



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

West Newbury Water Department
Attn: Michael E Gootee
381 Main Street
West Newbury, MA 01985

May 30, 2017
Town: West Newbury
WMA Permit: #9P231332401
Permit Application: BRP WM02
MassDEP Transmittal Number: X271316
Action: Final Permit

Dear Mr. Gootee:

Please find the attached documents:

- FINAL Findings of Fact in Support of the amendment of Permit #9P2-3-13-324.01; and.
- FINAL Water Management Act Permit Amendment #9P2-3-13-324.01 (Merrimack River Basin) for the West Newbury Water Department.

If you have any questions regarding this information, please contact Shi Chen at (617) 292-5532 or via e-mail at shi.chen@state.ma.us.

Very truly yours,

Rebecca Weidman, Director
Division of Watershed Management
Bureau of Water Resources

File Name: Y:\DWP Archive\NERO\West Newbury-Final WMA Permit 9P231332401 2017-05-30

Ecc: Merrimack River Watershed Council
Jen Pederson, MWWA
Paul Howard, Tata & Howard
James Persky, NERO
Julia Blatt, Mass Rivers Alliance



Massachusetts Department of Environmental Protection
One Winter Street, Boston MA 02108 • Phone: 617-292-5751
Communication For Non-English Speaking Parties - 310 CMR 1.03(5)(a)



1 English:

This document is important and should be translated immediately. If you need this document translated, please contact MassDEP's Diversity Director at the telephone numbers listed below.



2 Español (Spanish):

Este documento es importante y debe ser traducido inmediatamente. Si necesita este documento traducido, por favor póngase en contacto con el Director de Diversidad MassDEP a los números de teléfono que aparecen más abajo.



3 Português (Portuguese):

Este documento é importante e deve ser traduzida imediatamente. Se você precisa deste documento traduzido, por favor, entre em contato com Diretor de Diversidade da MassDEP para os números de telefone listados abaixo.



4(a) 中國 (傳統) (Chinese Traditional):

本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與 MassDEP 的多樣性總監聯繫。



4(b) 中国 (简体中文) (Chinese Simplified):

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5 Ayisyen (franse kreyòl) (Haitian) (French Creole):

Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradui imedyatman. Si ou bezwen dokiman sa a tradui, tanpri kontakte Divèsite Direktè MassDEP a nan nimewo telefòn ki nan lis pi ba a.



6 Việt (Vietnamese):

Tài liệu này là rất quan trọng và cần được dịch ngay lập tức. Nếu bạn cần dịch tài liệu này, xin vui lòng liên hệ với Giám đốc MassDEP đã dạng tại các số điện thoại được liệt kê dưới đây.



7 ប្រទេសកម្ពុជា (Kmer (Cambodian):

ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាម។ ប្រសិនបើអ្នកត្រូវបានបកប្រែ ឯកសារនេះសូមទំនាក់ទំនងភ្នាក់ងារនាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយ ខាងក្រោម។



8 Kriolu Kabuverdianu (Cape Verdean):

Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Director de Diversidade na MassDEP's pa es numero indicode li d'boche.



9 Русский язык (Russian):

Этот документ является важным и должно быть переведено сразу. Если вам нужен этот документ переведенный, пожалуйста, свяжитесь с директором разнообразия MassDEP по адресу телефонных номеров, указанных ниже.



10 العربية (Arabic):

هذه الوثيقة الهامة وينبغي أن تترجم على الفور. اذا كنت بحاجة الى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في MassDEP على أرقام الهواتف المدرجة أدناه.



11 한국어 (Korean):

이 문서는 중요하고 즉시 번역해야 합니다. 당신이 번역이 문서가 필요하다면 아래의 전화 번호로 MassDEP의 다양성 감독에 문의하시기 바랍니다.



12 հայերեն (Armenian):

Այս փաստաթուղթը շատ կարևոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բազմազանությունը տնօրեն է հեռախոսահամարների թվարկված են ստորև.



13 فارسی (Farsi (Persian):

این سند مهم است و باید فوراً ترجمه شده است. اگر شما نیاز به این سند ترجمه شده، لطفاً با ما تماس تنوع مدیر MassDEP در شماره تلفن های ذکر شده در زیر.



14 Français (French):

Ce document est important et devrait être traduit immédiatement. Si vous avez besoin de ce document traduit, s'il vous plaît communiquer avec le directeur de la diversité MassDEP aux numéros de téléphone indiqués ci-dessous.



15 Deutsch (German):

Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Wenn Sie dieses Dokument übersetzt benötigen, wenden Sie sich bitte Diversity Director MassDEP die in den unten aufgeführten Telefonnummern.



16 Ελληνική (Greek):

Το έγγραφο αυτό είναι σημαντικό και θα πρέπει να μεταφραστούν αμέσως. Αν χρειάζεστε αυτό το έγγραφο μεταφράζεται, παρακαλούμε επικοινωνήστε Diversity Director MassDEP κατά τους αριθμούς τηλεφώνου που αναγράφεται πιο κάτω.



17 Italiano (Italian):

Questo documento è importante e dovrebbe essere tradotto immediatamente. Se avete bisogno di questo documento tradotto, si prega di contattare la diversità Direttore di MassDEP ai numeri di telefono elencati di seguito.



18 Język Polski (Polish):

Dokument ten jest ważny i powinien być natychmiast przetłumaczone. Jeśli potrzebujesz tego dokumentu tłumaczone, prosimy o kontakt z Dyrektorem MassDEP w różnorodności na numery telefonów wymienionych poniżej.



19 हिन्दी (Hindi):

यह दस्तावेज महत्वपूर्ण है और तुरंत अनुवाद किया जाना चाहिए. आप अनुवाद इस दस्तावेज की जरूरत है, नीचे सूचीबद्ध फोन नंबरों पर MassDEP की विविधता निदेशक से संपर्क करें.



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Findings of Fact in Support of FINAL Water Management Act Permit #9P2-3-13-324.01 West Newbury Water Department

The Department of Environmental Protection (the Department) makes the following Findings of Fact in support of the attached Final Water Management Act (WMA) Permit #9P2-3-13-324.01, and includes herewith its reasons for issuing the Permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11. The issuance of this permit is in response to a water withdrawal permit amendment application by the West Newbury Water Department for the purpose of public water supply.

West Newbury Water Department's Withdrawal History

West Newbury Water Department (West Newbury) is currently authorized through its WMA permit to withdraw up to 0.16 million gallons per day (MGD) in the Merrimack River Basin. This permit was prepared by MassDEP in response to a permit amendment application submitted by the West Newbury Water Department to add the new Dole Place Wellfield. West Newbury Water Department did not apply to increase its annual authorized withdrawal rate above the 0.16 MGD permitted rate; the application and amended permit are only for the additional withdrawal point. This permit amendment does not authorize an increase in water withdrawal volume.

The Permit Extensions

WMA permits issued during the first 20-year permitting cycle for the Merrimack River Basin were scheduled to expire on November 30, 2014. Subsequently, the expiration dates for all Water Management permits were extended for four years by Chapter 240 of the Acts of 2010 as amended by Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act. All permittees in the Merrimack River Basin seeking to renew their WMA permit are required to file a renewal application on or before November 30, 2017. The expiration date for all permits going forward in the Merrimack River Basin will be November 30, 2034, in order to restore the staggered permitting schedule set forth in the regulations.

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 Merrimack River Basin section of this document);
- Water needs forecasts for public water suppliers developed by the Department of Conservation and Recreation, Office of Water Resources (DCR), using a methodology reviewed and approved by the Massachusetts WRC;
- Water supply protection measures for public water supplies including Zone II delineations for groundwater sources, and wellhead and surface water protection measures as required by Massachusetts Drinking Water Regulations (310 CMR 22.00);
- Water conservation and performance standards reviewed and approved by the WRC in July 2006 and revised in June 2012 (<http://www.mass.gov/eea/docs/eea/wrc/water-conservation-standards-rev-june-2012.pdf>), including without limitation;
 - performance standard of 65 residential gallons per capita day or less;
 - performance standard of 10% or less unaccounted-for-water;
 - 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;

Safe Yield in the Merrimack River Basin

This 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 Merrimack River Basin is 900.4 million gallons per day (MGD), and total registered

and permitted withdrawals are 80.22 MGD, leaving 820.18 MGD potentially available. The maximum withdrawals that will be authorized in this permit, and all other permits currently under review by the Department within the Merrimack River Basin, will be within the safe yield and may be further conditioned as outlined in the regulations.

Findings of Fact for Permit Conditions in West Newbury's 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 FINAL 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 Volume, reflects the permitted annual average withdrawal rate of 0.16 MGD. This amended permit does not include an increase above this rate on an annual basis. The Department of Conservation and Recreation's Office of Water Resources (OWR) has prepared a water needs forecast for the Town of West Newbury and the projection for West Newbury based on the 65 gallons per capita per day (RGPCD) and 10% unaccounted for water (UAW) is 0.27 MGD by the year of 2034 with a 5% buffer that increase that value by 0.01 MGD buffer, for a total allocation of 0.28 MGD. Should West Newbury need to withdraw more than 0.16 MGD of water from its own sources, a BRP WM03 would need to be submitted to MassDEP for its review and approval and the required public notice requirements would also need to be completed.

Special Condition 2, Maximum Authorized Daily Withdrawal from the Withdrawal Point, reflects the maximum daily withdrawal rate of the source, according to the MassDEP approved rate based on the prolonged pumping test. The maximum daily withdrawal rate for the Dole Place Wellfield is 0.98 MGD (684 gallons per minute).

Special Condition 3, Zone of Contribution Delineation requirement has been met and no further delineations are required as a condition of this permit.

Special Condition 4, Wellhead Protection, requires West Newbury Water Department to adopt municipal protection controls over the Dole Place Wellfield in accordance with the MassDEP's Wellhead Protection Regulations 310 CMR 22.21(2).

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water, for all PWS permittees is 65 gallons. Permittees that cannot comply within the timeframe in the permit must meet the Functional Equivalence Requirements outlined in Appendix A. According to MassDEP's records, West Newbury's 2015 RGPCD was 48.

Special Condition 6, Performance Standard for Unaccounted for Water, for all PWS permittees is 10%. Permittees that cannot comply within the timeframe in the permit must meet the Functional Equivalence requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36, as outlined in Appendix B. As accepted by MassDEP, West Newbury's UAW for the most recent three years has been:

2015	2014	2013
10.1%	5.2%	6.7%

Special Condition 7, Seasonal Limits on Nonessential Outdoor Water Use, is based upon West Newbury Water Department's RGPCD for the preceding year, and will be implemented according to either: 1) calendar triggered restrictions; or 2) streamflow triggered restrictions.

1. Calendar triggered restrictions: Restrictions shall be implemented from May 1st through September 30th. Many public water suppliers will find this option easier to implement and enforce than the streamflow triggered approach.

2. Streamflow triggered restrictions: Restrictions shall be implemented at those times from May 1st through September 30th when streamflow falls below designated flow triggers measured at an assigned, web-based, real-time U.S. Geologic Survey (USGS) stream gage. At a minimum, restrictions shall commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days.

The basis for streamflow triggers is derived from Aquatic Base Flow (ABF) values calculated by the Sustainable Yield Estimator (SYE)¹ for simulated natural flow applied to the assigned local USGS stream gage. The two-tiered trigger values are based on flow levels that are protective of aquatic habitat for fish spawning during the spring bioperiod, designated with the June ABF; and protective flows for fish rearing and growth during the summer bioperiod, designated with the August ABF trigger. Protective flow levels are derived from index gage flow data which represent the least altered stream flows in Massachusetts, and are further described in the Department of Conservation and Recreation (DCR)² and USGS Index Reports³.

If the West Newbury Water Department selects the streamflow trigger approach, it has been assigned the USGS local stream gage of #01101000, Parker River at Byfield, MA. The streamflow triggers at this site are 20 cubic feet per second (cfs) for May and June, and 6 cfs for July, August and September.

More stringent restrictions shall also be implemented when the annual 7-day low-flow for the period of record (0.48 cfs) occurs at USGS stream gage #01101000, Parker River at Byfield, MA. The more stringent mandatory restrictions based on the 7-day low-flow may cease when streamflow rises above the 7-day low-flow trigger for seven consecutive days.

Should the reliability of flow measurement at the Parker River at Byfield gage be so impaired as to question its accuracy, the West Newbury Water Department may request MassDEP's review and approval to transfer to another gage to trigger restrictions. MassDEP reserves the right to require use of a different gage.

Special Condition 8, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2006 and revised in June 2012.

¹ Archfield, S.A., Vogel, R.M., Steeves, P.A., Brandt, S.L., Weiskel, P.K., and Garabedian, S.P., 2010, The Massachusetts Sustainable-Yield Estimator: A decision-support tool to assess water availability at ungaged stream locations in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2009-5227, 41 p. plus CD-ROM. See <http://pubs.usgs.gov/sir/2009/5227/>

² Massachusetts Department of Conservation and Recreation (DCR), 2008 Index Streamflows for Massachusetts, May 2008, Prepared by Office of Water Resources for the Massachusetts Water Resources Commission, 45 p., plus CD-ROM.

³ Armstrong, D.S., Parker, G.W., and Richards, T.A., 2008, Characteristics and classification of least altered streamflows in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2007-5291, 113 p., plus CD-ROM.

Special Condition 9, Requirement to Report Raw and Finished Water Volumes, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Natural Heritage & Endangered Species Program (NHESP) Review requires the West Newbury Water Department to file with NHESP for review and approval as the Dole Place Wellfield is located in the vicinity of Estimated Habitats of Rare Wildlife and Priority Habitats of Rare Species. West Newbury previously obtained approval from NHESP to conduct the long-term pumping test at the Dole Place Wellfield. However, construction of this wellfield is subject to further review by the NHESP. West Newbury Water Department should obtain any other approval from NHESP prior to the construction of the source.

Mitigation of Impacts for Withdrawals that Exceed Baseline Withdrawals requires mitigation of the impacts of withdrawals above the permittee's baseline, which is based on withdrawals made during 2003-2005. The calculated baseline withdrawal volume for West Newbury is 0.16 MGD, the withdrawal volume from 2005 plus 5%. Mitigation is not required at this time because volumes greater than the baseline are not allocated by this permit. Should West Newbury need to withdraw more than 0.16 MGD from their own sources they will need a new permit and mitigation will be required if feasible.



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FINAL 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: 9P2-3-13-324.01

RIVER BASIN: Merrimack

PERMITTEE: West Newbury Water Department

EFFECTIVE DATE: May 30, 2017

EXPIRATION DATE: November 30, 2018

NUMBER OF WITHDRAWAL POINTS: 3

Groundwater: 3

Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

LOCATION:

Table 1: Withdrawal Point Identification

Source Name	PWS Source ID Code
Wellfield No. 1	3324000-01G
Bedrock Well	3324000-TBD*
Dole Place Wellfield	3324000-TBD*

* PWS Source ID will be assigned by the DEP Drinking Water Program when the well becomes active.

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the West Newbury Water Department (West Newbury) to withdraw water from the Merrimack River Basin at the rate described below in Table 2. The rate authorized by this permit is the 0.16 million gallons per day previously authorized to the West Newbury Water Department for withdrawal from the Merrimack River Basin under Water Management Act permit #9P2-3-13-324.01. The rate is expressed both as an annual average daily withdrawal rate (million gallons per day or MGD), and as a total annual withdrawal rate (million gallons per year or MGY).

The Department of Environmental Protection (MassDEP) bases these withdrawal rates on the raw water volume from the authorized withdrawal points, and will use the raw water volume to assess compliance with the permitted withdrawal volumes.

Table 2: Maximum Authorized Withdrawal Volumes

Period		Total Raw Water Withdrawal Rates	
		Permit	
		Daily Average (MGD)	Total Annual (MGY)
Period Four*	05/30/2017 to 11/30/2018	0.16	58.4

*An additional four years have been added under the Permit Extension Act, Section 173 of Chapter 240 of the Acts of 2010, and as amended by Sections 74 and 75 of Chapter 238 of the Acts of 2012.

2. Maximum Authorized Daily Withdrawals from Each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily rates listed in Table 3 without specific advance written approval from MassDEP. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

Table 3: Maximum Daily Withdrawal Rates

Source Name	PWS Source ID Code	Maximum Daily Rate (MGD)
Wellfield No. 1	3324000-01G	0.155
Bedrock Well	3324000-TBD*	0.081
Dole Place Wellfield	3324000-TBD*	0.98

* PWS Source ID will be assigned by the DEP Drinking Water Program when the well becomes active.

3. Zone of Contribution (Zone II) Delineation

The Zone II delineation for Wellfield #1 was approved by the MassDEP Drinking Water program on July 26, 2004, and the wellfield will continue to be a groundwater source. The Bedrock Well approval pumping rate is less than 0.10 MGD, and therefore no Zone II delineation is required. The Zone II delineation for the Dole Place Wellfield will also be approved by the MassDEP Drinking Water program on May 23, 2017. No further Zone II work is required as a condition of this permit.

4. Wellhead Protection

MassDEP records indicate that the Town of West Newbury has adopted municipal protection controls that met MassDEP's Wellhead Protection Regulations 310 CMR 22.21(2). However, these local controls do not yet protect the Dole Place Wellfield. To satisfy the wellhead protection requirements for this new source, West Newbury must amend its Groundwater Protection District Map to include the new approved Zone II. A copy of the amended map must be submitted to MassDEP and the compliance with the wellhead protection is required prior to final activation approval of the Dole Place Wellfield. For information and instructions on complying with the MassDEP's Wellhead Protection Regulations please contact Catherine Hamilton at 617-556-1070.

5. Performance Standard for Residential Gallons Per Capita Day Water Use

West Newbury Water Department's performance standard for Residential Gallons Per Capita Day (RGPCD) is 65. West Newbury shall report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this performance standard. West Newbury shall report the calculation used to derive the RGPCD as part of its ASR including, without limitation, the source of the data used to establish the service population and the year in which this data was developed. See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met.

6. Performance Standard for Unaccounted for Water

The West Newbury Water Department's performance standard for unaccounted for water (UAW) is 10% or less of overall water withdrawal for 2 of the most recent 3 years throughout the permit period. West Newbury shall report its UAW annually in its Annual Statistical Report (ASR) and document compliance with this Performance Standard each year. See Appendix B for additional information on requirements if the Performance Standard for UAW is not met.

Nothing in the permit shall prevent a permittee who meets the 10% performance standard from demonstrating compliance with the UAW performance standard by developing and implementing a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs*. Permittees meeting the Performance Standard for Unaccounted for Water through implementation of a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the Annual Statistical Report for public water suppliers.

7. Seasonal Limits on Nonessential Outdoor Water Use

West Newbury shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table 4 below. West Newbury Water Department shall be responsible for tracking streamflow and recording when streamflow triggered restrictions are implemented. See Accessing Streamflow Information in Table 4 for instructions.

West Newbury Water Department shall document compliance with the seasonal limits on nonessential outdoor water use annually in its ASR, and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next year. Nothing in this permit shall prevent the Permittee from implementing water use restrictions that are more restrictive than those set forth in this permit.

Table 4: Seasonal Limits on Nonessential Outdoor Water Use

The Department shall restrict nonessential outdoor water use in accordance with the restrictions in this table for permittees in the following categories: To the extent possible all summer outdoor water use shall be restricted to before 9 am and after 5 pm when evaporation and transpiration are lower than for permittees meeting the 65 RGPCD standard for the preceding year. RGPCD = 65 as reported in the ASR and reported by Mass DEP.	
Calendar Triggered Restrictions	Nonessential outdoor water use is restricted to: <ul style="list-style-type: none"> a) seven (7) days per week before 9 am and after 5 pm; and b) one (1) day per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below 7-day the low-flow statistic 0.48 cfs for three (3) consecutive days. Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds 0.48 cfs for seven (7) consecutive days.
Streamflow Triggered Restrictions	Nonessential outdoor water use is restricted to: <ul style="list-style-type: none"> a) seven (7) days per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below: <ul style="list-style-type: none"> • May 1 – June 30: 20 cfs for three (3) consecutive days • July 1 – September 30: 6 cfs for three (3) consecutive days b) one (1) day per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below the 7-day low-flow statistic 0.48 cfs for three (3) consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.
Calendar Triggered Restrictions	Nonessential outdoor water use is restricted to: <ul style="list-style-type: none"> a) two (2) days per week before 9 am and after 5 pm; and b) one (1) day per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below the 7-day low-flow statistic 0.48 cfs for three (3) consecutive days. Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds 0.48 cfs for seven (7) consecutive days.
Streamflow Triggered Restrictions	Nonessential outdoor water use is restricted to: <ul style="list-style-type: none"> b) two (2) days per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below: <ul style="list-style-type: none"> • May 1 – June 30: 20 cfs for three (3) consecutive days • July 1 – September 30: 6 cfs for three (3) consecutive days c) one (1) day per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below the 7-day low-flow statistic 0.48 cfs for three (3) consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.

Instructions for Accessing Streamflow Information

Streamflow information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts streamflows in real time, i.e., the most recent, usually quarterly hourly, reading made at each USGS stream gage.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the mean daily streamflow falls below the designated trigger. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the preceding day when tracking streamflows.

Mean daily streamflow gage readings are available at the USGS NWIS Web Interface at <http://waterdata.usgs.gov/ma/nwis/current/?type=flow>.

- Scroll down to 01101000 – Parker River at Byfield, MA.
- Click on the gage number.
- Scroll down to “Provisional Date Subject to Revision – Available data for this site” and click on the drop down menu.
- Click on “Time-series: Daily data” and hit GO.
- Scroll down to the “Available Parameters” box. Within the box, be sure “Discharge (mean)” is checked, then, under “Output Format” click “Table” and hit GO.
- Scroll down to “Daily Mean Discharge, cubic feet per second” table and find the current date on the table.
- Compare the cubic feet per second (cfs) measurement shown on the table to the cfs shown under Streamflow Triggered Restrictions above.

Restricted Nonessential Outdoor Water Uses

Nonessential outdoor water uses that are subject to mandatory restrictions include:

- irrigation of lawns via sprinklers or automatic irrigation systems;
- filling swimming pools;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement or cement.

The following uses may be allowed, before 9 am and after 5 pm, when mandatory restrictions are in place:

- irrigation to establish a new lawn and new plantings during the months of May and September;
- irrigation of public parks and recreational fields by means of automatic sprinklers outside the hours of 9 am to 5 pm;
- irrigation of gardens, flowers and ornamental plants by means of a hand-held hose or drip irrigation systems; and
- irrigation of lawns by means of a hand-held hose only.

Water uses NOT subject to mandatory restrictions are those required:

- for health or safety reasons;

- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or
- to meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees, greens; and limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

Public Notice of Seasonal Nonessential Outdoor Water Use Restrictions

The West Newbury Water Department shall notify its customers of the restrictions and the consequences of failing to adhere to the restrictions.

- For calendar-triggered restrictions, customers shall be notified by April 15th each year.
- For streamflow-triggered restrictions, when streamflow at the assigned USGS local stream gage falls below a streamflow trigger for three consecutive days, customers shall be notified as soon as possible, but within three days of implementing the restrictions.

Notice to customers shall include the following:

- A detailed description of the restrictions and penalties for violating the restrictions;
- The need to limit water use, especially nonessential outdoor water use, to ensure a sustainable drinking water supply and to protect natural resources and streamflow for aquatic life; and
- Ways individual homeowners can limit water use, especially nonessential outdoor water use.

Notice that restrictions have been put in place shall be filed each year with MassDEP within 14 days of the restriction’s effective date. Filing shall be in writing on the form “Notification of Water Use Restrictions” available on MassDEP’s website.

Notice to customers and MassDEP need not be provided repeatedly in any one year if West Newbury has already implemented water use restrictions that conform to the applicable restrictions and those restrictions remain in effect.

8. Water Conservation Requirements

At a minimum, the West Newbury Water Department shall implement the following conservation measures forthwith and shall be in compliance with these measures on or before November 30, 2018, the permit renewal date. MassDEP recognizes that the West Newbury Water Department is currently implementing a number of these requirements. Compliance with the water conservation requirements shall be reported to MassDEP upon request unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements

System Water Audits and Leak Detection	
1.	At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 years from the date of the last documented leak detection survey.
2.	Perform a leak detection survey on those sections of the distribution system that have not been surveyed within the last year whenever the percentage of unaccounted for water increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, the West Newbury Water Department shall submit to MassDEP for its review a report detailing the leak detection survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.
3.	Conduct field surveys for leaks and repair programs in accordance with the <u>AWWA Manual 36</u> .

4. The West Newbury Water Department shall have repair reports available for inspection by MassDEP. West Newbury shall establish a schedule for repairing leaks that is at least as stringent as the following:
- Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection.
 - Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible.
 - Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway.
- Leaks shall be repaired in accordance with West Newbury's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. The West Newbury Water Department shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.

Metering

1. Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2. The West Newbury Water Department reports its system is 100% metered including all publically owned buildings. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards as set forth in AWWA Manual M6 – Water Meters, by the permit renewal date (November 30, 2018).
3. The West Newbury Water Department shall have an ongoing program to inspect individual service meters to ensure that all service meters accurately measure the volume of water used by your customers. The metering program shall include regular meter maintenance as necessary that includes testing, calibration, repair, and/or replacement as needed, and also checks for tampering to identify and correct illegal connections. The plan shall continue to include placement of sufficient funds in West Newbury's annual water budget to calibrate, repair, or replace meters as necessary.

Pricing

1. Establish a water pricing structure that includes the full cost of operating the water supply system by the permit renewal date (November 30, 2018). Evaluate rates every three to five years and adjust costs as needed. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into prices.
2. The West Newbury Water Department shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L.

Residential and Public Sector Conservation

1. The West Newbury Water Department shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2. Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
3. Municipal buildings
 - According to the Water Conservation Questionnaire submitted to MassDEP and dated July, 2014, all municipal buildings served by the West Newbury Water Department have been retrofitted with water saving devices.

Industrial and Commercial Water Conservation

The West Newbury Water Department reported in the Water Conservation Questionnaire that there are no industrial customers and only two small commercial users (restaurants). Since there is virtually no industrial/commercial water use, no industrial/commercial water conservation effort is required.

Lawn and Landscape

West Newbury's water use restriction bylaw adopted by the annual town meeting, April 29, 1978 provides authority to implement and enforce water use restrictions required by the Special Condition, "Seasonal Limits on Nonessential Outdoor Water Use".

Public Education and Outreach

1. Develop and implement a Water Conservation Education Plan. West Newbury's Water Conservation Education Plan shall be designed to educate West Newbury's water customers of ways to conserve water. Without limitation, West Newbury's plan may include the following actions:
 - Include in bill stuffers and/or bills, a work sheet to enable customers to track water use and conservation efforts and estimate the dollar savings;
 - Public space advertising/media stories on successes (and failures);
 - Conservation information centers perhaps run jointly with electric or gas company;
 - Speakers for community organizations;
 - Public service announcements; radio/T.V./audio-visual presentations;
 - Joint advertising with hardware stores to promote conservation devices;
 - Use of civic and professional organization resources;
 - Special events such as Conservation Fairs;
 - Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and
 - Make multilingual materials available as needed.
2. Upon request of MassDEP, the West Newbury Water Department shall report on its public education and outreach effort, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials.

9. Requirement to Report Raw and Finished Water Volumes

The West Newbury Water Department shall report annually on its ASR the raw water volumes and finished water volumes for the entire water system and the raw volumes for individual water withdrawal points.

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 MassDEP has received a renewal permit application pursuant to and in compliance with 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 MassDEP to enter and examine any property over which permittee has authority, title or control, 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 MassDEP pursuant to MGL c 21G §§ 15-17, MGL c 150 § 111, or any other enabling authority.
5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP 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 36.33.
6. **Duty to Report** The permittee shall submit annually, on a form provided by MassDEP, a certified statement of the withdrawal. Such report is to be received by MassDEP by the date specified by MassDEP. Such report must be submitted as specified on the report form.
7. **Duty to Maintain Records** The permittee shall be responsible for maintaining withdrawal and all other records as specified by this permit.
8. **Metering** Withdrawal points shall be metered. Meters shall be calibrated annually. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.
9. **Right to Amend, Suspend or Terminate** MassDEP may amend, suspend or terminate the permit in accordance with M.G.L.c.21G and 10 CMR 36.29.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of the Department. Any person aggrieved by this decision may request an adjudicatory hearing as described herein and in accordance with the procedures described at 310 CMR 36.37. Any such request must be made in writing, by certified mail or hand delivered and received by the Department within twenty-one (21) days of the date of receipt of this permit. The hearing request, including proof of payment of the filing fee, must be mailed to:

Case Administrator
MassDEP Office of Appeals and Dispute Resolution
One Winter Street
Boston, MA 02108

No request for an appeal of this permit shall be validly filed unless a copy of the request is sent 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 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.

CONTENTS OF HEARING REQUEST

310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of the Department is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of his permit.

FILING FEE AND ADDRESS

The Department's fee transmittal form, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

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

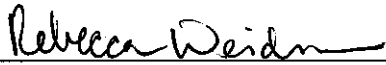
The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

EXEMPTIONS

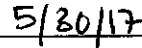
The filing fee is not required if the appellant is a municipality (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

The Department may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of the Department that the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts which support the claim of undue hardship.



Rebecca Weidman, Director
Division of Watershed Management
Bureau of Water Resources



Date

Appendix A – Functional Equivalence for 65 Residential Gallons Per Capita Day Performance Standard

MassDEP will consider PWS permittees who cannot meet the 65 RGPCD performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures “best practices” for controlling residential water use as described below.

If the permittee fails to document compliance with the RGPCD performance standard within the time outlined in the permit, then the permittee must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall include, at a minimum:

1. A description of the actions taken during the prior calendar year to meet the performance standard;
2. An analysis of the cause of the failure to meet the performance standard;
3. A description of the actions that will be taken to meet the performance standard which must include, at a minimum, at least one of the following:
 - a) a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
 - b) a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets), or
 - c) the adoption and enforcement of an ordinance, by-law or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems;and may include, without limitation, the following:
 - d) the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
 - e) a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
 - f) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction include water saving devices and low water use appliances;
 - g) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction minimize lawn area and/or irrigated lawn area, maximize the use of drought resistant landscaping, and maximize the use of top soil with a high water retention rate;
 - h) the implementation of a program to encourage the use of cisterns or rain barrels for outside watering;
 - i) the implementation of monthly or quarterly billing.
4. A schedule for implementation; and
5. An analysis of how the planned actions will address the specific circumstances that resulted in the failure to meet the performance standard.

If the permittee is already implementing one or more of these programs, it must include in its RGPCD plan the continued implementation of such program(s), as well as implementation of at least one additional program. All programs must include a public information component designed to inform customers of the program and to encourage participation in the program.

RGPCD plans may be amended to revise the actions that will be taken to meet the performance standard. Amended RGPCD plans must include the information set forth above.

If a RGPCD plan is required, the permittee must:

1. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD plan annually at the time it files its ASR, and
2. continue to implement the RGPCD plan until it complies with the performance standard and such compliance is documented in the permittee's ASR for the calendar year in which the standard is met.

Appendix B – Functional Equivalence with the 10% Unaccounted for Water Performance Standard

MassDEP will consider PWS permittees who cannot meet the 10% UAW performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures “best practices” for controlling water loss. The water loss control program will be based on annual water audits and guidance as described in the *AWWA/IWA Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs* (AWWA M36).

If, as of December 31, 2019, the permittee fails to document compliance with the Unaccounted for Water performance standard (UAW of 10% or less for 2 of the 3 most recent years throughout the permit period), then the permittee shall develop and implement a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs* as follows:

1. Conduct an annual “top down” water audit, calculate the data validity level/score using AWWA Water Loss Control Committee’s Free Water Audit Software, and submit the AWWA WLCC Free Water Audit Software: Reporting Worksheet and data validity score annually with its Annual Statistical Report (ASR).
 - If a PWS’s data validity level/score is less than Level III (51-70), steps recommended through the audit(s) shall be taken to improve the reliability of the data prior to developing a long-term program to reduce real and apparent water losses.
 - Data with a validity score of 50 or less are considered too weak to be used to develop a component analysis or for infrastructure planning and maintenance.
 - Developing data with an acceptably strong validity score can be a multi-year process.
2. When the data validity score meets the Level III (51-70) requirement, the permittee shall conduct a component analysis to identify causes of real and apparent water loss and develop a program to control losses based on the results of the component analysis. The Permittee shall submit the component analysis and water loss control program with a proposed implementation schedule to the Department.
3. Continued implementation will be a condition of the permit in place of meeting the 10% UAW performance standard.
4. Upon request of the Department, the permittee shall report on its implementation of the water loss control program.

A PWS permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by DEP, is below 10% for four consecutive years, and the water audit data validity scores are at least Level III (51-70) for the same four years.

NOTE FOR SMALL SYSTEMS: For small systems with less than 3,000 service connections or a service connection density of less than 16 connections per mile of pipeline, the Unavoidable Annual Real Loss (UARL) calculation and the Infrastructure Leak Index (ILI) developed as the final steps of the top down water audit may not result in valid performance indicators, and may not be comparable to the UARL and ILI calculations for larger systems.

However, these small systems can benefit from developing reliable data and conducting an annual top down water audit. Small systems can rely on the real losses (gallons per mile of main per day)

performance indicator developed in the water audit as a measure of real water loss when developing a water loss control program. The M36 Manual discusses the audit process for small systems, and includes a chapter to guide small systems in understanding the results of their audits and in developing a water loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

MassDEP UAW Water Loss Control Measures: Permittees who do not have MassDEP approved Water Loss Control Programs in place by 6th calendar year after 2019 will be required to implement the MassDEP UAW Water Loss Control Measures outlined below:

- An annual water audit and leak detection survey, as described in the AWWA M36 Manual, of the entire system.
 - Within one year, repair 75% (by water volume) of all leaks detected in the survey that are under the control of the public water system;
 - Thereafter, repair leaks as necessary to reduce permittee's UAW to 10% or the minimum level possible.
- Meter inspection and, as appropriate, repair, replace and calibrate water meters:
 - Large Meters (2" or greater) – within one year
 - Medium Meters (1" or greater and less than 2") – within 2 years
 - Small Meters (less than 1") - within three years
 - Thereafter, calibrate and or replace all meters according to type and specification.
- Bill at least quarterly within three years.
- Water pricing structure sufficient to pay the full cost of operating the system.

Hardship - A permittee may present an analysis of the cost effectiveness of implementing certain conservation measures included in the MassDEP UAW Water Loss Control Measures and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits. Suppliers will be able to present:

- Reasons why specific measures are not cost effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard;
- Alternative specific conservation measures that would result in equal or greater system-wide water savings or equal or greater environmental benefits than the conservation measures included in the MassDEP UAW Functional Equivalence Plan; and
- When applicable, an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship.