



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

May 1, 2017

Town of Yarmouth Golf Courses
Attn: Jim Armentrout, Director of Golf Operations
635 W. Yarmouth Road
W. Yarmouth, MA 02673

Town: Yarmouth
WMA Permit: #9P-4-22-351.03
Program: Water Management Act
Permit Application: BRP WM 03
MassDEP Transmittal Number: X268609
Action: Final Permit

Dear Mr. Armentrout:

Please find the following attached:

- Findings of Fact in Support of the Issuance of Permit #9P-4-22-351.03;
- Final Water Management Act (WMA) Permit #9P-4-22-351.03 for the Town of Yarmouth Municipal Golf Courses.
- Instructions for Accessing U.S. Geologic Survey Groundwater Level and Massachusetts Drought Advisory Information

If you have any questions concerning this letter, please contact Julie Butler at (617) 292-5552 or Julie.Butler@state.ma.us.

Sincerely,

Rebecca Weidman
Division of Watershed Management
Bureau of Water Resources

eCC: Richard Lawlor, Town of Yarmouth Golf Superintendent
Jeff Diercks, CDM Smith
David Young, CDM Smith

Tom Cambareri, Cape Cod Commission
Patty Daley, Cape Cod Commission
Kelly Grant, Yarmouth Conservation Commission
Mary Nolan, Yarmouth

Y:\DWPArchive\SERO\2017\Yarmouth-Municipal Golf Courses-WMA Final Permit-2017-05-01



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.



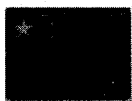
3 Português (Portuguese):

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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)):

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的多样性总监联系。



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

Dokiman sa-a sé 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 đa dạng tại các số điện thoại được liệt kê dưới đây.



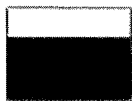
7 ប្រទេសកម្ពុជា (Kmer (Cambodian)):

ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាមៗ។ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងជាមួយអគ្គនាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយនាងក្រោម។



8 Kriolu Kabuverdianu (Cape Verdean):

Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Diretor 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. إذا كنت بحاجة إلى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في MassDEP على أرقام الهواتف المدرجة أدناه.

**11 한국어 (Korean):**

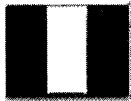
이 문서는 중요하고 즉시 번역해야 합니다. 당신이 번역이 문서가 필요하다면 아래의 전화 번호로 MassDEP의 다양성 감독에 문의하시기 바랍니다.

**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 दस्तावेज़ 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 Permit Issuance Water Management Permit #9P-4-22-351.03 Town of Yarmouth Municipal Golf Courses

The Department of Environmental Protection ("MassDEP" or "the Department") has completed its review of the Town of Yarmouth Municipal Golf Courses' Water Management Act (WMA) permit application. This review was conducted in regard to the permit for the Town of Yarmouth Municipal Golf Courses ("Town of Yarmouth") to withdraw water from the Cape Cod Basin. The Department hereby issues the Water Management Permit #9P-4-22-351.03 (the "Permit") in accordance with the Water Management Act (M.G.L. 21G). The Department makes the following Findings of Fact in support of the attached Permit, and includes herewith its reasons for issuing the Permit and for the conditions of approval imposed, as required by M.G.L. c. 21G, s. 11 and 310 CMR 36.00. The Permit is being issued since such action is necessary for the promotion of the purposes of M.G.L. c. 21G. The Department may modify, suspend or terminate the Permit, after notice and hearing, for violations of its conditions, of M.G.L. c. 21G, or of regulations adopted or orders issued by the Department, and when deemed necessary for the promotion of the purposes of the Water Management Act.

The Department adopted revised Water Management Regulations at 310 CMR 36.00 on November 7, 2014, (described in greater detail below). Since that time, the Department has been working closely with each Water Management Act (WMA) permittee to fully consider all aspects of their individual situations and ensure thoughtful and implementable permits.

Withdrawal Description and History

The issuance of this permit is in response to a water withdrawal permit application from the Town of Yarmouth for the purpose of golf course irrigation. Since 1992 the Town of Yarmouth has held a permit for their municipal golf courses to withdraw 21.4 million gallons per year (MGY) or 0.116 million gallons per day (MGD) over a 184-day irrigation season (May – October) from four sources in the Cape Cod Basin. These sources include three wells at the Bayberry Hills Golf Course, located at 635 West Yarmouth Rd, and one well at the Bass River Golf Course, located at 62 High Bank Rd. In addition to the existing WMA permit, the Town of Yarmouth holds WMA registration #422351.05, which authorizes a withdrawal of 22.21 MGY (or 0.121 MGD) over a 184-day irrigation season (May – October) from Laban's Pond at the Bass River Golf Course.

The current WMA permit application requested an additional withdrawal of 0.117 million gallons per day (MGD) over a 184-day irrigation season (May – October) from the existing permitted wells. Thus, the new permit authorizes a total withdrawal volume of 0.233 MGD or 42.79 MGY, and the combined permitted and registered withdrawal volume is 0.353 MGD or 65.00 MGY. The volume increase was

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MassDEP Website: www.mass.gov/dep

requested due to an expansion of the Bayberry Hills Golf Course. In 1996, nine holes were added on the former Yarmouth landfill. Until 2007, two of the nine holes were routinely irrigated with the Town of Yarmouth's municipal water system, while seven of the nine holes were irrigated with reclaimed water when available for use. On days when reclaimed water was not available for irrigation use, municipal water was used on all nine holes. The use of municipal water was terminated in 2007, and the three permitted wells at Bayberry Hills have been used since then.

Note that the Bass River well withdrawals will not be counted as part of the authorized annual withdrawal volume, because the well withdrawals are pumped into the registered pond at Bass River rather than directly irrigating the golf course. Instead, only the withdrawal volume from the registered pond will be used to assess compliance with the authorized annual withdrawal volumes. The Town of Yarmouth will continue to meter and report its withdrawals from the Bass River well in the WMA Annual Report Forms. In its WMA permit application, the Town of Yarmouth reported that it discovered inaccurate readings from the Bass River well's flow meter; however, the Town of Yarmouth proposed a new Standard Operating Procedure to resolve the problem, which is detailed in the Findings of Fact for Special Permit Condition 2.

The Permit Extensions

The Town of Yarmouth's Golf Permit was initially issued on January 31, 1992 and was originally set to expire on November 30, 2010. Because the expiration dates for all Water Management permits were extended for four years by Chapter 240 of the Acts of 2010 and as amended by the Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act, the Department accepted a renewal application from the Town of Yarmouth dated August 17, 2010. The Department published notice of the permit renewal application in the Environmental Monitor on September 22, 2010. No comments were received.

In addition, in a letter of November 24, 2014, the Department informed the Town of Yarmouth that the Department would need additional time before making a determination on the application in order to ensure that all permit renewal applicants in the Cape Cod Basin fully understood the new Water Management Regulations (discussed below), and to give proper consideration to all permit renewal applications within the basin. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), Yarmouth's permit continued in force and effect until the Department issued a final decision on the permit renewal application. This new permit supersedes the permit for which the renewal request was filed. The expiration date for all permits going forward in the Cape Cod Basin will be November 30, 2030, in order to restore the staggered permitting schedule set forth in the regulations.

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

The WMA 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 description that follows);
- Environmental protections developed through SWMI, including without limitation;
 - protection for coldwater fish resources;
 - minimization of withdrawal impacts in areas stressed by groundwater use;
 - mitigation of the impacts of increasing withdrawals; and
- The special permit conditions in each Water Management Act permit.

Safe Yield in the Cape Cod 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 Cape Cod Basin is 266.0 million gallons per day (MGD), and total registered and permitted withdrawals are 51.8 MGD (not including the additional 0.117 MGD authorized by this permit increase), leaving 214.2 MGD potentially available. The maximum withdrawals that are authorized in this permit, and all other permits currently under review by the Department within the Cape Cod Basin, will be within the safe yield and may be further conditioned as outlined in the regulations.

Findings of Fact for Special Permit Conditions

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 Findings of Fact also explain any changes to special conditions from prior permits, when applicable. 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

Special Condition 1 reflects a permitted withdrawal volume of 0.233 MGD (42.79 MGY), which is an increase from the previously authorized 0.116 MGD (21.4 MGY). This volume is in addition to the 0.117 MGD (22.21 MGY) authorized to the Bass River Golf Course under WMA registration #422351.05 for withdrawals from Laban's Pond. The combined permitted and registered withdrawal volume is 0.353 MGD (65.00 MGY).

The Town of Yarmouth shall continue to meter and report its withdrawals from all four permitted wells in the WMA Annual Report Forms. However, the Bass River well withdrawals are no longer counted as part of the authorized annual withdrawal volume. The Bass River well withdrawals are pumped into the registered Laban's Pond rather than directly irrigating the golf course; therefore, only the withdrawal volume from the registered pond will be used to assess compliance with the authorized annual withdrawal volumes.

Special Condition 2, Maximum Authorized Daily Withdrawal Volume from Each Withdrawal Point

Special Condition 2 reflects the volume of groundwater withdrawal expressed as a maximum daily rate for the sources included in the Permit. The maximum authorized daily withdrawal volumes for the four permitted wells are indicated in Table 3 of the Permit. The Town of Yarmouth is required to report monthly withdrawal volumes and the maximum daily withdrawal per year from each of its four source wells in the WMA Annual Report Form.

The Town of Yarmouth recently discovered inaccurate readings from the Bass River well's flow meter and noted this fact in its WMA permit application. The well was sometimes pumped at higher rates than the meter specifications of 40-250 gallons per minute (gpm). When this occurred, the meter registered at 0 gpm, giving the false impression that the pump was not running. To resolve the problem, the Town of Yarmouth proposed a new Standard Operating Procedure (SOP). The new SOP involves calibrating the meter above 150 gpm during the annual meter calibration, and setting the control valve at a position that keeps the flow rate at or below 150 gpm. To ensure that no one adjusts the flow rate without the Superintendent's knowledge, the valve operating crank wheel will be removed at the start of each season. The Department finds this SOP to be an acceptable resolution.

Special Condition 3, Water Conservation Requirements

The Town of Yarmouth's 2015 updated Water Conservation Plan, submitted with its permit application, has been combined with the Best Management Practices that the Town of Yarmouth indicated as being implemented in its Seasonal Demand Management Plan (Special Condition 5). This combination, shown in Table 4 of the Permit, shall constitute the water conservation requirements of the new permit.

Public comment submitted by the Cape Cod Commission suggested that the Town of Yarmouth implement BMPs that were not indicated in its WMA Permit application, including turf aeration, use of drought-tolerant grasses, and adjustment of turf-mowing heights during dry weather. The Town of Yarmouth responded that they do implement these practices; thus, the three practices were incorporated into Table 4.

Special Condition 4, Reclaimed Wastewater Use at Bayberry Hills

Water from Bayberry Hills' permitted irrigation sources may be used on the 9-hole course only when reclaimed water and runoff are not available. Prior to the 2007 permit modification, the 9-hole golf course was irrigated by a combination of reclaimed wastewater and public drinking water from the Town of Yarmouth. The permit was modified in 2007 to allow two of the nine holes to be irrigated by the permitted groundwater sources at Bayberry Hills, which effectively eliminated the use of public drinking water for irrigation.

The previous permit required the Town of Yarmouth to record and report dates during which reclaimed wastewater was not available for irrigation, and to submit those reports with the Annual Report Form. In the new permit, the Town of Yarmouth is also required to report its monthly volumes of reclaimed wastewater applied to the golf course on the Annual Report Form, as well as the number of holes typically being irrigated with the reclaimed wastewater.

Special Condition 5, Seasonal Demand Management Plan (SDMP)

Consistent with good water conservation practices, permitted golf courses will be required to implement a drought-triggered Seasonal Demand Management Plan (SDMP) as a condition of their Water Management Permit. The SDMP, at a minimum, restricts nonessential outdoor water use between May 1st and September 30th when the Massachusetts Drought Management Task Force declares a drought level of "Advisory" or higher ("Watch, Warning or Emergency") for the region in which the golf course is located.

The SDMP shall also be implemented at times when groundwater levels at a USGS monitoring well fall below a groundwater trigger for 60 consecutive days. The monthly trigger levels are listed in Table 5 and are the period of record's monthly 25th percentile depth to water levels in a local well, as determined and published by the USGS. Restrictions could start on May 1, so monitoring of the well shall begin on March 1 of each year. Once implemented, the restrictions shall remain in place until the daily value of the groundwater levels at the assigned USGS monitoring well have recovered to less than the trigger for 30 consecutive days (when the water table elevation has risen above the trigger level).

Town of Yarmouth has been assigned the following USGS monitoring well: # 413930070190901 – MA-A1W 306 Barnstable, MA. The monthly groundwater trigger values are shown in Table 5. Should the reliability of the groundwater measurements at this well be so impaired as to question its accuracy, the Permittee may request The Department's review and approval to transfer to another well to trigger restrictions. The Department reserves the right to require use of a different well.

Town of Yarmouth shall be responsible for tracking the Massachusetts Drought Management Task Force drought declarations and recording when drought-triggered restrictions are implemented. Town of Yarmouth shall also be responsible for tracking groundwater levels and recording when groundwater-triggered restrictions are implemented. See the attached groundwater- and drought-tracking instructions for guidance.

The SDMP is intended to address the necessary minimums of acceptable demand management required as dry conditions begin to impact our environment from May through September. Of particular importance in developing your SDMP and in evaluating its effect on your golf course's irrigation, is the recognition of nonessential outdoor water uses. The Department considers the irrigation of tees and greens as essential uses, but fairways and roughs less so.

Section C of the SDMP provides two options for water use reduction in table format. The Acres Table requires that you identify the number of acres you irrigate for tees and greens, fairways, roughs, landscaping and ornamentals, along with a percent reduction per unit area with worsening drought. The Time Table requires that you identify irrigation reductions based on changes to the timing of irrigation cycles. In its WM03 application, Town of Yarmouth submitted an SDMP dated June 19, 2008 that included an Acres Table reduction approach. This approach will be incorporated into the Permit.

Special Condition 6, Monitoring of Laban's Pond

During the WMA permit application review process, public comments expressed concern over potential impacts to Laban's Pond from withdrawing water from the nearby well and then discharging that groundwater into the pond. In response to those comments, the Town of Yarmouth will install a staff gage and monitor the water level of Laban's Pond at the Bass River Golf Course on a weekly basis between April 1st and October 31st each year. Once per week, the water level shall be monitored immediately before and after the daily pond withdrawal occurs. Note that the monitored pumping period should include the maximum pond withdrawal per week. The maximum weekly withdrawal should be estimated to the extent practicable based on weather forecasts and other relevant factors.

The Town of Yarmouth will also collect profiles of temperature, DO, conductivity, and transparency (via a Secchi disk) in May and August each year. The profile data should be collected from the pond's deepest location at 10 equally-spaced intervals within the water column. If the pond's deepest location is not yet known, it can be determined by lowering a Secchi disk to the pond bottom repeatedly. An anchored float should then be placed at the deepest location for future measurements.

In addition, the Town of Yarmouth shall record the common plant and animal (including fish) species in the pond in the first year of permit issuance to identify the wildlife that currently inhabit the pond. This assessment can be accomplished by recording common species while walking the pond's perimeter (to the extent possible) and catching fish via nets (e.g. minnow traps) or hook and line.

The water-level, profile, and wildlife survey results will be submitted with the Town of Yarmouth's WMA Annual Report Form. The Department will determine whether monitoring plan changes are warranted after the first year of data is submitted.

Special Condition 7, Mitigation Plan

WMA regulations require mitigation, where feasible, for withdrawal requests over a baseline volume. Baseline volume means 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:

- (a) baseline cannot be less than a permittee's registered volume;
- (b) baseline cannot be greater than the permittee's authorized volume for 2005; and
- (c) 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 the best available data to establish a baseline volume from the water source.

The baseline withdrawal volume for Town of Yarmouth is 0.24 MGD (43.61 MGY), which was the authorized withdrawal volume in 2005. The requested authorized annual volume is 65.00 MGY, which is 0.113 MGD (21.39 MGY) above the baseline. Therefore, Town of Yarmouth must submit and implement a mitigation plan to mitigate 21.39 MGY.

Mitigation options were discussed when the Department met with the Town of Yarmouth on July 28, 2016. In its response to the Department's Order To Complete (dated August 22, 2016), the Town of Yarmouth proposed six mitigation measures. The Department identified one measure as being the most suitable: an Audubon Cooperative Sanctuary Program (ACSP) certification. The Town of Yarmouth shall obtain the ACSP certification within eight years, which is the maximum certification period allowed by Audubon International. Once the ACSP certification is obtained, the Town of Yarmouth shall renew the certification every three years through the life of the permit. The Town of Yarmouth will submit proof of 1) its membership payment with its Annual Report Form each year, and 2) its recertification with the Annual Report Form every 3 years.

Note that the ACSP certification is a form of indirect mitigation. Yarmouth Golf and the Department discussed direct mitigation during the July 28, 2016 meeting; however, direct mitigation opportunities were not available to Yarmouth Golf at the time.

Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins, requires permittees with permitted groundwater sources in subbasins¹ with net groundwater depletion of 25% or more during August to minimize their withdrawal impacts on those subbasins to the greatest extent feasible.

Because the Town of Yarmouth's permitted sources are located where August net depletion has not been established, minimization measures are not required.

Coldwater Fish Resource Protection was incorporated into the Water Management Regulations in November 2014. Coldwater Fish Resource Protection is not a condition of this permit because the Town of Yarmouth's withdrawals do not impact any waters that MA Division of Fisheries and Wildlife has identified as supporting coldwater fish at this time.

¹ 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 issuance of Permit #9P-4-22-351.03 is approved pursuant to the Massachusetts Water Management Act (WMA) 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.

PERMIT NUMBER: 9P-4-22-351.03

RIVER BASIN: Cape Cod

PERMITTEE: Town of Yarmouth Golf Courses
635 West Yarmouth Road
Yarmouth, Massachusetts 02673

ISSUANCE DATE: May 1, 2017

EXPIRATION DATE: November 30, 2030

TYPE AND NUMBER OF WITHDRAWAL POINTS:

Groundwater: 4
Surface Water: 0

USE: Golf course irrigation – Bayberry Hills and Bass River golf courses

DAYS OF OPERATION: 184 (May – October)

LOCATION:

Table 1. Withdrawal Point Identification

Source	Latitude	Longitude	Location
Bayberry Well No. 1	41° 40' 45" N	70° 13' 56" W	West Yarmouth Rd, Yarmouth
Bayberry Well No. 2	41° 40' 42" N	70° 14' 07" W	West Yarmouth Rd, Yarmouth
Bayberry Well No. 3	41° 40' 39" N	70° 14' 20" W	West Yarmouth Rd, Yarmouth
Bass River Well No. 1	41° 40' 26" N	70° 10' 32" W	High Bank Rd, Yarmouth

This information is available in alternate format. Call the MassDEP Diversity Office at 617-556-1139. TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This Permit authorizes the Town of Yarmouth to withdraw 0.233 MGD (42.79 MGY) of water over 184 days (May through September) annually from the Cape Cod Basin, which is an increase from the previously authorized 0.116 MGD (21.4 MGY). This permitted volume is in addition to the 0.117 MGD (22.21 MGY) authorized to the Bass River Golf Course under WMA registration #422351.05 for withdrawals from a surface-water source (Laban's Pond) in the Cape Cod Basin. The combined permitted and registered withdrawal volume is 0.353 MGD (65.00 MGY).

The Town of Yarmouth will continue to report its withdrawals from all four permitted wells in the WMA Annual Report Forms. However, the Bass River well withdrawals are not counted as part of the authorized annual withdrawal volume.

Table 2. Maximum Authorized Annual Average Withdrawal Volumes per Permit Period

Permit Periods	Permit		Permit + Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
5/1/2017 to 11/30/2020	0.233*	42.79*	0.353	65.00
12/1/2020 to 11/30/2025	0.233*	42.79*	0.353	65.00
12/1/2025 to 11/30/2030^	0.233*	42.79*	0.353	65.00

^All new and renewed Cape Cod Basin permits will expire on November 30, 2030

*Withdrawals from Bass River Well No. 1 do not count toward the authorized withdrawal volume

2. Maximum Authorized Daily Withdrawal Volume per Withdrawal Point

Withdrawals from the Town of Yarmouth permitted sources are not to exceed the approved maximum daily rates listed in Table 3 without advance written approval from the Department.

Table 3. Source Locations and Maximum Authorized Daily Withdrawal Volumes

Source	Maximum Authorized Daily Withdrawal Volume (MGD)
Bayberry Well No. 1	0.20
Bayberry Well No. 2	0.22
Bayberry Well No. 3	0.22
Bass River Well No. 1	0.43

3. Water Conservation Requirements

The Town of Yarmouth's 2015 updated Water Conservation Plan has been combined with the Best Management Practices that the Town of Yarmouth indicated as being implemented in its Seasonal Demand Management Plan (Special Condition 5). This combination, shown in Table 4, shall constitute the water conservation requirements of the new permit.

Table 4. Water Conservation Plan

1. Metering 100% of water use, and calibrating source meters at least once per year
2. Implementation of an inspection and maintenance program that includes the following on a routine basis: <ul style="list-style-type: none">○ <i>Leak detection and repair</i>: daily monitoring of the golf course insures no leaks throughout the system are present○ <i>Sprinkler head maintenance and replacement</i> as needed to ensure proper trajectory, pressure, and rotation
3. Irrigation ponds at Bayberry Hills are lined with impervious material (Note that the registered pond at Bass River Golf Course is natural and unlined)
4. Use of weather stations to generate irrigation cycles
5. Use of low-trajectory sprinkler heads
6. Use of mulch materials in planting beds to improve water-holding capacity of the landscaping
7. Use of soil sensors and/or soil samples to monitor soil moisture
8. Reduction of irrigation rates in secondary rough areas and, where possible, elimination of irrigation in non-play areas
9. Employee training in water conservation and management
10. Reuse of wastewater and stormwater for irrigation
11. Turf aeration: greens and tees twice annually, fairways annually, and roughs biannually
12. Use of drought-tolerant grasses
13. Adjustment of mowing height during dry weather

4. Reclaimed Wastewater Use at Bayberry Hills

Water from Bayberry Hills' permitted irrigation sources may be used on the 9-hole course only when reclaimed water and runoff are not available.

The Town of Yarmouth shall record and report dates during which reclaimed wastewater is not available for irrigation, and those reports shall be submitted with the Annual Report Form. The Town of Yarmouth shall also report its monthly volumes of reclaimed wastewater applied to the golf course on the Annual Report Form, as well as the number of holes typically being irrigated with the reclaimed wastewater.

5. Seasonal Demand Management Plan

The Town of Yarmouth shall limit nonessential outdoor water use from May 1st through September 30th as outlined in the Seasonal Demand Management Plan (SDMP) and in the attached instructions for tracking groundwater levels and drought declarations. At a minimum, reductions shall commence when the Massachusetts Drought Management Task Force declares a drought level of "Advisory" or higher ("Watch, Warning or Emergency") for the region in which the golf course is located, or when groundwater levels fall below the groundwater triggers for 60 consecutive days. The groundwater-triggered response actions shall follow the drought-triggered response actions at the Advisory level.

Once implemented, the groundwater-triggered reductions shall remain in place until the daily value of the groundwater levels at the assigned USGS monitoring well have recovered to less than the trigger for 30 consecutive days (when the water table elevation has risen above the trigger level). The Town of Yarmouth has been assigned USGS monitoring well: #413930070190901 – MA-A1W 306 Barnstable, MA. The groundwater trigger values are shown in Table 5 and are the monthly 25th percentile depth-to-water levels for the period of record, as determined and published by the USGS. Should the reliability of the groundwater measurements at this well be so impaired as to question their accuracy, the Permittee may request the Department's review and approval to transfer to another well to trigger restrictions. The Department reserves the right to require use of a different well.

The Town of Yarmouth shall be responsible for tracking the Massachusetts Drought Management Task Force drought declarations and recording when drought-triggered restrictions are implemented. Town of Yarmouth shall also be responsible for tracking groundwater levels and recording when groundwater-triggered restrictions are implemented. See the attached groundwater- and drought-tracking instructions for guidance. 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 5. Groundwater trigger levels for MA-A1W 306 Barnstable, MA

Groundwater-Level Triggers (feet below ground surface)						
March	April	May	June	July	August	Sept
25.77	25.36	25.33	25.47	25.91	25.95	26.37

In its WM03 application, the Town of Yarmouth submitted an SDMP dated June 19, 2008 that included the Acres Table reduction approach shown in Table 6. This approach will be incorporated into the permit.

Table 6. Town of Yarmouth Acres-Reduction in its SDMP

Massachusetts Drought Levels	Watering Less Irrigated Acreage as Drought Severity Increases							
	Watering allowed up to designated percent							
Action Levels	Irrigated Tees & Greens		Irrigated Fairways		Irrigated Roughs		Irrigated Landscape & Ornamentals	
	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
Normal	100%	12	100%	44	100%	60	100%	0
Advisory †^	100%	12	80%	35	50%	30	*	XXX
Watch †	100%	12	60%	26	*	XXX	*	XXX
Warning †	100%	12	40%	18	*	XXX	*	XXX
Emergency **	TBD	TBD	TBD	TBD	*	XXX	*	XXX

† Nonessential outdoor irrigation use shall not occur between the hours of 9 am and 5 pm, except that hand-watering of hot spots may occur at any time

^Advisory-level reductions should also be implemented when the assigned groundwater trigger is hit.

* No irrigation allowed.

** Mitigation actions to be determined by the Governor's Emergency Proclamation.

6. Monitoring of Laban's Pond

The Town of Yarmouth shall install a staff gage and monitor the water level of Laban's Pond at the Bass River Golf Course on a weekly basis between April 1st and October 31st each year. Once per week, the water level shall be monitored immediately before and after the daily pond withdrawal occurs. Note that the monitored pumping period should include the maximum pond withdrawal per week. The maximum weekly withdrawal should be estimated to the extent practicable based on weather forecasts and other relevant factors.

The Town of Yarmouth shall also collect profiles of temperature, DO, conductivity, and transparency (via a Secchi disk) in May and August each year. The profile data shall be collected from the pond's deepest location at 10 equally-spaced intervals within the water column. If the pond's deepest location is not yet known, it can be determined by lowering a Secchi disk to the pond bottom repeatedly. An anchored float should then be placed at the deepest location for future measurements.

In addition, the Town of Yarmouth shall record the common plant and animal (including fish) species in the pond within one year of this permit's issuance to identify the wildlife that currently inhabit the pond. This assessment can be accomplished by recording common species while walking the pond's perimeter (to the extent possible) and catching fish via nets (e.g. minnow traps) or hook and line.

The water-level, profile, and wildlife survey results will be submitted with the Town of Yarmouth's WMA Annual Report Form. The Department will determine whether monitoring plan changes are warranted after the first year of data is submitted.

7. Mitigation Plan

The Town of Yarmouth's authorized withdrawal volume (0.353 MGD) exceeds its baseline volume (0.237 MGD) by 0.116 MGD. In order to mitigate this volume, the Town of Yarmouth shall obtain an Audubon Cooperative Sanctuary Program (ACSP) certification within eight years of permit issuance. Once the ACSP certification is obtained, the Town of Yarmouth shall renew its certification every three years through the life of the permit. The Town of Yarmouth will submit proof of 1) its membership payment with its Annual Report Form each year, and 2) its recertification with the Annual Report Form every 3 years.

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 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 the Department 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 the Department pursuant to M.G.L. c. 21G, §§ 15-17, M.G.L. 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 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 36.33.
6. **Duty to Report** The Permittee shall submit annually, on a form provided by the Department, a certified statement of the withdrawal. Such report is to be received by the Department by the date specified by the Department. 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** The Department may amend, suspend or terminate the permit in accordance with M.G.L. c. 21G and 310 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
Boston Office

5/1/17

Date

Instructions for Accessing U.S. Geologic Survey Groundwater Level and Massachusetts Drought Advisory Information

Groundwater level information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts groundwater levels in real time, i.e., the most recent, usually hourly, water level measured and recorded at each USGS monitoring well.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the daily mean depth to water level exceeds the designated trigger for 60 consecutive days (*i.e.*, when the depth to water becomes larger than the trigger value as the water table elevation declines). The daily water level is compared to the trigger for that month. **To determine if restrictions must be implemented on May 1 it is necessary to monitor the daily water level in March and April.**

Mean daily groundwater level readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=gw&group_key=county_cd

- Scroll down to 413930070190901 MA-A1W 306 Barnstable, MA.
- Click on the station number.
- On the pull-down menu "Available data for this site" choose "Daily data".
- Under "Available Parameters" click on "72019 Water level, depth L".
- Under "Output format" click on "Table" and enter the number of days of records (the default is 7 days; entering 60 will give you the past 60 days of data) and hit "GO".
- The table provides the "Daily Mean Depth to water level, feet below land surface" for the most recent number of days chosen.
- Compare each day's value to its month's trigger value (25th percentile) in your permit. Outdoor water use restrictions must be implemented when the daily depth to water has been at or below (i.e. a greater value than) the trigger values for 60 consecutive days.

Drought Advisory information is available at the Massachusetts Department of Conservation and Recreation (DCR) Drought Status Website at

<http://www.mass.gov/eea/agencies/dcr/water-res-protection/water-data-tracking/drought-status.html>

- The color coded map displays the six drought regions in Massachusetts. Restrictions are implemented when a Drought Advisory, Watch, Warning or Emergency is announced in your region through the DCR website.