



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberly Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

June 12, 2024

Colleen T. Nordahi
Bigelow Nurseries, Inc.
P.O. Box 718
455 West Main Street
Northborough, MA 01532

RE: Municipality: Northborough
Final WMA Permit Renewal
Permit No. 9P4-2-14-215.02

Dear Ms. Nordahi:

Please find attached the following:

- Findings of Fact in Support of the Final Water Management Act Permit Decision; and,
- Draft Water Management Act Permit #**9P4-2-14-215.02** for Bigelow Nurseries Inc. (Bigelow or the Nurseries) in the Concord River Basin.

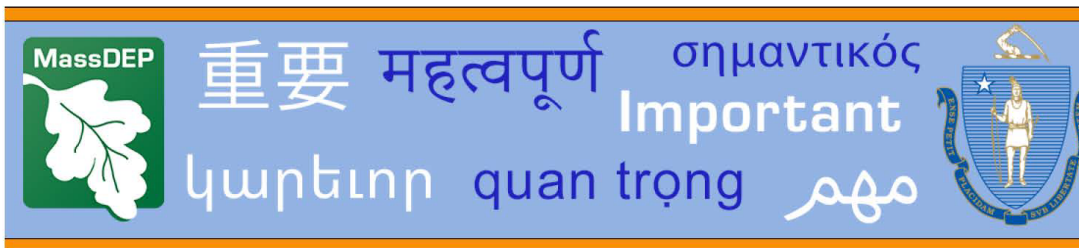
If you have any questions and would like to meet to discuss the permit, please contact me at (617) 780-1962 or duane.levangie@mass.gov or Madelyn Morris at madelyn.morris@mass.gov.

Sincerely,

Duane LeVangie, Chief
Water Management Act Program
Bureau of Water Resource

Enclosures

Ecc. Marielle Stone, MassDEP CRO, K. Bentsen, Mass.DFW, Katharine Lange, Mass Rivers alliance
[https://massgov.sharepoint.com/:f:/r/sites/DEP-BWR/DWPArchive/CERO/Northborough- Bigelow- FINAL WMA Permit-9P421421502-6-12-2024](https://massgov.sharepoint.com/:f:/r/sites/DEP-BWR/DWPArchive/CERO/Northborough-Bigelow-FINAL-WMA-Permit-9P421421502-6-12-2024)



Communication for Non-English-Speaking Parties

This document is important and should be translated immediately.

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Español Spanish

Este documento es importante y debe ser traducido inmediatamente. Si necesita traducir este documento, póngase en contacto con el Director de Justicia Ambiental de MassDEP (MassDEP's Director of Environmental Justice) en el número de teléfono que figura más abajo.

Português Portuguese

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繁體中文 Chinese Traditional

本文檔很重要，需要即刻進行翻譯。
如需對本文檔進行翻譯，請透過如下列示電話號碼與 MassDEP 的環境司法總監聯絡。

简体中文 Chinese Simplified

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Ayisyen Kreyòl Haitian Creole

Dokiman sa a enpòtan epi yo ta dwe tradui l imedyatman. Si w bezwen tradui dokiman sa a, tanpri kontakte Direktè. Jistis Anviwònmanal MassDEP a nan nimewo telefòn ki endike anba a.

Việt Vietnamese

Tài liệu này và quan trọng và phải được dịch ngay. Nếu quý vị cần bản dịch của tài liệu này, vui lòng liên hệ với Giám Đốc Phòng Công Lý Môi Trường của MassDEP theo số điện thoại được liệt kê bên dưới.

ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះមានសារៈសំខាន់
ហើយកម្មវិធីត្រូវបានបកប្រែភ្លាមៗ។
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ
សូមទាក់ទងនាយកដ្ឋានយុត្តិធម៌បរិស្ថានរបស់
MassDEPតាមរយៈលេខទូរស័ព្ទដែលបានរាយនាមខាងក្រោម។

Kriolu Kabuverdianu Cape Verdean

Es dokumentu sta important i tenki ser tradusidu imediatamenti. Se nho ta presisa ke es dokumentu sta tradisidu, por favor kontata O Diretor di Justisia di Environman di DEP ku es numero di telefoni menxionadu di baixo.

Contact Deneen Simpson 857-406-0738

Massachusetts Department of Environmental Protection
100 Cambridge Street 9th Floor Boston, MA 02114

TTY# MassRelay Service 1-800-439-2370 • <https://www.mass.gov/environmental-justice>
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

Русский Russian

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العربية Arabic

هذه الوثيقة مهمة وتجب ترجمتها على الفور.

إذا كنت بحاجة إلى ترجمة هذه الوثيقة، فيرجى الاتصال بمدير العدالة البيئية في MassDEP على رقم الهاتف المذكور أدناه.

한국어 Korean

이 문서는 중대하므로 즉시 번역되어야 합니다. 본 문서 번역이 필요하신 경우, 매사추세츠 환경보호부의 "환경정의" 담당자 분께 문의하십시오. 전화번호는 아래와 같습니다.

հայերեն Armenian

Այս փաստաթուղթը կարևոր է, և պետք է անհապաղ թարգմանել այն: Եթե Ձեզ անհրաժեշտ է թարգմանել այս փաստաթուղթը, դիմեք Մասաչուսեթսի շրջակա միջավայրի պահպանության նախարարության (MassDEP) Բնապահպանական հարցերով արդարադատության ղեկավարին (Director of Environmental Justice)՝ ստորև նշված հեռախոսահամարով

فارسی Farsi Persian

این نوشتار بسیار مهمی است و باید فوراً ترجمه شود. اگر نیاز به ترجمه این نوشتار دارید لطفاً با مدیر عدالت محیط زیستی MassDEP در شماره تلفن ذکر شده زیر تماس بگیرید.

Français French

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Deutsch German

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Ελληνική Greek

Το έγγραφο αυτό είναι πολύ σημαντικό και πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του εγγράφου αυτού, παρακαλώ επικοινωνήστε με τον Διευθυντή του Τμήματος Περιβαλλοντικής Δικαιοσύνης της Μασαχουσέτης στον αριθμό τηλεφώνου που αναγράφεται παρακάτω

Italiano Italian

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Język Polski Polish

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हिन्दी Hindi

यह दस्तावेज महत्वपूर्ण है और इसका अनुवाद तुरंत किया जाना चाहिए। यदि आपको इस दस्तावेज का अनुवाद कराने की जरूरत है, तो कृपया नीचे दिए गए टेलीफोन नंबर पर MassDEP के पर्यावरणीय न्याय निदेशक से संपर्क करें।

Contact Deneen Simpson 857-406-0738

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Finding of Fact in Support of Permit Issuance Water Management Permit # 9P4-2-14-215.02 Bigelow Nurseries, Inc.

The Department of Environmental Protection (the Department or MassDEP) has completed its compliance review of the Water Management Act Permit issued to Bigelow Nurseries, Inc. (Bigelow or the Nurseries) in 2007 (the 2007 WMA Permit) and its 2015 permit renewal application. As part of this review, the Department requested additional information in an Order to Complete (OTC) dated March 23, 2020 and an Updated OTC dated November 27, 2023. The Department has also reviewed Bigelow's responses to these OTCs.

The Department is issuing the Renewed Water Management Permit #9P4-2-14-215.02 (the "Renewed WMA Permit") in accordance with the Water Management Act (M.G.L. c. 21G) and the regulations promulgated thereunder at 310 CMR 36.00. The Renewed WMA Permit supersedes the 2007 WMA Permit. The Department makes the following Findings of Fact in support of the attached Renewed WMA Permit and includes herewith its reasons for issuing the Renewed WMA Permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11, and 310 CMR 36.00. The Renewed WMA Permit is being issued since such action is necessary for the promotion of the purposes of M.G.L. c. 21G. The Department may amend, suspend, or terminate the Renewed WMA Permit, after notice and hearing, in accordance with the provisions of 310 CMR 36.29(1).

The Water Management Act (M.G.L. c. 21G)

The Water Management Act (Act) requires the Department to issue permits that balance a variety of factors including without limitation:

- Impact of the withdrawal on other water sources;
- Water available within the safe yield of the water source;
- Reasonable protection of existing water uses, land values, investments and enterprises;
- Proposed use of the water and other existing or projected uses of water from the water source;
- Municipal and Massachusetts Water Resources Commission (WRC) water resource management plans;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater; treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation,

hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and

- Reasonable economic development and job creation.

Water Management Regulation Revisions

In 2010, the Executive Office of Energy and Environmental Affairs (EEA) convened the Sustainable Water Management Initiative (SWMI) for the purpose of incorporating the best available science into the management of the Commonwealth's water resources. SWMI was a multi-year process that included a wide range of stakeholders and support from the Departments of Environmental Protection, Fish and Game, and Conservation and Recreation. In November 2012, the *Massachusetts Sustainable Water Management Initiative Framework Summary* (<http://www.mass.gov/eea/docs/eea/water/swmi-framework-nov-2012.pdf>) was released.

On November 7, 2014, the Department adopted revised Water Management Regulations at 310 CMR 36.00 that incorporate elements of the SWMI framework and the Water Conservation Standards adopted by the Massachusetts WRC. The regulations reflect a carefully developed balance to protect the health of Massachusetts' water bodies while meeting the needs of businesses and communities for water.

Without limitation, the Department has incorporated the following into Water Management permitting:

- Safe yield determinations for the major river basins based on a new methodology developed through SWMI (see the Safe Yield in the Concord River Basin section of this document). For more information on the Safe Yield methodology, go to the November 28, 2012 SWMI Framework Summary and Appendices;
- Water conservation and performance standards reviewed and approved by the WRC in July 2018 ([Details on the 2018 Massachusetts Water Conservation Standards | Mass.gov](#)); including without limitation:
 - seasonal limits on nonessential outdoor water use;
 - a water conservation program that includes leak detection and repair, full metering of the system and proper maintenance of the meters, periodic review of pricing, and education and outreach to residents and industrial and commercial water users; and
- Environmental protections developed through SWMI, including without limitation;
 - protection for coldwater fishery resources;
 - minimization of withdrawal impacts in areas stressed by groundwater use; and
 - mitigation of the impacts of increasing withdrawals.

Safe Yield in the Concord River Basin

This Renewed WMA Permit is being issued under the safe yield methodology adopted by the Department on November 7, 2014, and described in the regulations at 310 CMR 36.13. As of the date of issuance of this permit, the safe yield for the Concord River Basin is 65.2 MGD, and total registered and permitted withdrawals are 35.25 MGD. The maximum withdrawals authorized in this permit, and all other permits currently under review by the Department within the Concord River Basin, will be within the safe yield and may be further conditioned as outlined in the regulations.

Bigelow's Withdrawal History

Bigelow owns approximately 91 acres of land on West Main Street in Northborough. Of this area, approximately 75 acres are used for growing trees, shrubs, and other plants. Bigelow holds a Water Management Act Registration (214215.02) for an average annual daily withdrawal volume of 0.15 million gallons per day (MGD) for 215 days per year or 32.25 million gallons per year (MGY)¹. In 2005, Bigelow submitted an application for a Water Management Act Permit to add two groundwater sources² and to increase its total authorized volume by 0.08 MGD. In 2007, MassDEP issued a WMA Permit to Bigelow (the 2007 WMA Permit) that authorized the new sources and granted Bigelow's request for an increase in its total authorized volume, giving Bigelow a total authorized volume of 0.23 MGD for 215 days or 49.50 million gallons per year (MGY).

On August 26, 2015, Bigelow applied to renew its existing WMA Permit. In that application, Bigelow requested that its total annual authorized volume remain at 49.50 MGY through 2030, and that the total annual authorized volume be reduced to 48.214 MGY beginning in 2031. Bigelow also requested that its total authorized volume be spread over 245 days, reducing its average annual daily volume from 0.23 MGD to 0.20 MGD through 2030 and to 0.196 MGD beginning in 2031. As shown in Table 1, Bigelow's recent water use is below its current total authorized volume and below the volume requested in its permit renewal application.

Table 1 Recent Water Use

Year	Annual Average Daily Withdrawal MGD	Total Annual Withdrawal MGY
2022	0.189	37.32
2021	0.157	33.73
2020	0.183	39.23
2019	0.190	40.850
2018	0.181	37.864

Expiration Date

Going forward the expiration date of all permits in the Concord River Basin including the Renewed WMA Permit is December 6, 2032 in accordance with the staggered permitting schedule set forth in the regulations at 310 CMR 36.17.

¹ Bigelow's original registration was for two groundwater sources, Well 1 (Gen N) (01G) and Well 2 (House Well), as well as one pond (01S). Bigelow stopped using the pond because the water from this source adversely impacted the Nurseries' plants. Bigelow has not used Well 1 since 2016. In its 2022 Annual Report, Bigelow listed just two of its permitted sources Well 2 (Gen M) (02G) and Well 3 (Gen S) (03G).

² The new groundwater sources listed on the 2007 WMA Permit are Well 2 (Gen M) (02G) and Well 3 (Gen S) (03G). Bigelow is currently using both of these sources. The permit also includes Well 1 (Gen N) (01G) which is incorrectly labeled as Gen S and remains a registered source on the 2023 registration. Well 2 (House Well) (04G) and the pond are also listed on the 2023 registration.

Findings of Fact for Permit Conditions in Bigelow's Renewed Water Management Act Permit

The following Findings of Fact for the special conditions included in the permit generally describe the rationale and background for each special condition in the permit. This summary of permit special conditions is not intended to, and should not be construed as, modifying any of the permit special conditions. In the event of any ambiguity between this summary and the actual permit conditions, the permit language shall control.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volumes

Special Condition 1 of the 2007 WMA Permit allows Bigelow to withdraw an annual average daily volume of 0.08 MGD from its permitted sources in the Concord River Basin. MassDEP has reviewed Bigelow's 2015 permit renewal application and its recent use and determined that Bigelow can meet its needs without a permitted volume³ in addition to its registered volume 0.15 MGD over 215 days or 32.25 MGY⁴. As a result, Special Condition 1 of the Renewed WMA Permit does not include a permitted volume to supplement Bigelow's registered volume of 0.15 MGD over 215 days⁵. or 32.25 MGY.

Special Condition 2, Maximum Daily Withdrawal from Authorized Withdrawal Points

Special Condition 2 of the 2007 WMA Permit provides that Bigelow shall not exceed the maximum approved daily rates for its permitted sources without the prior approval of the Department. According to the Nurseries' annual reports, Bigelow has not exceeded the maximum approved daily rate for its permitted sources since 2016. Special Condition 2 of the Renewed WMA maintains the maximum approved daily rates set forth in the 2007 WMA Permit.

Special Condition 3, Water Conservation Plan

Special Condition 3 of the 2007 WMA Permit required Bigelow to implement its Water Conservation Plan. Special Condition 3 also required Bigelow perform a cost benefit analysis to determine whether it was cost effective to install an automatic sprinkler system with automatic

³ Although it does not need a permitted volume, Bigelow still requires a WMA Permit, since it has two permitted sources that are not listed on its Registration Statement: Well #2 (Gen M) (02G) and Well #3 (Gen S) (03G).

⁴ Water Management Act registrants may withdraw up to 100,000 gallons per day (gpd) above their registered volume without having to obtain a permit to withdraw additional water. Bigelow is registered to withdraw 32.25 MGY over 215 days. Accordingly, Bigelow may withdraw up to 100,000 gpd over 215 days 21.50 million gallons above its registered volume or up to 53.75 MGY without a permitted volume. As stated earlier, Bigelow's recent water use is substantially below 53.75 MGY. See Table 1.

⁵ In its permit renewal application, Bigelow requested that the withdrawal period set forth in the permit be changed from 215 days to 245 days so that it could withdraw 1.468 million gallons in the month of November. Even with the 215- day withdrawal period Bigelow may withdraw up to 100,000 gpd or a total of 3.0 million gallons in the month of November. As a result, Special Condition 1 of the Renewed WMA Permit maintains the 215- day withdrawal period.

controls, rain sensors and low trajectory sprinkler heads; and if so, develop a plan and schedule for installation of an automatic sprinkler system.⁶

Bigelow reported that it has determined that it was not cost effective to install an automatic sprinkler system with moisture sensors that could be used everywhere on the property. Instead, Bigelow has installed time zoned irrigation systems in multiple locations, upgraded the sprinkler systems for the container production areas with low profile efficient sprinkler heads, added shut offs and backflow devices so that the area requiring watering could be isolated and replaced old irrigation systems.

Bigelow has updated its Water Conservation Plan to include the additional measures that it has implemented since issuance of the 2007 WMA Permit. Special Condition 3 of the Renewed WMA Permit requires Bigelow to implement the Updated Water Conservation Plan. A copy of the Updated Water Conservation Plan is attached to the Renewed WMA Permit.

Special Condition 4 Water Level Monitoring

Bigelow's groundwater sources are close to Hop Brook, a water body that has been identified as a coldwater fishery resource (CFR) and a priority habitat of rare species. Special Condition 4 of the 2007 WMA Permit required Bigelow to monitor streamflow levels in Hop Brook and submit a report of this monitoring to MassDEP.

Although MassDEP and Bigelow have not been able to find any reports documenting that the monitoring required by Special Condition 4 of the 2007 WMA Permit has been completed, MassDEP has determined such monitoring is no longer necessary, since the Renewed WMA Permit eliminates the permitted volume set forth in the 2007 WMA Permit and thereby reduces Bigelow's total authorized volume from 0.23 MGD for 215 days or 49.50 MGY to its registered volume of 0.15 MGD over 215 days or 32.35 MGY.

NEW PERMIT CONDITIONS

Seasonal Limits on Nonessential Outdoor Water Use. The 2007 WMA Permit does not include any seasonal limits on nonessential outdoor water use. Bigelow has no nonessential outdoor water uses. Like the 2007 WMA Permit, the Renewed WMA does not include any seasonal limits on nonessential outdoor water use.

MINIMIZATION, MITIGATION AND, COLDWATER FISHERY RESOURCES

The Water Management Regulations revised and promulgated in November 2014 require WMA permits to address minimization of the impact of pumping, mitigation of pumping above the

⁶ Special Condition 3 of the 2007 WMA Permit further required Bigelow to reevaluate its Water Conservation Plan, if the monitoring of Hop Brook required by Special Condition 4 determined that its water withdrawals were adversely impacting stream flow. MassDEP and Bigelow have found no reports documenting that the required monitoring has been done but has removed this condition of the permit because increased withdrawals beyond those registered have been removed from the permit. See discussion of Special Condition 4.

baseline rates, potential changes in Biological Category (BC)⁷ and Groundwater Withdrawal Categories (GWC)⁸ and protection of Coldwater Fishery Resources (CFR).

Minimization

Minimization of Groundwater Withdrawal Impacts in subbasins having⁹ an August net groundwater depletion (NGD) of 25% or greater was incorporated into the Water Management Regulations in November 2014. Minimization is not required, because Bigelow's sources are not located in a subbasin with an August NGD greater than 25%.

Mitigation

The Water Management Regulations, 310 CMR 36.03, define baseline to mean the volume of water withdrawn during calendar year 2005 plus 5%, or the average annual volume withdrawn from 2003 through 2005 plus 5%, whichever is greater provided that:

1. baseline cannot be less than a permittee's registered volume;
2. baseline cannot be greater than the permittee's authorized volume for 2005; and
3. if, during the period from 2003 to 2005, the permittee's withdrawals from the water source were interrupted due to contamination of the source or construction of a treatment plant, the Department will use best available data to establish a baseline volume from the water source.

Baseline withdrawal volumes are calculated for each individual basin as well as a system-wide baseline. Permittees who request a total authorized volume that exceeds their baseline volume are required to prepare a plan to mitigate the volume requested above the baseline volume. Bigelow's baseline is 0.15 MGD, its 2005 authorized volume and registered volume. As stated earlier, the Renewed WMA Permit provides no permitted volume in addition to its registered

⁷ The Water Management Regulations, 310 CMR 36.14(1)(a), establish a biological category (BC) for each subbasin based on the simulated 2000 to 2004 existing condition of aquatic habitat using fluvial fish community characteristics as the surrogate indicator variable. Each biological category represents the percent alteration within the range of these fluvial fish community characteristics as a function of the following subbasin parameters: 1. Impervious cover; 2. Cumulative groundwater withdrawal as a portion of the unimpacted August median flow; 3. Stream channel slope; and 4. Percent wetland within the stream buffer area. The percent alteration for each BC is as follows: BC 1, 0% to 5%; BC 2, > 5% to 15%; BC 3 >15% to 35%; BC 4, > 35% to 65%; BC 5, >65%.

⁸ The Water Management Regulations 310 CMR 36.14(1)(b), establishes a groundwater withdrawal category (GWC) based on the ratio of 2000 to 2004 groundwater withdrawal volume to the unimpacted median monthly flow for August and represents conditions during the late summer bioperiod (July thru September). Each GWC represents the range of this ratio that would result in the BC of the same number under conditions of low (15%) impervious cover. The GWC for each withdrawal ratio for the late summer bioperiod is as follows: GWC 1, 0% to 3%; GWC 2, >3% to 10%; GWC 3, >10% to 25%; GWC 4, >25% to 55%; and GWC 5, >55%.

⁹ Subbasins used for WMA permitting are the 1,395 subbasins delineated by the U.S. Geological Survey in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for Massachusetts Stream Basins* (Weiskel et al., 2010, USGS SIR 2009-5272).

volume which is also its baseline volume. As a result, the Renewed WMA Permit does not include a mitigation requirement.

Coldwater Fishery Resource (CFR) Protection.

Permittees with withdrawals that impact streamflow at a CFR (identified on basin maps¹⁰) must evaluate reducing impacts to CFRs through feasible optimization. As stated earlier, Bigelow's groundwater sources are close to Hop Brook, a water body that has been identified as a coldwater fishery resource (CFR) and a priority habitat of rare species.

MassDEP has determined that optimization around the CFR is not feasible at this time. Because all the Nurseries' sources are close to Hop Brook and located close to each other, the Department identified that shifting withdrawals between sources provided no additional benefit. As a result, the Renewed WMA Permit does not require Bigelow to evaluate additional options for reducing CFR impacts.

¹⁰ Subbasins used for WMA permitting are the 1,395 subbasins delineated by the U.S. Geological Survey in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for Massachusetts Stream Basins* (Weiskel *et al.*, 2010, USGS SIR 2009-5272).



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WATER WITHDRAWAL PERMIT MGL c 21G

This permit is issued pursuant to the Massachusetts Water Management Act for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P4-2-14-215.02

RIVER BASIN: Concord

PERMITTEE: Bigelow Nurseries, Inc.

EFFECTIVE DATE: June 12, 2024

PERMIT EXPIRATION DATE: December 6, 2032

NUMBER OF WITHDRAWAL POINTS:

Groundwater: 3

USE: Irrigation

DAYS OF OPERATION: 215

SOURCES

Table 1: Withdrawal Point Identification

Source	Source ID #	Latitude	Longitude
Well 1 (Gen N)	WM4345-01G	42.300790	41.669453
Well 2 (Gen M)	WM4345-02G	42.300540	41.669173
Well 3 (Gen S)*	WM4345-03G	42.300149	41.668636

*Well 3 (Gen S) (03G) is also referred to as Well 1A in the 2007 WMA Permit

SPECIAL PERMIT CONDITIONS

Special Condition 1: Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the withdrawal of water from the permitted source on average over 215 days at the rates described below in Table 2. The rates below are expressed both as an annual average daily withdrawal rate, MGD, and as a total annual withdrawal volume, million gallons per year (MGY), for each permit period over the term of this permit. MassDEP bases the withdrawal volume on the raw water withdrawn from the authorized withdrawal points and will use the raw water amount to assess compliance with the authorized withdrawal volume. No additional volume is authorized through this permit. The total volume that Bigelow Nurseries Inc. (Bigelow or the Nurseries) is authorized to withdraw under its WMA Registration (214215.02) and this permit is its registered volume of 0.15 MGD for 215 days of 32.25 MGY.

Table 2: Maximum Authorized Annual Withdrawal Volumes

Permit Periods	Total Raw Water Withdrawal Volumes			
	Permitted Volume		Permitted + Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
6/12/2024 to 12/5/2026	0	0	$0 + 0.15 = 0.15$	32.25
12/6/2026 to 12/6/2032	0	0	$0 + 0.15 = 0.15$	32.25

Special Condition 2: Maximum Authorized Daily Withdrawals from Each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed below in Table 3 without specific advance written approval from MassDEP.

Table 3: Maximum Authorized Daily Withdrawal Volume

Source	Maximum Daily Rate (MGD)
Well 1 (Gen N) (01G)	0.28
Well 2 (Gen M) (02G)	0.16
Well 3 (Gen S) (03G)	0.29

Special Condition 3: Water Conservation Plan

Bigelow shall implement the Updated Water Conservation Plan. A copy of the Updated Water Conservation Plan is attached to this permit as Exhibit A.

GENERAL PERMIT CONDITIONS (applicable to all permittees)

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date the Department has received a renewal permit application pursuant to 310 CMR 36.00.

1. **Duty to Comply** The permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw water so as not to impair the purposes and interests of the Act.
3. **Entry and Inspections** The permittee or the permittee's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
4. **Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to MGL c 21G ss 15-17, MGL c 111 ss 160, or any other enabling authority.
5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. **Duty to Report** The permittee shall complete and submit annually, on a form provided by the Department, all of the information required by said form including, without limitation, a certified statement of the withdrawal. Such report shall be received by the Department by the date specified on the form each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection
Water Management Act Program
100 Cambridge Street 9th Floor
Boston, MA 02114
7. **Duty to Maintain Records** The permittee shall maintain withdrawal records and other information in sufficient detail to demonstrate compliance with this permit.
8. **Metering** If the withdrawal point included within the permit is not yet metered, it shall be metered within one year of the date of issuance of the permit. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

June 12, 2024

APPEAL RIGHTS AND TIME LIMITS

Any person aggrieved by this decision may request an adjudicatory hearing by timely filing a Notice of Claim for an Adjudicatory Appeal ("Notice of Claim") in accordance with 310 CMR 36.37 and 310 CMR 1.00 within twenty-one (21) days of receipt of this Permit. The Notice of Claim shall state specifically, clearly, and concisely the facts that are grounds for the appeal, the relief sought, and any additional information required by applicable law or regulation. A copy of this Permit shall be included with a Notice of Claim. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent at the same time by certified mail, or delivered by hand, to the local water resources management official in the community in which the withdrawal point is located; and for any person appealing this decision, who is not the permit applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

The Notice of Claim and supporting documentation must be sent to:

Case Administrator
Office of Appeals and Dispute Resolution
Department of Environmental Protection
100 Cambridge Street, 9th Floor
Boston, MA 02114

In addition, the Department's fee transmittal form, together with a valid check made payable to the Commonwealth of Massachusetts in the amount of \$100 for the appeal filing fee, if required, must be mailed to:

Commonwealth of Massachusetts Lock Box
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The Notice of Claim may be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.



June 12, 2024

Duane LeVangie
Water Management Program Chief
Bureau of Water Resources

Date

01/25/2024

Water Conservation Plan
Bigelow Nurseries, Inc.
Northborough, Massachusetts

General

Bigelow Nurseries currently operates two gravel-packed wells within the Concord River Basin referred to as Well No. 2 and Well No. 3. The original Well No. 1 was in use until it failed in March 2004. With approval from the DEP, Well No. 3 was installed in the vicinity of Well No. 1. The water distribution system consists of approximately 4,000 feet of 2-inch and 4-inch main that are removed from the ground every fall and reinstalled every spring. The Bigelow Nurseries property on West Main Street in Northborough is approximately 91 acres in total. Approximately 75 acres of land are used for cultivation of trees, shrubs and other plants. Water from the Nursery wells is used to maintain these plants throughout the growing season. Water usage at the Nursery has ranged from approximately 36 to 61 million gallons per year since 2000. Demands on the system vary depending on rainfall and the specific plants that the nursery grows each year.

Water Conservation Goals

The purpose of a water conservation plan is to increase the efficiency of the Nursery water system and reduce wasted water, in order to reduce water demands. By lowering the water demands, the Nursery will see cost benefits through reduced pumping costs, and the environmental resources in the area, specifically Hop Brook, will be further protected. Conservation planning goals will be constantly changing throughout the life of Nursery. As some goals are completed, new strategies may emerge. The Nursery owners are responsible for reviewing and updating the goals, as necessary, in order to provide the best plan available for the conservation of their valuable resources.

Goal: Promote conservation awareness among employees.

Regular training of all employees on water conservation awareness. All employees have been trained on identifying leaks and reporting them to the irrigation staff promptly. All irrigation staff are regularly trained on proper water conservation techniques.

Goal: Improve the utilization, extend the life of existing supplies, and lower variable operating costs.

By reducing the volume of water pumped from the wells, the pumps and equipment involved in distributing and treating the water will be subject to less wear. The mechanical equipment may have fewer problems, and may last longer if less water is pumped. This may reduce problems and extend the life of the equipment.

Goal: Protect and preserve environmental resources.

By conserving water, the Nursery will reduce the potential impact of the existing water withdrawals on Hop Brook.

Goal: Integrate conservation measures into long-term water supply planning.

In order to maintain the existing and proposed water conservation measures, the Nursery will continue to update the water conservation plan, formalize the employee education program, and continue to look for new irrigation technologies to aid in water conservation.

Existing Water Conservation Measures

The following water conservation measures are currently in place at the Nursery:

Leak Detection and Repair

As stated previously, the Bigelow Nurseries water distribution system includes approximately 4,000 feet of 2-inch and 4-inch main that are removed from the ground every fall and reinstalled every spring. The water main is inspected for leaks by the Nursery staff prior to installation each spring. Because the mains are buried only a few inches deep, leaks that develop after installation are visible at the surface. Nursery staff inspect the property on a daily basis and are able to find and repair leaks quickly.

Employee Awareness

The Nursery has taken steps to educate their employees regarding proper watering techniques and water conservation strategies. The employees have been taught to use as little water as possible to maintain healthy plants. The Nursery continues to update its employee awareness program as new information and technologies become available. Irrigation staff works closely with growers to determine watering schedules, to ensure overwatering does not occur.

Runoff Collection System

The Nursery has installed a runoff collection system that returns excess water to the pond on site. This helps to keep runoff from depositing excess nutrients into the Hop Brook and to return the water to the ground water table more quickly.

Irrigation As Needed

The Nursery monitors daily rainfall using a local weather station at the Lincoln Street Elementary School in Northborough. The rainfall data is used to determine the level of watering required on a daily basis. The Nursery has also installed low trajectory sprinklers for all areas that contain small trees, shrubs and other small plants. In addition, the Nursery has installed automatic shutoff handles on all hand held watering devices.

Evaporation Reduction

In order to reduce the volume of water lost to evaporation, the Nursery waters all of its plants early in the morning, before peak heat of the day. This allows the plants to absorb the water before it evaporates. In addition, the root balls of all above ground trees are wrapped in burlap sacks to reduce evaporation from the roots and are healed in with a woodchip mixture to retain water.

Meter Calibration

The master meters at each of the wells are calibrated annually to ensure that the volume of water pumped is accurately recorded.

Xeriscaping

In an effort to reduce the area of land that needs to be watered, the Nursery has replaced much of the grass on the land with mulch and drought tolerant native plants.

Proposed Water Conservation Measures

The Nursery has implemented more stringent water conservation measures in order to meet the water conservation goals.

Automatic Sprinkler System

The Nursery determined that an automatic sprinkler system would only be feasible in areas close to buildings- due to the electricity demand. Many of the irrigated areas throughout the nursery do not have electricity nearby. The automated system has been beneficial in both labor and water usage. The nursery hopes as technology evolves, a more feasible for a fully automated option will become available

Drip irrigation

Drip irrigation has been implemented in some production areas. Drip irrigation allows a plan to be more precisely watered- and dramatically reduces runoff. While drip irrigation reduces water usage, it is something that can not be implemented in a retail environment where plants are being regularly brought in and out- and handled by the general public. This is a new program that has been implemented and we plan for it to expand.

Implementation Schedule

The Nursery will begin work on each conservation measure as funds and manpower become available. A number of conservation measures are currently ongoing, while others are still in the planning stages. The schedule for implementation of the existing and proposed water conservation measures is included in Table No. .1

<u>Conservation Measure</u>	<u>Status</u>
Leak Detection and Repair	Daily
Employee Awareness	Ongoing
Runoff Collection System	Ongoing
Irrigation as needed	Ongoing
Evaporation Reduction	Ongoing
Meter Calibration	Annually
Xeriscaping	Ongoing.
Automatic Sprinklers	Where Possible
Drip Irrigation	Ongoing