section. Vulnerability assessments were required for community systems that serve 3,300 people or more back in 2003/2004 per the Bioterrorism and Response Act (H.R. 3448).

For community systems that are not required to complete a vulnerability assessment, we encourage you to consider such an assessment as a valuable management/planning tool for your system. Not only does it provide beneficial information but grant funds may be available in the future for security implementation projects which can be justified by the assessment. We also ask that you update this information in conjunction with your entire emergency plan. Please note that a vulnerability assessment does point out a system's weak points, so we recommend that you omit this section out when submitting your emergency plan to DES so that it does not become public information.

Unpreventable Emergencies

Most emergencies are caused by reasons beyond the control of the water system. Floods, terrorism, vandalism, ice storms, pandemics, earthquakes, droughts, power outages, truck accidents, train derailments, and labor problems are examples. Each system should assess its potential susceptibility to unpreventable emergencies. To do this, first think about unpreventable scenarios that could impact your system. For example, if a major highway or an active railroad track is located within your wellhead or surface water protection area, then accidents, and derailments should be included in your vulnerability assessment. Next consider the possible impact of each scenario to the supply, storage, and distribution components of your system. Extensive detail is not necessary. Instead, our recommendation is to rate the likelihood of occurrence, briefly discuss the estimated impacts of each scenario to your system's critical assets, and then set forth the generic response actions of the system staff. You may want to also refer to your system's Source Water Assessment, completed by DES, for additional information regarding vulnerabilities.

Preventable Emergencies

Other emergencies may be preventable. Age and obsolescence of equipment, lack of equipment, poor maintenance, poor system design, lack of spare parts, high risk or ill advised land usage near your source(s) of water, and lack of source protection efforts are all preventable factors that can cause water system emergencies. By identifying and managing preventable causes of emergencies, you can reduce the likelihood of an occurrence. List and briefly describe any vulnerable areas of your system that need correction or improvement. Vulnerability assessment tools are available at http://des.nh.gov/organization/divisions/water/dwgb/wseps/vulnerability.htm.

Section 10. Plan Readiness and Training

Include a list of people that have a copy of the plan, plan locations, a schedule for rehearsals and a plan for discarding outdated plans. You should also include any special certifications/training that system staff has such as National Incident Management System (NIMS) or Incident Command System (ICS) training.

TOWN OF BOW TOWN MANAGER, BOW TOWN HALL
BOW DEPT OF PUBLIC WORKS, BOW DPW OFFICE
BOW EMERGENCY MANAGEMENT DIRECTOR
CONTRACT OPERATOR, 1. CORPORATE OFFICE, 2. WATER TREATMENT FACILITY
PLAN REHEARSALS WILL BE SCHEDULED ANNUALLY IN ADDITION TO PLAN REVISIONS (NOTED ON EACH DOCUMENT). ALL OUTDATED PLANS WILL BE SHREDDED BY THE TOWN MANAGER'S OFFICE.

Plan readiness ensures that the plan is always functional and available for use on very short notice. At a minimum, all key people must know where to quickly find the plan and be familiar with their roles. Each key person should have a copy of each updated plan. Other pertinent places to store up-to-date plans include system offices and pumphouses. An important issue for systems is to make sure that each successive governing board be briefed on all aspects of the plan. Emergency plans are required for all community water systems, so it is simply good common sense that the people responsible for using and maintaining the plan be aware of it, understand it, and know the requirements they need to meet. A system should designate a person responsible for updating the plan.

Section 11. Signatures

The owner and operator of the system must sign and date below. Other system representatives who assisted in the completion of this plan are recommended to sign and date below. The signatures attest that all information provided is true and accurate and that both the owner and primary operator have read and understand this plan.

Owner Signature:	Date:
Contract Operator:	Date:
System representative signature/title:	Date:
System representative signature/title:	Date: