CDM

Town of Boxborough, Massachusetts

Final Report
Water Resources Analysis Study

February 2002

Final - December 2002

CDM/Maher Team

One Cambridge Place, 50 Hampshire Street
Cambridge, Massachusetts 02139
tel: 617 452-6000
fax: 617 452-8000

December 27, 2002

Water Resources Committee
Town Hall
29 Middle Road
Boxborough, Massachusetts 01719

Subject: Executive Summary
Water Resources Analysis Study
Town of Boxborough, Massachusetts

Dear Committee Members:

In fulfillment of our contract dated July 1, 2001, The CDM/Maher Team is pleased to present this Executive Summary of conclusions and recommendations relative to the Water Resources Analysis Study. The study was conducted in three phases, with a Technical Memorandum prepared at the conclusion of each phase, as follows:

Technical Memorandum No. 1 –Existing Information Resource (February 12, 2002): Technical Memorandum No. 1 includes Geographic Information Systems (GIS) mapping of water resources, summary tables of well information, a bedrock fracture trace analysis conducted by D. L. Maher Co., a division of Boart Longyear (Maher), and a two volume data notebook of hydrogeologic related water supply information and well logs. Based on a review of this data, recommendations were provided for test well exploration in sand/gravel deposits and bedrock.

Technical Memorandum No. 2 – Estimates of Future Water Needs and Water Resources to be Acquired (February 18, 2002, Final December 2002): Technical Memorandum No. 2 reviews and compares available build-out analyses from the Town's Planning Department and the Metropolitan Area Planning Council (MAPC). Based upon the buildout estimates, townwide water needs were forecast for both average day and maximum day demands.

Technical Memorandum No. 3– Well Investigations Recommendations (February 13, 2002, Final December 2002): Technical Memorandum No. 3 provides a technically based prioritization of test well sites for exploration. We expect that the Town may wish to re-prioritize these sites based on legal/physical access, ownership, institutional, and permit issues. To further water supply planning and protection, seven follow-on projects have also been recommended.

For ease of reference, the Technical Memoranda are attached, such that this document may serve as a final report.

EXECUTIVE SUMMARY

The following summarizes key conclusions and recommendations resulting from this project.

Conclusions

Unconsolidated Aquifers: There are three unconsolidated aquifers (i.e., sand and gravel deposits) in Boxborough for consideration of groundwater supply exploration (see Figure 1 to Technical Memorandum No. 1). These include the Beaver Brook aquifer in northwest Boxborough, the Heath Hen Brook Aquifer in south-central Boxborough, and the Elizabeth Brook Aquifer in the southwest corner of town. A fourth area in eastern Boxborough, known as the Guggins Brook Aquifer, does not have available land due to recent residential development.

Test Well Sites in Unconsolidated Aquifers: Figure 3 accompanying Technical Memorandum No. 1 shows the ten potential test well sites in unconsolidated aquifers. Five of these sites have been ranked as being of higher priority, as follows:

- Of the 5 sites identified in the Beaver Brook Aquifer, Maher has prioritized the 3 sites closest to the Littleton townline, which are easily accessed through the Harvard Sportsman's Club.
- Of 4 sites identified in the Heath Hen Brook Aquifer, one site has been prioritized closest to the Stow townline.
- One site is recommended for testing in the Elizabeth Brook Aquifer.

Potentially Favorable Zones for Bedrock Well Development: Fourteen sites for bedrock well exploration have been identified by Maher (see Figure 3 accompanying Technical Memorandum No. 1). The sites (A to N) are prioritized in order of geological preference. The Town may wish to re-prioritize these sites based on legal/physical access conditions, ownership, and proximity to a future water service area.

Buildout Analysis: The recently completed *Boxborough Master Plan* (Beals & Thomas, January 2002) provides a buildout analysis adopted for the purpose of this Water Resources Analysis Study. The buildout analysis includes current land use, 10-year buildout, and future buildout scenarios.

Water Needs Forecasting: The following summarizes the average day demand (ADD) and maximum day demand (MDD) projected for each buildout scenario.

	ADD (mgd)	MDD (mgd)
Current Land Use	0.42 - 0.50	1.1 - 1.3
10-Year Buildout	0.62 - 0.71	1.5 - 1.7
Future Buildout	0.88 - 0.99	2.0 - 2.3

Resource Planning to Meet Water Demands: Suitable supplies must be developed to meet both ADD and MDD conditions, for the area to be serviced. Further, to provide adequate safety and ensure continuous supply, redundancy must be provided. With multiple sources in place, it is good engineering practice to have ample source capacity to meet MDD with the largest source off-line.

Recommendations

Technical Memorandum No. 3 provides a detailed review of seven follow-on project recommendations, with associated costs. The following briefly summarizes these proposed projects by type.

Field Testing to determine the Potential for Groundwater Supply Development

Proposed Project 1: Testing of Unconsolidated Aquifers – Conduct a 2.5-inch test well exploration program at the five prioritized sites in unconsolidated aquifers.

Proposed Project 2: Assessment of Bedrock Well Development Potential - The Town must first reprioritize the 14 sites identified by Maher based on such issues as legal/physical access, ownership, proximity to service area, and other institutional issues. Once priority sites are identified/confirmed, field staking of potential drilling sites should occur. This might result in even further site prioritization/revision. Drilling can then be conducted at desired sites, once all legal, physical and wetland permit issues are resolved.

Proposed Project 3: Acquisition of Aerial Photographs – The Town should consider acquisition of the aerial photography collected by Maher on which bedrock fracture traces have been identified.

Aquifer Protection and Land Acquisition
There are several projects which may be undertaken by the Town for the purpose of advancing the protection of Boxborough's aquifers and water resources.

Proposed Project 4: Identify Parcels for Acquisition within Existing Zone II Areas – Both the Towns of Acton and Littleton have Zone II delineations (i.e., Wellhead Protection Areas) extending into Boxborough (see Figures 1-3 in Technical Memorandum No. 1). Using GIS, undeveloped parcels within these Zone II areas can be identified for purchase and protection. Further, parcels overlying USGS identified aquifers and/or proposed test sites could also be acquired for protection.

Proposed Project 5: Aquifer Protection District and Bylaw – CDM recommends that the Aquifer Protection District be modified to reflect Zone II areas within Boxborough contributing to the Acton and Littleton wells. Also, consideration should be given to updating the Bylaw for compatibility with DEP Drinking Water Regulations CMR 22.21 Groundwater Supply Protection.

Water Supply Planning
It is the CDM/Maher Team's recommendation that in addition to identifying a new groundwater source inclusive of yield and quality, consideration be also given to service area and potential for water supply regionalization. The following projects for town consideration could proceed in concert with groundwater supply testing and aquifer protection efforts.

Proposed Project 6: Regional Water Supply Option Evaluation – Both the Acton Water District and Littleton Water Department have expressed interest in working with Boxborough to obtain additional water supplies for their own needs and to potentially service areas of Boxborough. It is our recommendation that meetings be initiated by Boxborough, with each of Acton and Littleton, to explore the possibility of a regional water supply approach. This approach may allow for cooperative funding. Further, it may be determined that certain sites are more favorable if cooperative testing/development is to be pursued.

Proposed Project 7: Establishment of Local Service Areas – If the Town elects to proceed with a water system in the future, it will likely proceed in phases due to the significant cost. Therefore, areas of priority for local water service must be identified, to establish a phased approach. We recommend that efforts be conducted to evaluate and establish one or more potential water service areas in Boxborough. The need for a service area may be based upon failing domestic wells, deteriorating water quality, or potential contaminant sources. Once the "need" areas are established, required water volume must be estimated based on developed

and undeveloped lots. The location of the "need" areas could also govern the prioritization of sites for groundwater supply exploration.

Grant Funding
The Town should consider the following two DEP-funded grant programs relative to the protection of water supply resources:

- Wellhead Protection Grant Program
- Source Water Protection Grant Program

Funding for these programs is provided from the Drinking Water State Revolving Fund (DW SRF). In addition, the Executive Office of Environmental Affairs (EOEA) is considering expansion of DW SRF eligible projects to include land acquisition for groundwater supply source protection.

The CDM/Maher Team appreciates the opportunity to have assisted the Town of Boxborough in conducting this Water Resource Analysis. Together, we look forward to furthering the Town's water supply planning and protection efforts, by implementing one or more of the recommended follow-on projects. If you would like to discuss any of these projects further or desire any additional information, please feel free to call Ted Morine of Maher at (781) 933-3210 or me at (617) 452-6532.

Very truly yours,

Andrew B. Miller, P.E.
Principal Engineer
Camp Dresser & McKee Inc.

c: Natalie Lashmit - Town Administrator
Alicia Altieri - Boxborough Town Planner
Ted Morine - D.L. Maher Co., a division of Boart Longyear
Paul Demit - CDM

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Section 1

CDM

Technical Memorandum No. 1

To: *Water Resources Committee*
Town of Boxborough, Massachusetts

From: *Andrew B. Miller, P.E., P.HG., Principal Engineer – CDM*
J. Theodore Morine, P.G., Senior Vice President – D.L. Maher Co.

Date: *February 12, 2002*

Subject: *Existing Information Resource*
Water Resources Analysis Project

Volume No. 1: Data Notebook of Hydrogeologic Related Water Supply Information and Well Logs

Volume No. 2: Well Logs on File with the Massachusetts Department of Environmental Management (DEM) for Boxborough, MA

In accordance with our Agreement of July 1, 2001, the CDM/Maher Team is pleased to present this first Technical Memorandum No. 1 - Existing Information Resource. As required by *Phase 1: Collection and Synthesis of Existing Information* under Article 2.1 of our Agreement, this document presents and tabulates available hydrogeologic information relative to groundwater supply sources in the Town of Boxborough. The document is meant to serve as an "Existing Information Resource", in that all available well logs and other pertinent data collected for Boxborough have been bound into a loose-leaf notebook. For ease of reference, a series of data summary tables have also been developed, along with appropriate Geographic Information Systems (GIS) figures.

Based upon the data collected and reviewed, a key component of our work has been to identify potential sites for municipal groundwater supply exploration. The D. L. Maher Company (Maher) has had primary responsibility for this task. Presented in Section 3 of the Existing Information Resource is Maher's report entitled *An Assessment of Ground Water Favorability for the Town of Boxborough, MA within the Unconsolidated Overburden and by a Fracture Trace Study of the Underlying Bedrock* (February 2002), which includes:

- A townwide bedrock fracture trace analysis with a prioritized list of sites for groundwater supply exploration; and,
- A list of potential sites for testing in sand and gravel aquifers.

It is intended that specific groundwater exploration projects, along with the steps and costs for initiation of a testing program, be presented in a subsequent Technical Memorandum.

Overview of Groundwater Resources in Boxborough

Encompassing a land area of about 10 square miles, the Town of Boxborough has a relatively small population of about 5,000. Because of Boxborough's location along Route 495 in northeastern Massachusetts, the Town has experienced significant growth and development over the past several years. This has raised concerns regarding build-out potential and such vital services as water supply. Currently, the Town does not have a water system; rather, all homes, businesses and public/institutional land uses are served by private wells.

There has been substantial geologic mapping and study of Boxborough's hydrogeology by the U.S. Geologic Survey and various consultants. Available mapping suggests that the Town's geology is primarily comprised of shallow depths of glacial till, underlain by bedrock (i.e., ledge). Glacial till refers to unconsolidated deposits, consisting of poorly sorted materials such as sand, silt, clay, and boulders. This irregular matrix of materials is typically poorly conductive, of low permeability, and does not provide significant, if any, water bearing potential for consideration of municipal groundwater supply development.

Unconsolidated deposits with water bearing capability consist of sand and gravel materials. In New England glaciated terrain, high yielding aquifers of sand/gravel deposits are most preferred for municipal groundwater supply development.

In general, underlying bedrock in Massachusetts has historically provided low yielding supplies suitable for domestic wells and individual commercial entities. In fact, based on a review of available records, it seems that nearly all private wells in Boxborough withdraw water supply from the bedrock. The potential for municipal groundwater supply development in bedrock is addressed later herein.

To better understand localized water resources, Figure 1 presents a map of Boxborough's unconsolidated aquifers using available GIS information. Note the following:

- The GIS database for the streets and parcels within Boxborough is from the new GIS developed by the Town's consultant AGI. GIS shown on Figure 1 for the adjacent

communities of Acton, Stow, Harvard and Littleton is from the Massachusetts GIS (MassGIS) database.

- MassGIS data is used for mapping of all water bodies and wetlands.

- Boxborough is located in the upper reaches of two major river basins: the Merrimack River Basin and the Concord River Basin. The basin divide is shown on Figure 1. The location of any potential well site by river basin is important, as the water resource situation of that river basin is key to Water Management Act (WMA) permitting by DEP. A WMA permit is required to activate any new water supply greater than 100,000 gpd.

- Both medium and high yielding aquifers, as mapped by the U.S. Geologic Survey and incorporated into MassGIS, are shown for Boxborough and the immediately surrounding communities. These include:

  - A medium yielding aquifer located in the northwest corner of Boxborough, northwest of Route 495, along Beaver Brook. Land in this area is primarily owned by the Harvard Sportsmen's Club and Cisco Systems. Note that this aquifer extends significantly northward into Littleton.

  - A medium yielding aquifer along the eastern municipal border with Acton, which extends eastward into Acton. In Boxborough, the aquifer extends west and southwest along Guggins Brook, to the Flerra Meadows area and into Stow.

  - A high and medium yielding aquifer in the southwest corner of town, which extends into Harvard.

- The Acton Water District's Clapp (1976) and Whitcomb (1970) Wells are shown on Figure 1. Both wells are located in Acton and have a single Zone II, which extends into Boxborough (see Figure 1). Zone II refers to the area of contribution to a public water supply well, as delineated in accordance with DEP policies and procedures. The Zone II for the Clapp and Whitcomb Wells has been approved by DEP, at well pumping rates of 210 gpm and 325 gpm, 245 ea. (2018 Master Plan Update) respectively. The delineation shown in Figure 1 was taken from the Mass GIS database.

- The Town of Littleton's Well #1 and Tubular Wellfield, both located along Whitcomb Avenue, are not shown on Figure 1, but are located approximately 7,200 feet north of the Boxborough townline. The Zone II for this wellfield extends into the northwest corner of Boxborough, as shown on Figure 1. This Zone II has also been approved by DEP, at a pumping rate of 600 gpm. The delineation shown in Figure 1 was also taken from the MassGIS database.

- All existing community and non-community water systems within Boxborough, as mapped by MassGIS, are included on Figure 1. The referenced identification numbers are based on DEP's source code information. Table 1 summarizes these systems. Nearby community water systems in adjacent towns (i.e., Clapp and Whitcomb Wells in Acton) are also shown on Figure 1, with data summarized on Table 2.

- Potential contaminant sources within Boxborough are also shown on Figure 1 and summarized in Table 3. The location of potential contaminant sources is important when selecting sites for groundwater supply development. It is preferred that water supply sites be some distance from any potential contaminant sources, so as to minimize any adverse impact to the supply.

Existing Hydrogeologic Information

A variety of sources have been reviewed to obtain hydrogeologic and well data. A complete list of all references is included as Section 11 of the Existing Information Resource--Volume 1. References have included U. S. Geologic Survey (USGS) publications, state publications, file searches conducted at DEM and the Littleton Water Department, data research from DEP, D.L. Maher well logs, and consultant reports provided by the Town of Boxborough.

A primary objective of this project has been to summarize available data in an orderly manner that will allow for future ease of use. To meet this goal, note the following:

- The Existing Resource Information - Volume 1 contains copies of all available consultant reports and related well logs provided to CDM by the Town of Boxborough. Also included are additional well logs provided by Maher and copies of relevant portions of USGS publications. For ease of use, Volume 1 is subdivided into a series of sections, each of which includes a separate document. The accompanying Table of Contents identifies the document(s) within each section.

- Nine tables have been prepared to summarize the data collected. Tables 1 through 9 are included within Section 1 of Volume 1.

- As previously discussed, Table 1 summarizes community and non-community wells listed by DEP, within Boxborough. Table 2 summarizes community and non-community wells listed by DEP, within close proximity to Boxborough (i.e., in adjacent communities). Table 3 lists potential contaminant sources.

- The Massachusetts Department of Environmental Management (DEM) requires that a construction record of all well installations be filed in their office by town. CDM reviewed these files and obtained copies of all records for Boxborough. There were 583 well

construction logs available, dating from 1963 to the present. The Existing Resource Information – Volume 2 includes copies of all the logs from DEM, in numerical order based upon DEM's identification number. Table 4 summarizes the key construction information from these logs. Note that the majority of these logs represent domestic wells installed in bedrock.

- Table 5 summarizes well logs available from all other data sources included in Existing Information Resource - Volume 1. These logs primarily represent test wells installed in unconsolidated materials. Many of the records from the USGS Hydrogeologic Data Report No. 8 (HD-8) represent domestic wells installed in bedrock, previous to 1964.

- There have been several seismic refraction surveys conducted within areas of Boxborough. Seismic refraction refers to the use of sound waves and geophones to assess depth to bedrock and to a lesser degree the stratigraphy. Two such studies were performed for the Town by IEP in 1981 and 1985, in the areas of Flerra Meadow and the Harvard Sportsmen's Club, respectively. USGS publication HD-8 also documents several additional seismic refraction surveys. Table 6 summarizes the available seismic referenced data.

- Well logs available in the Town of Boxborough's water resources file for the adjacent communities of Acton, Stow, Harvard and Littleton are summarized in Table 7. Also listed in Table 7 are well/boring information from USGS HD-8 in adjacent communities for areas within approximately 0.5 miles of the Boxborough townline.

- To assist in recommending sites for potential bedrock well exploration based on the bedrock fracture-trace analysis, Table 8 summarizes all bedrock wells yielding 30 gpm or greater. These wells were selected from Tables 4 and 5.

- DEP has been contacted to obtain information on existing WMA registrations and permits. Copies of any WMA documents provided are included in Section 10 of the Existing Information Resource – Volume 1 and summarized on Table 9.

To gain more information on the community and non-community systems, a file search was conducted at the Littleton Water Department, which operates many of the small systems in Boxborough. Data is available relative to installed pump capacity and/or approved yield for some wells. However, depending upon well age, the data is inconsistent and not necessarily reliable. For certain wells, we were able to cross-reference the DEM well reference number (notes on Table 1).

A data points map has been created, with select data mapped in GIS on Figure 2. The data points mapping effort has focused on high yielding bedrock wells and hydrogeologic

information in the areas of USGS mapped aquifers, as these will be most valuable to future assessment of potential groundwater supply testing/development. The mapping includes the following:

- All community and non-community wells, by DEP identification number, from Tables 1 and 2;
- All seismic refraction survey locations, based on the listing in Table 6;
- Bedrock wells reported to yield 30 gpm or greater (Table 8) are mapped only if there is a high level of confidence in regard to location. Many of the site references in the DEM logs are unreadable or not discernable relative to existing street names. Those wells which have been mapped are noted on Table 8.
- Well logs reportedly installed in stratified drift deposits, if in the areas of USGS mapped aquifers. These data were taken from Tables 5 and 7.

Potential for Groundwater Supply Exploration and Development

As previously indicated, Section 3 of the Existing Information Resource – Volume 1 includes Maher's report (February 2002). The report identifies recommended sites for sand and gravel well exploration: 5 sites in the northwest corner of town along Beaver Brook; 4 sites in Flerra Meadow; and 1 site in the southwest corner of Boxborough. These sites are shown on Figure 3.

Also shown on Figure 3 are the results of the bedrock fracture trace mapping effort by Maher. In recent years, the Massachusetts Department of Environmental Protection (DEP) has begun to accept the exploration and development of municipal groundwater supplies in bedrock. The search for high yielding supplies in bedrock begins with the identification of fractures in the bedrock which may serve as conduits of groundwater flow. The confluence of two or more bedrock fractures may warrant testing for groundwater supply potential. The bedrock fracture trace analysis conducted for Boxborough by Maher (Section 3) presents a prioritized list of sites for groundwater exploration in bedrock. Bedrock fractures identified by Maher are shown on Figure 3, as are the prioritized sites for further consideration.

Submission of Electronic Data

All data tables have been prepared in Microsoft Excel vs. 2000. A disc containing the electronic file is included within the Existing Information Resource – Volume 1.

In addition, the GIS mapping of Figures 1-3 has been downloaded onto a CD Rom and is included within the Existing Information Resource – Volume 1.

Conclusion

This Existing Information Resource is meant as a data notebook for ease of use by the Town. The collection of this data in a single place will allow for improved management of the Town's water resources. The data is presented in a loose-leaf notebook to allow future expansion of the database overtime. For example, it could be expanded to include other well logs, improved mapping of wells and/or water quality information.

Of most importance are the recommendations by D.L. Maher Company regarding locations in both sand/gravel and bedrock deposits for potential groundwater supply exploration. In future technical memoranda, CDM will review the Town's water supply needs and develop a list of potential projects for consideration relative to Maher's recommendations.

TABLE 1

List of Community & Non-Community Wells on Record with the Massachusetts Department of Environmental Protection (DEP) Boxborough, Massachusetts

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List of Community and Non-Community Wells on Record with the Massachusetts Department of Environmental Protection (DEP)
Boxborough, Massachusetts

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DEP Region ID # [1]	Town Identifier ID # [2]	DEP Drinking Water Program ID #	Well Approval ID #	Source [3]	Source Name [5]	PWS Info [4]	Address	Contact Name	Phone/Fax
2	037	001	01	G	Rock Well #1	A, COM	Codman Hill Condominium	Myra Miller	(617) 243-8157
2	037	001	02	G	Rock Well #2	A, COM	276-318 Codman Hill Road Boxboro, MA 01719		(617) 965-7308
2	037	002	01	G	Dunster House Well	A, COM	Harvard Ridge Condominium	Philippe Lambert	(978) 263-9554
2	037	002	02	G	Elliot House Well	A, COM	90 Swanson Road		(781) 334-5460
2	037	002	03	G	Leverett House Well	A, COM	Boxboro, MA 01719		
2	037	002	04	G	Lowell & Dudley Houses Well	A, COM			
2	037	002	05	G	Winthrop House Well	A, COM			
2	037	006	01	G	Bedrock Well #1	A, COM	Centre Village Apartments	Pablo Carbonell	(978) 456-3128
							688-700 Massachusetts Avenue		(978) 369-4553
							Boxboro, MA 01719		
2	037	007	01	G	Rock Well #1, Swanson	A, COM	Brook Village Condominium	Deborah Bray	(978) 486-3395
2	037	007	02	G	Rock Well #2, Swanson	A, COM	52 Swanson Road		(978) 486-8549
2	037	007	03	G	Rock Well #3, Spencer	A, COM	Boxboro, MA 01719		
2	037	007	04	G	Rock Well #4, Spencer	A, COM			
2	037	008	01	G	Well #1	A, NT, NC	Holiday Inn Boxborough	Ray Seymour	(978) 486-3395
2	037	008	02	G	Well #2	A, NT, NC	One Adams Place		(978) 486-8549
2	037	008	03	G	Well #3	A, NT, NC	Boxboro, MA 01719		
2	037	008	04	G	Well #4 (DEM 445) 150 gpm	A, NT, NC			
2	037	008	05	G	Satelite of Well #1 (DEM 445)	A, NT, NC			
2	037	009	01	G	Rock Well #1	A, COM	Carriage House Condominium	Warner Guild	(508) 620-1010
							773 Massachusetts Avenue		
							Boxboro, MA 01719		
2	037	010	01	G	Well #1	A, NT, NC	Blanchard Memorial School	Chuck Stewart	(978) 335-2583
							493 Massachusetts Avenue		
							Boxboro, MA 01719		
2	037	012	01	G	Well #1	A, NC	Nashoba Valley Olympia Inc.	Rich Newberg	(978) 263-3020
							34 Massachusetts Avenue, Rt. 111		(978) 263-1818
							Boxboro, MA 01719		
2	037	013	01	G	Rock Well #1	A, COM	Applewood Condominium Corp.	Savas Danos	(978) 486-3140
2	037	013	02	G	Rock Well #2	A, COM	Massachusetts Avenue		(978) 486-8549
2	037	013	03	G	Rock Well #3	A, COM	Boxboro, MA 01719		
2	037	014	01	G	Rock Well #1	A, COM	Liberty House Condominium	Mark Brooks	(978) 635-9018
2	037	014	02	G	Rock Well #2	A, COM	Liberty Square Road		(978) 486-8549
							Boxboro, MA 01719		
2	037	017	01	G	Well #1	A, NT, NC	Cisco Development	Deborah Bray	(978) 486-3395
2	037	017	02	G	Well #2	A, NT, NC	1414 Massachusetts Avenue		(978) 486-8549
2	037	017	03	G	Well #3 (DEM 390A) 11 gpm	A, NT, NC	Boxboro, MA 01719 DEM 1874 Mon.		
2	037	018	01	G	Well #1	A, NT, NC	Setra Systems, Inc.	Deborah Bray	(978) 486-3395
2	037	018	02	G	Well #2	A, NT, NC	159 Swanson Road		(978) 486-8549
							Boxboro, MA 01719		
2	037	019	01	G	Well #1	A, NT, NC	Boxboro Executive Center	Dan Beckowski	(978) 264-9000
							1740 Massachusetts Avenue		(978) 263-0696
							Boxboro, MA 01719		
2	037	020	01	G	Well #1	A, NT, NC	1300 Massachusetts Avenue	Deborah Bray	(978) 486-3395
2	037	020	02	G	Well #2	A, NT, NC	1300 Massachusetts Avenue		(978) 486-8549
							Boxboro, MA 01719		

List of Community and Non-Community Wells on Record with the Massachusetts Department of Environmental Protection (DEP)
Boxborough, Massachusetts

DEP Region ID # [1]	Town Identifier ID # [2]	DEP Drinking Water Program ID #	Well Approval ID #	Source [3]	Source Name [5]	PWS Info [4]	Address	Contact Name	Phone/Fax
2	037	021	01	G	Well #1	A, NT, NC	Advanced Modular: 60 & 70 Codman 60 Codman Hill Road Boxboro, MA 01719	Deborah Bray	(978) 486-3395 (978) 486-8549
2	037	022	01	G	Well #1	A, NT, NC	Winstanley Associates 85 Swanson Road Boxboro, MA 01719	Deborah Bray	(978) 486-3395 (978) 486-8549
2	037	023	01	G	Well #1 (DEM 29) 100 gpm	A, NT, NC	Nashoba Valley Winery 100 Wattaquadock Hill Road Bolton, MA 01740	William Barton	(978) 779-5521 (978) 779-5523
2 2	037 037	024 024	01 02	G G	Well #1 Well #2	A, NT, NC A, NT, NC	155 Swanson Rd./Lucent Technologies 155 Swanson Road Boxboro, MA 01719	Deborah Bray	(978) 486-3395 (978) 486-8549
2 2	037 037	025 025	01 02	G G	Rock Well #1, Front Bldg. Rock Well #2, Rear Bldg.	A, NT, NC A, NT, NC	D&M/CHU Technologies, Inc. Whitcomb Avenue Boxboro, MA 01719	Deborah Bray	(978) 486-3395 (978) 486-8549
2	037	026	01	G	Well #1	A, NC	Boxboro Green 1233 Massachusetts Avenue Boxboro, MA 01719	Mario Marinoni	(508) 269-4055
2	037	027	01	G	Well #1	A, NT, NC	61 Stow Rd. Bldg./The Marketplace 61 Stow Road Boxboro, MA 01719	Donna Cisek	(978) 266-9751 (978) 635-0988
2	037	028	01	G	Well #1	A, NT, NC	United Church of Christ/Daycare 723 Massachusetts Avenue Boxboro, MA 01719	Ron Vogal	(978) 263-7387
2	037	030	01	G	Well #1	A, NC	Massachusetts Avenue EXXON 1425 Massachusetts Avenue Boxboro, MA 01719	Norman Manchester	(978) 486-3395 (978) 486-8549
2	037	031	01	G	Well #1	A, NC	Boxborough Common 629 Massachusetts Avenue Boxboro, MA 01719	Nino Micozzi	(978) 486-3395 (978) 486-8549

NOTES:

[1] DEP Rergion #2: Northeast Regional Office of the Massachusetts Department of Environmental Protection (DEP)

[2] Town Identifer # 037: Boxborough, MA

[3] G: Groundwater

[4] PWS: Public Water Supply

[5] DEM reference number to the well log (see Table 4) is indicated, if available.

TABLE 2

List of Community & Non-Community Wells on Record with the Massachusetts Department of Environmental Protection (DEP) from Adjacent Towns of Acton, Stow, Harvard and Littleton

Table 2
List of Community and Non Community Wells on Record with the Massachusetts Department of Environmental Protection (DEP) from Adjacent Towns of Acton, Stow, Harvard, and Littleton

DEP Region ID # [1]	Town Identifier ID # [2]	DEP Drinking Water Program ID #	Well Approval ID #	Source [3]	Source Name	PWS Info [4]	Address	Contact Name	Phone/Fax
Town of Acton									
2	002	000	01	G	Whitcomb Well	A, COM	Acton Water Supply District	Jim Deming	(978) 263-9107
2	002	000	07	G	Clapp Well	A, COM	693 Massachusetts Avenue Rte. 111		(978) 264-0148
							Acton, MA 01720		
Town of Harvard									
2	125	001	01	G	Well #1	A, NC	Friendly Crossways Conference Center	Deborah Bray	(978) 486-3395
							247 Littleton County Road		(978) 486-8549
							Harvard, MA 01451		
Town of Littleton									
2	158	000	01	G	TWF Whitcomb Avenue	A, COM	Littleton Water Department	Savas Danos	(978) 486-3395
2	158	000	02	G	GPW #1, Whitcomb Avenue	A, COM	39 Ayer Road, PO Box 2406		(978) 486-8549
							Littleton, MA 01460		

Notes:

[1] DEP Region #2: Northeast Regional Office of the Massachusetts Department of Environmental Protection (DEP)

[2] Town Identifier # 002: Acton, MA
125: Harvard, MA
158: Littleton, MA

[3] G: Groundwater

[4] PWS: Public Water Supply

PWS Information
A - Active
B - Backup
E - Emergency
T - Transient
NT - Non-Transient
COM - Community
NC - Non-Community

CDM

TABLE 3

List of Potential Contaminant Sources

Table 3
List of Potential Contaminant Sources

Site Name	Location	Town	Potential Contamination Source	Notes
Landfill	Transfer Station / Landfill on Codman Hill Road	Boxborough	Solid Waste	
Joyce Site	Off the Intersection of Flagg Hill Rd and Summer St	Boxborough	21-E Site	DEP ID# 3
Exxon Station	Off Mass Ave Between 495 and Hill Rd	Boxborough	21-E Site	DEP ID# 63
Mass Highway	Off the Intersection of Mass Ave and Swanson Rd	Boxborough	Salt Storage	
Town Highway Department	Off Mass Ave Between Town Hall And Blanchard Mem. School	Boxborough	Salt Storage & Underground Fuel Tank	

TABLE 4

Summary of Well Logs on File with the Massachusetts Department of Environmental Management (DEM) Boxborough, Massachusetts

Table 4
Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen		Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
														Length (feet)	Slot Size (inches)			
DEM	0	Hill Rd	Robert Treyz	7	-	115	6	R.E. Chapman Co.	4/71	Kindergarten	Bedrock	115	-	-	-	12	Y	4
DEM	0	Lot 3 Nashoba Way	Reed Farm Inc.	5	-	375	6	Mike Sullivan Inc.	7/18/1997	Domestic	Bedrock	375	-	-	-	30	Y	7
DEM	0	Lot 4 Emanuel Dr	Signature Homes	18	-	360	6	Skillings & Sons Inc.	1/20/1998	Domestic	Bedrock	360	-	-	-	40	Y	4
DEM	0	1 Depot Rd	M&P Bld	10	-	205	6	E.R. Sullivan Inc.	2/3/1999	Domestic	Bedrock	205	-	-	-	19	Y	15
DEM	0	Littlefield Rd	Harold G. Nicola	17	-	125	6	R.E. Chapman Co.	8/15/1963	Domestic	Bedrock	125	-	-	-	15	Y	3
DEM	1	Summer Rd	Bernard Joyce	2	-	305	6	Domestic Wells Inc.	8/9/1974	Domestic	Bedrock	305	-	-	-	7	Y	8
DEM	3	18 Pine Hill Rd	Bow House Inc.	22	-	395	6	Domestic Wells Inc.	10/16/1975	Domestic	Bedrock	395	-	-	-	10	Y	1.5
DEM	4	Lot 3 Liberty Sq Rd	J. Fenton	11	-	240	6	Domestic Wells Inc.	11/13/1980	Domestic	Bedrock	240	-	-	-	15	Y	5
DEM	7	Lot 2 Liberty Sq Rd	James Fenton	12	-	240	6	Domestic Wells Inc.	11/11/1980	Domestic	Bedrock	240	-	-	-	20	Y	4
DEM	8	Lot 4 Liberty Sq Rd	James Fenton	19	-	280	6	Domestic Wells Inc.	2/18/1981	Domestic	Bedrock	280	-	-	-	10	Y	6
DEM	9	Well #1- Rt. 111	George D. Hines Interests	9.5	-	350	8	Domestic Wells Inc.	4/23/1981	Industrial	Bedrock	350	-	-	-	14	Y	300
DEM	10	Well #2- Rt. 111	Gerald D. Hines Interests	11	-	445	8	Domestic Wells Inc.	4/30/1981	Industrial	Bedrock	445	-	-	-	14	Y	60
DEM	11	Lot 22 Wake Rd	Prospective Properties Inc.	5	-	430	6	A&W Artesian Well Co.	6/81	Domestic	Bedrock	430	-	-	-	N.A.	Y	7
DEM	12	404 Old Harvard Rd	Thomas Price	20	-	200	6	Domestic Wells Inc.	7/14/1981	Domestic	Bedrock	200	-	-	-	30	Y	10
DEM	13	Codman Hill Rd	DL Maher	6	-	405	6	A&W Artesian Well Co.	10/81	Industrial	Bedrock	405	-	-	-	N.A.	Y	6.5
DEM	14	N.A.	BSC Eng.	33	-	302	6	Domestic Wells Inc.	12/29/1981	Domestic	Bedrock	302	-	-	-	6	Y	55
DEM	15	Burroughs Rd	Robert Buckun	6	-	265	6	E.R. Sullivan Inc.	5/13/1982	Domestic	Bedrock	285	-	-	-	10	N	-
DEM	16	Route 111	Sheraton Inn	3	-	600	8	R.E. Chapman Co.	9/20/1983	Public	Bedrock	600	-	-	-	57	Y	20
DEM	17	Cunningham Rd	Henry J. Stanford	20	-	370	6	A&W Artesian Well Co.	3/84	Domestic	Bedrock	370	-	-	-	N.A.	Y	85
DEM	[illegible]	Flagg Hill Rd	J&K Realty	20	-	555	6	E.R. Sullivan Inc.	8/22/1994	Domestic	Bedrock	555	-	-	-	25	Y	4
DEM	19	Liberty Sq Rd	Wayne Parsons	6	-	550	6	E.R. Sullivan Inc.	12/30/1984	Domestic	Bedrock	550	-	-	-	30	Y	4
DEM	20	Lot 4 Common Dr	Northwest Structures	20	-	280	6	Welltech Corp.	1985	Domestic	Bedrock	280	-	-	-	20	N	-
DEM	21	Lot 2 Depot Rd	Karl Gustafson	20	-	255	6	Welltech Corp.	1985	Domestic	Bedrock	255	-	-	-	20	N	-
DEM	22	N.A.	Scott Assoc./Paul Scott	20	-	??	6	McGinstry Well Service	3/2/1985	Domestic	Bedrock	??	-	-	-	40	Y	60
DEM	24	Liberty Sq Rd	Gus Linderuv	20	-	310	6	E.R. Sullivan Inc.	4/2/1985	Domestic	Bedrock	310	-	-	-	5	Y	4
DEM	25	Middle Rd	??	20	-	190	6	E.R. Sullivan Inc.	5/8/1975	Domestic	Bedrock	190	-	-	-	30	Y	12
DEM	26	??	??	N.A.	-	N.A.	6	??	5/16/1985	Domestic	Bedrock	N.A.	-	-	-	??	Y	20
DEM	27	Sargent Rd	John J. Flannery	6	-	205	6	E.R. Sullivan Inc.	7/3/1985	Domestic	Bedrock	205	-	-	-	30	Y	25
DEM	28	Codman Hill Rd	Beals & Thomas Inc.	27	-	243	6	D.L. Maher Co.	7/18/1985	Industrial	Bedrock	243	-	-	-	10	Y	100
DEM	[illegible]	Liberty Square Rd	Altair Assoc.	125	-	530	6	E.R. Sullivan Inc.	2/10/1978	Domestic	Bedrock	530	-	-	-	50	Y	30
DEM	[illegible]	Mass Ave	S. Sigman	24	-	430	6	E.R. Sullivan Inc.	3/12/1986	Domestic	Bedrock	430	-	-	-	3	Y	3
DEM	31	Codman Hill Rd	Beals & Thomas Inc.	15	-	250	6	D.L. Maher Co.	4/28/1986	Industrial	Bedrock	250	-	-	-	10	Y	75
DEM	[illegible]	??	Altair Assoc.	90	-	460	6	E.R. Sullivan Inc.	5/13/1981	Domestic	Bedrock	460	-	-	-	50	Y	5
DEM	34	Lot 2 Woodward Lane	Northwest Structures	21	-	450	6	Welltech Corp.	5/22/1986	Domestic	Bedrock	450	-	-	-	21	Y	40
DEM	35	Sargent Rd	??	5	-	245	6	E.R. Sullivan Inc.	5/23/1986	Domestic	Bedrock	245	-	-	-	5	Y	150
DEM	[illegible]	Osceola Dr	Flannery Bldg	15	-	205	6	E.R. Sullivan Inc.	7/18/1986	Domestic	Bedrock	205	-	-	-	20	Y	12
DEM	37	Burroughs Rd	Sal Pennotta	46	-	490	6	E.R. Sullivan Inc.	7/21/1978	Domestic	Bedrock	490	-	-	-	20	Y	30
DEM	[illegible]	Codman Hill Rd	??	26	-	250	6	E.R. Sullivan Inc.	7/23/1969	Domestic	Bedrock	250	-	-	-	6	Y	7
DEM	38	Rt. 111 Mass Ave	Town of Boxborough	28	-	380	8	Skillings & Sons, Inc.	2/8/2000	Public	Bedrock	380	-	-	-	23.1	Y	175
DEM	[illegible]	#2 Hill Rd	??	110	-	250	6	E.R. Sullivan Inc.	7/30/1975	Domestic	Bedrock	250	-	-	-	65	Y	10
DEM	40	Codman Hill Rd	??	11	-	205	6	E.R. Sullivan Inc.	10/9/1991	Domestic	Bedrock	205	-	-	-	10	Y	20
DEM	41	Boxmill Rd	Dave Putursoc	4	-	225	6	E.R. Sullivan Inc.	10/20/1980	Domestic	Bedrock	225	-	-	-	15	Y	12
DEM	42	Liberty Sq Rd	??	8	-	440	6	E.R. Sullivan Inc.	10/21/1986	Domestic	Bedrock	440	-	-	-	22	Y	5
DEM	43	Lot 17 38 Pine St	Deck House, Inc.	10	-	340	6	A&W Artesian Well Co.	11/7/1986	Domestic	Bedrock	340	-	-	-	N.A.	Y	6
DEM	44	Barteau Rd	Sam Fisk	10	-	245	6	E.R. Sullivan Inc.	11/24/1986	Domestic	Bedrock	245	-	-	-	20	Y	8
DEM	45	#2 Sargent Rd	Spurci Const.	8	-	220	6	E.R. Sullivan Inc.	2/23/1982	Domestic	Bedrock	220	-	-	-	10	Y	30
DEM	[illegible]	Route 111	TJ Burns	18	-	205	6	Charlton Well Co.	2/24/1987	Domestic	Bedrock	205	-	-	-	20	Y	6
DEM	47	34 Wally Rd	Bob Hyniah	14	-	765	6	E.R. Sullivan Inc.	8/25/1977	Domestic	Bedrock	765	-	-	-	??	Y	4
DEM	56	334 Burroughs Rd	Dan Chisholm	120	-	365	6	E.R. Sullivan Inc.	8/27/1977	Domestic	Bedrock	365	-	-	-	25	Y	5
DEM	57	Lot 8 Flagg Hill Rd	Deck House, Inc.	5	-	345	6	A&W Artesian Well Co.	11/6/1987	Domestic	Bedrock	345	-	-	-	N.A.	Y	10
DEM	58	#3 Sargent Rd	John Spuro	10	-	205	6	E.R. Sullivan Inc.	12/4/1987	Domestic	Bedrock	205	-	-	-	10	Y	12
DEM	59	#166 Depot Rd	Bruce Whindor	20	-	365	6	E.R. Sullivan Inc.	12/7/1981	Domestic	Bedrock	365	-	-	-	21	Y	8
DEM	60	1-446 Liberty Sq Rd	Richard Stuart Jr	26	-	625	6	E.R. Sullivan Inc.	12/9/1977	Domestic	Bedrock	625	-	-	-	10	Y	9
DEM	61	[illegible] Flagg Hill Rd	Bill Hoffman	20	-	300	6	Policy Wells	1/5/1988	Domestic	Bedrock	300	-	-	-	25	Y	5
DEM	62	Lot 24 Stonehedge Pl	Deck House, Inc.	54	-	260	6	A&W Artesian Well Co.	1/13/1988	Domestic	Bedrock	260	-	-	-	20	Y	40
DEM	63	Lot 25 Stonehedge Pl	Deck House, Inc.	43	-	200	6	A&W Artesian Well Co.	2/17/1988	Domestic	Bedrock	200	-	-	-	N.A.	Y	30
DEM	64																	

CDM

Table 4

Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)

Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information				Screen		Depth to Water (ft-bgs)	Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Length (feet)	Slot Size (inches)		Pump Test (Y/N)	Rate (gpm)
DEM	[redacted]	#21A Stow Rd	Bill Schidler	20	-	260	6	E.R Sullivan Inc.	4/28/1980	Domestic	Bedrock	260	-	-	-	8	Y	60
DEM	66	#19A Richardson Rd	Ron Boudruac	10	-	475	6	E.R Sullivan Inc.	5/27/1988	Domestic	Bedrock	475	-	-	-	8	Y	6
DEM	67	Liberty Square Rd	Larry Nichols Jr.	7	-	365	6	E.R. Sullivan Inc.	8/7/1979	Domestic	Bedrock	365	-	-	-	18	Y	12
DEM	68	#37 Heath Hill Estates	John Flaling Inc.	32	-	385	6	E.R. Sullivan Inc.	7/8/1980	Domestic	Bedrock	385	-	-	-	18	Y	10
DEM	69	Route 111	C.C. Filmore	12	-	145	6	E.R. Sullivan Inc.	7/11/1988	Domestic	Bedrock	145	-	-	-	20	Y	7
DEM	70	Lot #4	Deck House, Inc.	15	-	530	6	A&W Artesian Well Co.	7/19/1988	Domestic	Bedrock	530	-	-	-	N.A.	Y	10
DEM	71	Lot #11	Deck House, Inc.	5	-	700	6	A&W Artesian Well Co.	7/26/1988	Domestic	Bedrock	700	-	-	-	N.A.	Y	2
DEM	72	Lot #2	Deck House, Inc.	4	-	700	6	A&W Artesian Well Co.	7/29/1988	Domestic	Bedrock	700	-	-	-	N.A.	Y	3
DEM	72A	#20A Richardson Rd	Marc Star	9	-	365	6	E.R. Sullivan Inc.	8/29/1988	Domestic	Bedrock	365	-	-	-	8	Y	8
DEM	73	#32 Heath Hill Estates	John Flaling Inc.	50	-	470	6	E.R. Sullivan Inc.	9/22/1970	Domestic	Bedrock	470	-	-	-	11	Y	25
DEM	77	Lot 8 Stonehedge Pl	Deck House, Inc.	6	-	775	6	A&W Artesian Well Co.	9/30/1968	Domestic	Bedrock	775	-	-	-	N.A.	Y	10
DEM	78	Lot 11 Robinson Rd	John Doiron/J.R. Holmes	6	-	400	6	Skillings & Sons Inc.	11/1/1988	Domestic	Bedrock	400	-	-	-	25	Y	5
DEM	79	Lot 12 Robinson Rd	J.R. Holmes/Flanders Realty	10	-	300	6	Skillings & Sons Inc.	11/2/1988	Domestic	Bedrock	300	-	-	-	20	Y	10
DEM	80	Lot 9 Stonehedge Pl	Deck House, Inc.	8	-	750	6	A&W Artesian Well Co.	11/4/1988	Domestic	Bedrock	750	-	-	-	N.A.	Y	10
DEM	81	Lot #7 Stonehedge Pl	Deck House, Inc.	10	-	620	6	Skillings & Sons Inc.	12/27/1988	Domestic	Bedrock	620	-	-	-	25	Y	4.5
DEM	82	Lot # 12 Stonehedge Pl	Deck House, Inc.	5	-	660	6	Skillings & Sons Inc.	1/3/1989	Domestic	Bedrock	660	-	-	-	25	Y	88
DEM	83	Summer Rd Lot #19	Deck House, Inc.	5	-	485	6	Skillings & Sons Inc.	1/9/1989	Domestic	Bedrock	485	-	-	-	30	Y	8
DEM	84	Stonehedge Pl Freehole	Deck House, Inc.	8	-	500	6	Skillings & Sons Inc.	2/1/1989	Domestic	Bedrock	500	-	-	-	30	Y	2
DEM	84A	Mass Ave (Police Station)	Town of Boxborough	14	-	225	6	E.R. Sullivan Inc.	3/22/1989	Domestic	Bedrock	225	-	-	-	21	Y	18
DEM	84AA	#36 Heath Hill	J. Flaling Inc.	50	-	380	6	E.R. Sullivan Inc.	3/23/1989	Domestic	Bedrock	380	-	-	-	14	Y	30
DEM	84AAA	Lot #4 Ana's Way	Philip Fogarty	7	-	355	6	Charles , M. Rollins Inc	3/89	Domestic	Bedrock	355	-	-	-	15.5	Y	16.5
DEM	85	#48 Heath Hill	John Flannery Inc.	38	-	245	6	E.R. Sullivan Inc.	3/2/1989	Domestic	Bedrock	245	-	-	-	13	Y	15
DEM	86	Old Harvard Est lot 40	Northwest Structures	18	-	500	6	Skillings & Sons Inc.	4/13/1989	Domestic	Bedrock	500	-	-	-	30	Y	2
DEM	87	Old Harvard Est lot 41	Northwest Structures	3	-	500	6	Skillings & Sons Inc.	4/14/1989	Domestic	Bedrock	500	-	-	-	30	Y	3
DEM	87A	Lot 2 Well 2 Stonehedge Pl	Deck House, Inc.	8	-	750	6	A&W Artesian Well Co.	4/27/1989	Domestic	Bedrock	750	-	-	-	160	Y	10
DEM	88	#2 Liberty Sq Rd	Doug White	35	-	245	6	E.R. Sullivan Inc.	5/9/1980	Domestic	Bedrock	245	-	-	-	11	Y	15
DEM	89	Stonehedge Pl #15	Deck House, Inc.	8	-	700	6	Skillings & Sons Inc.	5/10/1989	Domestic	Bedrock	700	-	-	-	25	Y	5
DEM	90	1233 Mass Ave Realty	Mario Mannoni	20	-	355	6	Mike Sullivan Inc.	5/24/1989	Domestic	Bedrock	355	-	-	-	5	Y	4
DEM	91	Stonehedge Pl #14	Deck House, Inc.	7	-	1160	6	Skillings & Sons Inc.	5/31/1989	Domestic	Bedrock	1160	-	-	-	100	Y	4
DEM	91	Mass Ave	United Church of Christ Parish	35	-	365	6	E.R. Sullivan Inc.	8/22/1989	Domestic	Bedrock	365	-	-	-	16	Y	7
DEM	91A	Lot 3 Averbury Cir	Arthur Baxter	66	-	315	6	Mike Sullivan Inc.	8/13/1989	Domestic	Bedrock	315	-	-	-	40	Y	9
DEM	91A	Old Harvard Est lot #25	Northwest Structures	8	-	185	6	Skillings & Sons Inc.	8/23/1989	Domestic	Bedrock	185	-	-	-	15	Y	10
DEM	92	572 Mass Ave	Howard Gleason	20	-	245	6	E.R. Sullivan Inc.	6/18/1986	Domestic	Bedrock	245	-	-	-	22	Y	15
DEM	92	Averbury Cir lot #11	Scott Apgar	21	-	410	6	Skillings & Sons Inc.	8/25/1989	Domestic	Bedrock	410	-	-	-	25	Y	77
DEM	93	165 Waite Rd	Stall Fulton	N.A.	-	510	N.A.	E.R. Sullivan Inc.	8/29/1980	Domestic	Bedrock	510	-	-	-	13	Y	N.A.
DEM	[redacted]	60 Codman Hill Rd	Dec T	N.A.	-	545	N.A.	Northeast Water Wells	6/19/1989	Irrigation	Bedrock	545	-	-	-	20	Y	75
DEM	93A	#31 Old Harvard Est	Jim Harris	21	-	205	6	E.R. Sullivan Inc.	6/27/1974	Domestic	Bedrock	205	-	-	-	13	Y	30
DEM	93B	#42 Heath Hill Estates	John J. Flaling	67	-	365	6	E.R. Sullivan Inc.	8/27/1974	Domestic	Bedrock	365	-	-	-	14	Y	9
DEM	94	#1 Sibley Hill Rd	John Burus	60	-	425	6	E.R. Sullivan Inc.	9/5/1986	Domestic	Bedrock	425	-	-	-	11	Y	N.A.
DEM	94	Lot 34 Old Harvard Est	Northwest Structures	15	-	320	6	Skillings & Sons Inc.	6/28/1988	Domestic	Bedrock	320	-	-	-	15	Y	6
DEM	95	#41 Heath Hill	John J. Flaling	54	-	85	6	E.R. Sullivan Inc.	6/29/1979	Domestic	Bedrock	85	-	-	-	10	Y	35
DEM	96	315 Stow Rd	Art Groppe	6	-	500	6	Skillings & Sons Inc.	7/5/1989	Domestic	Bedrock	500	-	-	-	20	Y	2
DEM	97	Silbury Hill Estates #9	Bill Hoffman	60	-	340	6	Skillings & Sons Inc.	7/12/1989	Domestic	Bedrock	340	-	-	-	60	Y	50
DEM	98	#10 Silbury Hill Estates	Bill Hoffman	85	-	600	6	Skillings & Sons Inc.	7/15/1989	Domestic	Bedrock	600	-	-	-	30	Y	6
DEM	99	Liberty Park/Mass Ave.	Duptune Harpwell	10	-	425	6	E.R. Sullivan Inc.	7/26/1974	Domestic	Bedrock	425	-	-	-	10	Y	12
DEM	100	Stonehedge Pl #11	Deck House, Inc.	10	-	730	6	Skillings & Sons Inc.	8/4/1989	Domestic	Bedrock	730	-	-	-	25	Y	5
DEM	100A	#8 Silbury Hill Rd	Jack Evans	60	-	305	6	Skillings & Sons Inc.	8/4/1989	Domestic	Bedrock	305	-	-	-	25	Y	12
DEM	101	12 Picnic St	John Barron	150	-	300	6	E.R. Sullivan Inc.	8/10/1989	Domestic	Bedrock	300	-	-	-	30	Y	10
DEM	102	Lot 17 Flagg Hill Rd	Bill Graham	8	-	205	6	Mike Sullivan Inc.	8/11/1989	Domestic	Bedrock	205	-	-	-	10	Y	20
DEM	103	Flerras Field (soccer)	Town of Boxborough	65	-	250	6	E.R. Sullivan Inc.	8/18/1978	Domestic	Bedrock	250	-	-	-	8	Y	20
DEM	104	Lot 18 Richardson Rd	Kendall Homes	4	-	205	6	Northeast Water Wells	8/21/1989	Domestic	Bedrock	205	-	-	-	15	Y	9
DEM	[redacted]	Great Rd	Greg Storm	10	-	280	6	Mike Sullivan Inc	8/26/1989	Domestic	Bedrock	280	-	-	-	N.A.	Y	50
DEM	105A	#142 Picnic St	Joe McDonald	70	-	485	6	E.R. Sullivan Inc.	9/27/1984	Domestic	Bedrock	485	-	-	-	27	Y	6
DEM	106	Flagg Hill Rd lot 16	Cindy & Bill Buittanis	17	-	625	6	Skillings & Sons Inc.	9/28/1989	Domestic	Bedrock	625	-	-	-	3	Y	1

CDM

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				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	107	lot 1 Flagg Hill Rd	Robert Sweeney	25	-	250	6	Mike Sullivan Inc.	10/27/1989	Domestic	Bedrock	250	-	-	-	10	Y	30
DEM	109	45 Heath Hill Estates	John J. Flaling	80	-	325	6	E.R. Sullivan Inc.	1/10/1990	Domestic	Bedrock	325	-	-	-	18	Y	8
DEM	110	#46 Heath Hill Estates	John Flaling Inc.	80	-	525	6	E.R. Sullivan Inc.	1/12/1990	Domestic	Bedrock	525	-	-	-	46	Y	6
DEM	111	lot 23 Hager Lane	Renda Realty Trust	5	-	310	6	Mike Sullivan Inc.	1/17/1990	Domestic	Bedrock	310	-	-	-	25	Y	6
DEM	112	#7 Silbury Hill	James Luckett	46	-	305	6	E.R. Sullivan Inc.	2/14/1990	Domestic	Bedrock	305	-	-	-	12	Y	15
DEM	113	#49 Heath Hill Estates	John Flaling Inc.	50	-	365	6	E.R. Sullivan Inc.	2/21/1990	Domestic	Bedrock	365	-	-	-	23	Y	9
DEM	114	#2 Silbury Hill Estates	??	50	-	365	6	E.R. Sullivan Inc.	3/5/1990	Domestic	Bedrock	365	-	-	-	80	Y	10
DEM	[illegible]	#205 Reed Farm Estates	Reed Farm Inc.	10	-	225	6	E.R. Sullivan Inc.	3/15/1990	Domestic	Bedrock	225	-	-	-	77	Y	30
DEM	116	#12 Liberty Sq Rd	Atlantic One Coast	15	-	425	6	E.R. Sullivan Inc.	3/16/1990	Domestic	Bedrock	425	-	-	-	21	Y	4
DEM	117	Route 111	Nashoba Valley Nurseries	-	-	21	2.5	R.E. Chapman Co.	3/27/1990	Irrigation	Unconsolidated	21	2.5	5	0.030	3.12	Y	25
DEM	117A	#204 Reed Farm Estates	Reed Farm Inc.	6	-	205	6	E.R. Sullivan Inc.	4/17/1990	Domestic	Bedrock	205	-	-	-	14	Y	25
DEM	118	#239 Reed Farm Estates	Reed Farm Inc.	20	-	445	6	E.R. Sullivan Inc.	4/18/1990	Domestic	Bedrock	445	-	-	-	19	Y	5
DEM	[illegible]	#206 Reed Farm Estates	Reed Farm Inc.	7	-	205	6	E.R. Sullivan Inc.	5/31/1990	Domestic	Bedrock	205	-	-	-	16	Y	30
DEM	120	lot 18A Old Harvard Rd	Hal Rosenstock	8	-	205	6.125	Welltech Corp.	6/4/1990	Domestic	Bedrock	205	-	-	-	8	Y	10
DEM	121	#20 Hager Lane	Hurting Realty Trust	1	-	205	6	E.R. Sullivan Inc.	7/2/1990	Domestic	Bedrock	205	-	-	-	23	Y	20
DEM	[illegible]	#15 Mayfair Lane	Bruce Whallen	7	-	205	6	E.R. Sullivan Inc.	7/25/1990	Domestic	Bedrock	205	-	-	-	15	Y	30
DEM	123	# 2 Mayfair Lane	Bruce Wheeler	25	-	365	6	E.R. Sullivan Inc.	7/26/1990	Domestic	Bedrock	365	-	-	-	11	Y	5
DEM	124	#17 Mayfair Lane	Bruce Wheeler	4	-	245	6	E.R. Sullivan Inc.	7/30/1990	Domestic	Bedrock	245	-	-	-	14	Y	12
DEM	125	593 Mass Ave	Ira Barry Dash Straus	20	-	620	6	Skillings & Sons Inc.	7/30/1990	Domestic	Bedrock	620	-	-	-	35	Y	5
DEM	126	lot #11 Old Harvard Rd	Joe Labenski	8	-	305	6.125	N.A.	7/30/1990	Domestic	Bedrock	305	-	-	-	18	Y	7
DEM	127	86 Stonehedge Pl	Charlie Norman	5	-	900	6	Skillings & Sons Inc.	8/9/1990	Domestic	Bedrock	900	-	-	-	30	Y	10
DEM	128	32 Osceola Dr	Al Farnscoonth	280	-	280	N.A.	E.R. Sullivan Inc.	8/7/1990	Domestic	Bedrock	280	-	-	-	12	Y	20
DEM	129	#10 Burroughs Rd	Jay Metansey	10	-	175	6	E.R. Sullivan Inc.	7/9/1990	Domestic	Bedrock	175	-	-	-	14	Y	15
DEM	[illegible]	#1 Burroughs Rd	JHW Pappas	60	-	245	6	E.R. Sullivan Inc.	8/10/1990	Domestic	Bedrock	245	-	-	-	17	Y	30
DEM	[illegible]	#2 Burroughs Rd	JHW Pappas	72	-	305	6	E.R. Sullivan Inc.	8/11/1990	Domestic	Bedrock	305	-	-	-	21	Y	35
DEM	132	Mass Ave #1	S. Sigman	24	-	430	6	E.R. Sullivan Inc.	3/27/1986	Domestic	Bedrock	430	-	-	-	3	Y	3
DEM	132	lot 14 Old Harvard Rd	Anthony DeMarco	10	-	255	6.125	Welltech Corp.	8/14/1990	Domestic	Bedrock	255	-	-	-	8	Y	7
DEM	133	145 Stow Road	John Lyons	30	-	205	6	E.R. Sullivan Inc.	7/14/1990	Domestic	Bedrock	205	-	-	-	13	Y	20
DEM	134	#248 Reed Farm Estates	Reed Farm Inc.	15	-	365	6	E.R. Sullivan Inc.	8/24/1990	Domestic	Bedrock	365	-	-	-	18	Y	6
DEM	135	#5 Mayfair Lane	Bruce Wheeler	5	-	305	6	E.R. Sullivan Inc.	9/4/1990	Domestic	Bedrock	305	-	-	-	21	Y	15
DEM	136	lot 220 Reed Farm Rd	Morton McNut	15	-	175	6	Mike Sullivan Inc.	9/18/1990	Domestic	Bedrock	175	-	-	-	15	Y	25
DEM	137	#1 Middle Rd	Bruce Wheeler	130	-	545	6	E.R. Sullivan Inc.	9/20/1990	Domestic	Bedrock	545	-	-	-	23	Y	6
DEM	138	#244 Reed Farm Estates	Reed Farm	18	-	165	6	E.R. Sullivan Inc.	9/26/1990	Domestic	Bedrock	165	-	-	-	9	Y	25
DEM	139	#7 Robinson Rd	Robert Hart	27	-	345	6	E.R. Sullivan Inc.	10/12/1990	Domestic	Bedrock	345	-	-	-	14	Y	20
DEM	140	#8 Mayfair Lane	Bruce Wheeler	4	-	245	6	E.R. Sullivan Inc.	10/29/1990	Domestic	Bedrock	245	-	-	-	10	Y	10
DEM	141	#9 Mayfair Lane	Bruce Wheeler	14	-	245	6	E.R. Sullivan Inc.	10/30/1990	Domestic	Bedrock	245	-	-	-	14	Y	15
DEM	[illegible]	#218 Reed Farm Estates	Mark Gallaghan	10	-	485	6	E.R. Sullivan Inc.	11/8/1990	Domestic	Bedrock	485	-	-	-	11	Y	35
DEM	143	#243 Reed Farm Estates	Reed Farm Inc.	20	-	225	6	E.R. Sullivan Inc.	11/21/1990	Domestic	Bedrock	225	-	-	-	12	Y	8
DEM	[illegible]	#240 Reed Farm Estates	Reed Farm Inc.	20	-	185	6	E.R. Sullivan Inc.	12/4/1990	Domestic	Bedrock	185	-	-	-	13	Y	30
DEM	145	#7 Mayfair Lane	Bruce Wheeler	6	-	205	6	E.R. Sullivan Inc.	12/21/1990	Domestic	Bedrock	205	-	-	-	13	Y	15
DEM	146	#16 Mayfair Lane	Bruce Wheeler	10	-	245	6	E.R. Sullivan Inc.	2/10/1991	Domestic	Bedrock	245	-	-	-	14	Y	30
DEM	146A	Lot 8 Burroughs Rd	Fanta Realty	61	-	320	6	Wayne's Well Drilling	3/4/1991	Domestic	Bedrock	320	-	-	-	2	Y	7
DEM	147	#27 Meadow Rd	John Flaling Inc.	62	-	345	6	E.R. Sullivan Inc.	3/25/1971	Domestic	Bedrock	345	-	-	-	22	Y	6
DEM	148	Lot 3 Mayfair Lane	Anthony DeMarco	10	-	155	6.625	Welltech Corp.	4/5/1991	Domestic	Bedrock	155	-	-	-	20	Y	7
DEM	148A	Lot 8 Mayfair Lane	Anthony DeMarco	12	-	300	6.625	Welltech Corp.	4/9/1991	Domestic	Bedrock	300	-	-	-	25	Y	7
DEM	149	#4 Mayfair Lane	Bruce Wheeler	22	-	325	6	E.R. Sullivan Inc.	4/11/1991	Domestic	Bedrock	325	-	-	-	25	Y	8
DEM	[illegible]	#207 Reed Farm Estates	Reed Farm Inc.	10	-	165	6	E.R. Sullivan Inc.	4/12/1991	Domestic	Bedrock	165	-	-	-	18	Y	40
DEM	[illegible]	#1 Mayfair Lane	Bruce Wheeler	5	-	185	6	E.R. Sullivan Inc.	4/16/1991	Domestic	Bedrock	185	-	-	-	14	Y	30
DEM	152	#1052 Hill Rd	Roger Morse	4	-	205	6	E.R. Sullivan Inc.	4/25/1991	Domestic	Bedrock	205	-	-	-	19	Y	18
DEM	[illegible]	#293 Reed Farm Estates	Reed Farm Inc.	19	-	125	6	E.R. Sullivan Inc.	5/10/1991	Domestic	Bedrock	125	-	-	-	8	Y	40
DEM	154	#11 Mayfair Lane	Bruce Wheeler	8	-	365	6	E.R. Sullivan Inc.	5/16/1991	Domestic	Bedrock	365	-	-	-	13	Y	10
DEM	155	#64 Averbury Cir	RD Lannaird	100	-	245	6	E.R. Sullivan Inc.	6/13/1991	Domestic	Bedrock	245	-	-	-	36	Y	15
DEM	[illegible]	#20 Tamarack Lane	John J. Flaling	35	-	205	6	E.R. Sullivan Inc.	6/21/1991	Domestic	Bedrock	205	-	-	-	9	Y	35
DEM	157	#225 Reed Farm Rd	Reed Farm Inc.	15	-	305	6	E.R. Sullivan Inc.	6/24/1991	Domestic	Bedrock	305	-	-	-	14	Y	12
DEM	[illegible]	#241 Reed Farm Rd	Reed Farm Inc.	30	-	205	6	E.R. Sullivan Inc.	6/25/1991	Domestic	Bedrock	205	-	-	-	16	Y	30

Table 4
Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information								Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water (ft-bgs)		Pump Test (Y/N)	Rate (gpm)
DEM	159	#4 Cedarwood Rd	New England Classic Homes	45	-	345	6	E.R. Sullivan Inc.	6/26/1991	Domestic	Bedrock	345	-	-	-	32		Y	15
DEM	160	Coblelgh Rd	Kalsa Builders	5	-	350	6	McKinstry Well Service	6/30/1991	Domestic	Bedrock	350	-	-	-	15		Y	5
DEM	161	#13 Mayfair Lane	Bruce Wheeler	8	-	245	6	E.R. Sullivan Inc.	7/1/1991	Domestic	Bedrock	245	-	-	-	14		Y	15
DEM	162	#24 Meadow Lane	John J. Flaling	64	-	245	6	E.R. Sullivan Inc.	7/10/1991	Domestic	Bedrock	245	-	-	-	12		Y	15
DEM	163	#13 Mayfair Lane	Bruce Wheeler	18	-	565	6	E.R. Sullivan Inc.	7/13/1991	Domestic	Bedrock	565	-	-	-	10		Y	5
DEM	164	lot 4 #96 Picnic St	Jeff Perley	80	-	430	6	Mike Sullivan Inc.	7/24/1991	Domestic	Bedrock	430	-	-	-	70		Y	20
DEM	165	#2 Meeting House Lane	Bruce Wheeler	100	-	325	6	E.R. Sullivan Inc.	7/26/1991	Domestic	Bedrock	325	-	-	-	32		Y	20
DEM	166	lot 2 Robinson Rd	Northwest Structures	30	-	500	6	Skillings & Sons Inc.	7/27/1991	Domestic	Bedrock	500	-	-	-	35		Y	2
DEM	167	Mass Ave	Stone Hill Const.	12	-	165	6	E.R. Sullivan Inc.	7/29/1991	Domestic	Bedrock	165	-	-	-	10		Y	20
DEM	168	42 Sargent Rd	Tom Napoli	15	-	305	6	E.R. Sullivan Inc.	8/5/1991	Domestic	Bedrock	305	-	-	-	13		Y	8
DEM	169	Lot 2 Liberty Sq Rd	Red Acre Devlp. Corp.	12	-	460	6	Mike Sullivan Inc.	8/9/1991	Domestic	Bedrock	460	-	-	-	10		Y	4
DEM	170	#234 Blanchard Rd	Reed Farm Inc.	15	-	205	6	E.R. Sullivan Inc.	8/11/1991	Domestic	Bedrock	205	-	-	-	10		Y	20
DEM	171	#263 Reed Farm Rd	Reed Farm Inc.	18	-	285	6	E.R. Sullivan Inc.	8/22/1991	Domestic	Bedrock	285	-	-	-	10		Y	8
DEM	172	lot c-3 242 Old Harvard Rd	Steve Meilke	3	-	220	6	Skillings & Sons Inc.	8/29/1991	Domestic	Bedrock	220	-	-	-	25		Y	6
DEM	173	#1 Cedarwood Rd	New England Classic Homes	30	-	245	6	E.R. Sullivan Inc.	9/3/1991	Domestic	Bedrock	245	-	-	-	19		Y	12
DEM	174	#2 Burroughs Rd	Cortess Realty Trust	7	-	225	6	E.R. Sullivan Inc.	9/5/1991	Domestic	Bedrock	225	-	-	-	10		Y	15
DEM	175	1056 Liberty Sq Rd	Alfred Ferbas	35	-	350	6	Mike Sullivan Inc.	9/17/1991	Domestic	Bedrock	350	-	-	-	30		Y	1.5
DEM	176	lot 227 Blanchard Rd	Reed Farm Inc.	7	-	400	6	Mike Sullivan Inc.	9/19/1991	Domestic	Bedrock	400	-	-	-	10		Y	4
DEM	177	lot 236 Reed Farm Rd	Dibiase Co.	40	-	310	6	Mike Sullivan Inc.	9/19/1991	Domestic	Bedrock	310	-	-	-	5		Y	5
DEM	178	lot 243 Reed Farm Rd	Dibiase Co.	25	-	220	6	Mike Sullivan Inc.	9/20/1991	Domestic	Bedrock	220	-	-	-	5		Y	15
DEM	179	lot 228 Blanchard Rd	Reed Farm Inc.	8	-	175	6	Mike Sullivan Inc.	10/3/1991	Domestic	Bedrock	175	-	-	-	6		Y	20
DEM	180	#4 Old Harvard Rd	Ermin Forman	5	-	205	6	E.R. Sullivan Inc.	10/9/1991	Domestic	Bedrock	205	-	-	-	12		Y	25
DEM	181	#24 Hager Lane	Compass Bld.	15	-	225	6	E.R. Sullivan Inc.	10/11/1991	Domestic	Bedrock	225	-	-	-	17		Y	15
DEM	182	#6 Cedarwood Estates	New England Classic Homes	60	-	305	6	E.R. Sullivan Inc.	10/17/1991	Domestic	Bedrock	305	-	-	-	26		Y	25
DEM	182	lot 27 Old Harvard Rd	Northwest Structures	3	-	260	6	Skillings & Sons Inc.	10/17/1991	Domestic	Bedrock	260	-	-	-	25		Y	5
DEM	183	#6 Cedarwood Rd	New England Classic Homes	60	-	305	6	E.R. Sullivan Inc.	10/17/1991	Domestic	Bedrock	305	-	-	-	26		Y	25
DEM	184	lot 4 Robinson Rd	Walter Zukas	19	-	400	6	Mike Sullivan Inc.	10/28/1991	Domestic	Bedrock	400	-	-	-	20		Y	5
DEM	185	lot 214 Reed Farm Rd	Piriase Co.	6	-	235	6	Mike Sullivan Inc.	10/28/1991	Domestic	Bedrock	235	-	-	-	20		Y	30
DEM	186	#9 Mayfair Lane	Dave Shepard	6	-	425	6	E.R. Sullivan Inc.	10/29/1991	Domestic	Bedrock	425	-	-	-	18		Y	15
DEM	187	#5 Robinson Rd	Compass Bld.	18	-	225	6	E.R. Sullivan Inc.	11/4/1991	Domestic	Bedrock	225	-	-	-	14		Y	15
DEM	188	#30 Meadow Lane	John J. Flaling	58	-	385	6	E.R. Sullivan Inc.	11/11/1991	Domestic	Bedrock	385	-	-	-	13		Y	15
DEM	189	lot 212 Reed Farm Rd	Dibiase Co.	45	-	220	6	Mike Sullivan Inc.	11/18/1991	Domestic	Bedrock	220	-	-	-	10		Y	25
DEM	189A	#21 Hager Lane	Tony D'Agostiano	5	-	305	6	E.R. Sullivan Inc.	11/18/1991	Domestic	Bedrock	305	-	-	-	13		Y	20
DEM	190	lot 229 Blanchard Rd	Dibiase Co.	5	-	175	6	Mike Sullivan Inc.	11/19/1991	Domestic	Bedrock	175	-	-	-	10		Y	20
DEM	191	lot 235 Blanchard Rd	Dibiase Co.	22	-	130	6	Mike Sullivan Inc.	11/21/1991	Domestic	Bedrock	130	-	-	-	10		Y	25
DEM	192	lot 7 Robinson Rd	Steven Schultz	25	-	475	6	Mike Sullivan Inc.	12/11/1991	Domestic	Bedrock	475	-	-	-	20		Y	4
DEM	193	lot 16 Depot Rd	Regina & William Marksteiner	5	-	205	6	Skillings & Sons Inc.	12/18/1991	Domestic	Bedrock	205	-	-	-	10		Y	8
DEM	194	lot 226 Blanchard Rd	James Redmond	10	-	205	6	Mike Sullivan Inc.	12/27/1991	Domestic	Bedrock	205	-	-	-	12		Y	30
DEM	195	28 Meadow La	John Flanlly Inc	35	-	385	6	E.R. Sullivan Inc.	1/31/1993	Domestic	Bedrock	385	-	-	-	15		Y	10
DEM	196	#29 Meadow Lane	John J. Flaling	52	-	145	6	E.R. Sullivan Inc.	1/2/1992	Domestic	Bedrock	145	-	-	-	10		Y	15
DEM	197	lot 40 Guggins Lane	Dibiase Co.	6	-	310	6	Mike Sullivan Inc.	11/2/1992	Domestic	Bedrock	310	-	-	-	10		Y	6
DEM	[illegible]	#19 Tamarack Lane	John J. Flaling	32	-	205	6	E.R. Sullivan Inc.	1/29/1991	Domestic	Bedrock	205	-	-	-	13		Y	30
DEM	199	#3 Robinson Rd	Robert Christians	32	-	525	6	E.R. Sullivan Inc.	2/3/1992	Domestic	Bedrock	525	-	-	-	24		Y	12
DEM	200	lot 15 Depot Rd	Gina Marksteiner	5	-	165	6	Skillings & Sons Inc.	2/7/1992	Domestic	Bedrock	165	-	-	-	0		Y	10
DEM	201	lot 211 Reed Farm Rd	Dibiase Co.	40	-	175	6	Mike Sullivan Inc.	2/14/1992	Domestic	Bedrock	175	-	-	-	5		Y	20
DEM	202	lot 245 Reed Farm Rd	Dibiase Co.	15	-	235	6	Mike Sullivan Inc.	1/23/1992	Domestic	Bedrock	235	-	-	-	1		Y	30
DEM	203	lot 222 Blanchard Rd	Reed Farm Inc.	10	-	400	6	Mike Sullivan Inc.	2/24/1992	Domestic	Bedrock	400	-	-	-	12		Y	6
DEM	204	lot 221 Blanchard Rd	Reed Farm Inc.	22	-	190	6	Mike Sullivan Inc.	2/25/1992	Domestic	Bedrock	190	-	-	-	10		Y	20
DEM	205	#26 Meadow Lane	John J. Flaling	55	-	465	6	E.R. Sullivan Inc.	3/4/1992	Domestic	Bedrock	465	-	-	-	10		Y	8
DEM	205A	#3 Depot Rd	Compass Bld.	15	-	285	6	E.R. Sullivan Inc.	3/6/1992	Domestic	Bedrock	285	-	-	-	11		Y	8
DEM	207	lot 210 Reed Farm Rd	Dibiase Co.	12	-	220	6	Mike Sullivan Inc.	3/18/1992	Domestic	Bedrock	220	-	-	-	2		Y	15
DEM	208	#28 Meadow Lane	John J. Flaling	50	-	185	6	E.R. Sullivan Inc.	3/27/1992	Domestic	Bedrock	185	-	-	-	12		Y	10
DEM	[illegible]	#21 Tamarack Lane	John J. Flaling	38	-	105	6	E.R. Sullivan Inc.	3/31/1992	Domestic	Bedrock	105	-	-	-	16		Y	30
DEM	210	#1 Flagg Hill Rd	Guy Doiroll Bld.	15	-	225	6	E.R. Sullivan Inc.	4/1/1992	Domestic	Bedrock	225	-	-	-	22		Y	15
DEM	211	lot 232 Blanchard Rd	Reed Farm Inc.	12	-	235	6	Mike Sullivan Inc.	4/1/1992	Domestic	Bedrock	235	-	-	-	5		Y	15

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				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water (ft bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	212	lot 233 Blanchard Rd	Reed Farm Inc.	15	-	145	6	Mike Sullivan Inc.	4/2/1992	Domestic	Bedrock	145	-	-	-	5	Y	30
DEM	213	lot 47 Old Harvard Rd	Bethel Const.	42	-	220	6	Mike Sullivan Inc.	4/3/1998	Domestic	Bedrock	220	-	-	-	40	Y	20
DEM	214	lot 230 Blanchard Rd	Reed Farm Inc.	25	-	280	6	Mike Sullivan Inc.	4/9/1992	Domestic	Bedrock	280	-	-	-	16	Y	6
DEM	215	lot 231 Blanchard Rd	Reed Farm Inc.	22	-	325	6	Mike Sullivan Inc.	4/21/1992	Domestic	Bedrock	325	-	-	-	5	Y	15
DEM	216	lot 1 Robinson Rd	Northwest Structures	35	-	500	6	Skillings & Sons Inc.	4/22/1992	Domestic	Bedrock	500	-	-	-	30	Y	5
DEM	217	lot 9 Reed Farm Rd	Reed Farm Inc.	15	-	220	6	Mike Sullivan Inc.	4/27/1992	Domestic	Bedrock	220	-	-	-	5	Y	50
DEM	218	lot 213 Reed Farm Rd	Reed Farm Inc.	42	-	175	6	Mike Sullivan Inc.	5/6/1994	Domestic	Bedrock	175	-	-	-	5	Y	30
DEM	219	lot 214 Reed Farm Rd	Reed Farm Inc.	45	-	235	6	Mike Sullivan Inc.	5/7/1992	Domestic	Bedrock	235	-	-	-	5	Y	20
DEM	219A	#3 Depot Rd	Roland Walden	12	-	205	6	E.R. Sullivan Inc.	5/7/1992	Domestic	Bedrock	205	-	-	-	13	Y	10
DEM	219B	1 Depot Rd	Richard Whaldan	18	-	145	6	E.R. Sullivan Inc.	5/7/1993	Domestic	Bedrock	145	-	-	-	6	Y	15
DEM	220	#46 Old Harvard Rd	Compass Bld.	18	-	245	6	E.R. Sullivan Inc.	5/14/1992	Domestic	Bedrock	245	-	-	-	14	Y	15
DEM	221	#36 Robinson Rd	JMB Carpentry	4	-	365	6	E.R. Sullivan Inc.	5/15/1992	Domestic	Bedrock	365	-	-	-	12	Y	8
DEM	222	#34 Meadow Lane	John J. Flaling	15	-	405	6	E.R. Sullivan Inc.	5/9/1992	Domestic	Bedrock	405	-	-	-	10	Y	15
DEM	223	#22 Hager Lane	Mike O'Leary	4	-	325	6	E.R. Sullivan Inc.	5/20/1992	Domestic	Bedrock	325	-	-	-	16	Y	12
DEM	224	lot 8 Reed Farm Rd	Reed Farm Inc.	12	-	220	6	Mike Sullivan Inc.	5/26/1992	Domestic	Bedrock	220	-	-	-	10	Y	25
DEM	225	lot 44 Steele Lane	Mike D. Durand	28	-	500	6	Skillings & Sons Inc.	5/28/1992	Domestic	Bedrock	500	-	-	-	40	Y	4
DEM	226	#17 B Hager Lane	C&J Const.	12	-	245	6	E.R. Sullivan Inc.	6/1/1992	Domestic	Bedrock	245	-	-	-	15	Y	25
DEM	227	#42 Meadow Lane	John J. Flaling	60	-	245	6	E.R. Sullivan Inc.	6/10/1992	Domestic	Bedrock	245	-	-	-	16	Y	15
DEM	228	Digital Equip. Corp	Digital Equip.	-	-	20	2	Geo Logic Inc.	6/12/1991	Monitoring	Unconsolidated	20	2	10	0.010	N.A.	N	-
DEM	229	lot 42 Steele Lane	Northwest Structures	13	-	500	6	Skillings & Sons Inc.	6/16/1992	Domestic	Bedrock	500	-	-	-	25	Y	4
DEM	230	#9 Burroughs Rd	D-Boss	15	-	225	6	E.R. Sullivan Inc.	6/17/1992	Domestic	Bedrock	225	-	-	-	14	Y	15
DEM	[illegible]	#28 Morse Lane	John McNulty (Bld.)	12	-	245	6	E.R. Sullivan Inc.	6/24/1992	Domestic	Bedrock	245	-	-	-	10	Y	30
DEM	232	lot 19 Hager Lane	Howard Markawitz	5	-	250	6	Mike Sullivan Inc.	7/1/1992	Domestic	Bedrock	250	-	-	-	20	Y	30
DEM	233	#1 Hill Rd	Jim Goodenghot	4	-	245	6	E.R. Sullivan Inc.	7/2/1992	Domestic	Bedrock	245	-	-	-	12	Y	10
DEM	234	#4 Burroughs Rd	Frank Johnson (Bld.)	6	-	305	6	E.R. Sullivan Inc.	7/7/1992	Domestic	Bedrock	305	-	-	-	14	Y	7
DEM	235	lot 238 Reed Farm Rd	Reed Farm Inc.	30	-	235	6	Mike Sullivan Inc.	7/21/1992	Domestic	Bedrock	235	-	-	-	5	Y	20
DEM	236	lot 39 Steele Lane	Northwest Structures	24	-	500	6	Skillings & Sons Inc.	8/1/1992	Domestic	Bedrock	500	-	-	-	20	Y	3
DEM	237	lot 216 Reed Farm Rd	Reed Farm Inc.	20	-	250	6	Mike Sullivan Inc.	8/3/1992	Domestic	Bedrock	250	-	-	-	10	Y	10
DEM	238	#14 Barteau Lane	Ken Fabian	3	-	605	6	E.R. Sullivan Inc.	8/11/1992	Domestic	Bedrock	605	-	-	-	34	Y	4
DEM	239	lot 28A Flagg Hill Rd	Deck House, Inc.	7	-	185	6	Skillings & Sons Inc.	8/14/1992	Domestic	Bedrock	185	-	-	-	20	Y	50
DEM	240	187 Hill Rd	N.A.	35	-	405	6	E.R. Sullivan Inc.	8/18/1992	Domestic	Bedrock	405	-	-	-	12	Y	8
DEM	241	#33 Meadow Rd	John J. Flaling	30	-	285	6	E.R. Sullivan Inc.	8/14/1992	Domestic	Bedrock	285	-	-	-	10	Y	15
DEM	242	lot #01 Stonehedge Pl	Deck House, Inc.	4	-	500	6	Skillings & Sons Inc.	8/20/1992	Domestic	Bedrock	500	-	-	-	15	Y	2
DEM	243	#14-1 Robinson Rd	Dan Poulty (Hanson Bld.)	25	-	285	6	E.R. Sullivan Inc.	9/18/1992	Domestic	Bedrock	285	-	-	-	10	Y	15
DEM	244	lot 3 Cedarwood Rd	M.J. Robichaud	11	-	205	6	Skillings & Sons Inc.	9/21/1992	Domestic	Bedrock	205	-	-	-	25	Y	12
DEM	245	lot 33 Robinson Rd	Charles Rikopoulos	19	-	130	6.625	Welltech Corp.	9/23/1992	Domestic	Bedrock	130	-	-	-	20	Y	10
DEM	246	#48-4 Steele Lane	Compass Bld.	7	-	785	6	E.R. Sullivan Inc.	9/24/1992	Domestic	Bedrock	785	-	-	-	33	Y	5
DEM	247	lot 223 Blanchard Rd	Reed Farm Inc.	10	-	190	6	Mike Sullivan Inc.	10/6/1992	Domestic	Bedrock	190	-	-	-	10	Y	15
DEM	248	lot 15 Liberty Tree Ave	Northwest Structures	8	-	265	6	Skillings & Sons Inc.	10/7/1992	Domestic	Bedrock	265	-	-	-	30	Y	4
DEM	249	lot 215 Reed Farm Rd	Reed Farm Inc.	25	-	250	6	Mike Sullivan Inc.	10/8/1992	Domestic	Bedrock	250	-	-	-	5	Y	12
DEM	250	#17 Stow Rd	Bruce Wheeler	17	-	425	6	E.R. Sullivan Inc.	10/15/1992	Domestic	Bedrock	425	-	-	-	19	Y	15
DEM	251	lot #08 Liberty Tree	Northwest Structures	7	-	305	6	Skillings & Sons Inc.	10/7/1992	Domestic	Bedrock	305	-	-	-	20	Y	3
DEM	252	lot 2 Cedarwood Rd	M.J. Robichaud	21	-	200	6	Skillings & Sons Inc.	10/26/1992	Domestic	Bedrock	200	-	-	-	30	Y	5
DEM	[illegible]	#1 Stow Rd	Bruce Wheeler	18	-	400	6	E.R. Sullivan Inc.	10/20/1992	Domestic	Bedrock	400	-	-	-	22	Y	30
DEM	254	#50 Meadow Lane	John J. Flaling	65	-	225	6	E.R. Sullivan Inc.	11/4/1992	Domestic	Bedrock	225	-	-	-	12	Y	12
DEM	255	#51 Meadow Lane	John J. Flaling	62	-	345	6	E.R. Sullivan Inc.	11/5/1992	Domestic	Bedrock	345	-	-	-	14	Y	15
DEM	256	#26 Hager Lane	Tony D'Agostiano	8	-	145	6	E.R. Sullivan Inc.	11/6/1992	Domestic	Bedrock	145	-	-	-	6	Y	20
DEM	257	#1 Depot Rd	Compass Bld.	24	-	305	6	E.R. Sullivan Inc.	11/12/1992	Domestic	Bedrock	305	-	-	-	21	Y	10
DEM	258	Lot 3 Benjamin Dr	Red Acre Devlp. Corp.	1	-	250	6	Mike Sullivan Inc.	12/4/1992	Domestic	Bedrock	250	-	-	-	20	Y	7
DEM	259	#17 Burroughs Rd	Bruce Wheeler	14	-	205	6	E.R. Sullivan Inc.	12/9/1992	Domestic	Bedrock	205	-	-	-	16	Y	15
DEM	260	18 Burroughs Rd	Bruce Wheeler	20	-	245	6	E.R. Sullivan Inc.	12/10/1992	Domestic	Bedrock	245	-	-	-	14	Y	10
DEM	261	#3 Stow Rd	Bruce Wheeler	27	-	405	6	E.R. Sullivan Inc.	10/29/1992	Domestic	Bedrock	405	-	-	-	16	Y	20
DEM	262	lot 5 Cedarwood Dr	M.J. Robichaud	45	-	260	6	Skillings & Sons Inc.	11/18/1992	Domestic	Bedrock	260	-	-	-	70	Y	5
DEM	263	301 Old Harvard Rd	Ken Sunberg	10	-	300	6	Skillings & Sons Inc.	12/8/1992	Domestic	Bedrock	300	-	-	-	15	Y	7
DEM	264	16 Burroughs Rd	Bruce Wheeler	75	-	305	6	E.R. Sullivan Inc.	12/11/1992	Domestic	Bedrock	305	-	-	-	12	Y	12

Table 4

Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)

Boxborough, Massachusetts

Source[1]	Source Well I.D.[1]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
														Screen				
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Length (feet)	Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	265	22 Tamarack Lane	John J. Flaling	40	-	165	6	E.R. Sullivan Inc.	12/16/1992	Domestic	Bedrock	165	-	-	-	10	Y	8
DEM	[illegible]	23 Tamarack Lane	John J. Flaling	57	-	85	6	E.R. Sullivan Inc.	12/21/1992	Domestic	Bedrock	85	-	-	-	10	Y	30
DEM	267	lot 21 Emanuel Dr	Honyhorst Structures	12	-	440	6	Skillings & Sons Inc.	12/23/1993	Domestic	Bedrock	440	-	-	-	25	Y	3
DEM	268	#64 Robinson Rd	Jordan Stoun	12	-	645	6	E.R. Sullivan Inc.	12/8/1979	Domestic	Bedrock	645	-	-	-	14	Y	1.5
DEM	269	lot 10 Emanuel Dr	Northwest Structures	19	-	405	6	Skillings & Sons Inc.	12/29/1992	Domestic	Bedrock	405	-	-	-	22	Y	2
DEM	271	2 Brouglis Rd	Bruce Wheeler	10	-	365	6	E.R. Sullivan Inc.	1/11/1993	Domestic	Bedrock	365	-	-	-	10	Y	5
DEM	272	7 Aspen Lane	Bruce Wheeler	20	-	245	6	E.R. Sullivan Inc.	1/15/1993	Domestic	Bedrock	245	-	-	-	18	Y	12
DEM	273	13 Aspen Lane	Bruce Wheeler	14	-	205	6	E.R. Sullivan Inc.	1/20/1993	Domestic	Bedrock	205	-	-	-	14	Y	10
DEM	274	lot 3 Stow Rd	Bruce Wheeler	30	-	125	6	E.R. Sullivan Inc.	1/21/1993	Domestic	Bedrock	125	-	-	-	16	Y	15
DEM	275	lot 19 Emanuel Dr	Northwest Structures	10	-	180	6	Skillings & Sons Inc.	1/25/1993	Domestic	Bedrock	180	-	-	-	20	Y	6
DEM	276	lot 8 Emanuel Dr	Northwest Structures	18	-	500	6	Skillings & Sons Inc.	1/28/1993	Domestic	Bedrock	500	-	-	-	30	Y	2
DEM	277	6 Aspen Lane	Bruce Wheeler	35	-	245	6	E.R. Sullivan Inc.	2/2/1993	Domestic	Bedrock	245	-	-	-	14	Y	10
DEM	278	18 Tamarack Rd	John J. Flaling	30	-	245	6	E.R. Sullivan Inc.	2/3/1993	Domestic	Bedrock	245	-	-	-	10	Y	20
DEM	279	17 Tamarack Lane	John J. Flaling	36	-	205	6	E.R. Sullivan Inc.	2/4/1993	Domestic	Bedrock	205	-	-	-	13	Y	25
DEM	280	7 Whitney Lane	Bruce Wheeler	30	-	305	6	E.R. Sullivan Inc.	2/9/1993	Domestic	Bedrock	305	-	-	-	19	Y	9
DEM	282	lot 251 Inches Way Rd	Reed Farm Inc.	15	-	245	6	Mike Sullivan Inc.	2/23/1993	Domestic	Bedrock	245	-	-	-	12	Y	20
DEM	[illegible]	11 Littlefield Rd	Lisa & Joe O'Brian	4	-	530	6	E.R. Sullivan Inc.	2/24/1993	Domestic	Bedrock	530	-	-	-	14	Y	30
DEM	284	lot 63 Guggins Brook Rd	Reed Farm Inc.	18	-	355	6	Mike Sullivan Inc.	2/23/1993	Domestic	Bedrock	355	-	-	-	20	Y	50
DEM	285	lot 23 Joseph Rd	Northwest Structures	5	-	300	6	Skillings & Sons Inc.	3/4/1993	Domestic	Bedrock	300	-	-	-	15	Y	4
DEM	286	lot 11 Emanuel Dr	Northwest Structures	20	-	260	6	Skillings & Sons Inc.	3/7/1993	Domestic	Bedrock	260	-	-	-	20	Y	10
DEM	287	5 Whitney Lane	Bruce Wheeler	48	-	305	6	E.R. Sullivan Inc.	2/8/1993	Domestic	Bedrock	305	-	-	-	16	Y	15
DEM	287	lot 201 Hill Rd	Donald Saccone	95	-	220	6	Mike Sullivan Inc.	3/30/1995	Domestic	Bedrock	220	-	-	-	60	Y	20
DEM	288	Spencer Road Bldg B #33	N.A. Private Well	-	-	15	2	Geo Logic, Inc.	4/28/2000	Monitoring	Unconsolidated	15	2	10	0.010	7	N	-
DEM	288	378 Burroughs Rd	Silvia Sheehan	41	-	200	6	Thunder Well & Pump	4/3/1993	Domestic	Bedrock	200	-	-	-	8	Y	8
DEM	[illegible]	15 Whitney Lane	Bruce Wheeler	18	-	145	6	E.R. Sullivan Inc.	4/14/1993	Domestic	Bedrock	145	-	-	-	9	Y	30
DEM	290	2A Sargent Rd	John Spuro	12	-	405	6	E.R. Sullivan Inc.	4/19/1993	Domestic	Bedrock	405	-	-	-	10	Y	5
DEM	291	47 Meadow Lane	John J. Flaling	35	-	285	6	E.R. Sullivan Inc.	4/16/1993	Domestic	Bedrock	285	-	-	-	10	Y	15
DEM	292	14 Meadow Lane	John J. Flaling	62	-	225	6	E.R. Sullivan Inc.	4/16/1993	Domestic	Bedrock	225	-	-	-	12	Y	20
DEM	293	lot 252 Inches Way	Reed Farm Inc.	12	-	340	6	Mike Sullivan Inc.	4/16/1993	Domestic	Bedrock	340	-	-	-	10	Y	20
DEM	294	13 Bicentennial Dr	Compass Bld.	6	-	445	6	E.R. Sullivan Inc.	4/20/1993	Domestic	Bedrock	445	-	-	-	25	Y	10
DEM	295	14 Whitney Lane	Bruce Wheeler	18	-	205	6	E.R. Sullivan Inc.	4/21/1993	Domestic	Bedrock	205	-	-	-	12	Y	20
DEM	296	lot 6 Benjamin Dr	Red Acre Devlp. Corp.	10	-	325	6	E.R. Sullivan Inc.	4/22/1993	Domestic	Bedrock	325	-	-	-	5	Y	5
DEM	297	lot 2 Whitcomb Rd	John Cantino	40	-	500	6	Mike Sullivan Inc.	4/27/1993	Domestic	Bedrock	500	-	-	-	25	Y	5
DEM	298	lot 3 Whitcomb Rd	Cantino Homes	20	-	340	6	Skillings & Sons Inc.	4/26/1993	Domestic	Bedrock	340	-	-	-	15	Y	6
DEM	299	lot 253 Inches Way	Reed Farm Inc.	10	-	395	6	Skillings & Sons Inc.	4/27/1993	Domestic	Bedrock	395	-	-	-	5	Y	50
DEM	300	lot 25 Inches Way	Reed Farm Inc.	18	-	350	6	Mike Sullivan Inc.	4/27/1993	Domestic	Bedrock	350	-	-	-	10	Y	20
DEM	302	31 Meadow Lane	John J. Flaling	37	-	365	6	Mike Sullivan Inc.	4/30/1993	Domestic	Bedrock	365	-	-	-	12	Y	6
DEM	303	lot 48-3 Steele Lane	Kavanough Homes	8	-	180	6	E.R. Sullivan Inc.	5/6/1993	Domestic	Bedrock	180	-	-	-	20	Y	10
DEM	[illegible]	38 Meadow Lane	John J. Flaling	35	-	225	6	Skillings & Sons Inc.	5/5/1993	Domestic	Bedrock	225	-	-	-	18	Y	30
DEM	305	lot 7 132 Mayfair Dr	David Shepard	12	-	680	6	E.R. Sullivan Inc.	5/7/1993	Domestic	Bedrock	680	-	-	-	30	Y	5
DEM	306	35 Meadow Lane	John J. Flaling	30	-	245	6	Skillings & Sons Inc.	5/6/1993	Domestic	Bedrock	245	-	-	-	14	Y	9
DEM	307	40 Meadow Lane	John J. Flaling	36	-	245	6	E.R. Sullivan Inc.	5/10/1993	Domestic	Bedrock	245	-	-	-	14	Y	15
DEM	307	lot 48-2 Steele Lane	Kavanough Homes	4	-	380	6	E.R. Sullivan Inc.	5/5/1993	Domestic	Bedrock	380	-	-	-	20	Y	6
DEM	308	lot 48-1 Steele Lane	Kavanough Homes	20	-	200	6	Skillings & Sons Inc.	5/4/1993	Domestic	Bedrock	200	-	-	-	25	Y	7
DEM	309	lot 45 Robinson Rd	Northwest Structures	20	-	260	6	Skillings & Sons Inc.	5/10/1993	Domestic	Bedrock	260	-	-	-	35	Y	7
DEM	310	lot 45 Robinson Rd	Northwest Structures	20	-	260	6	Skillings & Sons Inc.	5/11/1993	Domestic	Bedrock	260	-	-	-	35	Y	7
DEM	311	1166 Hill Rd	Dave Taylor	8	-	205	6	Skillings & Sons Inc.	5/12/1993	Domestic	Bedrock	205	-	-	-	35	Y	8
DEM	312	lot 32 Robinson Rd (Old Harvard Est.)	Northwest Structures	11	-	240	6	Mike Sullivan Inc.	5/14/1993	Domestic	Bedrock	240	-	-	-	15	Y	7
DEM	313	lot 250 Inches Way	Reed Farm Inc.	20	-	205	6	Skillings & Sons Inc.	5/21/1993	Domestic	Bedrock	205	-	-	-	10	Y	60
DEM	314	5 Averbury Cir	Doug Pluril	104	-	305	6	Mike Sullivan Inc.	5/29/1993	Domestic	Bedrock	305	-	-	-	60	Y	15
DEM	315	open field Littleton County Rd	Beals & Thomas Inc.	-	-	20	2	E.R. Sullivan Inc.	5/25/1993	Domestic	Bedrock	20	2	10	0.010	10	N	-
DEM	316	lot 250 Inches Way	Reed Farm Inc.	12	-	250	6	EDI	6/2/1993	Monitor	Unconsolidated	-	-	-	-	8	Y	15
DEM	317	5 Patch Hill Rd	Compass Bld.	30	-	345	6	Mike Sullivan Inc.	6/8/1993	Domestic	Bedrock	250	-	-	-	18	Y	12
DEM	318	19 Patch Hill Rd	Compass Bld.	50	-	685	6	E.R. Sullivan Inc.	6/10/1993	Domestic	Bedrock	345	-	-	-	25	Y	2
								E.R. Sullivan Inc.	6/11/1993	Domestic	Bedrock	685	-	-	-			

CDM

Table 4
Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	319	31 Meadow Lane	John J. Fisling	3	-	245	6	E.R. Sullivan Inc.	6/15/1993	Domestic	Bedrock	245	-	-	-	18	Y	15
DEM	320	11 Patch Hill Rd	Compass Bld.	135	-	365	6	E.R. Sullivan Inc.	6/21/1993	Domestic	Bedrock	365	-	-	-	35	Y	12
DEM	321	lot 7 Whitcomb Rd	Cantino Homes	18	-	220	6	Skillings & Sons Inc.	6/21/1993	Domestic	Bedrock	220	-	-	-	15	Y	5
DEM	322	19 Patch Hill Rd	Compass Bld.	180	-	365	6	E.R. Sullivan Inc.	6/25/1993	Domestic	Bedrock	365	-	-	-	28	Y	15
DEM	323	lot 22A Summer Rd	Deck House, Inc.	60	-	680	6	Skillings & Sons Inc.	12/22/1992	Domestic	Bedrock	680	-	-	-	10	Y	5
DEM	324	lot 29 Morse Lane	Kavanough Homes	14	-	180	6	Skillings & Sons Inc.	5/26/1993	Domestic	Bedrock	180	-	-	-	5	Y	10
DEM	325	lot 5 Benjamin Dr	Red Acre Devlp. Corp.	10	-	385	6	Mike Sullivan Inc.	7/8/1993	Domestic	Bedrock	385	-	-	-	26	Y	3
DEM	326	lot 59 Joseph Rd	Northwest Structures	15	-	520	6	Skillings & Sons Inc.	7/12/1993	Domestic	Bedrock	520	-	-	-	15	Y	6
DEM	327	lot 24 Joseph Rd	Northwest Structures	10	-	500	6	Skillings & Sons Inc.	7/13/1993	Domestic	Bedrock	500	-	-	-	50	Y	6
DEM	328	16 Fifer's Lane	Bruce Wheeler	14	-	605	6	E.R. Sullivan Inc.	7/13/1993	Domestic	Bedrock	605	-	-	-	28	Y	5
DEM	329	lot 58 Emanuel Dr	Northwest Structures	10	-	500	6	Skillings & Sons Inc.	7/16/1993	Domestic	Bedrock	500	-	-	-	10	Y	2
DEM	330	2 Eldridge Rd	Bob Power	42	-	285	6	E.R. Sullivan Inc.	7/29/1993	Domestic	Bedrock	285	-	-	-	12	Y	25
DEM	331	12 Whitney Lane	Bruce Wheeler	7	-	305	6	E.R. Sullivan Inc.	7/30/1993	Domestic	Bedrock	305	-	-	-	19	Y	8
DEM	332	10 Whitney Lane	Bruce Wheeler	80	-	285	6	E.R. Sullivan Inc.	8/2/1993	Domestic	Bedrock	285	-	-	-	29	Y	7
DEM	333	3 Meetinghouse Lane	Homecraft Assoc.	90	-	525	6	E.R. Sullivan Inc.	8/3/1993	Domestic	Bedrock	525	-	-	-	24	Y	7
DEM	334	11A Eldridge Rd	Shaun Lafferty	50	-	165	6	E.R. Sullivan Inc.	8/4/1993	Domestic	Bedrock	165	-	-	-	14	Y	20
DEM	335	12 Patch Hill Rd	Compass Bld.	88	-	325	6	E.R. Sullivan Inc.	8/5/1993	Domestic	Bedrock	325	-	-	-	22	Y	25
DEM	336	lot 25 Joseph Rd	Northwest Structures	10	-	420	6	Skillings & Sons Inc.	8/6/1993	Domestic	Bedrock	420	-	-	-	80	Y	5
DEM	337	lot 13 Emanuel Dr	Northwest Structures	10	-	500	6	Skillings & Sons Inc.	8/10/1993	Domestic	Bedrock	500	-	-	-	20	Y	7
DEM	338	lot 4 Whitcomb Rd	Cantino Homes	12	-	500	6	Skillings & Sons Inc.	8/13/1993	Domestic	Bedrock	500	-	-	-	25	Y	6
DEM	339	lot 15 Fifer's Lane	Bruce Wheeler	8	-	365	6	E.R. Sullivan Inc.	9/7/1993	Domestic	Bedrock	365	-	-	-	18	Y	10
DEM	340	lot 26A Joseph Rd	Northwest Structures	10	-	220	6	Skillings & Sons Inc.	9/29/1993	Domestic	Bedrock	220	-	-	-	30	Y	5
DEM	341	lot 254 B Inches Way	Reed Farm Inc.	14	-	350	6	Mike Sullivan Inc.	10/4/1993	Domestic	Bedrock	350	-	-	-	20	Y	20
DEM	342	14 Patch Hill Rd	Compass Bld.	75	-	365	6	E.R. Sullivan Inc.	10/18/1993	Domestic	Bedrock	365	-	-	-	42	Y	15
DEM	343	lot 254 A Inches Way	Reed Farm Inc.	14	-	250	6	Mike Sullivan Inc.	10/5/1993	Domestic	Bedrock	250	-	-	-	15	Y	10
DEM	344	13 Patch Hill Rd	Compass Bld.	90	-	325	6	E.R. Sullivan Inc.	10/20/1993	Domestic	Bedrock	325	-	-	-	32	Y	12
DEM	345	796 Hill Rd	Jonathan Avery	5	-	145	6	Mike Sullivan Inc.	10/21/1993	Domestic	Bedrock	145	-	-	-	20	Y	25
DEM	346	lot 17 Reed Farm Rd	Reed Farm Inc.	12	-	235	6	Mike Sullivan Inc.	10/22/1993	Domestic	Bedrock	235	-	-	-	10	Y	15
DEM	347	lot 21A Summer Rd	Deck House, Inc.	45	-	220	6	Skillings & Sons Inc.	10/29/1993	Domestic	Bedrock	220	-	-	-	20	Y	10
DEM	348	lot 6 Robinson Rd	Northwest Structures	19	-	500	6	Skillings & Sons Inc.	10/21/1993	Domestic	Bedrock	500	-	-	-	40	Y	6
DEM	349	9 Patch Hill Rd	Compass Bld.	150	-	685	6	E.R. Sullivan Inc.	11/4/1993	Domestic	Bedrock	685	-	-	-	22	Y	1
DEM	350	8 Patch Hill Rd	Compass Bld.	100	-	305	6	E.R. Sullivan Inc.	11/8/1993	Domestic	Bedrock	305	-	-	-	30	Y	10
DEM	351	lot 56 Emanuel Dr	Northwest Structures	8	-	420	6	Skillings & Sons Inc.	11/4/1993	Domestic	Bedrock	420	-	-	-	30	Y	3
DEM	352	lot 5 Whitcomb Rd	Cantino Homes	7	-	260	6	Skillings & Sons Inc.	11/17/1993	Domestic	Bedrock	260	-	-	-	30	Y	5
DEM	353	5 Patch Hill Rd	Compass Bld.	30	-	545	6	E.R. Sullivan Inc.	11/24/1993	Domestic	Bedrock	545	-	-	-	31	Y	5
DEM	354	4 Patch Hill Rd	Compass Bld.	28	-	365	6	E.R. Sullivan Inc.	11/29/1993	Domestic	Bedrock	365	-	-	-	24	Y	15
DEM	355	Across from 1018 Depot Rd	Gina Marksteiner	-	-	12	DUG	Skillings & Sons Inc.	N.A.	Domestic	Unconsolidated	12	N.A.	N.A.	-	N.A.	N	-
DEM	356	1018 Depot Rd lot 16 formerly 12	Regina Marksteiner	N.A.	-	118	6	Skillings & Sons Inc.	N.A.	Domestic	Bedrock	118	-	-	-	2	Y	9
DEM	357	4 Fifer's Lane	Bruce Wheeler	14	-	345	6	E.R. Sullivan Inc.	12/13/1993	Domestic	Bedrock	345	-	-	-	17	Y	30
DEM	358	10 Robinson Rd	Dan Macaial	5	-	625	6	E.R. Sullivan Inc.	12/17/1993	Domestic	Bedrock	625	-	-	-	12	Y	3
DEM	359	5 Fifer's Lane	Bruce Wheeler	19	-	485	6	E.R. Sullivan Inc.	12/14/1993	Domestic	Bedrock	485	-	-	-	21	Y	8
DEM	360	8 Fifer's Lane	Bruce Wheeler	5	-	205	6	E.R. Sullivan Inc.	12/15/1993	Domestic	Bedrock	205	-	-	-	10	Y	15
DEM	361	Whitney Lane	Bruce Wheeler	6	-	385	6	E.R. Sullivan Inc.	1/6/1994	Domestic	Bedrock	385	-	-	-	14	Y	6
DEM	362	lot 4 Benjamin Dr	Red Acre Devlp. Corp.	6	-	400	6	Mike Sullivan Inc.	1/13/1994	Domestic	Bedrock	400	-	-	-	15	Y	3.5
DEM	363	4 Averbury Cir	Bill Page	90	-	345	6	E.R. Sullivan Inc.	1/24/1994	Domestic	Bedrock	345	-	-	-	30	Y	9
DEM	364	32 Whitney Lane	Bruce Wheeler	20	-	145	6	E.R. Sullivan Inc.	1/24/1994	Domestic	Bedrock	145	-	-	-	20	Y	30
DEM	364A	lot A Davidson Rd	Kavanough Homes	15	-	380	6	Skillings & Sons Inc.	1/24/1994	Domestic	Bedrock	380	-	-	-	40	Y	12
DEM	365	2 Fifer's Lane	Bruce Wheeler	4	-	440	6	E.R. Sullivan Inc.	1/25/1994	Domestic	Bedrock	440	-	-	-	18	Y	30
DEM	366	1A Sargent Rd	John Spuro	2	-	245	6	E.R. Sullivan Inc.	2/1/1994	Domestic	Bedrock	245	-	-	-	14	Y	20
DEM	367	13 Burroughs Rd	Kevin Sarrisio	3	-	305	6	E.R. Sullivan Inc.	2/2/1994	Domestic	Bedrock	305	-	-	-	22	Y	8
DEM	368	9 Fifer's Lane	Bruce Wheeler	40	-	335	6	E.R. Sullivan Inc.	2/25/1994	Domestic	Bedrock	335	-	-	-	12	Y	25
DEM	369	7 Fifer's Lane	Bruce Wheeler	60	-	365	11	E.R. Sullivan Inc.	2/28/1994	Domestic	Bedrock	365	-	-	-	20	Y	20
DEM	370	13 Fifer's Lane	Bruce Wheeler	18	-	325	6	E.R. Sullivan Inc.	3/1/1994	Domestic	Bedrock	325	-	-	-	22	Y	30
DEM	370A	lot 57 Joseph Rd	Frank Biotti	5	-	300	6	Skillings & Sons Inc.	3/14/1994	Domestic	Bedrock	300	-	-	-	30	Y	5
DEM	370B	lot 12 Emanuel Dr	Joe Biotti	25	-	520	6	Skillings & Sons Inc.	3/15/1994	Domestic	Bedrock	520	-	-	-	20	Y	6

Table 4

Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)

Boxborough, Massachusetts

				Geologic Information		Boring Information				Well Information				Screen			Pumping Information	
urce[1]	Source Well I.D.[2]	Location	Owner	Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Length (feet)	Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
)EM	370C	lot 55 Joseph Rd	Joseph & Frank Biotti	5	-	360	6	Skillings & Sons Inc.	3/15/1994	Domestic	Bedrock	360	-	-	-	30	Y	5
)EM	371	7 Patch Hill Rd	Compass Bld.	65	-	245	6	E.R. Sullivan Inc.	4/1/1994	Domestic	Bedrock	245	-	-	-	32	Y	15
)EM	372	1 Burroughs Rd	Bruce Wheeler	3	-	145	6	E.R. Sullivan Inc.	4/4/1994	Domestic	Bedrock	145	-	-	-	12	Y	15
)EM	373	4 Whitney Lane	Bruce Wheeler	22	-	305	6	E.R. Sullivan Inc.	4/5/1994	Domestic	Bedrock	305	-	-	-	18	Y	12
)EM	[illegible]	6 Patch Hill Rd	Compass Bld.	40	-	205	6	E.R. Sullivan Inc.	4/15/1994	Domestic	Bedrock	205	-	-	-	16	Y	30
)EM	375	54A Flagg Hill Rd	Dave Welch	48	-	245	6	E.R. Sullivan Inc.	4/29/1994	Domestic	Bedrock	245	-	-	-	12	Y	12
)EM	[illegible]	12 Fifer's Lane	Bruce Wheeler	20	-	285	6	E.R. Sullivan Inc.	5/2/1994	Domestic	Bedrock	285	-	-	-	22	Y	30
)EM	377A	lot 3 Stonehedge Pl	Deck House, Inc.	18	-	795	6	Skillings & Sons Inc.	5/5/1994	Domestic	Bedrock	795	-	-	-	62	Y	12
)EM	377B	lot 42 Joseph Rd	Frank & Joseph Biotti	6	-	120	6	Skillings & Sons Inc.	5/9/1994	Domestic	Bedrock	120	-	-	-	4	Y	12
)EM	[illegible]	14 Fifer's Lane	Bruce Wheeler	8	-	340	6	E.R. Sullivan Inc.	5/17/1994	Domestic	Bedrock	340	-	-	-	18	Y	40
)EM	378A	lot 53 Joseph Rd	Frank Biotti	15	-	340	6	Skillings & Sons Inc.	5/24/1994	Domestic	Bedrock	340	-	-	-	28	Y	4
)EM	378B	lot 52 Joseph Rd	Frank Biotti	20	-	380	6	Skillings & Sons Inc.	5/25/1994	Domestic	Bedrock	380	-	-	-	26	Y	5
)EM	379	9A Whitney Lane	Bruce Wheeler	20	-	245	6	E.R. Sullivan Inc.	5/3/1994	Domestic	Bedrock	245	-	-	-	20	Y	15
)EM	379	lot 22 Joseph Rd	Northwest Structures	8	-	500	6	Skillings & Sons Inc.	6/3/1994	Domestic	Bedrock	500	-	-	-	20	Y	4
)EM	379A	A3 Barteau Lane	Burt Finchburg & Regina Eddy	3	-	245	6	E.R. Sullivan Inc.	6/6/1994	Domestic	Bedrock	245	-	-	-	14	Y	20
)EM	380	2 Littlefield Rd	Chris McAvrey	9	-	345	6	E.R. Sullivan Inc.	6/7/1994	Domestic	Bedrock	345	-	-	-	10	Y	8
)EM	380A	lot 23A Summer Rd	Deck House, Inc.	57	-	165	6	Skillings & Sons Inc.	6/16/1994	Domestic	Bedrock	165	-	-	-	26	Y	15
)EM	381	43 Steele Lane	??	14	-	605	6	E.R. Sullivan Inc.	6/14/1994	Domestic	Bedrock	605	-	-	-	20	Y	8
)EM	381A	1001 Depot Rd	Virginia & Rich Scarlet	12	-	280	6	Skillings & Sons Inc.	7/12/1994	Domestic	Bedrock	280	-	-	-	15	Y	5
)EM	382	10 B Fifer's Lane	Bruce Wheeler	14	-	305	6	E.R. Sullivan Inc.	7/20/1994	Domestic	Bedrock	305	-	-	-	19	Y	25
)EM	382A	lot 54 Joseph Rd	Northwest Structures	8	-	320	6	Skillings & Sons Inc.	7/20/1994	Domestic	Bedrock	320	-	-	-	17	Y	10
)EM	383	17 Hill Rd	Compass Bld.	115	-	365	6	E.R. Sullivan Inc.	7/23/1994	Domestic	Bedrock	365	-	-	-	40	Y	25
)EM	384	674 Old Harvard Rd	James Sidwell	30	-	300	6	A&W Artesian Well Co	8/3/1994	Domestic	Bedrock	300	-	-	-	20	Y	20
)EM	384A	1001 Depot Rd	Virginia & Rich Scarlet	N.A.	-	92	6	Skillings & Sons Inc.	N.A.	Domestic	Bedrock	92	-	-	-	6	N	-
)EM	384B	lot 8 Whitcomb Rd	Cantino Homes	1	-	120	6	Skillings & Sons Inc.	8/17/1994	Domestic	Bedrock	120	-	-	-	19	Y	14
)EM	384C	114 Hager Lane	Howard Markarwitz	2	-	360	6	Skillings & Sons Inc.	8/27/1994	Domestic	Bedrock	360	-	-	-	23	Y	10
)EM	385	114 Hager Lane	Howard Markarwitz	N.A.	-	220	6	Skillings & Sons Inc.	N.A.	Domestic	Bedrock	220	-	-	-	17	N	-
)EM	385A	411 Hill Rd Well#1	R. Allen Murphy	25	-	500	6	A&W Artesian Well Co.	8/31/1994	Domestic	Bedrock	500	-	-	-	20	Y	3
)EM	386	411 Hill Rd Well#2	R. Allen Murphy	25	-	450	6	A&W Artesian Well Co.	9/12/1994	Domestic	Bedrock	450	-	-	-	20	Y	8
)EM	387	630 Liberty Sq Rd	Art Franz	7	-	325	6	E.R. Sullivan Inc.	9/20/1994	Domestic	Bedrock	325	-	-	-	12	Y	15
)EM	388	18 Hill Pond	Compass Bld	110	-	445	6	E.R. Sullivan Inc.	10/7/1994	Domestic	Bedrock	445	-	-	-	34	Y	12
)EM	389	lot 5A Stonehedge Pl	Deck House, Inc.	18	-	700	6	Skillings & Sons Inc.	10/11/1994	Domestic	Bedrock	700	-	-	-	60	Y	4
)EM	389A	lot 60 Joseph Rd Liberty Tree Lane	Joseph & Frank Biotti	15	-	500	6	Skillings & Sons Inc.	11/9/1994	Domestic	Bedrock	500	-	-	-	15	Y	2.5
)EM	389B	lot 2 Liberty Sq Rd	David & Kim Mecklin	6	-	600	6	Mike Sullivan Inc.	11/16/1994	Domestic	Bedrock	600	-	-	-	20	Y	5
)EM	390	148 Eldridge Rd	Martin Schramm	9	-	205	6	E.R. Sullivan Inc.	11/17/1994	Domestic	Bedrock	205	-	-	-	15	Y	8
)EM	390A	1414 Mass Ave	NEC Tech	10	-	405	8	Skillings & Sons Inc.	11/18/1994	Public	Bedrock	450	-	-	-	23	Y	11
)EM	391	lot 8 Cedarwood Rd	W.D. Chisholm	50	-	460	6	Mike Sullivan Inc.	11/19/1994	Domestic	Bedrock	460	-	-	-	60	Y	7
)EM	[illegible]	9A Fifer's Lane	Bruce Wheeler	13	-	225	6	E.R. Sullivan Inc.	12/1/1994	Domestic	Bedrock	225	-	-	-	13	Y	30
)EM	393	lot 20 Emanuel Dr	J. Biotti & Sons	15	-	320	8	Skillings & Sons Inc.	12/8/1994	Domestic	Bedrock	320	-	-	-	25	Y	8
)EM	394	lot 9 Robinson Rd	Mr.&Mrs. Dimitrokas	19	-	500	6	Skillings & Sons Inc.	1/26/1995	Domestic	Bedrock	500	-	-	-	16	Y	6
)EM	395	16 Patch Hill Rd	Compass Bld.	24	-	545	6	E.R. Sullivan Inc.	3/14/1995	Domestic	Bedrock	545	-	-	-	15	Y	10
)EM	396	55A Flagg Hill Rd	Steve Sloyski	38	-	465	6	E.R. Sullivan Inc.	3/23/1995	Domestic	Bedrock	465	-	-	-	30	Y	12
)EM	397	19 Hill Rd	Compass Bld.	148	-	325	6	E.R. Sullivan Inc.	3/30/1995	Domestic	Bedrock	325	-	-	-	32	Y	20
)EM	398	1/A-3/A Liberty Sq Rd	John J. Flaling	20	-	520	6	E.R. Sullivan Inc.	2/8/1995	Domestic	Bedrock	520	-	-	-	12	Y	4.5
)EM	399	11B Fifer's Lane	Bruce Wheeler	18	-	265	6	E.R. Sullivan Inc.	2/10/1995	Domestic	Bedrock	265	-	-	-	17	Y	20
)EM	400	42 Pine Hill Rd	Harry Robinson	N.A.	-	520	6	Skillings & Sons Inc.	5/8/1995	Domestic	Bedrock	520	-	-	-	18	Y	4
)EM	401	lot 49-1 Hager Lane	Tony D'Agostiano	15	-	500	6	Skillings & Sons Inc.	5/12/1995	Domestic	Bedrock	500	-	-	-	10	Y	4
)EM	402	lot 51 Liberty Tree	Northwest Structures	6	-	380	6	Skillings & Sons Inc.	6/5/1995	Domestic	Bedrock	380	-	-	-	10	Y	5
)EM	403	lot 41 Liberty Tree	Northwest Structures	15	-	200	6	Skillings & Sons Inc.	6/5/1995	Domestic	Bedrock	200	-	-	-	15	Y	10
)EM	404	lot 6 Whitcomb Rd	Cantino Homes	10	-	240	6	Skillings & Sons Inc.	6/6/1995	Domestic	Bedrock	240	-	-	-	27	Y	10
)EM	405	lot 4 Nashoba Dr	Reed Farm Inc.	5	-	390	6	Mike Sullivan Inc.	6/16/1995	Domestic	Bedrock	390	-	-	-	30	Y	4
)EM	406	lot 8 Cedarwood Rd	W.D. Chisholm	64	-	250	6	Mike Sullivan Inc.	7/10/1995	Domestic	Bedrock	250	-	-	-	40	Y	15
)EM	407	1 Sheriffs Meadow	Compass Bld	15	-	645	6	E.R. Sullivan Inc.	7/14/1995	Domestic	Bedrock	645	-	-	-	14	Y	8

Table 4

Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)

Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water (ft bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	406	Summer Street Accessors Lot# 18b	Apple Valley Homes	6	-	125	6	Northeast Water Wells	1/18/2001	Domestic	Bedrock	125	-	-	-	25	Y	20
DEM	408	3 Sheriffs Meadow	Compass Bld.	18	-	750	6	E.R. Sullivan Inc.	7/19/1995	Domestic	Bedrock	750	-	-	-	18	Y	7
DEM	409	lot 30 Liberty Tree	Northwest Structures	20	-	500	6	Skillings & Sons Inc.	7/26/1995	Domestic	Bedrock	500	-	-	-	18	Y	3
DEM	410	200 Central St	Barry O'Brian	8	-	245	6	E.R. Sullivan Inc.	8/3/1995	Industrial	Bedrock	245	-	-	-	18	Y	25
DEM	411	lot 28 Joseph Rd	Northwest Structures	18	-	120	6	Skillings & Sons Inc.	8/8/1995	Domestic	Bedrock	120	-	-	-	12	Y	10
DEM	412	75 Liberty Sq Condos	Reed Farm Inc.	15	-	190	6	Mike Sullivan Inc.	9/13/1995	Public	Bedrock	190	-	-	-	5	Y	25
DEM	413	lot 27 Joseph Rd	Northwest Structures	18	-	320	6	Skillings & Sons Inc.	9/19/1995	Domestic	Bedrock	320	-	-	-	15	Y	4
DEM	414	370 Depot Rd	Russel Robinson	15	-	100	N.A.	Mike Sullivan Inc.	10/95	Domestic	Bedrock	100	-	-	-	1.5	N	-
DEM	[illegible]	370 Depot Rd	Russel Robinson	15	-	250	6	Mike Sullivan Inc.	10/5/1995	Domestic	Bedrock	250	-	-	-	20	Y	30
DEM	416	lot RI Picnic St	R.D. Kannaro Homes	20	-	420	6	Skillings & Sons Inc.	11/7/1995	Domestic	Bedrock	420	-	-	-	23	Y	3
DEM	417	lot RII Picnic St	R.D. Kannaro Homes	15	-	220	6	Skillings & Sons Inc.	11/8/1995	Domestic	Bedrock	220	-	-	-	28	Y	5
DEM	418	lot III Picnic St	R.D. Kannaro Homes	5	-	420	6	Skillings & Sons Inc.	11/8/1995	Domestic	Bedrock	420	-	-	-	29	Y	3
DEM	419	233 Mass Ave	Janet Steele Norton	12	-	245	6	E.R. Sullivan Inc.	11/9/1995	Domestic	Bedrock	245	-	-	-	14	Y	15
DEM	419A	Towermarc Business Park Swanson Rd	Towermarc Corp.	28	-	1110	8	R.E. Chapman Co.	2/1/1996	Industrial	Bedrock	1110	-	-	-	1.25	Y	80
DEM	420	Lot 1 Burroughs Rd	Bob Jon Corp.	25	-	380	6	Skillings & Sons Inc.	2/23/1976	Domestic	Bedrock	380	-	-	-	15	Y	14
DEM	421	lot 5 Burroughs Rd	Bob Jon	36	-	340	6	Skillings & Sons Inc.	3/12/1996	Domestic	Bedrock	340	-	-	-	10	Y	14
DEM	422	56A Hemp Hill Rd	Steve Sloyski	30	-	365	6	E.R. Sullivan Inc.	3/14/1996	Domestic	Bedrock	365	-	-	-	10	Y	10
DEM	423	lot 4 Burroughs Rd	Bob Jon Corp.	20	-	260	6	Skillings & Sons Inc.	3/21/1996	Domestic	Bedrock	260	-	-	-	7	Y	14
DEM	423A	1 Burroughs Rd	Stephen Perreira	6	-	305	6	E.R. Sullivan Inc.	4/2/1996	Domestic	Bedrock	305	-	-	-	12	Y	7
DEM	424	lot 1 Whitcomb Rd	Cantino Homes	30	-	200	6	Skillings & Sons Inc.	4/3/1996	Domestic	Bedrock	200	-	-	-	12	Y	14
DEM	425	lot 2 Coolidge Farm Rd	Northwest Structured	12	-	500	6	Skillings & Sons Inc.	4/4/1996	Domestic	Bedrock	500	-	-	-	5	Y	12
DEM	426	#A Pierce St	Bruce Wheeler	18	-	305	6	E.R. Sullivan Inc.	4/4/1996	Domestic	Bedrock	305	-	-	-	14	Y	6
DEM	427	#D Pierce St	Bruce Wheeler	20	-	245	6	E.R. Sullivan Inc.	4/5/1996	Domestic	Bedrock	245	-	-	-	17	Y	12
DEM	428	#E Pierce St	Bruce Wheeler	25	-	325	6	E.R. Sullivan Inc.	4/8/1996	Domestic	Bedrock	325	-	-	-	21	Y	9
DEM	429	73 Guggins Lane	Leonard Rizzano	N.A.	-	385	6	E.R. Sullivan Inc.	4/18/1996	Domestic	Bedrock	385	-	-	-	16	Y	15
DEM	430	171 Depot Rd	Anthony Paog	16	-	185	6	E.R. Sullivan Inc.	6/20/1996	Domestic	Bedrock	185	-	-	-	10	Y	15
DEM	431	lot 5 Liberty Sq Rd	Reed Farm Inc.	20	-	205	6	Mike Sullivan Inc.	4/22/1996	Domestic	Bedrock	205	-	-	-	5	Y	12
DEM	432	lot 4A Liberty Sq Rd	Reed Farm Inc.	30	-	180	6	Mike Sullivan Inc.	4/22/1996	Domestic	Bedrock	180	-	-	-	15	Y	30
DEM	433	lot 3 Liberty Square Rd	Reed Farm Inc.	25	-	205	6	Mike Sullivan Inc.	4/23/1996	Domestic	Bedrock	205	-	-	-	5	Y	20
DEM	434	12 Coolidge Farm Rd	Signature Huller	28	-	345	6	E.R. Sullivan Inc.	4/29/1996	Domestic	Bedrock	345	-	-	-	12	Y	8
DEM	435	lot 4A Liberty Sq Rd	Reed Farm Inc.	30	-	200	6	Mike Sullivan Inc.	4/29/1996	-	Bedrock	200	-	-	-	N.A.	N	-
DEM	436	lot 21 Hill Rd	Northwest Structures	75	-	500	6	Skillings & Sons Inc.	5/14/1996	Domestic	Bedrock	500	-	-	-	18	Y	4
DEM	437	#C Pierce St	Bruce Wheeler	20	-	605	6	E.R. Sullivan Inc.	5/30/1996	Domestic	Bedrock	605	-	-	-	14	Y	6.5
DEM	438	lot C Burroughs Rd	M.J. Robichaud	82	-	220	6	Skillings & Sons Inc.	6/3/1996	Domestic	Bedrock	220	-	-	-	25	Y	6
DEM	439	Lot 2 844 Burroughs Rd	Bob Jon Corp.	5	-	260	6	Skillings & Sons Inc.	6/4/1996	Domestic	Bedrock	260	-	-	-	9	Y	7
DEM	440	11 Coolidge Farm Rd	??	20	-	285	6	E.R. Sullivan Inc.	6/5/1996	Domestic	Bedrock	285	-	-	-	18	Y	15
DEM	441	lot 3 844 Burroughs Rd	Bob Jon Corp.	18	-	280	6	Skillings & Sons Inc.	6/5/1996	Domestic	Bedrock	280	-	-	-	15	Y	10
DEM	441A	proposed golf course well #6	Beals & Thomas Inc.	8	-	605	6.625	American Drilling Co.	6/11/1996	Irrigation	Bedrock	605	-	-	-	20	Y	40
DEM	441B	proposed golf course well #4	Beals & Thomas Inc.	27	-	605	6	American Drilling Co.	6/11/1996	Irrigation	Bedrock	605	-	-	-	14	Y	23
DEM	442	lot 7 Liberty Tree	Northwest Structures	8	-	500	6	Skillings & Sons Inc.	6/14/1996	Domestic	Bedrock	500	-	-	-	19	Y	4
DEM	443	proposed golf course well #5	Beals & Thomas Inc.	2	-	605	6	American Drilling Co.	6/17/1996	Irrigation	Bedrock	605	-	-	-	30	Y	21
DEM	444	Lot 43 Joseph Rd	Northwest Structures	35	-	320	6	Skillings & Sons Inc.	7/2/1996	Domestic	Bedrock	320	-	-	-	80	Y	6
DEM	445	1 Adams Place	Holiday Inn	32	-	600	6	Skillings & Sons Inc.	7/10/1996	Public	Bedrock	600	-	-	-	112.9	Y	14.75
DEM	446	Lot 3 Hill Road	P.K. Carriage House	6	-	500	6	Skillings & Sons Inc.	7/11/1996	Domestic	Bedrock	500	-	-	-	18	Y	3
DEM	[illegible]	#49-3 Hajar Lane	Steve Parkinson	6	-	245	6	E.R. Sullivan Inc.	7/31/1996	Domestic	Bedrock	245	-	-	-	11	Y	30
DEM	448	40 Jenks Trail	Brian Slosel	6	-	405	6	E.R. Sullivan Inc.	8/1/1996	Domestic	Bedrock	405	-	-	-	16	Y	8
DEM	449	#16 Coolidge Farm Rd	Bill Taiuctras	7	-	225	6	E.R. Sullivan Inc.	8/13/1996	Domestic	Bedrock	225	-	-	-	16	Y	12
DEM	450	#18 Coolidge Farm Rd	Habiloch Inc.	15	-	325	6	E.R. Sullivan Inc.	8/14/1996	Domestic	Bedrock	325	-	-	-	10	Y	8
DEM	451	630 Old Harvard Rd	Philip Causha	N.A.	-	330	6	Skillings & Sons Inc.	8/16/1996	Domestic	Bedrock	330	-	-	-	21	Y	20
DEM	452	#15 Coolidge Farm Rd	Habiloch Inc.	18	-	245	6	E.R. Sullivan Inc.	8/26/1996	Domestic	Bedrock	245	-	-	-	24	Y	20
DEM	453	Lot 7 Coolidge Farm Rd	Northwest Structures	13	-	500	6	Skillings & Sons Inc.	9/11/1996	Domestic	Bedrock	500	-	-	-	19	Y	7
DEM	454	Gravel Pit Swanson Rd	Beals & Thomas Inc.	-	-	30	2	Soil Exploration Corp.	9/20/1996	Monitoring	Unconsolidated	30	2	10	0.010	14	N	-
DEM	455	#5 Picnic St	Commonwealth Prop	16	-	525	6	E.R. Sullivan Inc.	9/25/1996	Domestic	Bedrock	525	-	-	-	12	Y	10

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														Screen				
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Length (feet)	Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	456	351 Depot Rd	Peter MacDonald	2	-	460	6	Skillings & Sons Inc.	9/26/1996	Domestic	Bedrock	460	-	-	-	31	Y	3
DEM	457	Lot B Hill Rd	Frank Coolidge	120	-	250	6	Mike Sullivan Inc.	9/26/1996	Domestic	Bedrock	250	-	-	-	100	Y	8
DEM	459	#2A Summer Rd	John Havas	14	-	365	6	E.R. Sullivan Inc.	9/30/1996	Domestic	Bedrock	365	-	-	-	22	Y	12
DEM	460	#2B Summer Rd	John Flanilly	20	-	465	6	E.R. Sullivan Inc.	10/1/1996	Domestic	Bedrock	465	-	-	-	14	Y	15
DEM	461	Lot 46 Joseph Rd	Northwest Structures	25	-	160	6	Skillings & Sons Inc.	10/4/1996	Domestic	Bedrock	160	-	-	-	20	Y	12
DEM	462	Lot A Burroughs Rd	Ralph Lang	68	-	380	6	Skillings & Sons Inc.	10/12/1996	Domestic	Bedrock	380	-	-	-	22	Y	5
DEM	[illegible]	#9 Coolidge Farm Rd	Habiloch Inc.	1	-	265	6	E.R. Sullivan Inc.	10/18/1996	Domestic	Bedrock	265	-	-	-	22	Y	30
DEM	464	Lot 9 Whitcomb Rd	T.J. Argento	79	-	305	6	Boston Fraction Pump	11/6/1996	Domestic	Bedrock	305	-	-	-	17	Y	5
DEM	465	#3B Pierce La	Habiloch Inc.	23	-	345	6	E.R. Sullivan Inc.	11/7/1996	Domestic	Bedrock	345	-	-	-	12	Y	7
DEM	466	Lot 2 Waite Rd, Nashoba Dr	Reed Farm Inc.	5	-	370	6	Mike Sullivan Inc.	11/21/1996	Domestic	Bedrock	370	-	-	-	30	Y	10
DEM	467	lot 5 Burroughs Rd	Ralph Lang	62	-	260	6	Skillings & Sons Inc.	4/22/1996	Domestic	Bedrock	280	-	-	-	31	Y	8
DEM	468	1 Whitcomb Rd	Doris Fubha	10	-	525	6	E.R. Sullivan Inc.	12/3/1996	Domestic	Bedrock	525	-	-	-	18	Y	3
DEM	469	844 Liberty Sq Rd	Bob Donrack	11	-	225	6	E.R. Sullivan Inc.	12/5/1996	Domestic	Bedrock	225	-	-	-	10	Y	8
DEM	470	Lot 1 450 Sargent Rd	David Patterson	5	-	490	6	Skillings & Sons Inc.	12/10/1996	Domestic	Bedrock	490	-	-	-	17	Y	14
DEM	472	61 Davidson Rd	Mike Lewis	25	-	380	6	Skillings & Sons Inc.	12/6/1996	Domestic	Bedrock	380	-	-	-	7	Y	14
DEM	472A	13 Coolidge Farm Rd	Webster Bldg.	6	-	165	6	E.R. Sullivan Inc.	12/26/1996	Domestic	Bedrock	165	-	-	-	12	Y	25
DEM	474	313 Old Harvard Rd	Tim Coughlin Const.	10	-	250	6	Mike Sullivan Inc.	11/2/1997	Domestic	Bedrock	250	-	-	-	10	Y	6
DEM	475	49 Pine Hill Rd	Tim Coughlin Const.	10	-	280	6	Mike Sullivan Inc.	11/14/1997	Domestic	Bedrock	280	-	-	-	10	Y	6
DEM	476	80 Central St	Beals & Thomas Inc.	-	-	25	2	EDI	1/27/1997	Monitoring	Unconsolidated	25	2	15	0.010	10	N	-
DEM	477	Lot 6A Stonehedge Pl	Paul Nelson	15	-	380	6	Skillings & Sons Inc.	1/29/1997	Domestic	Bedrock	380	-	-	-	28	Y	5
DEM	478	202 Pine Pasture Run	John Flanilly Inc	18	-	645	6	E.R. Sullivan Inc.	1/30/1997	Domestic	Bedrock	645	-	-	-	14	Y	8
DEM	479	202 Pine Pasture Run	John Flanilly Inc	25	-	245	6	E.R. Sullivan Inc.	2/6/1997	Domestic	Bedrock	245	-	-	-	13	Y	8
DEM	480	Lot 1 Nashoba Dr	Reed Farm Inc.	5	-	400	6	Mike Sullivan Inc.	2/8/1997	Domestic	Bedrock	400	-	-	-	30	Y	6
DEM	481	3 Coolidge Farm Rd	Dave Welch	5	-	305	6	E.R. Sullivan Inc.	3/5/1997	Domestic	Bedrock	305	-	-	-	16	Y	10
DEM	482	26 Pine Pasture Run	Hawthorne Bld.	15	-	405	6	E.R. Sullivan Inc.	3/6/1997	Domestic	Bedrock	405	-	-	-	15	Y	25
DEM	483	Lot J Mass Ave	Commonwealth Prop	35	-	310	6	Mike Sullivan Inc.	3/14/1997	Domestic	Bedrock	310	-	-	-	30	Y	50
DEM	484	48 Joseph Rd	Bruce Sabel	8	-	405	6	E.R. Sullivan Inc.	4/28/1997	Domestic	Bedrock	405	-	-	-	18	Y	15
DEM	485	Coolidge Farm	??	1	-	600	6	Skillings & Sons Inc.	5/1/1997	Domestic	Bedrock	600	-	-	-	30	Y	6
DEM	486	Lot 20 Coolidge Farm Rd	ICN Realty Trust	8	-	380	6	Skillings & Sons Inc.	5/2/1997	Domestic	Bedrock	380	-	-	-	12	Y	5
DEM	487	8 Old Harvard Rd	John Spuro Bld	60	-	305	6	E.R. Sullivan Inc.	5/2/1997	Domestic	Bedrock	305	-	-	-	40	Y	15
DEM	488	6 Picnic St	Commonwealth Prop	4	-	245	6	E.R. Sullivan Inc.	5/12/1997	Domestic	Bedrock	245	-	-	-	10	Y	12
DEM	489	22 Hill Rd	Mark Hodgeson	65	-	205	6	E.R. Sullivan Inc.	5/12/1997	Domestic	Bedrock	205	-	-	-	26	Y	15
DEM	490	Lot 10 Coolidge Farm Rd	Northwest Structures	30	-	240	6	Skillings & Sons Inc.	5/19/1999	Domestic	Bedrock	240	-	-	-	20	Y	15
DEM	491	Lot 50 Joseph Rd	MEF Contracting	3	-	590	6	Downoust Drilling	8/11/1997	Domestic	Bedrock	590	-	-	-	90	Y	30
DEM	492	Lot 1 Coolidge Farm Rd	Northwest Structures	40	-	120	6	Skillings & Sons Inc.	6/23/1997	Domestic	Bedrock	120	-	-	-	15	Y	15
DEM	493	111 Stonehedge Pl	Joseph Centauro	18	-	700	6	Skillings & Sons Inc.	10/11/1994	Domestic	Bedrock	700	-	-	-	60	Y	7
DEM	536	Houg Well Lane	Habilock Inc.	16	-	285	6	E.R. Sullivan Inc.	2/19/2001	Domestic	Bedrock	285	-	-	-	16	Y	12
DEM	718	11 Houghton Lane	N.A.	5	-	525	6	E.R. Sullivan Inc.	9/29/1999	Domestic	Bedrock	525	-	-	-	18	Y	3.6
DEM	719	9 Houghton Lane	N.A.	N.A.	-	525	6	E.R. Sullivan Inc.	9/28/1999	Domestic	Bedrock	525	-	-	-	14	Y	7.6
DEM	720	4 Houghton Lane	N.A.	8	-	305	6	E.R. Sullivan Inc.	11/27/1999	Domestic	Bedrock	305	-	-	-	16	Y	8
DEM	748	Middle Road Lot 1	Jull Fullden	9	-	205	6	E.R. Sullivan Inc.	7/13/1999	Domestic	Bedrock	205	-	-	-	10	Y	12
DEM	777	Colonial Ridge Lot #7	John Flannery	10	-	550	6	Mike Sullivan Drilling	6/21/2000	Domestic	Bedrock	550	-	-	-	10	Y	10
DEM	778	4 Sargent Road	N.A.	20	-	185	6	E.R. Sullivan Inc.	7/17/2000	Domestic	Bedrock	185	-	-	-	12	Y	15
DEM	779	Colonial Road Lot 2	John Flannery	10	-	500	6	Mike Sullivan Drilling	5/5/2000	Domestic	Bedrock	500	-	-	-	10	Y	8
DEM	780	200 Stow Road	N.A.	27	-	365	6	E.R. Sullivan Inc.	5/18/1999	Domestic	Bedrock	365	-	-	-	11	Y	25
DEM	782	Burroughs Road	N.A.	20	-	245	6	E.R. Sullivan Inc.	5/28/1998	Domestic	Bedrock	245	-	-	-	10	Y	15
DEM	1874	1414 Mass Ave	Haley & Aldrich Inc.	-	-	13	1	Guild Drilling Co.	9/30/2000	Monitoring	Unconsolidated	13	1	10	0.010	5.5	N	-
DEM	1875	Swanson Road	Proven Cher Eng.	-	-	27	2	Soil Exploration Co.	9/14/2000	Monitoring	Unconsolidated	27	2	10	0.010	13	N	-
DEM	1876	Mass Ave	Tome Argento	14	-	215	6	Mike Sullivan Drilling	9/27/2000	Domestic	Bedrock	215	-	-	-	6	Y	20
DEM	[illegible]	Cunningham Road	Gutierrez Co.	15	-	395	6	Viera Artesian Well Co.	6/2/1998	Public	Bedrock	395	-	-	-	20	Y	60
DEM	1879	Colonial Road	N.A.	8	-	535	6	Mike Sullivan Drilling	3/22/2000	Domestic	Bedrock	535	-	-	-	20	Y	20
DEM	1880	Houghton Lane	Habi Tech	2	-	525	6	E.R. Sullivan Inc.	3/3/2000	Domestic	Bedrock	525	-	-	-	10	Y	8
DEM	[illegible]	School House Lane	N.A.	8	-	165	6	E.R. Sullivan Inc.	10/28/2000	Domestic	Bedrock	165	-	-	-	10	Y	30
DEM	1882	6 Houghton Lane	N.A.	5	-	525	6	E.R. Sullivan Inc.	10/16/2000	Domestic	Bedrock	525	-	-	-	20	Y	5.7
DEM	1883	Colonial Ridge Dr Lot 5	John Flannery	10	-	325	6	Mike Sullivan Drilling	12/15/2000	Domestic	Bedrock	325	-	-	-	10	Y	10

Table 4
Summary of Wells Logs on File with the Massachusetts Department of Environmental Management (DEM)
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
DEM	1884	Colonial Ridge Dr Lot 6	Mark Star	10	-	505	6	Mike Sullivan Drilling	12/18/2000	Domestic	Bedrock	505	-	-	-	10	Y	12
DEM	1885	Bartsau Lane Lot 8	Habituck Inc.	4	-	225	6	E.R. Sullivan Inc.	8/25/2000	Domestic	Bedrock	225	-	-	-	14	Y	20
DEM	1886	School House Lane	Habituck Inc.	8	-	305	6	E.R. Sullivan Inc.	7/21/2000	Domestic	Bedrock	305	-	-	-	18	Y	10
DEM	1887	44 Robinson Road	Jordan Stover	-	-	-	-	Skillings & Sons, Inc.	6/16/2000	Domestic	Bedrock FE	630	-	-	-	20	Y	6
DEM	1888	Old Harvard Road Lot 2	N.A.	50	-	325	6	E.R. Sullivan Inc.	5/30/2000	Domestic	Bedrock	325	-	-	-	14	Y	12
DEM	1890	Houghton Lane	Habi Tech	8	-	305	6	E.R. Sullivan Inc.	4/18/2000	Domestic	Bedrock	305	-	-	-	12	Y	9
DEM	1891	72 Stow Road	Francias Lions	50	-	395	6	Mike Sullivan Drilling	4/17/2000	Domestic	Bedrock	395	-	-	-	30	Y	15
DEM	1892	Houghton Lane	Habi Tech	6	-	245	6	E.R. Sullivan Inc.	4/19/2000	Domestic	Bedrock	245	-	-	-	14	Y	10
DEM	1893	Burroughs Road Lot# N	N.A.	15	-	365	6	E.R. Sullivan Inc.	4/4/2000	Domestic	Bedrock	365	-	-	-	8	Y	10
DEM	1894	Colonial Ridge Dr	John Flannery	5	-	600	6	Mike Sullivan Drilling	3/23/2000	Domestic	Bedrock	600	-	-	-	20	Y	3
DEM	1895	Colonial Ridge Dr	John Flannery	8	-	280	6	Mike Sullivan Drilling	3/22/2000	Domestic	Bedrock	280	-	-	-	20	Y	15
DEM	1896	Priest Lane Accessors Lot# 8	Coughlin Const.	10	-	345	6	Mike Sullivan Drilling	3/13/2000	Domestic	Bedrock	345	-	-	-	10	Y	30
DEM	1897	Priest Lane Accessors Lot# 3	Coughlin Const.	18	-	380	6	Mike Sullivan Drilling	3/9/2000	Domestic	Bedrock	380	-	-	-	15	Y	30
DEM	1898	Priest Lane Accessors Lot# 2	Coughlin Const.	15	-	510	6	Mike Sullivan Drilling	3/9/2000	Domestic	Bedrock	510	-	-	-	15	Y	25
DEM	1899	Priest Lane Accessors Lot# 1	Coughlin Const.	14	-	300	6	Mike Sullivan Drilling	3/9/2000	Domestic	Bedrock	300	-	-	-	15	Y	20
DEM	1900	Priest Lane Accessors Lot# 5	Coughlin Const.	3	-	470	6	Mike Sullivan Drilling	3/8/2000	Domestic	Bedrock	470	-	-	-	485	Y	20
DEM	1901	Priest Lane Accessors Lot# 6	Coughlin Const.	4	-	490	6	Mike Sullivan Drilling	3/6/2000	Domestic	Bedrock	490	-	-	-	35	Y	12
DEM	1902	Priest Lane Accessors Lot# 7	Coughlin Const.	4	-	260	6	Mike Sullivan Drilling	3/7/2000	Domestic	Bedrock	260	-	-	-	35	Y	20
DEM	1903	Priest Lane Accessors Lot# 4	Coughlin Const.	5	-	370	6	Mike Sullivan Drilling	3/10/2000	Domestic	Bedrock	370	-	-	-	25	Y	15
DEM	1904	160 Depot Rd	W D Chisholm	12	-	240	6	Mike Sullivan Drilling	3/1/2000	Domestic	Bedrock	240	-	-	-	10	Y	20
DEM	[redacted]	142 Sargent Road	Idylwide Farm	35	-	260	6	Mike Sullivan Drilling	11/2/1999	Irrigation	Bedrock	260	-	-	-	15	Y	60
DEM	1906	Stow Road Lot 2	Mike Lions	45	-	220	6	Mike Sullivan Drilling	9/20/1999	Domestic	Bedrock	220	-	-	-	15	Y	10
DEM	1907	100 Stonehedge Pl	Ed Carbone	19	-	680	6	Skillings & Sons, Inc.	9/14/1999	Domestic	Bedrock	680	-	-	-	80	Y	10
DEM	1908	1 Old Harvard Rd	Usap Daurt Corp	38	-	505	6	E.R. Sullivan Inc.	9/2/1999	Domestic	Bedrock	505	-	-	-	18	Y	12
DEM	1909	97 Davidson Road	Wm & Myrtle Pendleton	N.A.	-	-	6	Skillings & Sons, Inc.	5/19/1999	Domestic	Bedrock FE	360	-	-	-	N.A.	Y	10
DEM	1910	340 Codman Hill Road	Kulcan Ltd. Partner	21	-	250	6	Skillings & Sons, Inc.	8/2/1999	Public	Bedrock	250	-	-	-	66	Y	16
DEM	1922	3 School House Lane	Habi Tuck Inc.	10	-	365	6	E.R. Sullivan Inc.	7/14/2000	Domestic	Bedrock	365	-	-	-	14	Y	10
DEM	1987	4 School House Lane	Habilock Inc.	8	-	305	6	E.R. Sullivan Inc.	7/21/2000	Domestic	Bedrock	305	-	-	-	18	Y	10
DEM	2455	Rt. 111 Accessors Lot# 3	Ohc Develop. Corp.	25	-	220	6	Mike Sullivan Drilling	5/16/2001	Domestic	Bedrock	220	-	-	-	10	Y	25
DEM	2459	Mass Ave Accessors Lot# 4	Ohc Develop. Corp.	25	-	340	6	Mike Sullivan Drilling	5/17/2001	Domestic	Bedrock	340	-	-	-	10	Y	7
DEM	101379	42 Pine Hill Road	Mark Sherman	N.A.	-	-	-	Skillings & Sons, Inc.	8/30/2000	Domestic	Bedrock FE	540	-	-	-	21	Y	5
DEM	101949	Burroughs Rd, Lot H-Lot M	Commonwealth Properties	-	-	-	-	E.R. Sullivan Inc.	-	Domestic	Bedrock	-	-	-	-	-	-	-
DEM	101952	Liberty Sq Rd, Lot 167 Accessors# J10-1-1,3	Town of Boxborough	9	-	485	6.625	E.R. Sullivan Inc.	3/26/2001	Irrigation	Bedrock	485	-	-	-	10	Y	18
DEM	101955	194 Joseph Rd, Lot E-194	Bob Aucoin	9	-	365	6.63	E.R. Sullivan Inc.	4/10/2001	Domestic	Bedrock	365	-	-	-	14	Y	7.5
DEM	101959	Hill Road, Lot G2	Carol James	19	-	340	6.63	E.R. Sullivan Inc.	5/4/2001	Domestic	Bedrock	340	-	-	-	9	Y	10
DEM	103059	Rt. 111, Lot 1	Ohc Develop. Corp.	6	-	280	6	Mike Sullivan Drilling	6/21/2001	Domestic	Bedrock	280	-	-	-	10	Y	20
DEM	103060	Rt. 111, Lot 2 Accessors Lot# P.267,1274,1001	Ohc Develop. Corp.	15	-	310	6	Mike Sullivan Drilling	6/22/2001	Domestic	Bedrock	310	-	-	-	10	Y	10
DEM	103332	706 Liberty Sq Rd	Hinckley Brothers, Inc.	65	-	480	6.63	Skillings & Sons, Inc.	5/21/2000	Domestic	Bedrock	480	-	-	-	30	Y	6
DEM	103984	Bartsau Lane, Lot 1	Habilock Inc.	7	-	325	6.63	E.R. Sullivan Inc.	8/7/2001	Domestic	Bedrock	325	-	-	-	11	Y	15

Notes:
[redacted] Indicates approximate locations of wells shown on CDM Figure 2 - Data Points map.
[1] Information source from which boring/well data was taken.
[2] Well/boring identification number provided by information source (if available).
N.A. - Not Available
FE - Fracture Enhancement
?? - Information unclear in data source
ft-bgs - feet below ground surface
gpm - gallons per minute
PSW - Public Supply Well
IDW - Industrial Well
IRW - Irrigation Well
MW - Monitoring Well
DW - Domestic Well
TW - Test Well

TABLE 5

Summary of Well Logs from Other Data Sources
Boxborough, Massachusetts

Table 5
Summary of Well Logs from Other Data Sources
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
D.L. Maher 9/30/85	1-85	Sweeney Property	Acton Water Dist.	-	16	16	2 1/2	D.L. Maher	9/19/1985	Test Well	-	-	-	-	-	-	-	-
D.L. Maher 9/30/85	2-85	Sweeney Property	Acton Water Dist.	-	19	19	2 1/2	D.L. Maher	9/19/1985	Test Well	-	-	-	-	-	-	-	-
D.L. Maher 9/30/85	3-85	Sweeney Property	Acton Water Dist.	-	20	20	2 1/2	D.L. Maher	9/19/1985	Test Well	-	-	-	-	-	-	-	-
D.L. Maher 9/30/85	4-85	Sweeney Property	Acton Water Dist.	-	25	25	2 1/2	D.L. Maher	9/19/1985	Test Well	-	-	-	-	-	-	-	-
IEP 8/17/61	B-1	Havard Sportmen's Club	Town of Boxborough	-	82.5	82.5	6	Soil Exploration Corp.	8/17/1961	Test Well	Sand & Gravel	82	1 1/2	5	0.060	3.1	Y	2.5
IEP 8/18/61	B-2	Flerra Meadows	Town of Boxborough	-	60	60	6	Soil Exploration Corp.	8/18/1961	Test Well	Sand & Gravel	60	1 1/2	5	0.060	12.7	-	-
R.E. Chapman Co. 9/9/85	1-85	Harvard Sportmen's Club	Town of Boxborough	-	62	62	2 1/2	R.E. Chapman	9/9/1985	Test Well	Sand & Gravel	58	2 1/2	5	0.030	2.41	Y	55
R.E. Chapman Co. 9/10/85	2-85	Flerra Meadows	Town of Boxborough	-	59	59	2 1/2	R.E. Chapman	9/10/1985	Test Well	Sand & Gravel	59	2 1/2	10	0.060	12.71	Y	60
D.L. Maher 6/14/00	1-2000	DPW Boxborough	Town of Boxborough by Dufresne & Henry	-	16	16	2 1/2	D.L. Maher	6/14/2000	Test Well	-	-	-	-	-	0.5	-	-
D.L. Maher 6/14/00	2-2000	DPW Boxborough	Town of Boxborough by Dufresne & Henry	-	13	13	2 1/2	D.L. Maher	6/14/2000	Test Well	-	-	-	-	-	1	-	-
D.L. Maher 6/14/00	3-2000	DPW Boxborough	Town of Boxborough by Dufresne & Henry	-	11	11	2 1/2	D.L. Maher	6/14/2000	Test Well	-	-	-	-	-	1.2	-	-
D.L. Maher 6/15/00	4-2000	DPW Boxborough	Town of Boxborough by Dufresne & Henry	-	8	8	2 1/2	D.L. Maher	6/15/2000	Test Well	-	-	-	-	-	-	-	-
D.L. Maher 6/15/00	5-2000	DPW Boxborough	Town of Boxborough by Dufresne & Henry	-	10	10	2 1/2	D.L. Maher	6/15/2000	Test Well	-	-	-	-	-	-	-	-
D.L. Maher 6/15/00	6-2000	DPW Boxborough	Town of Boxborough by Dufresne & Henry	-	18	18	2 1/2	D.L. Maher	6/15/2000	Test Well	Sand & Gravel	18	2 1/2	5	0.040	0.6	Y	20
USGS, HD-8	5	422832N0712952.1	Susan Colley	-	-	84	-	-	1944	Domestic	Bedrock	84	-	-	-	-	-	-
USGS, HD-8	6	422914N0712945.1	W.H. Dill	27	-	102	6	-	1957	Domestic	Bedrock	102	-	-	-	8	-	>8
USGS, HD-8	7	422944N0713001.1	Stanley Kaminski	-	-	95	6	-	1954	Domestic	Bedrock	95	-	-	-	9	-	>15
USGS, HD-8	8	422905N0713055.1	Earle Graves	<10	-	81	6	-	1953	Domestic	Bedrock	81	-	-	-	6	-	9
USGS, HD-8	11	422835N0713046.1	George Doyle	70	-	96	6	-	1961	Domestic	Bedrock	96	-	-	-	15	-	9-11
USGS, HD-8	12	422952N0713014.1	Mr. Rundlett	-	-	96	90	-	1957	Domestic	Bedrock	96	-	-	-	-	-	15
USGS, HD-8	13	422803N0713243.1	Mr. Eriksinsen	-	-	15	-	-	1950	Domestic	Sand & Gravel	15	-	-	-	-	-	-
USGS, HD-8	14	422825N0713156.1	Bernard Joyce	11	-	81	-	-	1953	Domestic	Bedrock	81	-	-	-	-	-	11.5
USGS, HD-8	15	423004N0713127.1	George Robinson	40	-	99	8	-	1957	Domestic	Bedrock	99	-	-	-	15	-	30-40
USGS, HD-8	17	422820N0712952.1	Clarence Landry	12	-	76	8	-	1955	Domestic	Bedrock	76	-	-	-	18	-	8
USGS, HD-8	18	422834N0712940.1	Mr. Schou	21	-	46	6	-	1945	Domestic	Bedrock	46	-	-	-	-	-	3-5
USGS, HD-8	19	422834N0713004.1	Mr. Harbison	10	-	89	6	-	1958	Domestic	Bedrock	89	-	-	-	18	-	5
USGS, HD-8	20	422833N0713021.1	Stanley Kaminski II	20	-	100	6	-	1960	Domestic	Bedrock	100	-	-	-	30	-	14
USGS, HD-8	21	423000N0712947.1	Albert J. Sargent	-	-	122	-	-	1941	Domestic	Bedrock	122	-	-	-	15	-	5
USGS, HD-8	a1	422834N0713033.1	USGS	-	-	43	4 1/2	-	7/83	Boring	-	-	-	-	-	18	-	-
USGS, HD-8	a2	422847N0713016.1	USGS	-	-	40.5	4 1/2	-	7/83	Boring	-	-	-	-	-	-	-	-
USGS, HD-8	a3	422821N0712935.1	USGS	-	21.5	21.5	4 1/2	-	7/83	Boring	-	-	-	-	-	-	-	-
USGS, HD-8	B18-1-3A	423002N0712833.1	MDPW	-	16	16	1	-	1/50	Boring	-	-	-	-	-	3	-	-
USGS, HD-8	B18-2-11	422912N0713245.1	MDPW	-	21.3	21.3	2	-	4/58	Boring	-	-	-	-	-	-	-	-
Anderson-Nichols 12/17/80	80-1	GenRad Site, Pond 1 Off Cunningham Rd.	GenRad	-	11	11	2 1/2	D.L. Maher	11/17/1980	Test Well	-	-	-	-	-	-	-	-
Anderson-Nichols 12/17/80	80-1A	GenRad Site, Pond 1 Off Cunningham Rd.	GenRad	-	10	10	2 1/2	D.L. Maher	11/17/1980	Test Well	-	-	-	-	-	-	-	-
Anderson-Nichols 12/17/80	80-1B	GenRad Site, Pond 1 Off Cunningham Rd.	GenRad	-	11	11	2 1/2	D.L. Maher	11/17/1980	Test Well	-	-	-	-	-	-	-	-
Anderson-Nichols 12/17/80	80-1C	GenRad Site, Pond 1 Off Cunningham Rd.	GenRad	-	10	10	2 1/2	D.L. Maher	11/17/1980	Test Well	-	-	-	-	-	-	-	-

CDM

Table 5
Summary of Well Logs from Other Data Sources
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water-Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Slot Size (inches)	Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
Anderson-Nichols 12/17/80	80-2	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	27.5	27.5	2 1/2	D.L. Maher	11/19/1980	Test Well	Sand & Gravel	27	2 1/2	N.A.	0.06	5.1	Y	40
Anderson-Nichols 12/17/80	80-3	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	20	20	2 1/2	D.L. Maher	11/19/1980	Test Well	-	-	-	-	-	3.1	-	-
Anderson-Nichols 12/17/80	80-4	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	22	22	2 1/2	D.L. Maher	11/20/1980	Test Well	-	-	-	-	-	10	-	-
Anderson-Nichols 12/17/80	80-5	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	18	18	2 1/2	D.L. Maher	11/20/1980	Test Well	-	-	-	-	-	8.1	-	-
Anderson-Nichols 12/17/80	80-6	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	18	18	2 1/2	D.L. Maher	11/20/1980	Test Well	-	-	-	-	-	5	-	-
Anderson-Nichols 12/17/80	80-7	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	14	14	2 1/2	D.L. Maher	11/21/1980	Test Well	-	-	-	-	-	N.A.	-	-
Anderson-Nichols 12/17/80	80-8	GenRad Site, Pond 2 Off Cunningham Rd.	GenRad	-	20	20	2 1/2	D.L. Maher	11/21/1980	Test Well	-	-	-	-	-	4.7	-	-
E.R. Sullivan Inc. 7/7/77	-	Hill Rd.	Jonathan Miller	15	-	280	8	E.R. Sullivan Inc.	6/30/1977	Well	-	280	6	-	-	-	Y	8
D.L. Maher 10/10/59	-	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	59.125	-	59.125	2 1/2	D.L. Maher	10/10/1959	Test Well	Sand	38.75	2 1/2	-	-	-	Y	65
D.L. Maher 10/10/59	A	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	-	-	37	-	D.L. Maher	10/10/1959	Test Well	Sand	37	2 1/2	-	-	-	Y	50
D.L. Maher 10/10/59	B	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	-	-	38	-	D.L. Maher	10/10/1959	Test Well	Sand	38	2 1/2	-	-	-	Y	50
D.L. Maher 10/10/59	C	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	-	-	38	-	D.L. Maher	10/10/1959	Test Well	Sand	38	2 1/2	-	-	-	Y	50
D.L. Maher 10/10/59	D	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	-	-	38	-	D.L. Maher	10/10/1959	Test Well	Sand	38	2 1/2	-	-	-	Y	50
D.L. Maher 10/10/59	M	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	-	-	40	-	D.L. Maher	10/10/1959	Observation Well	Sand	40	2 1/2	-	-	0.42	Y	60
D.L. Maher 10/10/59	P	Ericson Property (Off Mass. Ave)	West & South Acton Water Supply	-	-	38	-	D.L. Maher	10/10/1959	Observation Well	Sand	38	2 1/2	-	-	1.2	-	-

Notes:
[1] Information source from which boring/well data was taken.
[2] Well/boring identification number provided by information source (if available).
N.A. - Not Available
FE - Fracture Enhancement
?? - Information unclear in data source
ft-bgs - feet below ground surface
gpm - gallons per minute
PSW - Public Supply Well
IDW - Industrial Well
IRW - Irrigation Well
MW - Monitoring Well
DW - Domestic Well
TW - Test Well

CDM

TABLE 6

Summary of Seismic Refraction Surveys
Boxborough, Massachusetts

Table 6
Summary of Seismic Refraction Surveys
Boxborough, Massachusetts

Source	Seismic By	Source ID	Location	Site Description	Date	Profile Length
IEP, May 15, 1987	John F. Kick, Geophysical Consultant	Profile 1 (Pts. 1-4)	Flerra Meadows Aquifer	South End of Flerra MeadowsTown Conservation land, Heath Hen Meadow Brook, ending on parcel 213	February 1987	1300
IEP, May 15, 1987	John F. Kick, Geophysical Consultant	Profile 2 (Pts. 5-6)	Flerra Meadows Aquifer	1200 - 1400 ft West of Burroughs Rd., adjacent to Heath Hen Meadow Brook	February 1987	550
IEP, May 15, 1987	John F. Kick, Geophysical Consultant	Profile 3 (Pts. 7-8)	Flerra Meadows Aquifer	South of Profile 2	February 1987	540
IEP, May 15, 1987	John F. Kick, Geophysical Consultant	Profile 4 (Pts 9-10)	Flerra Meadows Aquifer	South of Profile 3; about 1400 ft West of Middle St.	February 1987	550
IEP, September 1981	John F. Kick, Geophysical Consultant	Site 1	Beaver Brook Valley (Harvard Sportsmans Club)	Beaver Brook Valley	July 1, 1981	420
IEP, September 1981	John F. Kick, Geophysical Consultant	Site 2	Beaver Brook Valley (Harvard Sportsmans Club)	Beaver Brook Valley	July 1, 1981	N.A.
IEP, September 1981	John F. Kick, Geophysical Consultant	Site 3	Beaver Brook Valley (Harvard Sportsmans Club)	Beaver Brook Valley	July 1, 1981	N.A.
IEP, September 1981	John F. Kick, Geophysical Consultant	Site 4	Beaver Brook Valley (Harvard Sportsmans Club)	Beaver Brook Valley	July 1, 1981	N.A.
USGS HD-8	Weston Geophysical Engineers	18	Assabet River Basin	1250 ft North of Lundstrom Rd	-	2750
USGS HD-8	Weston Geophysical Engineers	20	Boxborough	North of Mass Turnpike between Wright Hill and Liberty Square Road	-	2250
USGS HD-8	Weston Geophysical Engineers	22	Heath Hen Meadow	On Middle St between Chester Rd and Flag Hill Rd	-	2000

Notes:
Seismic refraction survey locations shown on CDM Figure2 - Data Points map.

CDM

TABLE 7

Summmary of Available Well Logs from Adjacent Towns of Acton, Stow, Harvard and Littleton

Table 7

Summary of Available Wells Logs from Adjacent Towns of Acton, Stow, Harvard, and Littleton

(Note: Logs available from Town of Boxborough files only)

Source[1]	Source Well I.D.[2]	Location[3]	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water	Pump Test (Y/N)	Rate (gpm)
Well Records in the Town of Acton, Massachusetts																		
USGS, HD-6	1	422844N0712911.1	Town of Acton	-	40	40	2 1/2	-	1912	Public Well	Sand & Gravel	40	2 1/2	-	-	-	-	65
USGS, HD-6	2	422844N0712911.2	Town of Acton	-	35.3	35.3	2 1/2	-	1912	Public Well	Sand & Gravel	35.3	2 1/2	-	-	-	-	-
USGS, HD-6	3	422844N0712911.3	Town of Acton	-	-	40.3	2 1/2	-	1912	Public Well	Sand & Gravel	40.3	2 1/2	-	-	-	-	25
USGS, HD-6	4	422844N0712911.4	Town of Acton	-	-	41.1	2 1/2	-	1912	Test Hole	Sand & Gravel	41.1	2 1/2	-	-	-	-	-
USGS, HD-6	5	422844N0712911.5	Town of Acton	-	-	25.4	2 1/2	-	1912	Public Well	Sand & Gravel	25.4	2 1/2	-	-	-	-	65
USGS, HD-6	6	422844N0712911.6	Town of Acton	-	-	25.8	2 1/2	-	1912	Public Well	Sand & Gravel	25.8	2 1/2	-	-	-	-	80
USGS, HD-6	6a	422844N0712911.7	Town of Acton	-	-	21.2	2 1/2	-	1912	Test Hole	Sand & Gravel	21.2	2 1/2	-	-	-	-	45
USGS, HD-6	6b	422844N0712911.8	Town of Acton	-	-	25.1	2 1/2	-	1912	Test Hole	Sand & Gravel	25.1	2 1/2	-	-	-	-	-
USGS, HD-6	7	422844N0712911.9	Town of Acton	-	-	28.2	2 1/2	-	1912	Public Well	Sand & Gravel	28.2	2 1/2	-	-	-	-	75
USGS, HD-6	8	422844N0712911.10	Town of Acton	-	-	26.8	2 1/2	-	1912	Public Well	Sand & Gravel	26.8	2 1/2	-	-	-	-	70
USGS, HD-6	9	422844N0712911.11	Town of Acton	-	-	25.3	2 1/2	-	1912	Public Well	Sand & Gravel	25.3	2 1/2	-	-	-	-	75
USGS, HD-6	10	422844N0712911.12	Town of Acton	-	-	27.6	2 1/2	-	1912	Public Well	Sand & Gravel	27.6	2 1/2	-	-	-	-	80
USGS, HD-6	11	422844N0712911.13	Town of Acton	-	-	33	2 1/2	-	1912	Public Well	Sand & Gravel	33	2 1/2	-	-	-	-	80
USGS, HD-6	12	422844N0712911.14	Town of Acton	-	-	21.3	2 1/2	-	1912	Public Well	Sand & Gravel	21.3	2 1/2	-	-	-	-	65
USGS, HD-6	13	422844N0712911.15	Town of Acton	-	-	30.8	2 1/2	-	1912	Public Well	Sand & Gravel	30.8	2 1/2	-	-	-	-	70
USGS, HD-6	14	422844N0712911.16	Town of Acton	-	-	28.2	2 1/2	-	1912	Public Well	Sand & Gravel	28.2	2 1/2	-	-	-	-	70
USGS, HD-6	15	422844N0712911.17	Town of Acton	-	-	24.3	2 1/2	-	1912	Public Well	Sand & Gravel	24.3	2 1/2	-	-	-	-	80
USGS, HD-6	16	422844N0712911.18	Town of Acton	-	-	24.9	2 1/2	-	1912	Public Well	Sand & Gravel	24.9	2 1/2	-	-	-	-	70
USGS, HD-6	17	422844N0712911.19	Town of Acton	-	-	25.1	2 1/2	-	1912	Public Well	Sand & Gravel	25.1	2 1/2	-	-	-	-	70
USGS, HD-6	18	422844N0712911.20	Town of Acton	-	-	24.1	2 1/2	-	1912	Public Well	Sand & Gravel	24.1	2 1/2	-	-	-	-	70
USGS, HD-6	19	422844N0712911.21	Town of Acton	-	-	25.3	2 1/2	-	1912	Public Well	Sand & Gravel	25.3	2 1/2	-	-	-	-	60
USGS, HD-6	20	422844N0712911.22	Town of Acton	-	-	26.5	2 1/2	-	1912	Public Well	Sand & Gravel	26.5	2 1/2	-	-	-	-	60
USGS, HD-6	21	422844N0712911.23	Town of Acton	-	-	27.4	2 1/2	-	1912	Public Well	Sand & Gravel	27.4	2 1/2	-	-	-	-	60
USGS, HD-6	22	422844N0712911.24	Town of Acton	-	-	25.2	2 1/2	-	1912	Public Well	Sand & Gravel	25.2	2 1/2	-	-	-	-	60
USGS, HD-6	22a	422844N0712911.25	Town of Acton	-	-	23	2 1/2	-	1912	Public Well	Sand & Gravel	23	2 1/2	-	-	-	-	60
USGS, HD-6	22b	422844N0712911.26	Town of Acton	-	-	28.3	2 1/2	-	1912	Public Well	Sand & Gravel	28.3	2 1/2	-	-	-	-	70
USGS, HD-6	116	422824N0712915.1	Town of Acton	-	-	25.9	2 1/2	-	1958	Test Hole	Sand & Gravel	25.9	2 1/2	-	-	1.2	-	-
USGS, HD-6	117	422828N0712924.1	Town of Acton	-	-	24	2 1/2	-	1958	Test Hole	Sand & Gravel	24	2 1/2	-	-	1.2	-	-
USGS, HD-6	122	422838N0712907.1	Town of Acton	-	-	26.5	2 1/2	-	1958	Test Hole	Sand & Gravel	26.5	2 1/2	-	-	5	-	-
USGS, HD-6	125	422837N0712921.1	Town of Acton	-	-	44	2 1/2	-	1958	Test Hole	Sand & Gravel	44	2 1/2	-	-	0.4	-	40

Table 7
Summary of Available Wells Logs from Adjacent Towns of Acton, Stow, Harvard, and Littleton
(Note: Logs available from Town of Boxborough files only)

Source[1]	Source Well I.D.[2]	Location[3]	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Bottom (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water	Pump Test (Y/N)	Rate (gpm)
USGS, HD-8	127	422843N0712918.1	Town of Acton	-	-	31.5	2 1/2	-	1958	Test Hole	Sand & Gravel	31.5	2 1/2	-	-	1.5	-	-
USGS, HD-8	128	422845N0712916.1	Town of Acton	-	-	35.4	2 1/2	-	1958	Test Hole	Sand & Gravel	35.4	2 1/2	-	-	0	-	50
USGS, HD-8	129	422847N0712914.1	Town of Acton	-	-	38	2 1/2	-	1958	Test Hole	Sand & Gravel	38	2 1/2	-	-	2.5	-	8
USGS, HD-8	130	422852N0712908.1	Town of Acton	-	-	28	2 1/2	-	1958	Test Hole	Sand & Gravel	28	2 1/2	-	-	2.5	-	-
USGS, HD-8	131	422850N0712904.1	Town of Acton	-	-	38	2 1/2	-	1958	Test Hole	Sand & Gravel	38	2 1/2	-	-	1.5	-	-
USGS, HD-8	147	422913N0712851.1	Town of Acton	39.7	-	39.7	2 1/2	-	1962	Test Hole	-	39.7	2 1/2	-	-	1.8	-	-
USGS, HD-8	148	422913N0712851.2	Town of Acton	18.5	-	18.5	2 1/2	-	1962	Test Hole	-	18.5	2 1/2	-	-	-	-	-
USGS, HD-8	149	422913N0712851.3	Town of Acton	18	-	18	2 1/2	-	1962	Test Hole	-	18	2 1/2	-	-	-	-	-
USGS, HD-8	150	422913N0712851.4	Town of Acton	23.5	-	23.5	2 1/2	-	1962	Test Hole	-	23.5	2 1/2	-	-	2.3	-	-
Well Records in the Town of Stow, Massachusetts																		
D.L. Maher 3/19/70	5-5	Taylor Road, Stow	Harvard Acres	-	-	28	2 1/2	D.L Maher	3/19/1970	Test Well	Sand & Gravel	28	2 1/2	N.A.	0.080	-	Y	30
D.L. Maher 3/13/70	5-6 obs	Taylor Road, Stow	Harvard Acres	-	-	31	2 1/2	D.L Maher	3/13/1970	Test Well	Sand & Gravel	28	2 1/2	N.A.	-	3	Y	15
USGS, HD-8	34	422743N0713200.1	Mr. Lawrence	8	-	104	6	-	1951	Stock Well	Bedrock	104	-	-	-	25	-	20
USGS, HD-8	49	422740N0713037.1	Harvey Treby	7	-	7	48	-	1955	Domestic	Till	7	48	-	-	-	-	-
USGS, HD-8	s1	422744N0713112.1	USGS	-	15	15	4 1/2	-	7/63	Boring	-	-	-	-	-	-	-	-
USGS, HD-8	s2	422744N0713112.2	USGS	-	32	32	4 1/2	-	7/63	Boring	-	-	-	-	-	-	-	-
USGS, HD-8	s3	422751N0713107.1	USGS	-	38	38	4 1/2	-	7/63	Boring	-	-	-	-	-	-	-	-
Well Records in the Town of Harvard, Massachusetts																		
D.L. Maher 3/14/74	5,6,10,11-74	Toms Gravel Pit	Town of Harvard	-	-	19	21/2	D.L Maher	3/14/1974	Test Well	Sand & Gravel	19	2 1/2	N.A.	0.050	0.5	Y	60
USGS, HD-8	55	422826N0713344.1	Mr. Gebrielsen	-	-	11.3	20	-	1940	Domestic	Sand & Gravel	11.3	20	-	-	9.3	-	-
USGS, HD-8	56	422808N0713315.1	Henry Hugerth	29	-	78	6	-	1955	Domestic	Bedrock	78	-	-	-	23	-	40
USGS, HD-8	58	422847N0713330.1	John Lamont	-	-	6.4	30	-	-	Domestic	Till	6.4	30	-	-	2.7	-	
USGS, HD-8	59	422847N0713330.2	Town of Harvard	-	-	36.5	24	-	-	Observation	Till	36.5	24	-	-	33.3	-	-
USGS, HD-8	36	422808N0713337.1	MDPW	-	5	5	1 3/8	-	-	Boring	-	-	-	-	-	-	-	-
USGS, HD-8	207	422818N0713323.1	MDPW	-	18	18	1 3/8	-	-	Boring	-	-	-	-	-	1.0	-	-
USGS, HD-8	H9-20-7B	422815N0713333.1	MDPW	11.5	-	16.5	1 3/8	-	-	Boring	-	-	-	-	-	-	-	-
USGS, HD-8	H9-21-6	422820N0713328.1	MDPW	-	34	34	1 3/8	-	-	Boring	-	-	-	-	-	0.5	-	-

Table 7
Summary of Available Wells Logs from Adjacent Towns of Acton, Stow, Harvard, and Littleton
(Note: Logs available from Town of Boxborough files only)

Source[1]	Source Well I.D.[2]	Location[2]	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen Length (feet)	Screen Slot Size (inches)	Depth to Water	Pump Test (Y/N)	Rate (gpm)
Well Records in the Town of Littleton, Massachusetts																		
D.L. Maher 11/21/72	1-72	Littleton, Mass	Littleton Water Department	-	-	27.5	8	D.L. Maher	11/21/1972	Municipal	Sand & Gravel	27.5	8	5	0.100	1.7	Y	150
D.L. Maher 11/22/72	2-72	Littleton, Mass	Littleton Water Department	-	-	28	8	D.L. Maher	11/22/1972	Municipal	Sand & Gravel	27	8	5	<0.085	2.2	Y	150
D.L. Maher 11/28/72	3-72	Littleton, Mass	Littleton Water Department	-	-	27.8	8	D.L. Maher	11/28/1972	Municipal	Sand & Gravel	25	8	5	0.080	2.3	Y	150
D.L. Maher 12/6/72	4-72	Littleton, Mass	Littleton Water Department	-	-	25.4	8	D.L. Maher	12/6/1972	Municipal	Sand & Gravel	25.4	8	5	0.070	3.25	Y	130
D.L. Maher 12/7/72	5-72	Littleton, Mass	Littleton Water Department	-	-	32	8	D.L. Maher	12/7/1972	Municipal	Sand & Gravel	27	8	5	0.140	1.9	Y	200
D.L. Maher 12/11/72	6-72	Littleton, Mass	Littleton Water Department	-	-	31	8	D.L. Maher	12/11/1972	Municipal	Sand & Gravel	27	8	5	0.080	1.3	Y	150
USGS, HD-6	45	423026N0712847.1	W.O. Greenleaf	15-20	-	99	6	-	1928	Domestic	Bedrock	99	-	-	-	-	-	6
USGS, HD-8	46	423018N0712849.1	Cornelius Coughlin	11.9	-	18.4	42	-	1853	Not Used	Bedrock	18.4	-	-	-	16.39	-	-
USGS, HD-8	51	423039N0713035.1	G.E. Loring	9	-	55	6	-	1931	Domestic	Bedrock	55	-	-	-	-	-	-
USGS, HD-8	52	423046N0713028.1	L. B. Furbush	7.5	-	7.5	72x48	-	1931	Domestic	Till	7.5	72x48	-	-	4.84	-	-

Notes:
Data from USGS, HD-8 listed for all explorations in adjacent town within 1/2 mile of the Boxborough town-line.
[1] Information source from which boring/well data was taken.
[2] Well/boring identification number provided by information source (if available).
N.A. - Not Available
FE - Fracture Enhancement
?? - Information unclear in data source
ft-bgs - feet below ground surface
gpm - gallons per minute
PSW - Public Supply Well
IDW - Industrial Well
IRW - Irrigation Well
MW - Monitoring Well
DW - Domestic Well
TW - Test Well

CDM

TABLE 8

Summary of Bedrock Wells Yielding ≥ 30 gpm
Boxborough, Massachusetts

Table 8
Summary of Bedrock Wells Yielding ≥ 30 gpm
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen		Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
														Length (feet)	Slot Size (inches)			
DEM	10	Well #1- Rt. 111	George D. Hines Interests	9.5	-	350	8	Domestic Wells Inc.	4/23/1981	Industrial	Bedrock	350	-	-	-	14	Y	300
DEM	11	Well #2- Rt. 111	Gerald D. Hines Interests	11	-	445	8	Domestic Wells Inc.	4/30/1981	Industrial	Bedrock	445	-	-	-	14	Y	60
DEM	15	N.A.	BSC Eng.	33	-	302	6	Domestic Wells Inc.	12/29/1981	Domestic	Bedrock	302	-	-	-	6	Y	55
DEM	[redacted]	Cunningham Rd	Henry J. Stanford	20	-	370	6	A&W Artesian Well Co.	3/84	Domestic	Bedrock	370	-	-	-	N.A.	Y	85
DEM	24	N.A.	Scott Assoc./Paul Scott	20	-	77	6	McGinstry Well Service	3/2/1985	Domestic	Bedrock	??	-	-	-	40	Y	60
DEM	[redacted]	DEP #2037023016 Codman Hill Rd	Beals & Thomas Inc.	27	-	243	6	D.L. Maher Co.	7/18/1985	Industrial	Bedrock	243	-	-	-	10	Y	100
DEM	30	Liberty Square Rd	Altair Assoc.	125	-	530	6	E.R. Sullivan Inc.	2/10/1976	Domestic	Bedrock	530	-	-	-	50	Y	30
DEM	[redacted]	Codman Hill Rd	Beals & Thomas Inc.	15	-	250	6	D.L. Maher Co.	4/28/1986	Industrial	Bedrock	250	-	-	-	10	Y	75
DEM	35	Lot 2 Woodward Lane	Northwest Structures	21	-	450	6	Wellтech Corp.	5/22/1986	Domestic	Bedrock	450	-	-	-	21	Y	40
DEM	[redacted]	Sargent Rd	??	5	-	245	6	E.R. Sullivan Inc.	5/23/1986	Domestic	Bedrock	245	-	-	-	5	Y	150
DEM	38	Burroughs Rd	Sal Pennutta	46	-	490	6	E.R. Sullivan Inc.	7/21/1976	Domestic	Bedrock	490	-	-	-	20	Y	30
DEM	[redacted]	Rt. 111 Mass Ave	Town of Boxborough	28	-	380	8	Skillings & Sons, Inc.	2/8/2000	Public	Bedrock	380	-	-	-	23.1	Y	175
DEM	[redacted]	#2 Sargent Rd	Spurci Const.	8	-	220	6	E.R. Sullivan Inc.	2/23/1982	Domestic	Bedrock	220	-	-	-	10	Y	30
DEM	63	Lot 24 Stonehedge Pl	Deck House, Inc.	54	-	260	6	A&W Artesian Well Co.	1/13/1988	Domestic	Bedrock	260	-	-	-	20	Y	40
DEM	64	Lot 25 Stonehedge Pl	Deck House, Inc.	43	-	200	6	A&W Artesian Well Co.	2/17/1988	Domestic	Bedrock	200	-	-	-	N.A.	Y	30
DEM	[redacted]	#21A Stow Rd	Bill Schittler	20	-	260	6	E.R. Sullivan Inc.	4/28/1980	Domestic	Bedrock	260	-	-	-	8	Y	60
DEM	82	Lot # 12 Stonehedge Pl	Deck House, Inc.	5	-	660	6	Skillings & Sons Inc.	1/3/1989	Domestic	Bedrock	660	-	-	-	25	Y	88
DEM	84AA	#36 Heath Hill	J. Flailing Inc.	50	-	380	6	E.R. Sullivan Inc.	3/23/1989	Domestic	Bedrock	380	-	-	-	14	Y	30
DEM	[redacted]	60 Codman Hill Rd	Dec T	N.A.	-	545	N.A.	Northeast Water Wells	6/19/1989	Irrigation	Bedrock	545	-	-	-	20	Y	75
DEM	93A	#31 Old Harvard Est	Jim Harris	21	-	205	6	E.R. Sullivan Inc.	6/27/1974	Domestic	Bedrock	205	-	-	-	13	Y	30
DEM	95	#41 Heath Hill	John J. Flailing	54	-	85	6	E.R. Sullivan Inc.	6/29/1979	Domestic	Bedrock	85	-	-	-	10	Y	35
DEM	97	Silbury Hill Estates #9	Bill Hoffman	60	-	340	6	Skillings & Sons Inc.	7/12/1989	Domestic	Bedrock	340	-	-	-	60	Y	50
DEM	105	Great Rd	Greg Storni	10	-	280	6	Mike Sullivan Inc.	8/26/1989	Domestic	Bedrock	280	-	-	-	N.A.	Y	50
DEM	107	lot 1 Flagg Hill Rd	Robert Sweeney	25	-	250	6	Mike Sullivan Inc.	10/27/1989	Domestic	Bedrock	250	-	-	-	10	Y	30
DEM	[redacted]	#205 Reed Farm Estates	Reed Farm Inc.	10	-	225	6	E.R. Sullivan Inc.	3/15/1990	Domestic	Bedrock	225	-	-	-	77	Y	30
DEM	[redacted]	#206 Reed Farm Estates	Reed Farm Inc.	7	-	205	6	E.R. Sullivan Inc.	5/31/1990	Domestic	Bedrock	205	-	-	-	18	Y	30
DEM	[redacted]	#15 Mayfair Lane	Bruce Whalen	7	-	205	6	E.R. Sullivan Inc.	7/25/1990	Domestic	Bedrock	205	-	-	-	15	Y	30
DEM	[redacted]	#1 Burroughs Rd	JHW Pappas	60	-	245	6	E.R. Sullivan Inc.	8/10/1990	Domestic	Bedrock	245	-	-	-	17	Y	30

Table 8
Summary of Bedrock Wells Yielding ≥ 30 gpm
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen		Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
														Length (feet)	Slot Size (inches)			
DEM	[redacted]	#2 Burroughs Rd	JHW Pappas	72	-	305	6	E.R. Sullivan Inc.	8/11/1990	Domestic	Bedrock	305	-	-	-	21	Y	35
DEM	[redacted]	#218 Reed Farm Estates	Mark Gallaghan	10	-	485	6	E.R. Sullivan Inc.	11/8/1990	Domestic	Bedrock	485	-	-	-	11	Y	35
DEM	[redacted]	#240 Reed Farm Estates	Reed Farm Inc.	20	-	185	6	E.R. Sullivan Inc.	12/4/1990	Domestic	Bedrock	185	-	-	-	13	Y	30
DEM	[redacted]	#16 Mayfair Lane	Bruce Wheeler	10	-	245	6	E.R. Sullivan Inc.	2/10/1991	Domestic	Bedrock	245	-	-	-	14	Y	30
DEM	[redacted]	#207 Reed Farm Estates	Reed Farm Inc.	10	-	185	6	E.R. Sullivan Inc.	4/12/1991	Domestic	Bedrock	185	-	-	-	16	Y	40
DEM	[redacted]	#1 Mayfair Lane	Bruce Wheeler	5	-	185	6	E.R. Sullivan Inc.	4/16/1991	Domestic	Bedrock	185	-	-	-	14	Y	30
DEM	[redacted]	#293 Reed Farm Estates	Reed Farm Inc.	19	-	125	6	E.R. Sullivan Inc.	5/10/1991	Domestic	Bedrock	125	-	-	-	8	Y	40
DEM	[redacted]	#20 Tamarack Lane	John J. Flaling	35	-	205	6	E.R. Sullivan Inc.	6/21/1991	Domestic	Bedrock	205	-	-	-	9	Y	35
DEM	[redacted]	#241 Reed Farm Rd	Reed Farm Inc.	30	-	205	6	E.R. Sullivan Inc.	6/25/1991	Domestic	Bedrock	205	-	-	-	18	Y	30
DEM	185	lot 214 Reed Farm Rd	Pirlase Co.	6	-	235	6	Mike Sullivan Inc.	10/28/1991	Domestic	Bedrock	235	-	-	-	20	Y	30
DEM	194	lot 226 Blanchard Rd	James Redmand	10	-	205	6	Mike Sullivan Inc.	12/27/1991	Domestic	Bedrock	205	-	-	-	12	Y	30
DEM	[redacted]	#19 Tamarack Lane	John J. Flaling	32	-	205	6	E.R. Sullivan Inc.	1/29/1991	Domestic	Bedrock	205	-	-	-	13	Y	30
DEM	202	lot 245 Reed Farm Rd	Diblase Co.	15	-	235	6	Mike Sullivan Inc.	1/23/1992	Domestic	Bedrock	235	-	-	-	1	Y	30
DEM	[redacted]	#21 Tamarack Lane	John J. Flaling	38	-	105	6	E.R. Sullivan Inc.	3/31/1992	Domestic	Bedrock	105	-	-	-	16	Y	30
DEM	212	lot 233 Blanchard Rd	Reed Farm Inc.	15	-	145	6	Mike Sullivan Inc.	4/2/1992	Domestic	Bedrock	145	-	-	-	5	Y	30
DEM	217	lot 9 Reed Farm Rd	Reed Farm Inc.	15	-	220	6	Mike Sullivan Inc.	4/27/1992	Domestic	Bedrock	220	-	-	-	5	Y	50
DEM	218	lot 213 Reed Farm Rd	Reed Farm Inc.	42	-	175	6	Mike Sullivan Inc.	5/8/1994	Domestic	Bedrock	175	-	-	-	5	Y	30
DEM	[redacted]	#28 Morse Lane	John McNulty (Bkd.)	12	-	245	6	E.R. Sullivan Inc.	6/24/1992	Domestic	Bedrock	245	-	-	-	10	Y	30
DEM	232	lot 19 Hager Lane	Howard Markawitz	5	-	250	6	Mike Sullivan Inc.	7/1/1992	Domestic	Bedrock	250	-	-	-	20	Y	30
DEM	239	lot 26A Flagg Hill Rd	Deck House, Inc.	7	-	185	6	Skillings & Sons Inc.	8/14/1992	Domestic	Bedrock	185	-	-	-	20	Y	50
DEM	[redacted]	#1 Stow Rd	Bruce Wheeler	18	-	400	6	E.R. Sullivan Inc.	10/20/1992	Domestic	Bedrock	400	-	-	-	22	Y	30
DEM	[redacted]	23 Tamarack Lane	John J. Flaling	57	-	85	6	E.R. Sullivan Inc.	12/21/1992	Domestic	Bedrock	85	-	-	-	10	Y	30
DEM	[redacted]	11 Littlefield Rd	Lisa & Joe O'Brien	4	-	530	6	E.R. Sullivan Inc.	2/24/1993	Domestic	Bedrock	530	-	-	-	14	Y	30
DEM	284	lot 63 Quggins Brook Rd	Reed Farm Inc.	18	-	355	6	Mike Sullivan Inc.	2/23/1993	Domestic	Bedrock	355	-	-	-	20	Y	50
DEM	[redacted]	15 Whitney Lane	Bruce Wheeler	18	-	145	6	E.R. Sullivan Inc.	4/14/1993	Domestic	Bedrock	145	-	-	-	0	Y	30
DEM	299	lot 253 Inches Way	Reed Farm Inc.	10	-	395	6	Mike Sullivan Inc.	4/27/1993	Domestic	Bedrock	395	-	-	-	5	Y	50
DEM	[redacted]	38 Meadow Lane	John J. Flaling	35	-	225	6	E.R. Sullivan Inc.	5/7/1993	Domestic	Bedrock	225	-	-	-	18	Y	30
DEM	313	lot 250 Inches Way	Reed Farm Inc.	20	-	205	6	Mike Sullivan Inc.	5/29/1993	Domestic	Bedrock	205	-	-	-	10	Y	60

Table 8
Summary of Bedrock Wells Yielding ≥ 30 gpm
Boxborough, Massachusetts

Source[1]	Source Well I.D.[2]	Location	Owner	Geologic Information		Boring Information				Well Information							Pumping Information	
				Depth to Bedrock (ft-bgs)	Depth to Refusal (ft-bgs)	Depth (ft-bgs)	Diameter (inches)	Driller	Date	Well Type	Water Bearing Unit	Well Depth (ft-bgs)	Well Diameter (inches)	Screen		Depth to Water (ft-bgs)	Pump Test (Y/N)	Rate (gpm)
														Length (feet)	Slot Size (inches)			
DEM	[redacted]	4 Filer's Lane	Bruce Wheeler	14	-	345	6	E.R. Sullivan Inc.	12/13/1993	Domestic	Bedrock	345	-	-	-	17	Y	30
DEM	[redacted]	32 Whitney Lane	Bruce Wheeler	20	-	145	6	E.R. Sullivan Inc.	1/24/1994	Domestic	Bedrock	145	-	-	-	20	Y	30
DEM	[redacted]	2 Filer's Lane	Bruce Wheeler	4	-	440	6	E.R. Sullivan Inc.	1/25/1994	Domestic	Bedrock	440	-	-	-	18	Y	30
DEM	[redacted]	13 Filer's Lane	Bruce Wheeler	18	-	325	6	E.R. Sullivan Inc.	3/1/1994	Domestic	Bedrock	325	-	-	-	22	Y	30
DEM	[redacted]	6 Patch Hill Rd	Compass Bld.	40	-	205	6	E.R. Sullivan Inc.	4/15/1994	Domestic	Bedrock	205	-	-	-	16	Y	30
DEM	[redacted]	12 Filer's Lane	Bruce Wheeler	20	-	285	6	E.R. Sullivan Inc.	5/2/1994	Domestic	Bedrock	285	-	-	-	22	Y	30
DEM	[redacted]	14 Filer's Lane	Bruce Wheeler	8	-	340	6	E.R. Sullivan Inc.	5/17/1994	Domestic	Bedrock	340	-	-	-	16	Y	40
DEM	[redacted]	9A Filer's Lane	Bruce Wheeler	13	-	225	6	E.R. Sullivan Inc.	12/1/1994	Domestic	Bedrock	225	-	-	-	13	Y	30
DEM	[redacted]	370 Depot Rd	Russel Robinson	15	-	250	6	Mike Sullivan Inc.	10/5/1995	Domestic	Bedrock	250	-	-	-	20	Y	30
DEM	419A	Towermarc Business Park Swanson	Towermarc Corp.	28	-	1110	8'	R.E. Chapman Co.	2/1/1996	Industrial	Bedrock	1110	-	-	-	1.25	Y	80
DEM	432	lot 4A Liberty Sq Rd	Reed Farm Inc.	30	-	180	6	Mike Sullivan Inc.	4/22/1996	Domestic	Bedrock	180	-	-	-	15	Y	30
DEM	441A	proposed golf course well #6	Beals & Thomas Inc.	6	-	605	6.625	American Drilling Co.	6/11/1996	Irrigation	Bedrock	605	-	-	-	20	Y	40
DEM	[redacted]	49-3 Hajer Lane	Steve Parkinson	6	-	245	6	E.R. Sullivan Inc.	7/31/1996	Domestic	Bedrock	245	-	-	-	11	Y	30
DEM	[redacted]	89 Coolidge Farm Rd	Habiloch Inc.	1	-	265	6	E.R. Sullivan Inc.	10/18/1996	Domestic	Bedrock	265	-	-	-	22	Y	30
DEM	483	Lot J Mass Ave	Commonwealth Prop	35	-	310	6	Mike Sullivan Inc.	3/14/1997	Domestic	Bedrock	310	-	-	-	30	Y	50
DEM	491	Lot 50 Joseph Rd	MEF Contracting	3	-	590	6	Downoust Drilling	6/11/1997	Domestic	Bedrock	590	-	-	-	90	Y	30
DEM	[redacted]	Cunningham Road	Gutierrez Co.	15	-	395	6	Viera Artesian Well Co.	6/2/1999	Public	Bedrock	395	-	-	-	20	Y	60
DEM	[redacted]	School House Lane	N.A.	8	-	165	6	E.R. Sullivan Inc.	10/28/2000	Domestic	Bedrock	165	-	-	-	10	Y	30
DEM	1898	Priest Lane Accessors Lot# 8	Coughlin Const.	10	-	345	6	Mike Sullivan Drilling	3/13/2000	Domestic	Bedrock	345	-	-	-	10	Y	30
DEM	1897	Priest Lane Accessors Lot# 3	Coughlin Const.	18	-	380	6	Mike Sullivan Drilling	3/9/2000	Domestic	Bedrock	380	-	-	-	15	Y	30
DEM	[redacted]	142 Sargent Road	Idyllwilde Farm	35	-	260	6	Mike Sullivan Drilling	11/2/1999	Irrigation	Bedrock	260	-	-	-	15	Y	60
USGS, HD-8	[redacted]	423004N0713127.1	George Robinson	40	-	99	8	-	1957	Domestic	Bedrock	99	8	-	-	15	-	30-40

Notes:
[redacted] Indicates approximate locations of wells shown on CDM Figure 2 - Data Points map.
[1] Information source from which boring/well data was taken.
[2] Well/boring identification number provided by information source (if available).
N.A. - Not Available
FE - Fracture Enhancement
?? - Information unclear in data source
ft-bgs - feet below ground surface
gpm - gallons per minute
PSW - Public Supply Well
IDW - Industrial Well
IRW - Irrigation Well
MW - Monitoring Well
DW - Domestic Well
TW - Test Well

CDM

Filename:Fi

TABLE 9

Summary of Water Management Act (WMA) Registrations and Permits for Boxborough and Adjacent Communities

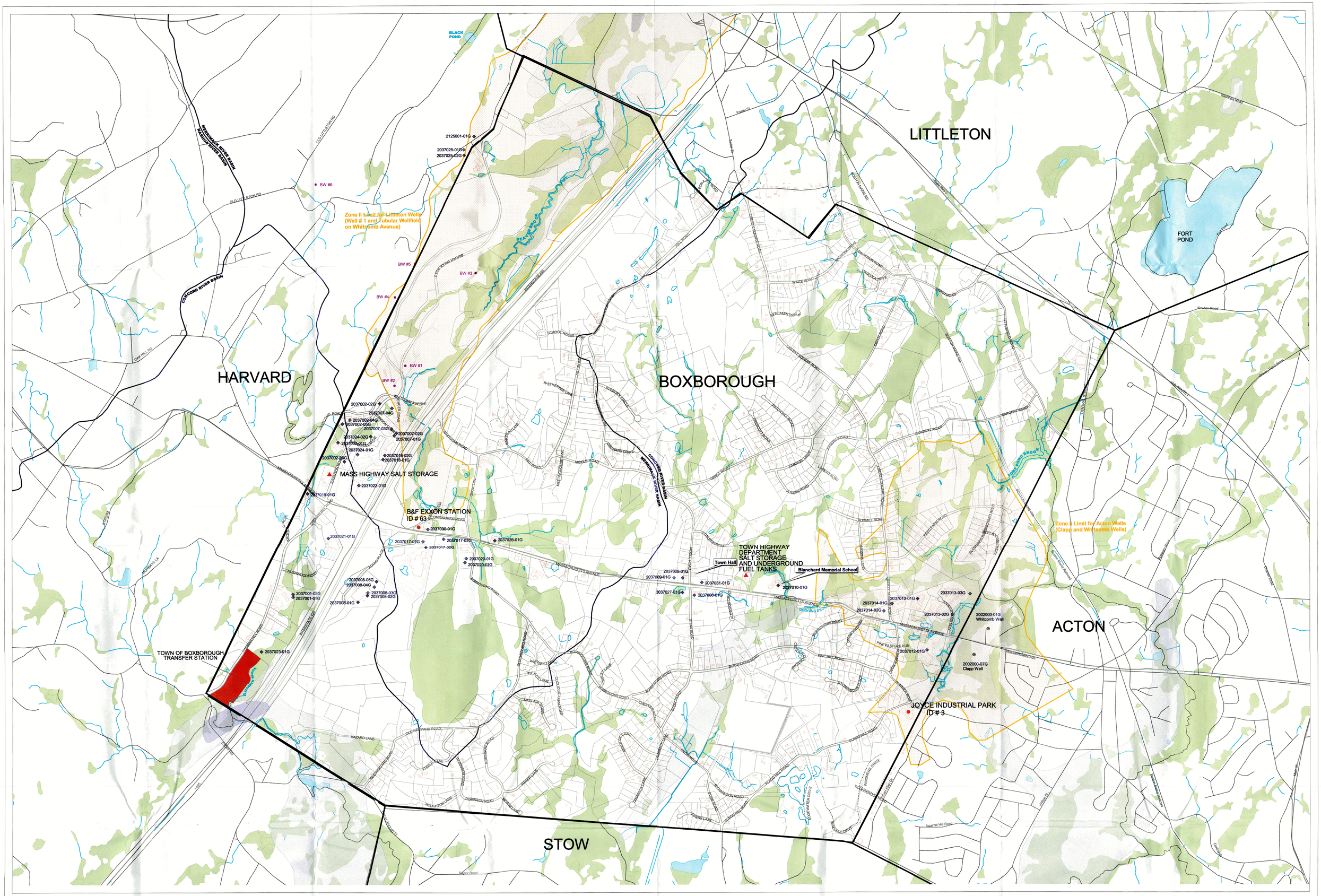
Table 9
Summary of Water Management Act (WMA) Registrations and Permits for Boxborough and Adjacent Communities

	Permit Number	Registration Number	Registered Volume (mgd)	Permitted Volume Yr20	SOURCE						Use
					Code[2]	Type	Name	Address	Town	Approval Rate (gpm)	
Towermarc Corporation [1]	9P221303701	21303701	-	0.14	-	Groundwater	BW #1	Swanson Road	Boxborough	66	Irrigation
					-	Groundwater	BW #2	Swanson Road	Boxborough	66	Irrigation
					-	Groundwater	BW #3	Swanson Road	Boxborough	68	Potable
					-	Groundwater	BW #4	Swanson Road	Boxborough	22	Irrigation
					-	Groundwater	BW #5	Swanson Road	Boxborough	42	Irrigation
					-	Groundwater	BW #6	Swanson Road	Boxborough	26	Irrigation
Acton Water District	9P421400201	21400203	1.56	0.38	2002000-01G	Groundwater	Whitcomb Well	North Side Rte 111	Acton	325	Municipal
					2002000-07G	Groundwater	Clapp Well	South Side Rte 111	Acton	210	Municipal
Littleton Water Department	9P21315802	21315803	0.84	0.63	2158000-01G	Groundwater	Tubular wellfield	Whitcomb Avenue	Littleton	600	Municipal
					2158000-02G	Groundwater	Gravel Packed Well #1	Whitcomb Avenue	Littleton		Municipal

Notes:

[1] The Towermarc property has been aquired by Cisco Systems.

[2] Code is the same as DEP Public Water Supply number.



- Community or Non-Community Supply Well
- Municipal Production Well
- Wells Permitted Under the DEP WMA
- DEP 21E Site
- Potential Contamination Sources
- Landfill Waste Disposal
- USGS Aquifer - Med. Yield
- USGS Aquifer - High Yield
- Zone II Limit for Wells
- Parcel Boundary
- Wetlands
- River Basin Divide

SOURCES:

Basemap data is from Town of Littleton aerial photography. Parcel data from Town of Boxobrough, updated 2001. All other data from MassGIS

NOTE:

Wetlands within Town of Boxborough are Town designated wetlands.

800 0 800 1600 2400 3200 4000 4800 Feet

Scale 1:9600

1 inch = 800 feet

N

Boxborough, MA
Water Resources Analysis

Figure 1
Existing Water Resource Information

CDM Maher DRILLING & PUMP SERVICES

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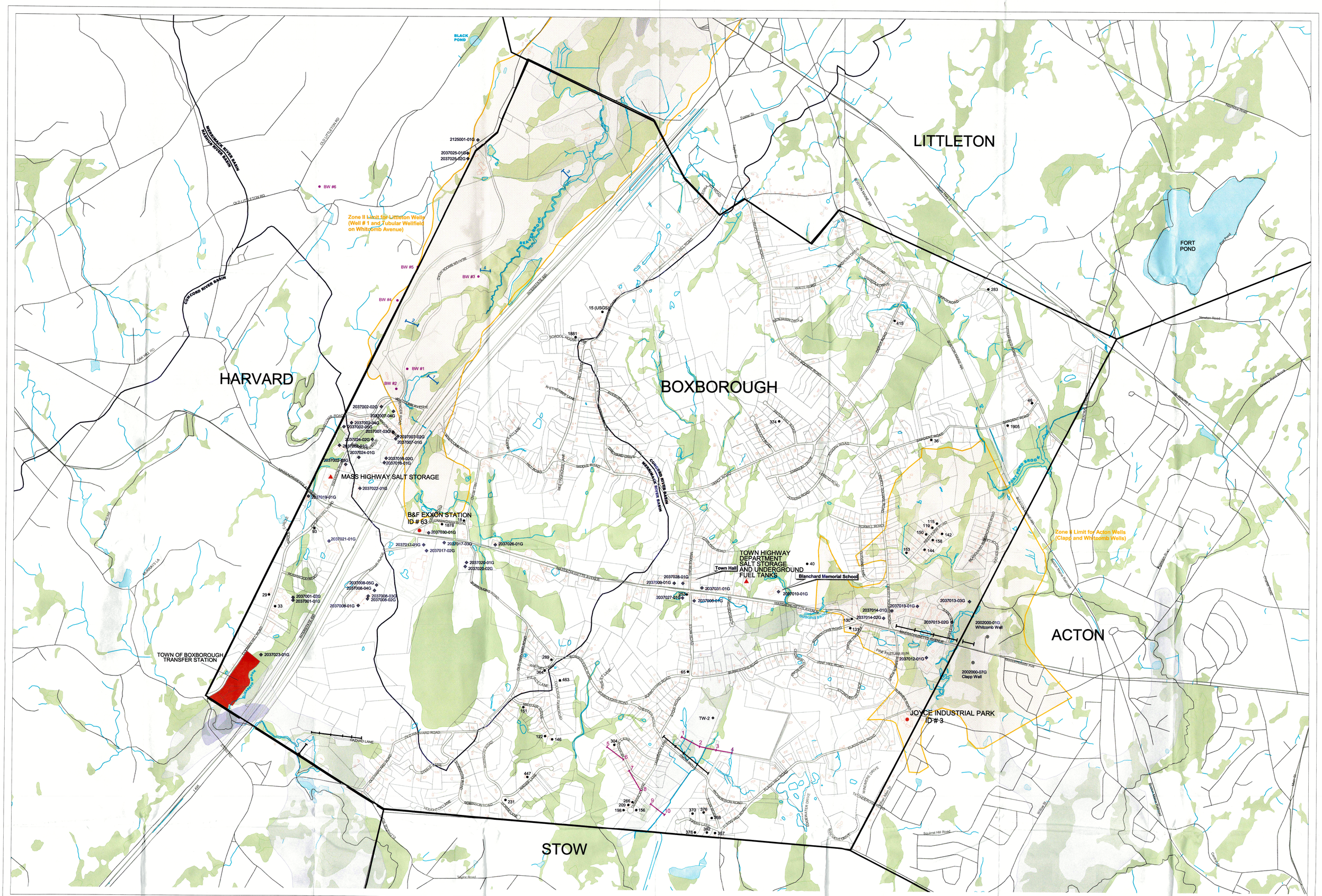

SOURCES:

Basemap data is from Town of Littleton aerial photography. Parcel data from Town of Boxobrough, updated 2001. All other data from MassGIS

NOTES:

Wetlands within the Town of Boxborough are Town designated wetlands.

Bedrock wells yielding >= 30 gpm are referenced to DEM well log data, unless otherwise noted.

All data point locations are approximate.

Boxborough, MA
Water Resources Analysis

Figure 2
Data Points Map

CDM Maher DRILLING & PUMP SERVICES

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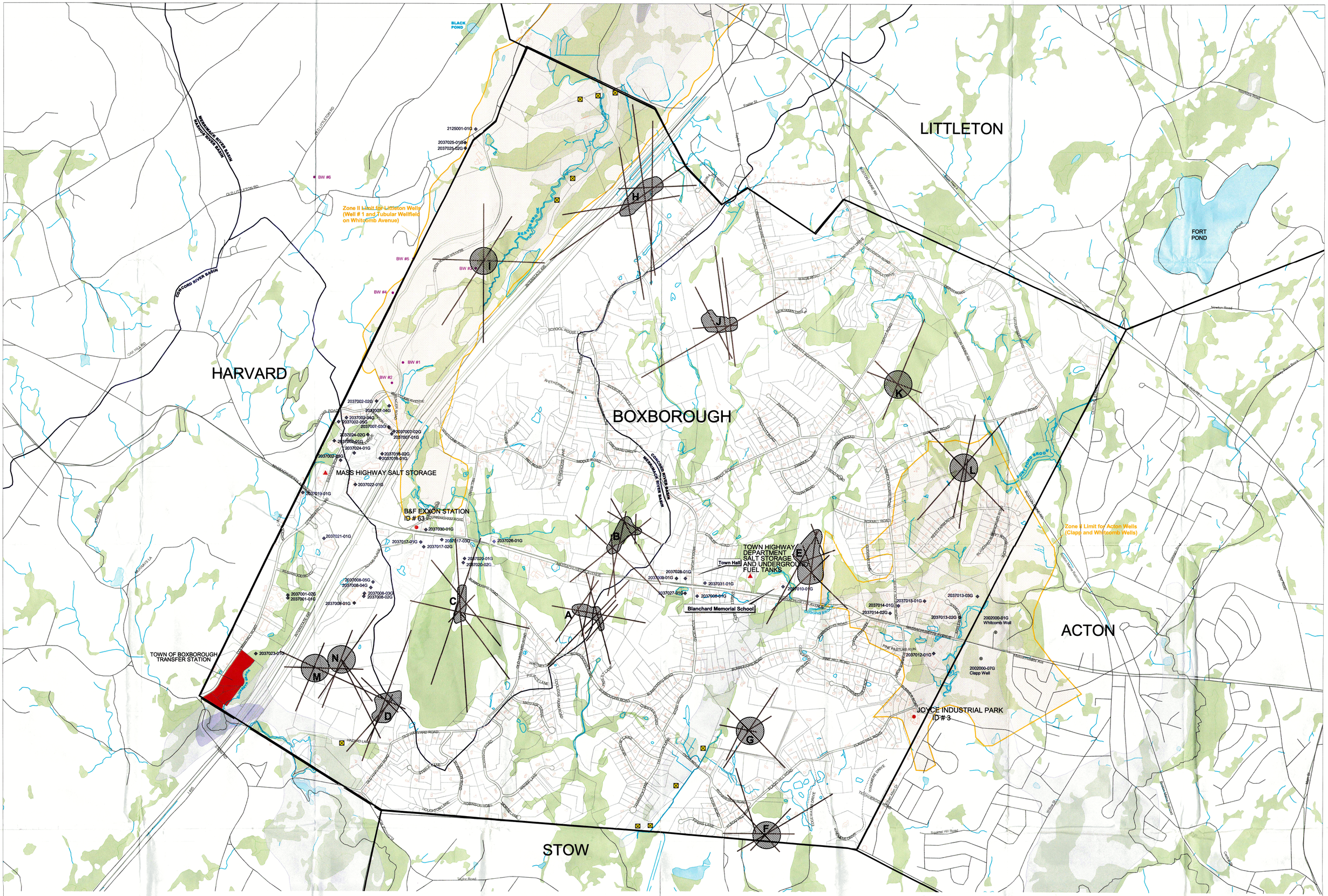

- Bedrock Fracture Trace (D.L. Maher Co.)
- Favorable Bedrock Test Site (D. L. Maher Co.)
- Potential Overburden Test Well Sites (D.L. Maher Co.)
- Community or Non-Community Supply Well
- Municipal Production Well
- Wells Permitted Under the DEP WMA
- DEP 21E Site
- Potential Contamination Sources
- Landfill Waste Disposal
- USGS Aquifer - Med. Yield
- USGS Aquifer - High Yield
- Zone II Limit for Wells
- Parcel Boundary
- Wetlands
- River Basin Divide

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800 0 800 1600 2400 3200 4000 4800 Feet

Scale 1:9600

1 inch = 800 feet

N

Boxborough, MA
Water Resources Analysis

Figure 3
Bedrock Fracture Trace Analysis and Potential Test Sites

CDM Maher DRILLING & PUMP SERVICES

J:\tucker\boxborough\aprs\working1.apr Fig3 2.4.02 DS

Report by D. L. Maher Co. (2002)

An Assessment of Ground Water Favorability for the Town of Boxborough, MA within the Unconsolidated Overburden and by a Fracture Trace Study of the Underlying Bedrock

Prepared By:
D.L. Maher a division of
BOART LONGYEAR COMPANY

February 2002

Table of Contents

Aquifer Delineation

Aquifers within New England fall within two categories. Shallow unconsolidated sediments deposited either during the glacial advance such as till and ground moraine or ice contact and glacio fluvial materials deposited during the glacial retreat. Whereas till and ground moraine are mostly non-sorted and usually have a high percentage of clay, silt and fine sand particles they are utilized only for small quantities of ground water withdrawal usually by very shallow dug wells. However saturated ice contact and glacio-fluvial sediments partially in-fill some of the pre-glacial valleys. These materials usually have been deposited, eroded and then redeposited several times. In many cases the fine sediments have been winnowed out leaving coarse sand and gravel deposits with high transmissive values. It is within these stratum that most of the high yielding wells of New England are constructed.

The other aquifer classification is the underlying bedrock formations. New England does not have many sedimentary rocks such as the highly permeable limestone and sandstone formations. Our predominant rock types are igneous (those which have lithified directly from a molten state such as granites, basalts and gabroes) or metamorphic rocks. This latter classification includes rocks which originally were igneous or sedimentary but have been physically or chemically altered by protracted periods of extreme heat and pressure. Most of New England and all of Boxborough are underlain by these formations. Because these rock types rarely have voids between the minerals which comprise the rock, primary porosity is low and little ground water can be either stored or transmitted. Therefore, it is when the rocks are fractured by crustal movements that zones appear which allow for the storage and rapid transport of ground water. Only in the last twenty-five years has the remote sensing of various aerial photography enabled the hydrogeologist to identify areas where high yielding bedrock wells may be constructed.

Unconsolidated Aquifers

Boxboro, Massachusetts lies within a region designated the Eastern Physiographic Uplands. Near the intersection of Route 111 and I-495 is an exposed road cut of bedrock which some prominent geologists claim is the contact point between the North African and North American plates some 550 million years ago. This collision, the subsequent jostling of the plates and the later separation of Europe and Africa created a topography of far greater relief than is apparent today. Close to 80 million years of erosion wore down sizeable mountains and formed discernable drainage patterns of low hills and shallow valleys. Starting about one million years ago, at least five glacial epochs have advanced over what is now Boxborough. Each advance removed vegetation, weathered bedrock and plucked large boulders from the competent bedrock. Some of the dislodged material was pushed ahead of the glacier, some was ingested into the ice mass and some was smeared on rock beneath the ice. The interglacial warming melted much of the ice and released the ingested sediments for deposition in the lowlands. It is these ice contact and glacio-fluvial sediments that when saturated offer the greatest potential for the development of high yielding wells. Most of the surrounding communities that utilize ground water for their public water supplies have developed these the shallow unconsolidated aquifers as their primary sources.

In September 1981 an Aquifer Favorability Study was undertaken for Boxboro by I.E.P. of Wayland, Massachusetts. We have reviewed this document and the subsequent work associated with it. We shall not repeat the information presented by them regarding the drainage basins within Boxboro and the square miles of watershed for each basin. Our choices for potential well sites is based upon our knowledge of the Town and previous studies undertaken by our firm in the surrounding Towns of Acton, Littleton, Harvard and Stow.

Beaver Brook Aquifer

Five sites have been shown on Figure 3 in this watershed all of which lie near the northwestern corner of Town west of I-495. Within this north-northeast by south

southwesterly trending valley are glacio-fluvial and ice contact deposits which previous test well exploration programs have shown to be up to 60 feet in depth. Our experience in this area indicates that the valley deepens near the Littelton-Boxboro Town Line. There is conflicting data on water quality with some evidence of low Iron and Manganese deposits and other information showing high Iron. Our firm conducted a prolonged pumping test for Littleton Light and Water, east of Beaver Brook, about 1000 feet north of the Town Line where the Iron and Manganese concentrations exceeded 1 mg/l. Of the five recommended sites, three are easily accessed through the Harvard Sportsman's Club. The two sites east of Beaver Brook, located on the western flank of the esker, are more difficult to reach for drilling equipment and may prove to be a sensitive environmental area. We believe that this watershed has the potential for more sustainable recharge but the proximity to I - 495 is always a concern for elevated salt levels and a catastrophic rollover with the resultant leakage of vehicle's liquids and cargo.

Heath Hen Brook Aquifer

Previous work by I.E.P. has shown a saturated thickness of about 60 feet within this valley. However, continuing development has limited those areas where the requisite D.E.P. 400-foot protective radius, surrounding a production well, can be achieved. Of equal importance is the limited watershed upgradient for available recharge. Burroughs Road appears to be close to the watershed divide between Heath Hen Brook draining to the south east and the Guggins Brook watershed which drains to the northeast. Of the four sites selected for test well exploration, we recommend the one closest to the Stow-Boxboro Town Line, near the northwestern corner of the Minute Man Airfield. Should this site prove to be successful the more northerly sites could be eliminated unless a diminished safe yield is acceptable.

Elizabeth Brook Aquifer

In 1972 the Town of Harvard conducted a test well exploration program in an area about 1000 feet southwest of the present transfer station. The results of that effort demonstrated

that a shallow tubular wellfield capable of yielding about 200 GPM was possible. This location was never developed due to the linear distance and considerable elevation differential from there to Harvard Center. However it does indicate that shallow transmissive sediments do exist within this watershed.

Only one site has been selected in the southwestern corner of Town due to existing land use practices. The present transfer station was proceeded by a landfill. The leachate from this now covered activity may be moving south and easterly into the unconsolidated deposits or Elizabeth Brook. Route I - 495 presents the same adverse potential for elevated salt levels and the impact of a catastrophic event. Lastly the waste disposal system for the Holiday Inn lies within this watershed and is upgradient of the aquifer. The one site recommended appears to be of sufficient distance to these potential sources of pollution to minimize any detrimental impact.

Guggins Brook Aquifer

In 1995, the Acton Water District conducted test well exploration in a sand and gravel pit between Massachusetts Ave. and Burroughs Road. The results were promising but nothing beyond this initial investigation was ever undertaken. Recent development has now encroached upon this area to the extent that the required D.E.P. zone I can no longer be achieved. The same scenario holds true for the sub-division on Blanchard Road and Inches Brook Lane. Therefore, it is our opinion that no viable well sites now exist within this watershed.

Introduction to a Fracture Trace Study

This report serves as a summary of work undertaken by D.L. Maher toward the development of potable bedrock water sources within the Town of Boxborough. The intent of this effort was to identify on aerial photographs linear or curvilinear surficial features, which may indicate zones of fractured bedrock. Experience has shown that wells drilled at the convergence of these features are likely to encounter seams of broken rock, which may serve as conduits for the storage and rapid transmission of groundwater. The length, breadth and frequency of these zones are the main factors considered in the selection of potential drilling sites.

We have located on selected aerial photographs and remotely sensed data fracture traces (natural, linear features less than 1500 feet in length) and lineaments (features greater than 1500 feet in length) that traverse the study area. These features are assumed to be the surface traces of zones of intensely fractured bedrock. By analyzing the intersecting relationships among the fracture traces and lineaments, we have identified zones of possibly highly fractured bedrock. In each of these areas, we have discerned several discrete locations where linear features converge. We consider these areas to be the most promising potential drilling locations.

Site Geology

The bedrock of the area as shown on the U.S.G.S. Geologic Map of Massachusetts makes up a portion of what is known as the Nashoba zone. The underlying rocks are classified as solely the **Nashoba Formation:** Ordovician-aged Schist (partially sulfidic), gneiss, amphibolite, but in some areas this bedrock may be intruded by the **Andover (Acton) Granite:** Silurian-aged granite.

No major faults are mapped as transecting any part of the Town. However, the large number of high yielding bedrock wells which lie adjacent to I-495 suggest to us that a spay of the Clinton-Newbury Fault may be parallel to the highway in Boxborough.

The water quality in a given area reflects the constituents found within the overlying unconsolidated sediments and bedrock. Groundwater that has seeped through unconsolidated overburden material tends to become mineralized as it flows through seams, cracks and fractures in the underlying bedrock. In general, water from rock wells tends to have a pH greater than 7 and may be harder and have higher alkalinity than the groundwater pumped from the more shallow, unconsolidated sand and gravel wells. Iron and Manganese content can also vary from site to site. However it should be noted that the closer one drills to swamp deposits the greater the risk for elevated concentrations of Iron, Manganese, Color, and Hydrogen Sulfide.

Photo-geology

New England is underlain chiefly by crystalline bedrock, which unlike the unconsolidated glacial sediments that blanket much of the region, is predominately non-porous and impervious to the flow of groundwater. However, networks of localized zones of intense bedrock fracturing allow for the pooling and flow of water through the fractured rock. Some of these fracture networks can be quite extensive and may be capable of recharging wells with high, sustainable yields. Therefore, the probability of developing a successful production well would be greatly increased, if the drilling site lies within areas of underlying fractured bedrock.

The geologist utilizes remotely sensed data and aerial photographs to identify natural, linear or curvilinear features that are undetectable at ground level. Fractures and lineaments become visible at greater viewing distances due to the subtle patterns formed by the settling of soils, preferential wetting and drying patterns, and/or the relative abundance or dearth of vegetation along the surface trace of the underlying feature. By this means, it is possible to locate the points of intersection of two or more features with some degree of precision and to maximize the chances of finding a high yield water source. In fact, wells drilled at locations pinpointed using the above method have often produced yields in the upper end of the local yield-range for a given geologic setting.

We utilized high and low altitude, black and white, color infrared and SLAR (side-looking airborne radar) photography.

Sanitary Survey

Personnel from Camp, Dresser & McKee, Inc. have identified those areas which may pose a threat to ground water quality (see Figure 1). We have utilized this information in the hydrogeology ranking of the recommended bedrock well sites. Any potential threat which might degrade water quality should be taken seriously and the order in which the following sources are listed should not be considered as an order of magnitude.

- Transfer Station - Codman Hill Road
  The new covered, former landfill, presently the transfer station must be considered a potential risk to ground water for dissolved metals and possible Volatile Organic Compounds.

- Exxon Station - Massachusetts Avenue
  An acknowledged loss of product has created a plume which appears to be migrating in a northerly direction.

- Massachusetts D.P.W. Garage - Swanson Road
  An uncovered salt storage shed may be responsible for elevated Sodium levels in nearby wells.

- Boxborough D.P.W.
  Salt storage, underground fuel storage tanks and the burial of dead animals all are potential threats to the water quality in this area.

- Joyce Industrial Park - Summer Road
  Volatile Organic Compounds utilized as part of the manufacturing process have been noted at some of the downgradient wells.

In addition to the land use practices listed above other possible threats could include salt run-off and fluid spills on I-495. Route 111, Route 2, and the Boston & Maine Railroad.

A vehicle crash on any Town way or excessive salt application by the Highway Department can also impact ground water quality. The concentration of sub-surface sewage disposal systems at the various condominium complexes, proximal office buildings and the only motel can increase levels of nitrogen compounds. Even one acre zoning sub-divisions can pose problems when homeowners carelessly dump cleaning compounds or other products into their septic systems.

High Yielding Wells in Boxborough

Camp, Dresser & McKee, Inc. has researched the well completion reports on file at the D.E.M. Water Resources offices at Fort Devens. All wells with reported yields of 30 GPM or more have been obtained. They have been plotted as accurately as possible on the Data Points Map, Figure 2 and are enclosed as Table 8. Only 4 of the 82 wells listed produce 100 GPM or more while 19 wells produce 50 GPM or greater. We believe that many of these wells were drilled for clients who needed only a moderate volume of water and when they encountered a zone which produced a quantity which exceeded their demand, drilling was stopped. Therefore, it is probable that some of these locations might be capable of yielding more water if drilled deeper or a larger diameter well was drilled. Many of the wells, such as those on Fifers and Tamarack Lane, are closely grouped and may be drilled into the same fracture matrix. The same premise holds true for the large number of high yielding wells found to either side of I-495. However, in both of the cases sited it is most probable that the pumping of one well will have an impact upon the neighbors well vice versa. Therefore, if a public water supply well is to be located prior thought should be given as to the adverse impact possible to existing sources.

Conclusions and Recommendations

We have identified fourteen zones (A-N) that we consider to be potentially favorable areas for bedrock well development (see Figures in flyleaf). Within each of the zones are one or more specific drilling sites. We have ranked these zones in order of geologic preference, A through N (A being most favorable). We have taken into consideration the proximity of the locations to mapped wetlands and habitats of rare and endangered species before assigning individual rankings. Many additional favorable sites were identified but they are unable to meet the D.E.P. required 400-foot protective radius and therefore, are not recommended for drilling. After a careful review by the various Town Boards, Committee's, and Citizens, a decision should be reached if any of the identified areas should be more fully evaluated by the field staking of drilling sites. The following steps should then be implemented:

1. A representative of the Town, CDM, Inc., and the D.L. Maher Co. should agree upon the order in which the sites will be drilled. Some of the issues warranting discussion are:
    a. Proximity of potential well sites to 3-phase power and existing water mains.
    b. Conservation Commission concerns and/or restrictions.
    c. Availability of land for protective radius after field staking of precise drilling location.

2. The client must provide access to the drill sites for a 30 ton drill rig and support vehicles and notify all land owners whose property may need to be used as access ways and/or drill sites.

3. 8" casing should be advanced through overburden materials and grouted 15 feet into bedrock. A 6" pilot well should be drilled through the casing to a depth of approximately 700 feet.

4. If a well appears capable of producing a sufficient quantity of water, a submersible pump should be set into the well. The well should be pumped for 24 hours in order to determine precisely its yield and preliminary water chemistry. We recommend that the water be tested for Secondary Contaminants, V.O.C.'s, Radionuclides, Radon, and I.O.C.'s

5. Following the pump test, we will inform the district of the advisability of enlarging the borehole by reaming the 6-inch pilot hole to 8 inches in diameter. This process would allow for the placement of a larger diameter pump for use during a single/multiple prolonged pumping test(s) in accordance with D.E.P. protocols for New Source Bedrock water supplies.

If you have any further questions, please do not hesitate to call.

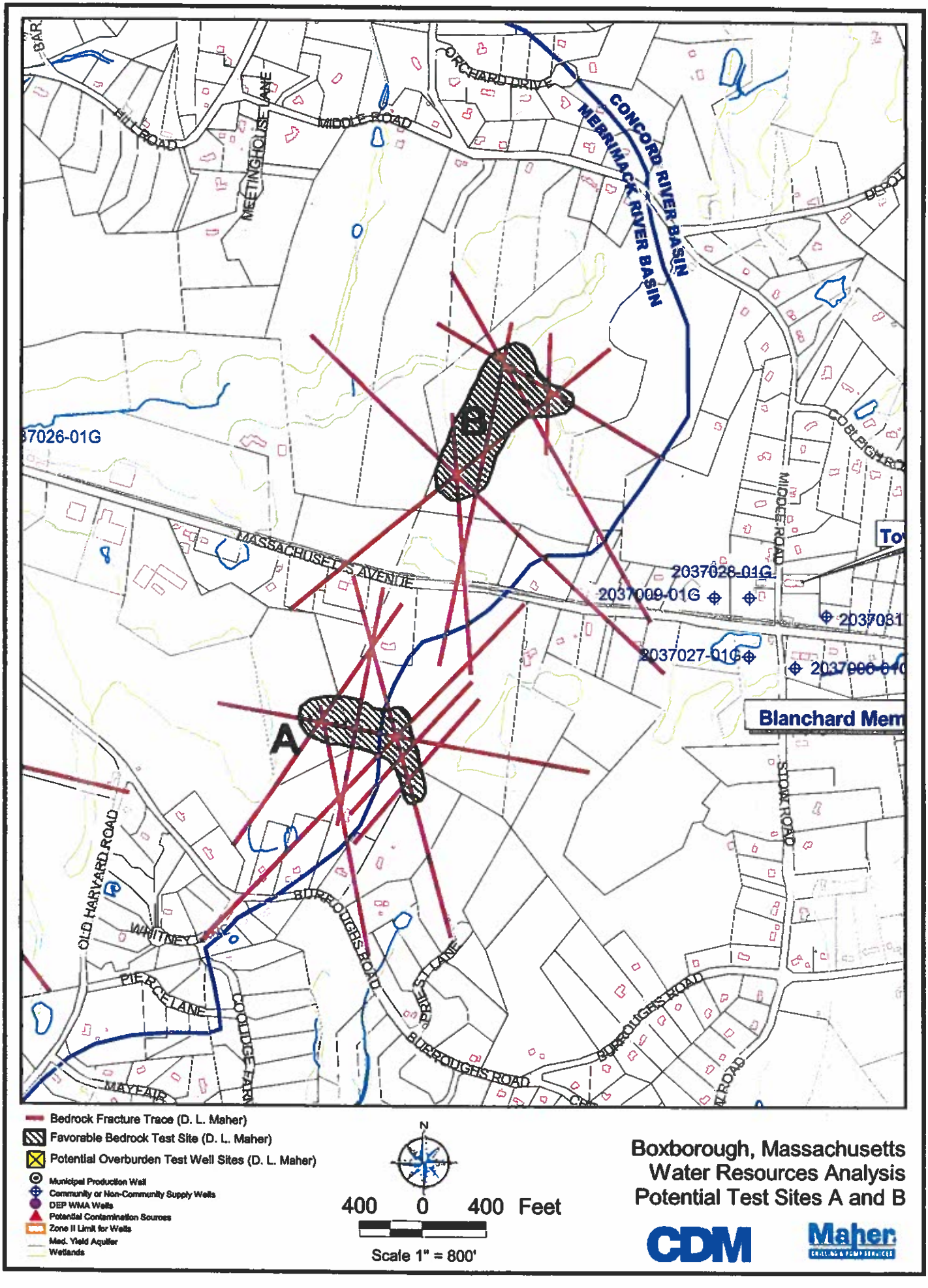
Very Yours Truly,

D.L. MAHER a division of Boart Longyear Company

J. Theodore Morine
Project Manager
Senior Hydrogeologist

Reviewed by:

Kevin P. Maher
Division Manager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Favorable Bedrock Test Site (D. L. Maher)
Potential Overburden Test Well Sites (D. L. Maher)
Municipal Production Well
Community or Non-Community Supply Wells
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Potential Contamination Sources
Zone II Limit for Wells
Med. Yield Aquifer
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Water Resources Analysis
Potential Test Sites A and B
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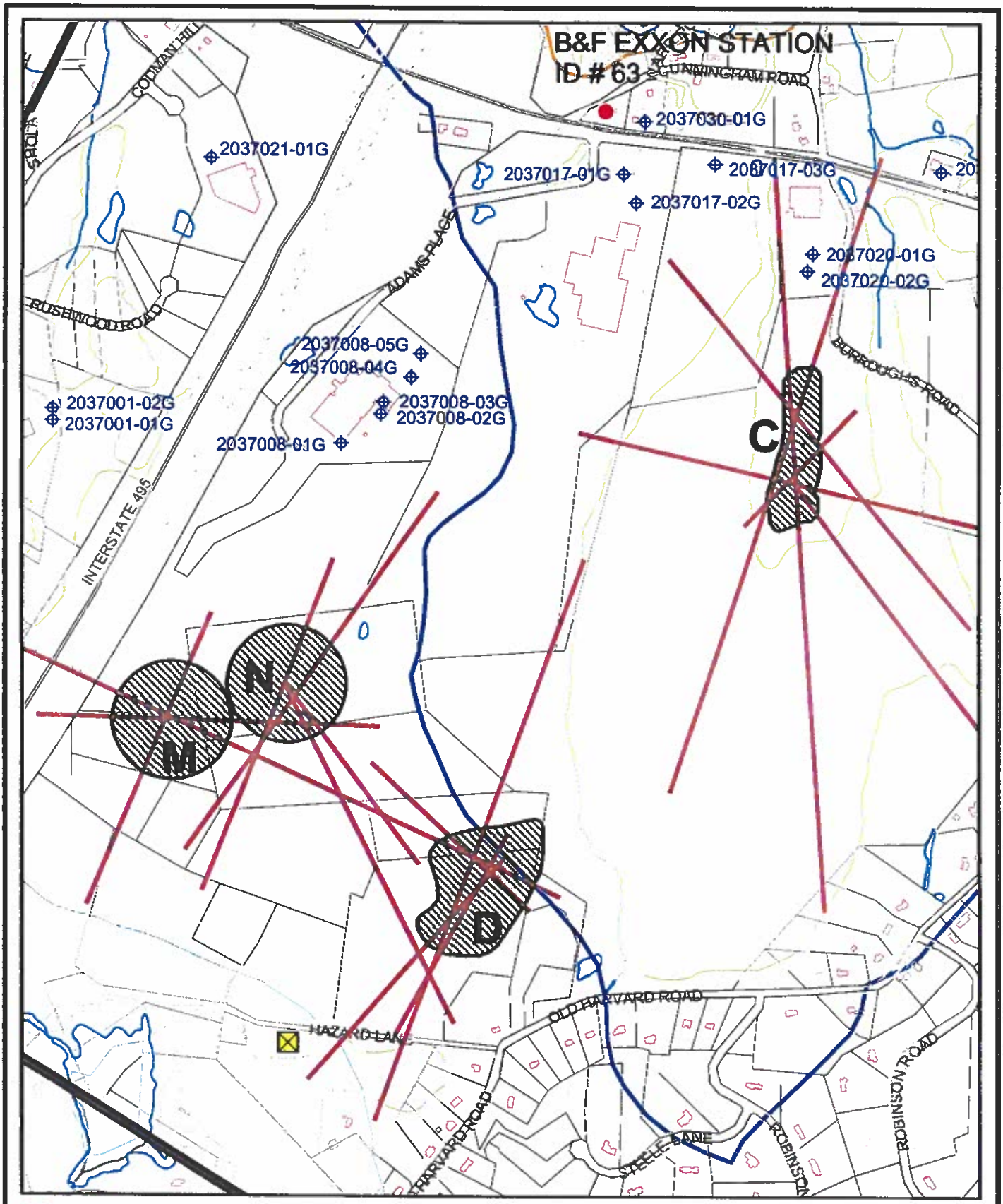
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ADAMS PLACE
RUSHWOOD ROAD
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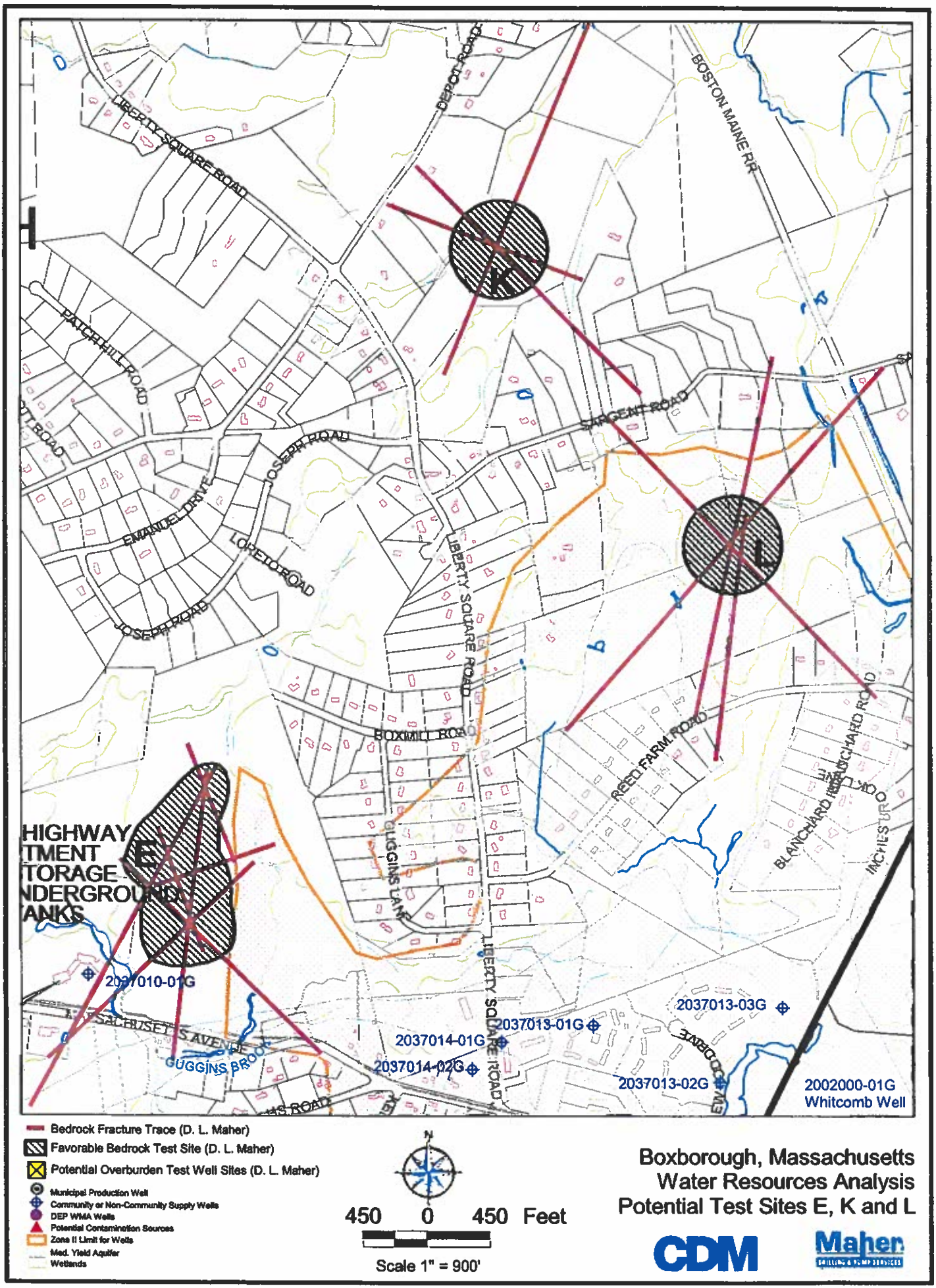
Water Resources Analysis
Potential Test Sites C, D, M and N
CDM
Maher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Water Resources Analysis
Potential Test Sites E, K and L
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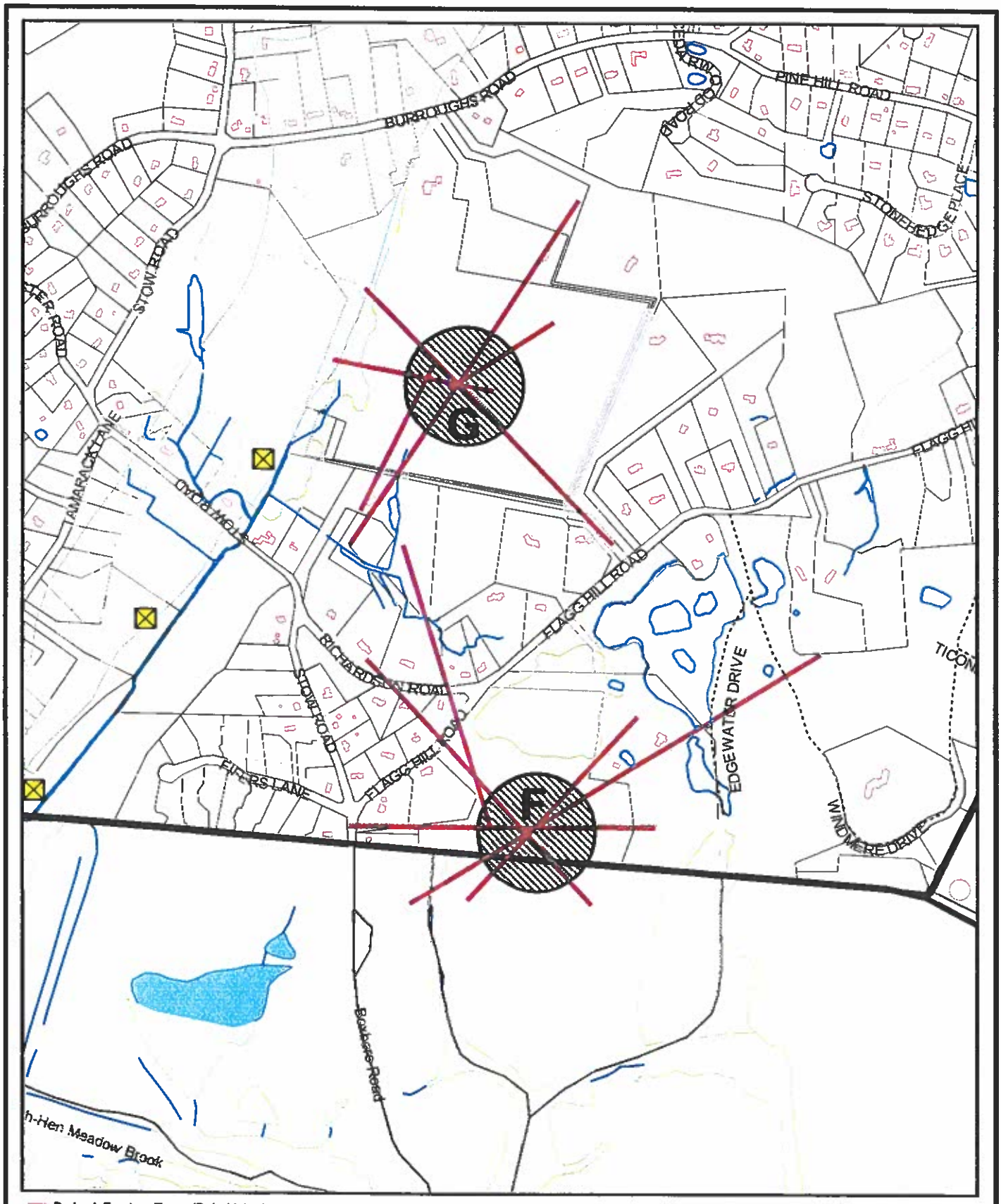
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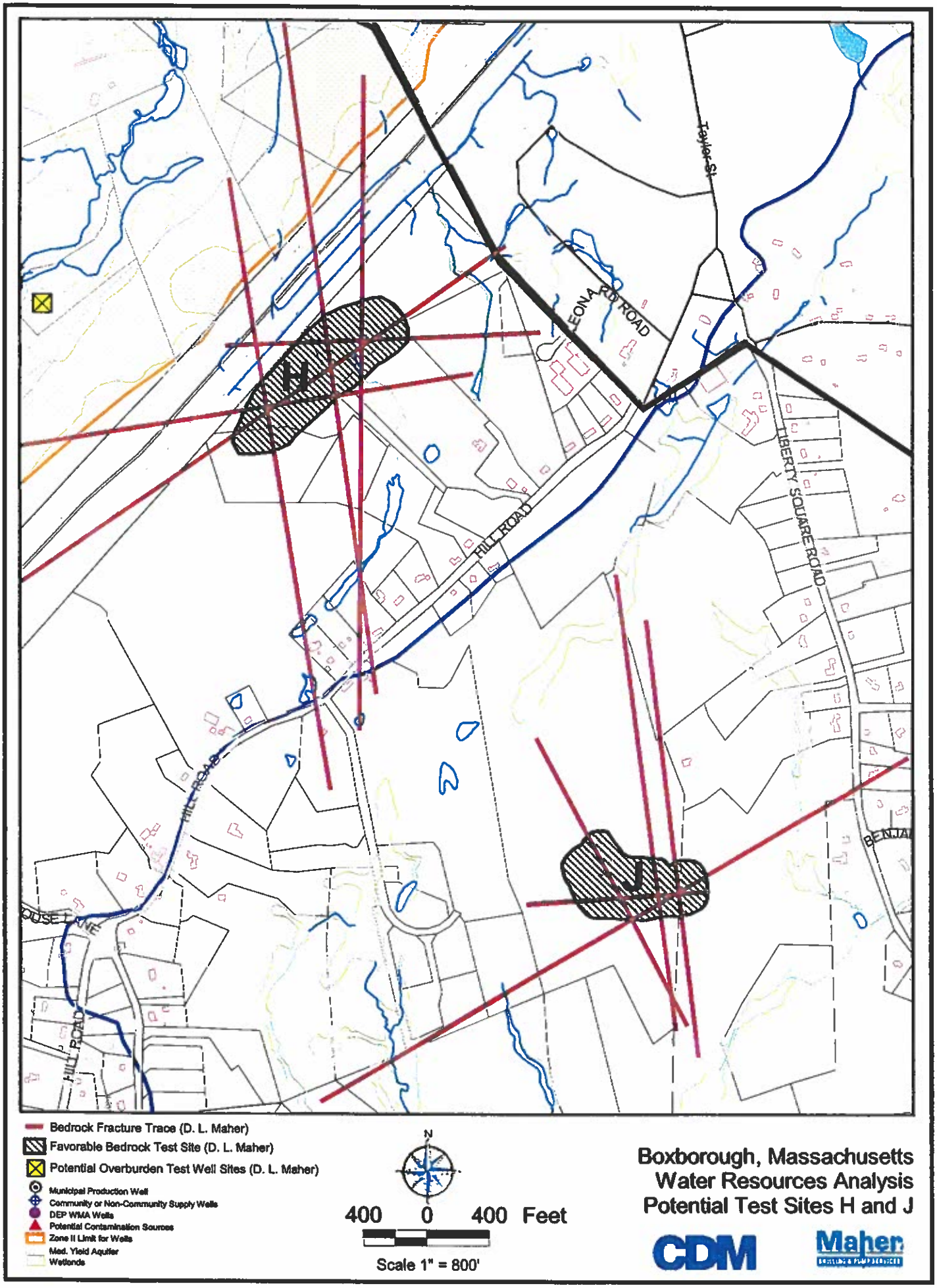
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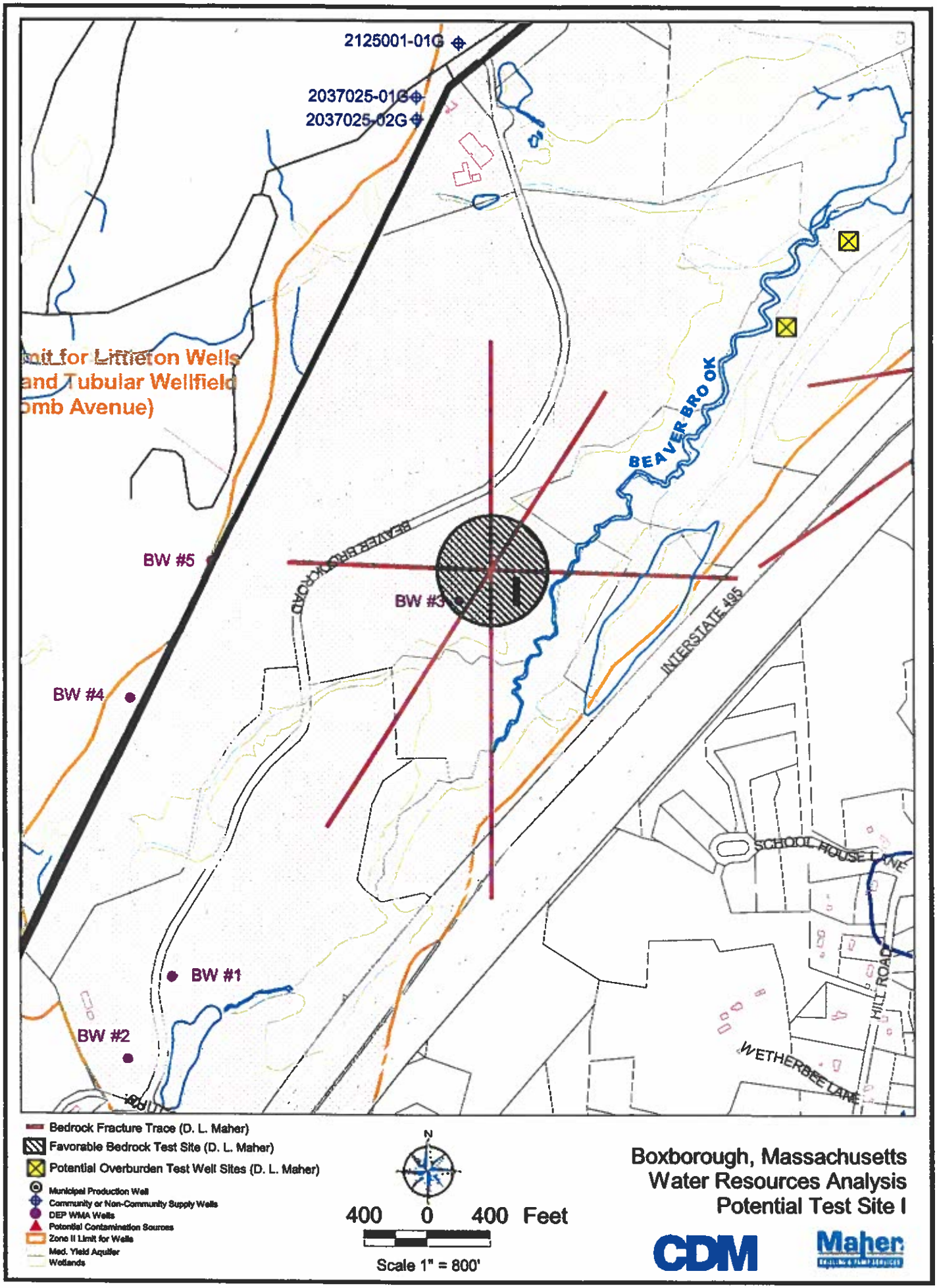
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Potential Test Site I
CDM
Maher

Section 2

CDM

Technical Memorandum No. 2

To: *Water Resources Committee*
Town of Boxborough, Massachusetts

From: *Andrew B. Miller, P.E., Principal Engineer - CDM* ABM

Date: *February 18, 2002*
Final – December 2002

Subject: *Estimates of Future Water Needs and Water Resources to be Acquired*
Water Resources Analysis Project

In accordance with our Agreement of July 1, 2001, CDM is pleased to present this Technical Memorandum No. 2 - Estimates of Future Water Needs and Water Resources to be Acquired. The Agreement actually requires two memoranda, as follows:

- *Phase 2: Anticipated Future Needs of the Town* requires a memorandum titled "Estimate of Future Needs" to present projected average and maximum day water demands for the Town of Boxborough.
- *Phase 3: Analysis of Future Needs and Current Resources of the Town* requires a memorandum titled "Estimate of Water Resources to be Acquired" which establishes planning periods relative to future water needs and provides a schedule over which acquisitions must occur to meet projected demands.

As agreed at our meeting of August 7, 2001, we have combined the subject of Phases 2 and 3 into this single memorandum.

Review of Build-Out Analyses

CDM has reviewed two available build-out analyses for Boxborough, as follows:

- The Town's "Build-Out Analysis Update", dated February 2000 was prepared by Boxborough Town Planner Alicia Altieri;
- "Building Vibrant Communities", dated 2000, prepared by the Commonwealth of Massachusetts and the Metropolitan Area Planning Council (MAPC).

Based on discussions with Ms. Altieri, it is our understanding that MAPC's build-out analysis was conducted using MassGIS, whereas the Town's effort considered actual parcels,

proposed development, town land purchases, and parcels with conservation restrictions. Table 1 provides a comparison of the Town and MAPC analyses, including the resultant effect on additional water use required at build-out under each analysis. Note that Table 1 is not inclusive of existing water use or needs.

Comparison of Residential Build-Out Computations: There is not a significant difference between the Town and MAPC estimates of residential build-out. In fact, the residential population estimates at full build-out are within 5% of one another.

	Projected Build-Out Residential Population
Town of Boxborough	6,648
MAPC	6,935

The assumed number of persons per residence is different, as the Town's analyses used 2.7 persons/residence versus 2.3 persons/residence by MAPC. It should be noted that the 1990 and 2000 U.S. Census for the Town indicates person/residence of 2.7 and 2.63, respectively. Consequently, the Town's estimate of residential build-out may be more accurate in consideration of current zoning, specific parcel reviews, and use of the 2.7 persons/residence in the computations.

The additional water use required to achieve build-out, assuming 75 gallons per capita per day (gpcd), is similar for each analysis, as it results in less than an 8% difference.

Comparison of Commercial Build-Out Computations: There is a significant difference in the estimate of developable acres within commercial/industrial zoning districts computed by the Town and MAPC. The Town projects about 30% more square feet of remaining commercial/industrial land use than MAPC.

	Projected Remaining Area to Reach Build-out In Commercial Zones
Town of Boxborough	4,232,832 square feet
MAPC	3,272,426 square feet

Both the Boxborough and MAPC analyses assumed similar areas of undevelopable wetland within commercial zones. However, the estimated undeveloped upland within commercial zones differs substantially, with the Town and MAPC each estimating 971 and 568 acres, respectively. Consequently, there is a resultant 30% difference in the estimated additional

water use required in commercial zones, between the Town and MAPC build-out analyses, assuming 75 gpd/1,000 square feet.

These differences exemplify the effect varied assumptions have in the estimation of build-out and water needs.

Boxborough's Comprehensive Master Plan

The Town of Boxborough has recently completed the *Boxborough Master Plan* (Beals & Thomas, January 2002). As part of the master planning effort, both residential and industrial/commercial land use have been estimated for three conditions as follows: current land use, 2010 - 10-year build-out; and, future build-out potential. Table 2 summarizes the resulting residential and industrial/commercial statistics.

In development of this build-out scenario, the Master Plan states that the Boxborough Town Planner and MAPC build-out analyses (both discussed above) were considered. Because the MAPC build-out analysis was based upon aerial photography and GIS mapping, this information was used in the Master Plan to assess land development trends over time. Because the Town Planner's build-out analysis was based on more detailed information, it was used to look at the ten year and future build-out scenarios presented in the Master Plan. CDM concurs with this approach, as it combines the strengths of each analysis to develop a technically sound build-out scenario for Boxborough.

The Master Plan does not identify a date by which build-out is anticipated. Rather, the Master Plan reviews trends from two specific time periods (1990-2000 and 1995-2000) to estimate a range of possibilities by which residential and/or commercial build-out may be achieved. In summary, using the 1990-2000 trends, residential build-out could be achieved in 15-20 years, whereas using 1995-2000 trends, residential build-out might not occur for 25-30 years. Using the 1990-2000 trends, commercial build-out could occur in 20 years with the large Cisco development, or in 50 years without Cisco. Based on the 1995-2000 trends, commercial build-out with Cisco could occur within 15 years, or within the next 25-30 years without Cisco.

Because of the apparent variability in predicting the rate of residential and commercial growth in Boxborough, and to ensure consistency with master planning efforts, CDM has adopted the current land use, 10-year build-out, and future build-out scenarios presented in the Master Plan for estimating the Town's water needs.

Estimating Water Needs

When developing water demand projections for a community, there are typically two demand conditions, which must be assessed:

- *Average Day Demand* (ADD) refers to a water system's daily average usage, based upon the annualized total supplied.

- *Maximum Day Demand* (MDD) refers to the highest one day water usage by a water system during a calendar year. MDD typically occurs during dry, high demand periods such as the summer.

ADD and MDD projections have each been developed for Boxborough, for each of the three build-out scenarios identified in the Master Plan.

Average Day Demand (ADD) Projections

Water usage is made up of several categories, which includes, but is not necessarily limited to residential, business/commercial, industrial, institutional, agricultural, and unaccounted-for water. In the case of Boxborough, two specific land use types have been identified: residential and industrial/commercial. Therefore, demand projections will be based on these two categories.

Residential Water Use

The residential component of water use is typically based upon population. It is calculated by estimating a "gallons per capita per day" (gpcd) and multiplying this figure by the population in town. There are several estimates of gpcd available for use in the determination of water demands. The Massachusetts Department of Environmental Protection (DEP) has used 80 gpcd as an appropriate planning tool for estimating residential water usage.

Recently, the Water Resources Commission (WRC) of the Massachusetts Department of Environmental Management (DEM) set a new goal of 65 gpcd, reflective of a desire for significant water conservation. The 65 gpcd goal is now being used by the WRC when evaluating community needs for new water supplies under the Interbasin Transfer Act (ITA) process. Specifically, as a condition of WRC approval, communities are being required to improve water conservation such that 65 gpcd is a target residential water use.

As apparent from the build-out analysis described earlier herein, MAPC uses a rate of 75 gpcd for estimating water demands. This falls within the range of the WRC's 65 gpcd and DEP's 80 gpcd.

To estimate residential water use in Boxborough, CDM recommends a range of 65-80 gpcd. This provides a sufficiently conservative value for planning purposes, while allowing for a goal of water conservation. Based upon population, Table 3 presents the residential water use estimated for Boxborough for current conditions, 10-year build-out, and future build-out.

Industrial/Commercial Water Use

For the purpose of developing demand projections, industrial/commercial water use refers to all business, industrial and institutional demands. To estimate the commercial component of water use, we have adopted MAPCs standard of 75 gallons per day per 1,000 square feet (gpd/1,000sqft). Table 3 summarizes the commercial water use estimated for Boxborough for the three build-out scenarios.

Total Water Use

The resulting total water use for each of the three build-out scenarios is shown in Table 3.

To verify the appropriateness of the final projections, we have looked at the townwide gpcd based upon total water use (i.e., residential and industrial/commercial combined) and population. For a small to average size community with light to moderate commercial land use, we would expect about 110 gpcd on a townwide basis. Boxborough, being on the smaller size and having light commercial land use, would be expected to be less than 110 gpcd currently. In fact, under current conditions, 88-103 gpcd is estimated townwide (see Table 3). As a comparison, DEP records indicate an average 106 gpcd on a townwide basis for communities in the Commonwealth of Massachusetts having water systems serving 5,000 – 25,000 persons. For communities with populations ranging from 5,000 to 7,500, a 108 gpcd townwide is estimated. Therefore, the current estimated water use in Boxborough seems appropriate, as presented in Table 3.

For the 10-year and future build-out scenarios, there is only a slight increase in residential water use, but a more significant increase in commercial water use. This reflects the fact that commercial growth is predicted to more than double for the 10-year build-out, and increase again by 66% for the future build-out scenario. The corresponding townwide gpcd estimates also significantly increase for each of the 10-year and future build-out scenarios. This is expected, as the commercial water use more significantly impacts the townwide gpcd result. In fact, at full build-out, commercial water use would be 50% of all water usage in town.

Maximum Day Demand (MDD) Projections

Maximum day demand (MDD) is typically estimated by multiplying the ADD by an appropriate peaking factor. CDM often uses the "Merrimack Curve" for selection of the appropriate MDD peaking factor. Documentation of the Merrimack Curve and its usage as a design standard is attached.

Based on the ADDs for each build-out scenario, an appropriate MDD peaking factor has been estimated from the Merrimack Curve, by which MDD has been calculated. The MDD peaking factors and resulting MDD estimates for each of the three build-out scenarios are presented in Table 3.

Resource Planning to Meet Water Demands

In the development of a water supply system, there are several engineering conditions that must be met:

- Suitable supplies must be developed to meet both ADD and MDD conditions.
- To provide adequate safety and ensure continuous supply, redundancy must be provided. For example, at least two wells must be constructed, each with sufficient capacity to meet the MDD condition, such that one well could be removed from service for repair if needed.

Furthermore, it is preferable that the wells be installed within different aquifers, or some distance apart, such that a contamination event would not prohibit use of both.

- With multiple sources in place, it is good engineering practice to have ample source capacity to meet MDD with the largest source off-line.

Based on these design standards, Boxborough would need supply capacity of 1.1-1.3 mgd to meet the MDD of current land uses, in addition to recommended supply redundancy. An additional 0.4 mgd, would be needed to meet the 2010 10-year build-out. Thereafter, an additional 0.5-0.6 mgd would be required to meet the future build-out condition.

The development of a municipal water supply and distribution system will likely be a lengthy and costly process. Issues expected to arise include:

- Siting and permitting of a new supply source;
- Establishment of a service area with known demands;
- Ensuring adequate capacity/redundancy;
- Decisions regarding capacity, such as fire fighting ability;
- Land acquisition(s);
- Institutional issues in establishing a new water system (i.e., charter, jurisdiction, etc.);
- Development of a rate structure;
- System operations and maintenance, including staffing.

Given the complexity of establishing a new water supply/system , CDM recommends that the Town consider a phased approach. The first step would be to identify a service area, based on need. A demonstration of need might be: areas of failing private wells, areas with poor groundwater quality, or areas facing a contaminant threat. Alternatively, need might be based on the desire to merge town operated public wells at municipal facilities (i.e., Blanchard School, Police/Fire Department, Town Hall, etc.). In any case, the objective would be to establish a relatively small, but expandable service area.

The size of the service area and its expected water demands would be subject to the realization that the capacity and ability to permit the groundwater supplies desired may in fact limit both. Furthermore, preferred testing sites may best be located in closer proximity to a potential service area so as to lessen future transmission costs. For this reason, groundwater

supply testing and service area determination are intricately related to one another, and perhaps even iterative.

In conclusion, it is CDM's recommendation that groundwater supply testing and service area determination must proceed simultaneously at the outset of any efforts toward the development of a municipal water system. Once groundwater supply development potential is deemed favorable and a service area identified, then land acquisition of the potential supply source(s) might be considered.

c: Alicia Altieri - Boxborough Town Planner

Table 1

Comparison of Build-out Analyses for the Town of Boxborough

Town of Boxborough and MAPC Analyses

	Town of Boxborough[1]	*MAPC*[2]	*U.S. Census*[3]
Build-out Computations - Residential Zones			
Total Undeveloped Area (acres)	1,544	1,577	
Total Undeveloped Wetlands (acres)	281	277	
Total Undeveloped Upland (acres)	1,263	1,300	
Potential New Dwelling Units (DU)	702	884	
Computed DU/Developable Acre	1.8	1.5	
Future Residents	1,895	2,042	
Computed Residents/DU	2.7	2.3	2.63
Additional Residential Water Use @ 75 gpcd [4] (gpd)	**142,125**	**153,098**	
Build-out Computations - Commercial Zones			
Total Undeveloped Area (acres)	1,158	764	
Total Undeveloped Wetlands (acres)	187	196	
Total Undeveloped Upland (acres)	971	568	
Potential Development Remaining (square feet)	4,409,740	3,272,426	
Computed FAR[5] using Total Undeveloped Area	0.09	0.10	
Computed FAR[5] using Undeveloped Upland	0.10	0.13	
Additional Commercial Water Use @ 75 gpd/1,000sf [4] (gpd)	**330,731**	**245,432**	
Population			
Year 1990		3,343	
Year 1998	4,753		
Year 2000		4,893	4,868
Projected 2005 (MISER)		5,554	
Projected 2010 (MISER)		6,186	
Build-out	**6,648**	**6,935**	

Notes:

(1) February 2000 "Build-out Analysis Update" provided by Boxborough Town Planner Alicia Altieri.

(2) "Building Vibrant Communities" Commonwealth of Massachusetts and MAPC, 2000.

(3) Year 2000 U. S. Census.

(4) Water use estimates in Town of Boxborough column were not provided by the Town. These estimates are based on MAPC gpd assumptions for individuals and commercial and industrial uses.

(5) FAR = Floor Area Ratio: The amount of floor area of a building as it relates to area of the lot.

MAPC: Metropolitan Area Planning Council

gpd: gallons per day

gpcd: gallons per capita per day

DU: dwelling unit

Table 2
Build-out Scenarios [1]

	Current Land Use	*10-Year Build-out*	*Future Build-out*
Residential Units			
Residential Units	1,906	2,156	2,606
Persons per Household	2.55[2]	2.6[3]	2.67[2]
Population	4,868	5,606[4]	6,949[5]
Industrial /Commercial			
Square footage (sq ft)	1,446,040	3,416,040	5,678,872

Notes:

[1] Data from *Boxborough Master Plan* by Beals & Thomas (January 2002), unless otherwise noted.

[2] Computed based on population divided by number of residential units.

[3] Estimated by CDM; represents an average of the persons per household estimates for current land use and future build-out.

[4] Estimated by CDM; based upon the number of residential units x persons per household.

[5] Town estimated population at build-out from Table 3-6 of the *Boxborough Master Plan.*

Table 3
Water Demand Projections

	Current Land Use	*10-Year Build-out*	*Future Build-out*
Residential			
Population[1]	4,868	5,606[2]	6,949[3]
Water Demand[4] (mgd)	0.32 - 0.39	0.36 - 0.45	0.45 - 0.56
Industrial/Commercial			
Square footage[1] (sq ft)	1,446,040	3,416,040	5,678,872
Water Demand[5] (mgd)	0.11	0.26	0.43
Average Day Demand (ADD)			
ADD[6] (mgd)	0.43 - 0.50	0.62 - 0.71	0.88 - 0.99
Maximum Day Demand (MDD)			
MDD Peaking Factor[7]	2.5	2.4	2.3
MDD[8] (mgd)	1.1 - 1.3	1.5 - 1.7	2.0 - 2.3
Townwide[9] gpcd	88 - 103	111 - 127	127 - 142

Notes:

[1] Data from *Boxborough Master Plan* by Beals & Thomas (January 2002), unless otherwise noted.

[2] Estimated by CDM, as described in Table 2.

[3] Town estimated population at build-out from Table 3-6 of the *Boxborough Master Plan.*

[4] Residential water demand estimated using a range of 65 - 80 gpcd.

[5] Industrial/commercial water demand estimated using 75 gpd/1,000 sq ft.

[6] Total of residential and industrial/commercial water demands.

[7] Peaking factors to estimate MDD derived from Merrimack Curve, based on ADD.

[8] MDD = ADD * MDD Factor.

[9] Townwide gpcd = ADD / population; reflects total water use inclusive of residential and industrial/commercial demands.

ADD: Average Day Demand
MDD: Maximum Day Demand
gpcd: gallons per capita per day
mgd: million gallons per day
sq ft: square feet

MERRIMACK CURVE

The "Relation of Extreme Discharge on Maximum and Minimum Days to the Average Daily Discharge of Domestic Sewage" was originally developed by Camp Dresser & McKee, Inc. (CDM) for the "Report on Pollution Control for the Merrimack River", dated December 1963 (see attached figure from original report). Because the figure was developed for the Merrimack River Report, it is often referred to internally at CDM as the "Merrimack Curve."" The maximum, minimum and extreme trend-lines on the "Merrimack Curve" are a composite of the following water consumption and sewage flow data points collected from various communities throughout New England:

- Ratio of maximum 24 hour water consumption to average daily water consumption for one year in New England communities.
- Ratio of maximum 24 hour water consumption to an average daily water consumption for one year in Merrimack Valley communities.
- Ratio of maximum 24 hour sewage flow to average daily sewage flow for one year in a number of sewage treatment plants (infiltration not included).
- Ration of minimum 24 hour sewage flow to average daily sewage flow for one year in New England communities.
- Ratio of extreme discharges to average discharges of domestic sewage at gauging stations (infiltration not included).

The "Merrimack Curve" has since reappeared in a number of design guidance manuals. For example:

- "Gravity Sanitary Sewer Design and Construction", prepared by American Society of Civil Engineers (ASCE) Manuals and Reports on Engineering Practice No. 60 and Water Pollution Control Federation (WPCF)-Manual of Practice No. FD-5 (MOP-FD-5), 1982.
- "Design and Construction of Sanitary and Storm Sewers", prepared by American Society of Civil Engineers (ASCE) Manuals and Reports on Engineering Practice No. 37 and Water Pollution Control Federation (WPCF) Manual of Practice No. 9, 1986.
- "Guide for Design of Wastewater Treatment Works" prepared by the New England Interstate Water Pollution Control Commission (NEIWPCC) Technical Report #16 (TR-16), 1998.

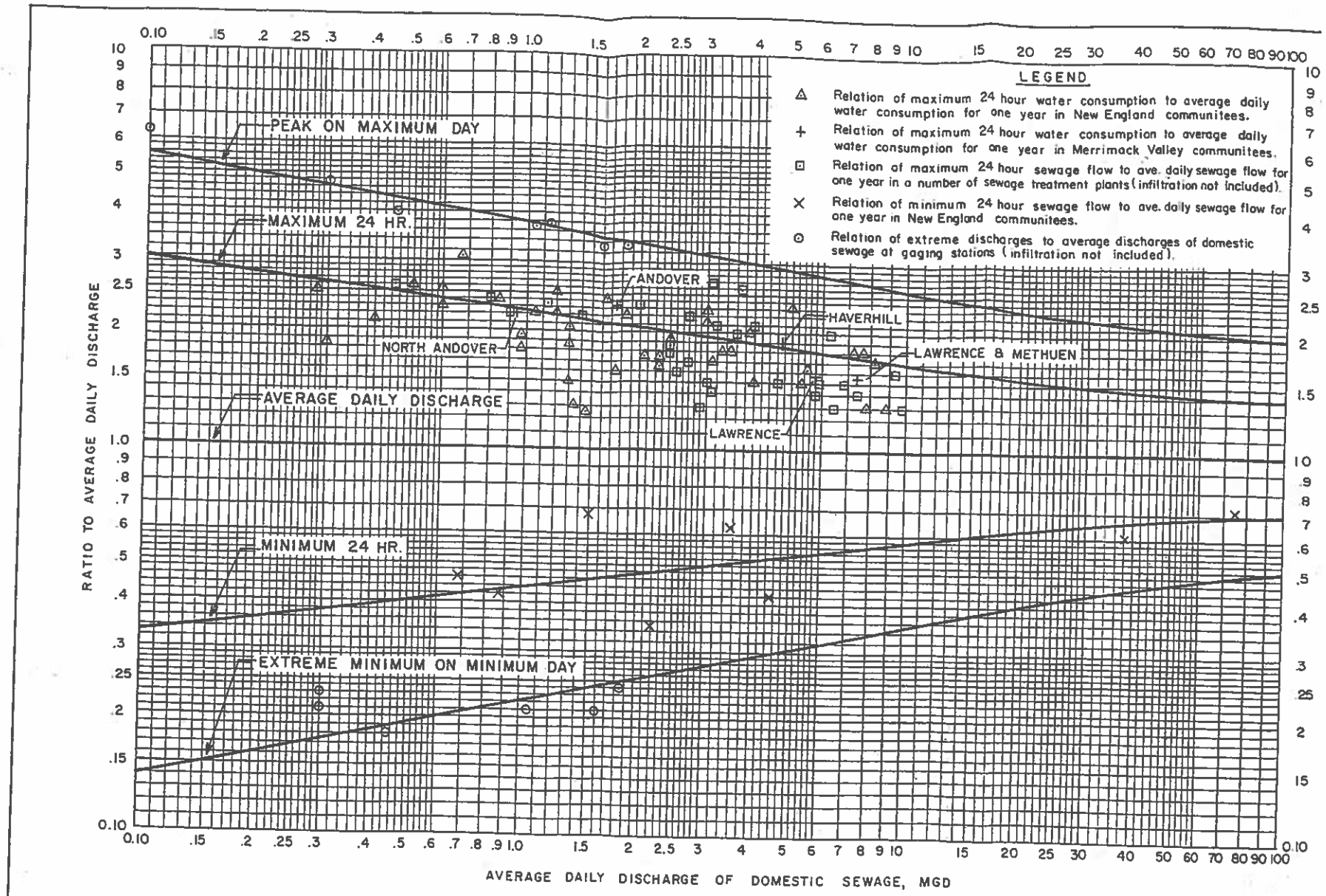
It has been CDM's engineering practice to refer to the Merrimack Curve for estimating water demand peaking factors and maximum day demand when existing data is unavailable.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

REPORT ON POLLUTION CONTROL FOR THE MERRIMACK RIVER

December, 1963

Camp, Dresser & McKee
Consulting Engineers
Boston, Massachusetts



RELATION OF EXTREME DISCHARGES ON MAXIMUM AND MINIMUM DAYS TO THE AVERAGE DAILY DISCHARGE OF DOMESTIC SEWAGE

Section 3

CDM

Technical Memorandum No. 3

To: *Water Resources Committee*
Town of Boxborough, Massachusetts

From: *Andrew B. Miller, P.E., P.HG., Principal Engineer – CDM*
J. Theodore Morine, P.G., Senior Vice President – D.L. Maher Co.

Date: *February 13, 2002*
Final – December 2002

Subject: *Well Investigations Recommendations*
Water Resources Analysis Project

In accordance with our Agreement of July 1, 2001, the CDM/Maher Team is pleased to present this third and final Technical Memorandum No. 3 – Well Investigations Recommendations. As required by *Phase 4: Candidate Well Investigation* under Article 2.1 of our Agreement, this document presents a plan for the acquisition and protection of potential well sites and a recommendation of follow-on projects.

Candidate Well Investigation

In association with Technical Memorandum No. 1 – Existing Information Resource, the D.L. Maher Co. (Maher) prepared a report titled "An Assessment of Ground Water Favorability for the Town of Boxborough, MA within the Unconsolidated Overburden and by a Fracture Trace Study of the Underlying Bedrock" (February 2002). The Maher report identified ten potential test well sites in unconsolidated deposits, and 14 potentially favorable zones for bedrock well development. All sites have been ranked by Maher in consideration of access issues, wetlands, environmental sensitivities, and nearby potential contaminant sources. A summary of the prioritization is provided below.

Test Well Sites in Unconsolidated Aquifers

Figure 3 accompanying Technical Memorandum No. 1 shows the ten potential test well sites in unconsolidated aquifers. As identified below, five of these ten sites have been ranked as being of higher priority.

- The Beaver Brook Aquifer is located in the northwest corner of Boxborough, and extends northerly into the Town of Littleton. Of the 5 potential test well sites identified in the Beaver Brook Aquifer, Maher has prioritized the 3 sites closest to the Littleton townline, which are easily accessed through the Harvard Sportsman's Club.

- The Heath Hen Brook Aquifer is a buried valley aquifer associated with the brook, located in the south-central area of Boxborough at the Stowe town line. Of the 4 sites identified in the Heath Hen Brook Aquifer, Maher has prioritized the site located closest to the Stow townline.

- The Elizabeth Brook Aquifer is located in the southwest corner of Boxborough at the municipal boundary with the town of Harvard. Maher has recommended one site for testing in the Elizabeth Brook Aquifer.

In summary, it is our recommendation that any testing of unconsolidated deposits begin with test well installations at these five sites.

Potentially Favorable Zones for Bedrock Well Development

As documented by Maher (February 2002), Figure 3 accompanying the Technical Memorandum No. 1 shows selected bedrock fractures traces in Boxborough, along with potentially favorable zones for bedrock well development. There are 14 zones labeled alphabetically (A to N), in order of geologic preference (A being most favorable).

In developing these rankings, Maher has considered such issues as environmental sensitivities, proximity to wetlands, potential contaminant sources, and ability to obtain the DEP required 400 foot protective radius of ownership. There are, however, numerous other factors which should also be considered, most of which require direct town input. Specifically, these include legal/physical access conditions, site ownership restrictions, and proximity to a future water service area. Once these items are considered, it is very possible that the technical prioritization may change.

Acquisition and Protection of Potential Well Sites

In order to identify parcels for land acquisition, it is our recommendation that test well installations at the prioritized sites (listed above) first be conducted. It is not necessary that all sites be tested; rather, at least those which are of interest for purchase should be field tested to verify the presence of high yielding and high quality groundwater. Testing will also help establish the location of a future production well, which is necessary to ensure an adequate area of land purchase such that the DEP required 400-foot protective radius of land ownership is obtained in any acquisition.

In regard to the protection of aquifers, the Town of Boxborough might consider purchase of available parcels within the Zone II delineations of Acton and Littleton wells which extend into Boxborough. This would prove mutually beneficial to all communities in regard to the protection of regional water resources. A first step might be for the Town to identify any undeveloped parcels within the Boxborough portion of the Zone II limits. A list of sites could then be established for potential future acquisition.

Recommendation of Follow-On Projects

There are a variety of follow-on projects that may be considered by the Town of Boxborough. Some are specific to field testing of potential groundwater supply sites, while others may be focused on regional and/or long-term water supply planning. Other project possibilities may include water resource protection efforts and/or land acquisition. Based on the nature of the proposed project, some may be conducted by Town personnel or committees, while others may require the assistance of an outside consultant.

Presented below is a listing and description of recommended follow-on projects for the Town's consideration. Where appropriate, we have provided a project cost estimate suitable for Town Meeting consideration and appropriation. Please note that cost estimates include subcontractor and engineering fees, a contingency allowance, and are based on current 2002 dollars (i.e., no inflation). Allowances are not included for physical access or legal related issues.

Field Testing to Determine the Potential for Groundwater Supply Development

Two projects may be initiated to assess the potential for groundwater supply development in Boxborough. One such project could focus on the unconsolidated aquifers while a second project could focus on bedrock well development potential. Each proposed project and related options are described below.

Proposed Project 1: Testing of Unconsolidated Aquifers

As stated previously, Maher has identified five sites in unconsolidated aquifers for test well installation and evaluation. At a minimum, the scope of such work would include the following:

- Installation of a 2.5-inch test well using a track or truck rig at each of the five sites.
- Rating (i.e., pumping) of each test well installation to evaluate yield potential.
- At favorable sites, install an adjacent 2.5-inch test well and conduct a short-duration pumping test of approximately 4 hours.
- Water quality samples would be collected and analyzed at the conclusion of the pumping test.
- Evaluate the results and provide recommendations on sites favorable for further study.

Other site dependent tasks which typically arise in such a project include, but may not be limited to: wetlands permitting prior to test well installation, providing physical access, obtainment of legal access, engineering assessment of needed facilities, and a cost estimate for site development.

At the conclusion of this project, a letter report would be prepared to meet *Step 1 – Explore Potential Sources of Groundwater* of the DEP New Source Approval process for public supply wells. Note that the New Source Approval process is a 15 step process that takes a project from initial site testing through construction and startup of final facilities. A Step 1 report would be submitted to DEP as a component of the *Step 2 – Request for Site Exam* documentation.

For appropriation purposes, we recommend a budget of $45,000.

Proposed Project 2: Assessment of Bedrock Well Development Potential
The Maher report (February 2002) provides general steps for the assessment of bedrock well development potential at the 14 favorable zones identified in Figure 3 of the Existing Information Resource data notebook. In summary, the initial steps include the following:

- Full evaluation of the zones relative to land use, parcel ownership, physical access requirements, legal considerations, and proximity to a future water service area. Based on this review, re-prioritization of the 14 favorable zones may occur. It is often the case that the Town conducts this effort, to designate sites of interest. CDM/Maher would be available to assist as necessary.

- Once priority sites are identified/confirmed, field staking by Maher of potential drilling sites should occur based on site reconnaissance and use of aerial photography. This effort may reopen issues for review such as physical and legal access requirements, resulting in the potential reprioritization of sites.

- With the completion of field staking, drilling can proceed once all legal, physical and wetlands permitting issues are resolved.

In the pursuit of bedrock supplies, some communities have elected to proceed slowly, with the first project just being a field staking effort. Depending upon the assistance required to reprioritize sites, and the number of sites field staked, costs could range from $10,000 to $15,000. Other communities have elected to appropriate $150,000 - $200,000 for bedrock well assessment to take the project as far as possible. Usually this includes efforts through field staking, installation of test wells, and an assessment of groundwater supply potential. It is really the Town's option as to how far to pursue the bedrock well assessment effort at this time.

Proposed Project 3: Acquisition of Aerial Photographs
As a result of Maher's work to date, there is available aerial photography throughout town on which bedrock fracture traces have been identified. This may be a valuable data resource for future town efforts. The Town may wish to obtain copies of this information. We recommend a budget appropriation of $2,000 for Maher to reproduce and provide this data to the Town.

Aquifer Protection and Land Acquisition

There are several projects which may be undertaken to advance the protection of Boxborough's aquifers and water resources. Some of these efforts could be undertaken by the Town on its own. As appropriate, outside consultant assistance may be obtained relative to hydrogeologic/engineering issues or use of GIS.

Proposed Project 4: Identify Parcels for Acquisition within Existing Zone II Areas

As previously identified, the Towns of Acton and Littleton groundwater supplies have Zone II delineations extending into the Town of Boxborough. These delineations are included in the GIS Figures 1-3 developed by CDM for the Water Resources Analysis. This GIS database has also incorporated recent GIS mapping developed for the Town in regard to assessor sheets and parcels. Therefore, GIS may be used as a tool to identify tracts of undeveloped parcels within the Boxborough portion of the existing Zone II delineations for potential purchase. A prioritized list of parcels could then be developed for acquisition. Eventual purchase for the purpose of groundwater supply protection would be mutually beneficial to all communities regionally.

As the Town has GIS capability, we assume this project could be conducted by town staff. However, we are available to provide a recommended budget for appropriation, if outside consulting assistance is desired.

Proposed Project 5: Aquifer Protection District and Bylaw

The Town of Boxborough has an Aquifer Protection District and associated land use restrictions within the Town's Zoning Bylaw. The District is based on IEP maps of 1981 which show "Significant Aquifer Areas" within town. It is CDM's recommendation that the Aquifer Protection District and Bylaw be modified as follows:

- The Aquifer Protection District should be modified to reflect the Zone II areas within Boxborough contributing to the Acton and Littleton wells. This would afford improved protection for regional drinking water supplies. Furthermore, it is DEP preference that at a minimum, such Districts be inclusive of Zone II areas. The Town could then include additional areas for protection, if it so desires. It should also be noted that to obtain DEP New Source Approval for a new supply, any Zone II areas within the municipal boundaries must be incorporated into the Aquifer Protection District.

- DEP Drinking Water Regulations CMR 22.21 Groundwater Supply Protection provide specific regulatory requirements for incorporation into an aquifer protection bylaw. The Town's existing bylaw should be compared to that of CMR 22.21 for revision and update as appropriate. The DEP is available to work with communities in this effort. In fact, DEP is available to review local bylaws to ensure compatibility with the regulations. Again it should be noted that to obtain a DEP New Source Approval for a groundwater supply, the Town's Aquifer Protection District Bylaw will have to be consistent with CMR 22.21.

Many communities undertake bylaw updates and modifications on their own. We have assumed that to be the case for Boxborough. However, if desired, we could provide a budget for appropriation purposes to assist in this effort.

Water Supply Planning

Primary aspects of bringing a supply on-line include identification of the source, yield and quality. However, considering that Boxborough does not have an existing water supply system, consideration must also be given to service area and potential water supply regionalization. The following presents possible strategies for Town consideration which could proceed in concert with groundwater supply testing and aquifer protection efforts.

Proposed Project 6: Regional Water Supply Option Evaluation

Both the Acton Water District and Littleton Water Department have expressed interest in working with Boxborough to obtain additional water supplies for their own needs and to potentially service areas of Boxborough. There is precedent for regional cooperation between these communities in that Acton/Boxborough share a school district and Littleton provides electric service to Boxborough.

It is our recommendation that meetings be initiated by Boxborough, with each of Acton and Littleton, to explore the possibility of a regional water supply approach. Consideration should also be given to service area and priority of drilling sites. If of interest, Acton and/or Littleton may be willing to partially fund any test well exploration program undertaken in Boxborough, recognizing that their community would then be eligible for a portion of the water found.

Engineering review could also be considered relative to sites tested. Specifically, based on topographic elevation and /or proximity, some sites may be more favorable for development relative to a joint Acton or Littleton effort than others.

It is difficult to establish a specific scope and budget for such discussions at this time, as efforts would be dependent upon meeting results. The Town could initiate these efforts primarily on their own. We would however, recommend a minimum budget appropriation of $15,000 to allow for technical assistance as issues arise. This would provide approximately 120 hours of service.

Proposed Project 7: Establishment of Local Service Areas

If and when Boxborough authorizes development of a water system, the need for a municipal supply must be more firmly established, as well as the area to be served. This in turn could govern the prioritization of sites tested. For example, it would be preferred to test sites closer to a "need" area, as this would provide lower pipeline construction costs in the long-run.

We recommend that efforts be conducted to evaluate and establish one or more potential water service areas in Boxborough. The need for a service area may be based upon failing domestic wells, deteriorating water quality and/or presence of nearby potential contaminant sources. Once the "need" areas are established, required water volume must be determined for the area. This would include a count of developed and undeveloped house lots, in addition to research as to consumption by community/non-community supplies within the need area. The Town might consider this effort prior to any field testing, so as to help focus the location of sites to be tested.

The specific scope of Project 7 requires further discussion with the Town, as it is dependent upon current water supply concerns. However, to initiate such an effort, we would recommend a budget for appropriation purposes of $25,000.

Grant Monies

There are available two DEP funded grant programs relative to the protection of water supply resources. Funding is provided from the Drinking Water State Revolving Fund. The programs are described as follows:

- *Wellhead Protection Grant Program*: This program provides funding to public water systems and municipalities to develop and implement wellhead protection projects and plans. Projects must benefit active drinking water sources.

- *Source Water Protection Grant Program*: This program focuses on providing technical assistance to public surface and groundwater systems, with local and regional source protection efforts. Priority is given to projects that benefit public surface drinking water sources and to systems that have both surface and groundwater sources.

It appears that the Wellhead Protection Grant Program may be more suited to Boxborough; however, we recommend that both funding opportunities be explored. A project under the Wellhead Protection Grant Program could focus on the Zone II areas within Boxborough or on the Interim Wellhead Protection Areas of small systems that meet the program criteria. It is possible that aspects of the CDM/Maher proposed projects presented above could be eligible for funding. We are available to review eligible project types with the Town, develop a project proposal, and then meet with DEP to determine/verify the potential eligibility. DEP is willing to entertain discussions on possible projects, prior to issuance of the Request for Responses (RFR). RFRs for these grant program are typically issued in early May, with grant proposals due in June.

At your convenience, we are available to meet and discuss any of these project proposals further, develop additional cost estimates, and provide assistance prior to and at Town Meeting to obtain approval of the desired appropriation(s).