

**BOARD OF WATER & WASTEWATER COMMISSIONER'S  
MEETING AGENDA\***  
**Don B. Griffin Room, Town Hall, 732 Main Street, Harwich MA**  
**Thursday, June 16, 2022, 11:00 a.m.**

*\*As required by Open Meeting Law, you are hereby informed that the Town will be video and audio taping as well as live broadcasting this public meeting. In addition, anyone in the audience who plans to video or audio tape this meeting must notify the Chairman prior to the start of the meeting.*

- I. CALL TO ORDER
- II. EXECUTIVE SESSION
- III. PUBLIC COMMENTS / ANNOUNCEMENTS
- IV. CONSENT AGENDA
- V. ABATEMENTS
  - A. 8 Sherwood Drive
  - B. 337 Route 28
- VI. PUBLIC HEARINGS / PRESENTATIONS
  - A. Public Hearing- Vote to Approve Order of Taking – Off Chatham Road – Taking, pursuant to G.L. c. 79, of a fee interest in five (5) parcels of vacant land located off Chatham Road, containing 7.76 acres of land of Owners Unknown.
  - B. Public Hearing- Vote to Approve Proposed Water Rate & Fee Increases
- VII. OLD BUSINESS
  - A. Sewer Regulations
- VIII. NEW BUSINESS
  - A. Superintendents Evaluation
  - B. Phase 3 Wastewater Pump Station Site- Water Department Land on Pleasant Bay Road
  - C. Water/Wastewater Rebranding
  - D. Water/Sewer Bill Sweepstakes Insert
  - E. Board Reorganization
- IX. SUPERINTENDENT'S REPORT
- X. COMMISSIONER'S REPORT
- XI. CORRESPONDENCE / ANY OTHER BUSINESS
- XII. NEXT MEETING: TBD
- XIII. ADJOURNMENT

*\*Per the Attorney General's Office: The Board of Water Commissioners may hold an open session for topics not reasonably anticipated by the Chair 48 hours in advance of the meeting following "New Business."*

*If you are deaf or hard of hearing or are a person with a disability who requires an accommodation, contact the Water Department Office at 508-432-0304 x.0 or by email at [customerservice@harwichwater.com](mailto:customerservice@harwichwater.com).*

Authorized Posting Officer:  
Tracey Alves | Board Secretary

Town Posting Date: \_\_\_\_\_  
\_\_\_\_\_ | Town Clerk

## V. ABATEMENTS

### A. 8 Sherwood Rd

Form Name: Abatement Application / 8 Sherwood Rd

Name of Applicant: \_\_\_\_\_  
Mailing Address: 8 Sherwood Road  
City/Town: harwich  
State: Massachusetts  
Zip/Postal Code: 02645  
Phone Number:  
Email Address:  
Date of Water Use Charge: 22 April 2022  
Name of Person Assessed (Owner):  
Location and Description of Property: 8 Sherwood Road  
Total Amount Assessed: 592.64  
Total Amount Requested: 592.64  
If request is for Water Usage, what is the requested amount?: 0  
If request is for a late fee, what is the requested amount?: 0  
If request is for another reason, what is the requested amount?: 592.64  
Reason For Abatement Request: I am sending an email to customer service to explain my reason for an abatement request.  
SUBSCRIBED THIS DAY UNDER PENALTIES OF PERJURY: 9 May 2022  
AGREE?: Checked

Office Use Only	
Board of Water & Wastewater Commissioners:	
Meeting Date: _____	
Approved / Denied	Approved Amount: _____
Signatures:	
x)	x)
x)	x)
x)	Notes:

## Customer Service - Harwich Water

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**From:** [REDACTED]  
**Sent:** Monday, May 9, 2022 8:29 PM  
**To:** Customer Service - Harwich Water  
**Subject:** Request for Abatement

Hello,

I called in to your office today to explain my side of a repair at my property. I was told to fill out the abatement form and to then send in an email with my reasoning since the abatement form has limitations with how many characters I can use.

Here is a summary of the incident:

My neighbor Dave Nicholson works for the Harwich Water Dept and noticed our shutoff valve by the street leaking when he drove by. He called in the issue and within a few minutes a couple guys showed up to address it. The leak was explained to me as "settling from our newly paved road (sewer) put downward pressure on our line which pulled at the shutoff valve leading to its failure". That is not verbatim, but very close. I was also told that they expected to see a lot more of this with all the newly paved roads from the sewer project.

Strictly going by what I was told from your department, I feel like this incident was the direct result of the newly completed road work and I believe its unfair for me to have to pay for a Robert Our mistake in this case. If someone had inadvertently run it over with a car while parking on my lawn, I could understand me being responsible for the repair and the charges associated with it. This particular incident though was completely out of my control and therefore I am requesting a complete abatement from the repair charges of \$592.64.

Thank you for your consideration.

- - -  
8 Sherwood Road  
Harwich, MA. 02645  
-





Accounts

Account: 07469

BLAKE, JR DWIGHT 8 SHERWOOD RD.  
<<SEWER PENDING>>

5/10/22 RECEIVED ABATEMENT REQUEST AND EMAIL WITH REASON DETAILS. WILL PUT ON THE AGENDA FOR BOWWC TO REVIEW ON 5/26.

5/9/22 MR BLAKE CALLED ABOUT BILL FOR CURB STOP REPAIR/OWNERS SIDE. SAID OUR GUYS TOLD HIM THAT THE SEWER WORK THAT WAS DONE MAY HAVE BEEN THE CAUSE AS THE REPAVING PUT STRAIN ON THE CURB STOP. TOLD HIM OF ABATEMENT PROCESS AND TO EXPLAIN HIS DISPUTE. SS

4/22/22 PER W&S- #8 Sherwood plans are showing the use of schedule 40 PVC instead of SDR 35 PVC. In Harwich's Sewer Rules & Regulations it specifies the use of SDR (Page 49 of 63). We would recommend reaching out to them and making this change.

4/19/22 SENT TO WESTON & SAMPSON FOR REVIEW.  
4/14/22 RECEIVED SEWER APPLICATION AND PLAN.

4/8/22 CALL FOR WATER IN ROAD. REPLACED PIPE PAST LEAKING CURB STOP. THIS IS ON HOMEOWNERS SIDE, THAT IS WHY THEY ARE BEING CHARGED- PER SH. / CHARGE IS \$592.64

2/8/22 SENT CERTIFIED WASTEWATER LETTER TO CONNECT PACKET.

9/18/19 CHANGED METER. 3277130  
8/23/19 CHG SET FOR 9/18 AM.  
1/27/10 MARK OUT REQUESTED. AN

DATE	CODE	READING	USAGE	AMOUNT	BALANCE
06/01/2005	1			25.00-	.00
05/12/2005	65			50.00	25.00
05/12/2005	10	1684000	9000	50.00	25.00-
02/22/2005	1			75.00-	75.00-
12/23/2004	1			1120.25-	.00
11/16/2004	10	1675000	318000	1120.25	1120.25
06/08/2004	1			79.10-	.00
05/11/2004	10	1357000	31000	79.10	79.10
11/19/2003	1			370.25-	.00
11/13/2003	10	1326000	118000	370.25	370.25
05/23/2003	1			53.90-	.00
05/19/2003	10	1208000	31000	53.90	53.90
12/12/2002	1			176.00-	.00
11/22/2002	10	1177000	90000	176.00	176.00
07/24/2002	1			25.00-	.00
06/28/2002	10	1087000	14000	25.00	25.00
03/27/2002	1			251.25-	.00
03/04/2002	10	1073000	125000	251.25	251.25
03/07/2001	1			107.20-	.00
02/13/2001	10	948000	58000	107.20	107.20
08/25/2000	1			72.90-	.00
08/03/2000	10	890000	41000	72.90	72.90
05/08/2000	1			201.80-	.00
04/21/2000	10	849000	102000	201.80	201.80
10/23/1999	100			.00	.00



05/25/2022 13:40  
talves

TOWN OF HARWICH - LIVE DATA  
ACCOUNT SUMMARY

P 1  
ubacthst

AR Category: 60

Form Type: A ACCOUNT DETAIL

Account # Location	Customer Date	Name Bill# P Service # Type	Parcel	Interest Due Curr Read # Usage	Ending Balance Amount	Total Due
07469 8	307132 SHERWOOD RD	BLAKE DWIGHT JR EH MA 02645	106/E1-6-R	.00	592.64	592.64
	04/29/2022	446496 MATERL-001 Charge			37.64	
	04/29/2022	446496 INSLAB-001 Charge			555.00	
	04/15/2022	443690 LWATER-001 Pmt Pr CHECK		Chk/Ref # 995140 12000	-66.92	
	03/31/2022	443690 LWATER-001 Charge		Chk/Ref # 995094 11000	-64.14	
	02/07/2022	433333 LWATER-001 Pmt Pr CHECK		Chk/Ref # 995041 46000	-215.07	
	12/30/2021	433333 LWATER-001 Charge		199000 176604	215.07	
	11/08/2021	422882 LWATER-001 Pmt Pr CHECK		153000 18000	-75.72	
	10/01/2021	422882 LWATER-001 Charge		Chk/Ref # 962638 13000	75.72	
	07/19/2021	412436 LWATER-001 Pmt Pr CHECK		Chk/Ref # 135000 13000	-58.57	
	06/29/2021	412436 LWATER-001 Charge		Chk/Ref # 813653 13000	58.57	
	04/09/2021	401886 LWATER-001 Pmt Pr CHECK		Chk/Ref # 607285 63000	-294.18	
	04/02/2021	401886 LWATER-001 Charge		109000 19000	294.18	
	02/08/2021	391433 LWATER-001 Pmt Pr CHECK		Chk/Ref # 509078 19000	-79.67	
	12/31/2020	391433 LWATER-001 Charge		46000 19000	79.67	
	11/09/2020	380536 LWATER-001 Pmt Pr CHECK		Chk/Ref # 354443 11000	-53.27	
	09/30/2020	380536 LWATER-001 Charge		27000 11000	53.27	
	07/20/2020	370108 LWATER-001 Pmt Pr CHECK		Chk/Ref # 243371 11000	-53.27	
	06/26/2020	370108 LWATER-001 Charge		16000 11000	53.27	
	05/19/2020	359851 LWATER-001 Pmt Pr CHECK		Chk/Ref # 784176 61000	-282.74	
	04/17/2020	359851 LWATER-001 Charge		5000 61000	282.74	
	02/14/2020	349537 LWATER-001 Pmt Pr CHECK		Chk/Ref # 500842 13000	-58.57	
	01/09/2020	349537 LWATER-001 Charge		3221000 11000	58.57	
	11/12/2019	339082 LWATER-001 Pmt Pr CHECK		Chk/Ref # 982031 11000	-53.27	
	10/04/2019	339082 LWATER-001 Charge		3208000 11000	53.27	
	07/22/2019	328714 LWATER-001 Pmt Pr CHECK		Chk/Ref # 758529 10000	-50.62	
	06/28/2019	328714 LWATER-001 Charge		3197000 10000	50.62	
	04/19/2019	318189 LWATER-001 Pmt Pr CHECK				
	04/09/2019	318189 LWATER-001 Charge				
	01/28/2019	307849 LWATER-001 Pmt Pr CHECK				
	01/10/2019	307849 LWATER-001 Charge				

\*\* END OF REPORT - Generated by Tracey \*\*

V. ABATEMENTS

B. 337 Route 28



03625



**APPLICATION FOR ABATEMENT  
WATER / WASTEWATER DEPARTMENT**

196 Chatham Road, Harwich MA 02645  
P: 508-432-0304 | customerservice@harwichwater.com

**OFFICE USE ONLY**

Fiscal Year: \_\_\_\_\_  
Date Rec'd: \_\_\_\_\_  
Account #: \_\_\_\_\_

To the Board of Water/Wastewater Commissioners:

Name of Applicant: CAPE LIFE GIFTS hereby applies for abatement.  
Property Owner: Arthur Wright  
Property Location: 337 Rte 28 Harwich Port  
Email Address: CapeLifeGifts@gmail.com  
Phone: 508 432 0200 Mobile Phone: 727 743 5903  
Total Bill Amount: 570.06 Water Bill #: 446440  
Amount Requested: 570.06

Reason for Abatement Request (attach additional sheet if necessary)

WATER meter was not properly drained. The meter sits in a very difficult position to unhook.  
Had met with Steve and will get our plumber to refit piping to make more accessible for future. Steve saw that it was not unhooked to drain water out of. We have found that water off every season the last two they did not unhook pipe inside.

Signature of Applicant: Art Wright Date: 6/2/22

SUBMIT completed application and required documentation to customerservice@harwichwater.com or mail to Harwich Water Department, Attention: BOWWC 196 Chatham Rd., Harwich MA 02645  
**MUST BE FILED WITH THE HARWICH BOARD OF WATER/WASTEWATER COMMISSIONERS NO LATER THAN THE DUE DATE WHICH THE WATER CHARGE BECAME A PART**

**OFFICE USE ONLY**

Board of Water/Wastewater Commissioners:

Meeting Date: \_\_\_\_\_ Approved  Amount: \_\_\_\_\_ Denied

Signature(s):

- X \_\_\_\_\_
- X \_\_\_\_\_
- X \_\_\_\_\_
- X \_\_\_\_\_
- X \_\_\_\_\_

Notes:

\_\_\_\_\_



## Accounts

Account: 03625

CAPE LIFE GIFTS 337 ROUTE 28 HP \*\*METER CAN BE LEFT IN PLACE WHEN SEASONAL SERVICE IS PERFORMED.- PER SH. NOT ENOUGH SPACE AROUND METER TO TIGHTEN OR LOOSEN BUCKLES AND PIPES IN THE WAY\*\*

## STIP AS OF 12/28/16

6/2/22 REQUEST FOR ABATEMENT RECEIVED. WILL REVIEW AT MEETING OF 6/16  
6/1/22 OWNER SAID HE WILL BE FILING FOR AN ABATEMENT. WM

5/6/22 did site visit. after talking with home owner. we agreed that that in the turn off season, we will move his service so that the meter faces another way. he will hire plumber to re do his plumbing so that the meter is more accessible

5/5/22 OWNER WILL BE FILING FOR AN ABATEMENT FOR THE FROZEN METER BECAUSE WE DID NOT FULLY DRAIN. / SPOKE WITH SH AND HE SAID THE METER AREA NEEDS TO BE ADDRESSED BECAUSE THERE IS NOT ENOUGH SPACE FOR US TO PROPERLY WORK. SITE VISIT SET FOR 5/5 WITH SH AND THE OWNER TO LOOK AT METER AREA. WM

3/28/22 CHANGED FROZEN METER. 0030400  
3/25/22 OWNER CALLED, WATER CAME GUSHING OUT OF SOMEWHERE WHEN HE TRIED TO TURN ON, HE THINKS HE NEEDS A NEW METER..508-364-3034 / NO RESPONSE FROM SH RE: SENDING OUT A TECH CALLED AND L/M FOR OWNER THAT WE WILL BE OUT ON MON MORNING 3/28 BETWEEN 8-12 NOON

3/22/22 ON  
3/17/22 TURN ON REQUEST.  
12/28/21 OFF. 0030400. LEFT MESSAGE OF TURN OFF. WM  
12/22//21 TURN OFF PER ART. CALL WHEN OFF. 727.743.5903 AND 508-364-3034 (GORDON)

12/20/21 ON THE FENCE ABOUT HAVING US TURN OFF AT STREET AND DRAIN LINE BECAUSE WE KEEP THE METER ATTACHED. RELAYED THAT WE STILL DRAIN WATER OUT OF THE METER WHEN WE DRAIN THE LINE SO IT REALLY ISN'T A BIG DEAL IF IT IS LEFT ATTACHED. HE WILL CALL BACK.

12/9/21 SENT COURTESY SEASONAL EMAIL.

3/30/21 ON.  
3/22/21 ON REQUESTED BY OWNER ANYTIME. WM

3/2/21 EDGE ENVIRONMENTAL, D/S 2021 090 4628, MONITORING WELLS, STAKED ON EAST SIDE (WELLS ARE NEAR DRIVEWAY AND OTHER IS TO EAST OF BUILDING) 603-867-7968 (SO-26264)

10/8/20 Off, 0027400  
10/6/20 TURN OFF REQUESTED BY OWNER FOR ANYTIME. WM  
3/19/20 ON, SEE S/O FOR READING. SS  
3/18/20 SEASONAL ON REQUESTED BY OWNER FOR ASAP. WM  
10/8/19 Off, 0025450  
10/1/19 TURN OFF REQUEST. TA

3/28/19 On, 0022310 Tightened buckle as tight as I could. This is the most ridiculously set up no room to tighten or loosen buckles !!!! Meter needs to be left in place at on & offs or have it replumbed !!!!

3/25/19 ON REQUESTED BY OWNER BY 4/9. WM

1/28/19 MAIL RETURNED. OWNER WILL RENEW FORWARD AT PO. WM



06/15/2022 10:57  
talves

TOWN OF HARWICH - LIVE DATA  
ACCOUNT SUMMARY

P 1  
ubacthat

AR Category: 60

Form Type: A ACCOUNT DETAIL

Account #	Customer	Name	Parcel	Interest Due	Ending Balance	Total Due
Location	Date	Bill# P Service #	Type	Curr Read # Usage	Amount	
03625	ROUTE 28 HP	83527 CAPE LIFE GIFTS, INC			483.06	483.06
337		HP MA 02646	12/K3-R		.00	
	05/06/2022	446440 FRZMTR-001	Pmt Pr	BANK XFER	-112.00	
	03/31/2022	446440 SVCLAB-001	Charge		50.00	
	03/31/2022	446440 FRZMTR-001	Charge		408.06	
	06/02/2022	439855 LFEE -001	Penlty		25.00	
	03/31/2022	439855 3STIP -001	Charge		17.00	
	03/31/2022	439855 3SEASN-001	Charge		50.00	
	03/31/2022	439855 1WATER-001	Charge		45.00	
	02/07/2022	429498 3STIP -001	Pmt Pr	BANK XFER	-17.00	
	02/07/2022	429498 1WATER-001	Pmt Pr	BANK XFER	-45.00	
	12/30/2021	429498 3STIP -001	Charge		17.00	
	12/30/2021	429498 1WATER-001	Charge		45.00	
	12/01/2021	419047 3STIP -001	Pmt Pr	BANK XFER	-17.00	
	12/01/2021	419047 3SEASN-001	Pmt Pr	BANK XFER	-50.00	
	12/01/2021	419047 1WATER-001	Pmt Pr	BANK XFER	-47.70	
	10/15/2021	419047 3STIP -001	Revers	BANK XFER	17.00	
	10/15/2021	419047 3SEASN-001	Revers	BANK XFER	50.00	
	10/15/2021	419047 1WATER-001	Revers	BANK XFER	47.70	
	10/08/2021	419047 3STIP -001	Pmt Pr	BANK XFER	-17.00	
	10/08/2021	419047 3SEASN-001	Pmt Pr	BANK XFER	-50.00	
	10/08/2021	419047 1WATER-001	Pmt Pr	BANK XFER	-47.70	
	10/01/2021	419047 3STIP -001	Charge		17.00	
	10/01/2021	419047 3SEASN-001	Charge		50.00	
	10/01/2021	419047 1WATER-001	Charge		47.70	
	07/23/2021	408605 3STIP -001	Pmt Pr	BANK XFER	-17.00	
	07/23/2021	408605 1WATER-001	Pmt Pr	BANK XFER	-36.29	
	06/29/2021	408605 3STIP -001	Charge		17.00	
	06/29/2021	408605 1WATER-001	Charge		36.29	
	04/26/2021	398057 3STIP -001	Pmt Pr	BANK XFER	-17.00	
	04/26/2021	398057 3SEASN-001	Pmt Pr	BANK XFER	-50.00	
	04/26/2021	398057 1WATER-001	Pmt Pr	BANK XFER	-35.00	
	04/02/2021	398057 3STIP -001	Charge		17.00	
	04/02/2021	398057 3SEASN-001	Charge		50.00	
	04/02/2021	398057 1WATER-001	Charge		35.00	
	02/03/2021	387603 3STIP -001	Pmt Pr	BANK XFER	-17.00	
	02/03/2021	387603 1WATER-001	Pmt Pr	BANK XFER	-35.00	
	12/31/2020	387603 3STIP -001	Charge		17.00	
	12/31/2020	387603 1WATER-001	Charge		35.00	
	11/09/2020	383536 3SEASN-001	Pmt Pr	BANK XFER	-2.58	
	09/30/2020	383536 3SEASN-001	App Cr		-47.42	
	09/30/2020	383536 3SEASN-001	Charge		50.00	
	09/30/2020	376705 1WATER-001	App Cr		47.42	
	09/30/2020	376705 3STIP -001	App Cr		-17.00	
	09/30/2020	376705 1WATER-001	App Cr		-85.00	
	09/30/2020	376705 3STIP -001	Charge		17.00	
	09/30/2020	376705 1WATER-001	Charge		37.58	
	09/30/2020	366279 1WATER-001	App Cr	27000 2000	102.00	
	07/20/2020	366279 3STIP -001	Pmt Pr	CHECK	-17.00	
	07/20/2020	366279 1WATER-001	Pmt Pr	CHECK	-137.00	
	06/26/2020	366279 3STIP -001	Charge		17.00	

## VI. PUBLIC HEARING

- A. Public Hearing- Vote to Approve Order of Taking – Off Chatham Road – Taking, pursuant to G.L. c. 79, of a fee interest in five (5) parcels of vacant land located off Chatham Road, containing 7.76 acres of land of Owners Unknown.

COMMONWEALTH OF MASSACHUSETTS

BARNSTABLE, SS.

TOWN OF HARWICH

ORDER OF TAKING

At a regularly convened meeting of the Water and Wastewater Commission of the Town of Harwich (the "Town") held on this 16th day of June, 2022, it was voted and ordered as follows:

The Water and Wastewater Commission of the Town of Harwich, duly appointed, qualified, and acting pursuant to the vote taken under Article 23 of the 2021 Annual Town Meeting, a certified copy of which is attached hereto and incorporated herein, G.L. Chapter 79, and any and every other power and authority hereunto enabling, hereby takes, on behalf of the Town, the fee in and to five (5) parcels of land, consisting of 7.76 acres, more or less, located off Chatham Road, identified by the Assessors as Parcel 43-E-7-0 (0.48 acres), 43-E-9-0 (0.96 acres), 43-E-9A-0 (0.82 acres), 43-E-10-0 (0.97 acres) and 43-E-12-0 (4.51 acres), and shown more particularly on the plan attached hereto as Exhibit A, and incorporated herein (the "Premises"), for wellhead and water supply protection purposes.

Said Premises are owned or supposed to be owned by an Owner or Owners Unknown. The Water and Wastewater Commission has acted with due diligence to identify the owners of the Premises and published notice of this taking with the Cape Cod Chronicle June 2<sup>nd</sup> 2022 and June 9<sup>th</sup> 2022.

Damages in the amount of \$139,350.00 are awarded to the Owner or Owners of the Premises in accordance with the provisions of G.L. c. 79, §6, as amended, and to any other person or corporation having an interest therein, and said damages have been deposited with the Treasurer of the Town of Harwich in accordance with G.L. c. 79, §7D.

Betterments are not to be assessed under this taking.

[Signature Page Follows]



IN WITNESS WHEREOF, the members of the Water and Wastewater Commission of the Town of Harwich, set our hands and seal on this 16th day of June, 2022.

TOWN OF HARWICH,  
By its Water and Wastewater Commission

\_\_\_\_\_  
Gary Carreiro, Chair

\_\_\_\_\_  
Allin P. Thompson, Jr., Vice Chair

\_\_\_\_\_  
Noreen Donahue, Clerk

\_\_\_\_\_  
Judith Underwood, Commissioner

\_\_\_\_\_  
John Gough, Commissioner

COMMONWEALTH OF MASSACHUSETTS

Barnstable, ss.

On this \_\_\_\_\_ day of \_\_\_\_\_, 2022, before me, the undersigned notary public, personally appeared \_\_\_\_\_, member of the Harwich Water and Wastewater Commission, as aforesaid, proved to me through satisfactory evidence of identification, which was \_\_\_\_\_, to be the person whose name is signed on the preceding document, and acknowledged to me that he/she/they signed it voluntarily for its stated purpose on behalf of the Town of Harwich.

\_\_\_\_\_  
Notary Public  
My Commission Expires:

786334/HARW/0001

**EXHIBIT A**

**Plan of Premises**



OWNERS OF RECORD:  
OWNERS UNKNOWN

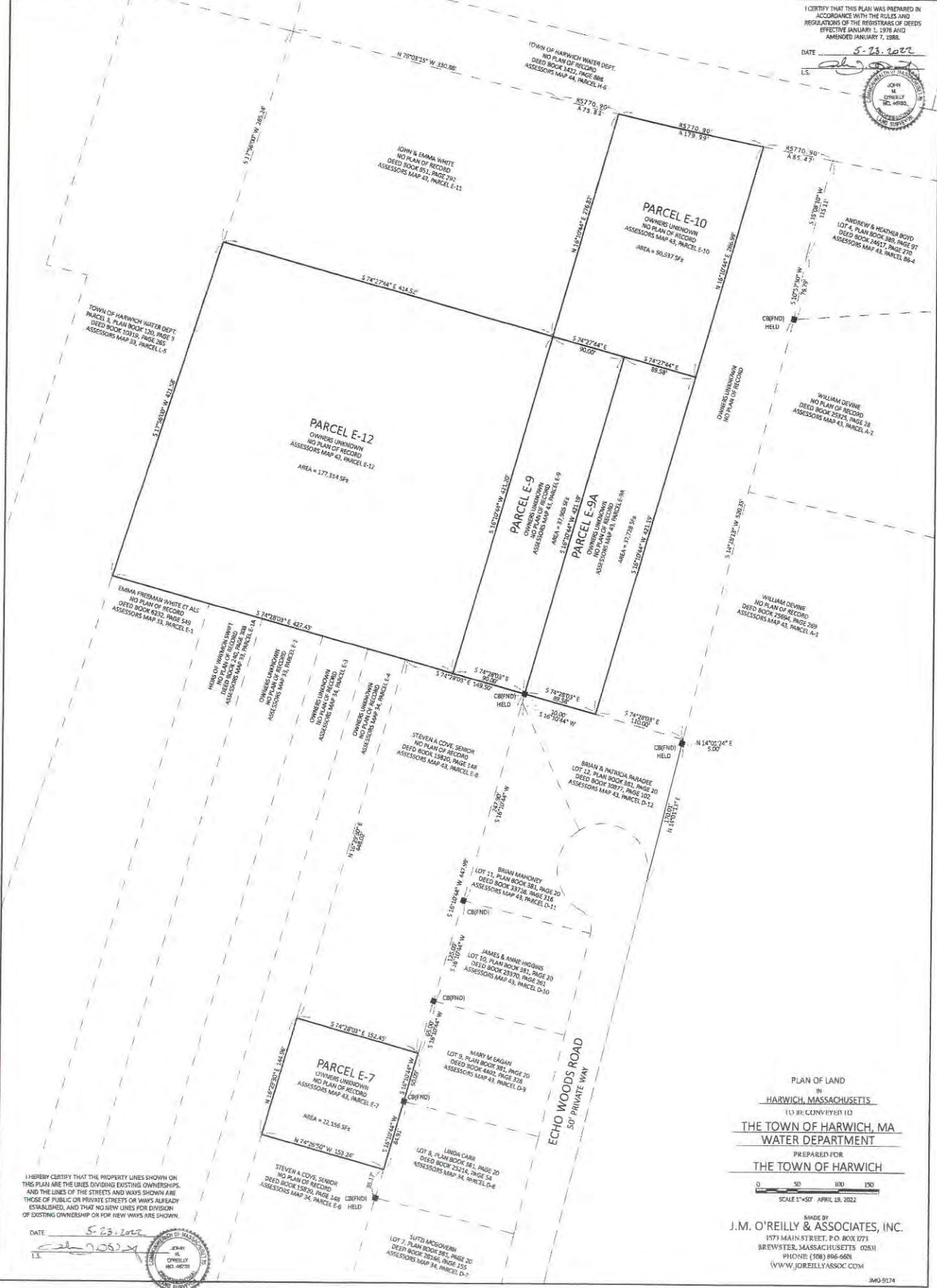
REFERENCES:  
PLAN BOOK 120 PAGE 3  
LAND COURT PLAN 4353.1  
PLAN BOOK 381 PAGE 20  
PLAN BOOK 604 PAGE 88

LEGEND  
■ CB CONCRETE BOUND  
□ FND FOUND

FOR REGISTRY USE

I CERTIFY THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRARS OF DEEDS EFFECTIVE JANUARY 1, 1978 AND AMENDED JANUARY 7, 2001.

DATE 5-23-2022  
L.S. [Signature]



I HEREBY CERTIFY THAT THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIPS, AND THE LINES OF THE STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

DATE 5-23-2022  
[Signature]

PLAN OF LAND  
IN  
HARWICH, MASSACHUSETTS  
113 3RD CONVEYERS 1D  
**THE TOWN OF HARWICH, MA**  
**WATER DEPARTMENT**  
PREPARED FOR  
**THE TOWN OF HARWICH**

SCALE 1"=50' APRIL 15, 2022

MADE BY  
**J.M. O'REILLY & ASSOCIATES, INC.**  
1973 MAIN STREET, P.O. BOX 0721  
BREWSTER, MASSACHUSETTS 02631  
PHONE: (508) 896-6625  
WWW.JOREILLYASSOC.COM

INO 5174

# Town of

Anita N. Doucette, MMC/CMMC  
Town Clerk



# Harwich

732 Main Street  
Harwich, Massachusetts 02645  
Tel. 508-430-7516  
Fax 508-430-7517

## TOWN OF HARWICH ANNUAL TOWN MEETING MAY 8, 2021

### LAND ACQUISITIONS FOR THE PROTECTION OF WELL HEAD AND WATER SUPPLY

ARTICLE 23: To see if the Town will vote to authorize the Water and Wastewater Commission to acquire by purchase, gift, eminent domain, or otherwise, five parcels of land, all with an address of 0 Chatham Road, identified as Assessor's Owners Unknown Parcels 43-E7-0, 43-E9-0, 43-E9-A-0, 43-E10-0, and 43-E12-0, consisting of 7.76 acres more or less, said parcels to be placed under the care, custody, control, and management of the Water and Wastewater Commission and held for well head and water supply protection purposes; and further to appropriate from Certified Retained Earnings of the Water Enterprise Fund the sum of \$175,000 more or less, for said acquisition, including all costs incidental and related thereto; provided however that said appropriation shall be reduced by the amount of any gifts or grants received under the Cape Cod Commission DRI Grant program or any other grant program made available to the Town at the time of said acquisition; and further to authorize the Water and Wastewater Commission to apply for any such grants and to enter into all necessary agreements and to take such actions as may be necessary to carry out the purposes of this Article; or to act in relation thereto. By request of the Water and Wastewater Commission. Estimated Cost: \$175,000.00.

*Explanation: The Water Department is seeking funds to support the acquisition of 5 undeveloped parcels off Chatham Road totaling 7.76 acres abutting the Chatham Rd. wellfield. Acquisition of these parcels will further support the department's efforts to protect the water supply by limiting development immediately adjacent to the Chatham Road wellfield. The requested funds will be used to support the necessary title research and property acquisition. Funds used for the property acquisition are eligible for 100% reimbursement through Cape Cod Commission DRI funds.*

**FINANCE COMMITTEE RECOMMENDS THIS ARTICLE BE ACCEPTED AND ADOPTED. VOTE: YES-7, NO-0**

#### **ROLL CALL VOTES:**

##### **Finance Committee:**

To accept and adopt:

Yeas: 7 (seven): Mark Ameres, Mary Anderson, Jon Chorey, Dale Kennedy, Angelo LaMantia, Dan Tworek, Brian Weiner

Nays: 0 (zero): none

##### **Board of Selectmen:**

To accept and adopt:

Yeas: 4 (four): Larry Ballantine, Don Howell, Michael MacAskill, Ed McManus

Nays: 0 (zero): none

**Article 23: Land acquisitions for the protection of well head and water supply**

**MOTION:** (Jon Chorey, Chairman – Finance Committee) I move that this article be accepted and adopted as printed in the warrant and further to authorize the Water and Wastewater Commission to acquire by purchase, gift, eminent domain, or otherwise, five parcels of land, all with an address of 0 Chatham Road, identified as Assessor's Owners Unknown Parcels 43-E7-0, 43-E9-0, 43-E9-A-0, 43-E10-0, and 43-E12-0, consisting of 7.76 acres more or less, said parcels to be placed under the care, custody, control, and management of the Water and Wastewater Commission and held for well head and water supply protection purposes; and further to appropriate from Retained Earnings of the Water Enterprise Fund the sum of \$175,000, for said acquisition, including all costs incidental and related thereto; provided however that said appropriation shall be reduced by the amount of any gifts or grants received under the Cape Cod Commission DRI Grant program or any other grant program made available to the Town at the time of said acquisition; and further to authorize the Water and Wastewater Commission to apply for any such grants and to enter into all necessary agreements and to take such actions as may be necessary to carry out the purposes of this Article.

Duly seconded

**ACTION:** This article required a 2/3 majority vote to pass, it was a unanimous vote, so declared.

A true copy  
Attest:



\_\_\_\_\_  
Anita N. Doucette, MMC/CMMC  
Town Clerk



# LEGAL ADVERTISING

Continued from Page 55

## TOWN OF HARWICH ZONING BOARD OF APPEALS LEGAL NOTICE

The Harwich Zoning Board of Appeals will hold public hearings on **Wednesday, June 29, 2022, starting at 7:00 PM**, in the Town Hall Griffin Room, 732 Main Street, Harwich, MA on the following applications. Any member of the public is invited to attend and provide comment to the Board. Written comments may be provided in advance.

Case No. **2022-24 Robert F. & Patricia Stadolnik**, Trustees of Robert R. Stadolnik Revocable Trust, c/o William D. Crowell, Esq., 466 Route 28, Harwich Port, MA 02646, owner of the property located at **298 Lower County Rd, Assessors' Map 12, Parcel W2-5**, in the RH-1 Zoning District. The Applicant seeks a Special Permit, or in the alternative a Variance, to add a finished second floor on the same footprint of a pre-existing, nonconforming single family dwelling, pursuant to the Harwich Zoning By-laws §325-52 and -54 and MGL Chapter 40A Sections 6 & 10.

Plans, site plans and all related documents to the above matters are available to review on the [Board of Appeals](#) webpage or may be viewed, during business hours, at the Town Clerk's or the Building Department offices at Town Hall, 732 Main Street, Harwich, MA 02645.

David Ryer,  
Chair

The Cape Cod Chronicle  
June 9 and 16, 2022

## TOWN OF HARWICH WATER AND WASTEWATER COMMISSION

Notice is hereby given that the Water and Wastewater Commission of the Town of Harwich, duly appointed, qualified, and acting pursuant to the vote taken under Article 23 of the 2021 Annual Town Meeting, C.L. Chapter 79, and any and every other power and authority hereunto enabling, intends to take, on behalf of the Town, the fee in and to five (5) parcels of land, consisting of 7.76 acres, more or less, located off Chatham Road, in the Town of Harwich, identified by the Assessors as Parcel 43-E-7-0 (0.48 acres), 43-E-9-0 (0.96 acres), 43-E-9A-0 (0.82 acres), 43-E-10-0 (0.97 acres) and 43-E-12-0 (4.51 acres) for wellhead and water supply protection purposes.

Said Premises are owned or supposed to be owned by an Owner or Owners Unknown.

A public meeting has been scheduled for Thursday, June 16, 2022, beginning at 11:00 a.m., in the Griffin Room at the Town Hall located at 732 Main Street, Harwich, MA where the Water and Wastewater Commission will vote on whether to approve the acquisition of the property through eminent domain.

Water and Wastewater Commission  
Town of Harwich  
Gary Carreiro, Chair  
Allin P. Thompson, Jr, Vice Chair  
Noreen Donahue, Clerk  
Judith Underwood, Commissioner  
John Gough, Commissioner

The Cape Cod Chronicle  
June 2 and 9, 2022

## TOWN OF HARWICH HISTORIC DISTRICT & HISTORICAL COMMISSION LEGAL NOTICE

The Historic District and Historical Commission (HDHC) will hold public hearing on the following matter Wednesday, June 15, 2022, in the Small Hearing Room, Town Hall, at 732 Main Street, Harwich, MA 02645. The public hearing will begin at 6:00 p.m. Any member of the public is invited to attend and provide information and comment relevant to this matters or may submit the same in writing.

**HH2022-10:** Pam and Harry Barnet, owner and James Bustamante, Longfellow Design, Applicant have filed a Notice of Intent for partial demolition of the existing single detached garage to remove the side window and replace it with a four panel sliding door. The home is over 100 years old according to the town's Historic Property Inventory List. The subject property is 5 Zylpha Road, Map 6B Parcel H2-9

All documents related to the above cases may be viewed on the Commission's Agenda page under the date of the meeting and are on file with the Building Department, 732 Main Street, Harwich, MA and may be viewed during regular department business hours.

In accordance with state law, this legal notice will also be available electronically at [www.masspublicnotices.org](#). The City/Town is not responsible for any errors in the electronic posting of this legal notice.

Mary Maslowski,  
Chairman

The Cape Cod Chronicle  
June 2 and 9, 2022

## PROPOSED WATER RATE AND FEE INCREASES TOWN OF HARWICH

The Harwich Board of Water/Wastewater Commissioners will be holding a public hearing on Thursday, June 16, 2022 at 1:00 a.m. at the Griffin Room at Town Hall, 732 Main Street, Harwich, MA 02645. The purpose of the hearing is to receive public input regarding the proposed new water rates and other new or increased fees established by the Board of Water/Wastewater Commissioners.

Proposed Rate and Fee Increases:

WATER RATES		
Base Rate - No increase	45.00	Quarterly
1,000 - 8,000 Gallons	1.42	per 1,000 gallons
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Fire Flow Test	50.00	per hour
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WATER SERVICE, WATER MAIN EXTENSION & FIRE SERVICE FEES		
Water Service Application Fee	50.00	New and renewal
Water Service Renewal	Quote	Application Fee + Time & Materials
New Water Service	Quote	Application Fee + System Development Fee + Time & Materials
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SYSTEM DEVELOPMENT FEE SCHEDULE		
1" Tap	500.00	
1.75" Tap	750.00	
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6" Tap	3,000.00	
8" Tap	4,000.00	
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16" Tap	8,000.00	

The proposed water rates and fee increases are available for viewing at <http://www.harwichwater.com/news-events/proposed-water-rates.html>. Hard copies are available at the Water Department office at 196 Chatham Road, Harwich MA and also at the Town Clerk's office at 732 Main Street, Harwich MA.

All interested parties are invited to attend. Written comments should be received by the Board of Water/Wastewater Commissioners on or before noon on Monday, June 13, 2022 by mail or email to [commissioners@harwichwater.com](mailto:commissioners@harwichwater.com). The proposed water rates would go into effect on July 1, 2022.

Gary Carreiro, Chairman  
Harwich Board of Water/Wastewater Commissioners

The Cape Cod Chronicle  
June 2 and 9, 2022

## AGENDA TOWN OF CHATHAM PLANNING BOARD MEETING JUNE 13, 2022 5:00PM REMOTE PARTICIPATION ONLY

Please Note: This meeting is being recorded and will be available shortly thereafter for scheduled and on-demand viewing on any smartphone or tablet device. If anyone else is recording the meeting, please notify the Chairman.

[https://teams.microsoft.com/join/19%3ameeting\\_MGU4NDMyMzEMzMs250NDVlWQZDENTHIMzIjZWNYzc1%40thread.v2?context=%7b%22id%22%3a%22f417a68-a412-4139-ad7c-97515be2b99f%22%2c%22oid%22%3a%22fa2370df-b871-476e-9968-386c45120bct%22%7d](https://teams.microsoft.com/join/19%3ameeting_MGU4NDMyMzEMzMs250NDVlWQZDENTHIMzIjZWNYzc1%40thread.v2?context=%7b%22id%22%3a%22f417a68-a412-4139-ad7c-97515be2b99f%22%2c%22oid%22%3a%22fa2370df-b871-476e-9968-386c45120bct%22%7d)

CALL IN NUMBER: +1 508-945-4410  
CONFERENCE ID: 588 133 004#

This meeting of the Chatham Planning Board is being conducted via remote participation in accordance with Section 20 of Chapter 20 of the Acts of 2021 and shall afford adequate, alternative means of public access via Microsoft Teams by calling the phone number: +1 508-945-4410 Conference ID: 588 133 004# or join the meeting online via Microsoft Teams through the link in the posted agenda.

Despite our best efforts, we may not be able to provide for real-time access, and we will post a record of this meeting on the Town's website as soon as possible. In accordance with Town policy the public can speak to any issue/hearing or business item on the agenda during the meeting when recognized by the chair.

MINUTES: May 23, 2022

SITE PLAN APPROVAL:  
Pre-Application

1238 Main Street/1238 Main Street, LLC/TS Land Surveying, LLC/Clark/Proposed change of use for portion of building from retail sales to fitness center (Formula Business) and another portion to bakery/restaurant.

RECOMMENDATION TO ZONING BOARD:

1238 Main Street/1238 Main Street, LLC/TS Land Surveying, LLC/Clark/Proposed change of use for portion of building from retail sales to fitness center (Formula Business) and another portion to bakery/restaurant.

Chairman's Comments:

PUBLIC COMMENT: The public can speak to any current or future issue relevant to the normal business of the Planning Board.

The full agenda for this meeting will be posted at least 48 hours prior to the meeting, excluding Saturdays, Sundays and legal holidays. Materials for the advertised agenda items are available for review on the Town of Chatham Website.

The Cape Cod Chronicle  
June 9, 2022

## HARWICH PLANNING BOARD PUBLIC HEARING NOTICE

The Harwich Planning Board will hold a public hearing beginning no earlier than 6:30 PM, Tuesday, June 28, 2022 in the Donn B. Griffin Room, Town Hall, 732 Main Street, Harwich, MA 02645 to consider the following matter(s). Any member of the public is invited to attend and provide comment to the Board. Written comments may be provided in advance.

Case no. **PB2022-13 Paul M. and Michelle P Vasil, owners, c/o William D. Crowell, Esq.**, seeks approval of a Modification of a Definitive Subdivision plan with waivers for Notre Dame Ave. Said application will result in one panhandle lot. The application is pursuant to MGL c. 41 §61.W and the Code of the Town of Harwich §325-18 (Q) and Chapter 400, Article II. The property is located at 10 and 0 Notre Dame Ave, Assessors' ID 21/X3-2 and X3-3 in the RM zoning district.

Case no. **PB2022-14 Kathleen E. and J. Alain Ferry, owners, c/o William D. Crowell, Esq.**, seeks approval of a Use Special Permit for an accessory building with bedrooms pursuant to the Code of Town of Harwich §§325-51, -14(Q) and -13. The property is located at 44 Chatham Road, Assessors ID 42/A4, in the MRL-1 and the W-R Zoning Districts.

Documents and plans related to the application may be viewed on the [Planning Board's home page](#), are on file with the offices of the Town Clerk's and the Planning Department at Town Hall, 732 Main Street, Harwich, MA 02645 and may be viewed during regular Town Hall hours. Email [ebanta@town.harwich.ma.us](mailto:ebanta@town.harwich.ma.us).

Duncan Berry,  
Chair

The Cape Cod Chronicle  
June 9 and 16, 2022

Legal Ad Deadline  
is Monday at Noon  
EXCEPT MONDAY HOLIDAYS  
when the deadline is  
Friday at Noon  
Please email your legal ads to:  
[barbara@capecodchronicle.com](mailto:barbara@capecodchronicle.com)

Memorandum of Agreement  
Between

Barnstable County through  
Cape Cod Commission  
3225 Main Street  
Barnstable, MA 02630

and

Board of Selectmen on behalf of  
Town of Harwich  
732 Main Street  
Harwich, MA 02645

This Memorandum of Agreement (Agreement) is entered into this \_\_\_\_\_ day of \_\_\_\_\_ 2022 by and between the Commissioners of Barnstable County, acting by and through the Cape Cod Commission (hereafter referred to as the "Commission") and the Board of Selectmen on behalf of the Town of Harwich (hereafter referred to as the "Town.")

WHEREAS, the Commission has received mitigation funds from various projects as a result of its Development of Regional Impact review process, and

WHEREAS, a portion of the funds are required to be used for open space purchase in the Town of Harwich, and

WHEREAS, the Town is interested in utilizing the mitigation funds for this purpose.

NOW THEREFORE, the Town enters into this Memorandum of Agreement with the Commission.

1. RESPONSIBILITIES OF THE TOWN

- A) The Town agrees to use these mitigation funds for the acquisition of several parcels, Owners Unknown, as detailed in the attached Order of Taking. In compliance with MGL Ch 79 sections 7D and 16, the Town shall hold these funds in escrow for contingent payment of damages to the owner or owners, should such owner(s) be identified. If no owner(s) come forward to collect damages within the prescribed timeframe, all funds remaining in the escrow account, including earned interest, will be transferred to a Town gift account to be used solely for the future purchase of open space in the Town.
- B) The Town shall maintain books, records, and other compilations of data pertaining to this work and/or services performed and the funds received and paid out under this Agreement to the extent and in such detail as shall properly substantiate claims for payment under the Agreement. All such records shall be kept for a period of six (6) years or for such longer period as is specified herein. All retention periods start on the first day after final payment under this Agreement. If any litigation, claim, negotiation, audit or other action involving the records is commenced prior to the expiration of the applicable retention period, all records shall be retained until completion of the action and resolution of all issues resulting therefrom, or until the end of the applicable retention period, whichever is later.
- C) The Town shall maintain financial records of the application and expenditure of the funds received hereunder in at least as much detail as may be contemporaneously required to comply with the financial reporting and record keeping requirements mandated by the Bureau of Accounts of the Department of Revenue, or any successor thereto, with respect to the Town's ordinary custody and expenditure of funds.

2. RESPONSIBILITIES OF THE COMMISSION

Upon execution of this Agreement, the Commission agrees to provide the Town with mitigation funds totaling \$xxx for expenses incurred in connection with this Agreement.

3. DURATION

A) This Memorandum of Agreement shall be effective until December 31, 2025 unless an extension in time is agreed to in writing by both parties.

B) Either the Town or the Commission may terminate this Agreement by written notice to the other party, if the other party substantially fails to fulfill its obligations hereunder through no fault of the terminating party, or if the other party violates or breaches any of the provisions of this Agreement. Such notice shall be delivered by certified mail at least thirty (30) days before such effective date. In the event of such termination or suspension of this Agreement, the Town shall be entitled to just and equitable compensation for satisfactory work completed, for services performed and for reimbursable expenses necessarily incurred in the performance of this Agreement up to and including the date of receipt of notice of termination or suspension.

4. AMENDMENT

This Agreement may be amended as mutually agreed by both parties in writing.

5. SIGNATORY AUTHORIZATION

The respective signatories hereto represent and warrant that they are duly authorized to execute this Agreement on behalf of the public entity on whose behalf they have signed this Agreement, and that all substantive and procedural preconditions to their effective execution of this Agreement on behalf of said public entities have been satisfied.

6. INTEGRATED INSTRUMENT

This Agreement shall take effect as an integrated instrument.

IN WITNESS WHEREOF, the TOWN and the COMMISSION execute this Agreement this day of \_\_\_\_\_ in the year two thousand and twenty-two.

BARNSTABLE COUNTY COMMISSIONERS

\_\_\_\_\_  
Sheila Lyons, Chair

\_\_\_\_\_  
Date

CAPE COD COMMISSION

\_\_\_\_\_  
Kristy Senatori, Executive Director

\_\_\_\_\_  
Date

HARWICH BOARD OF SELECTMEN

\_\_\_\_\_  
Michael MacAskill, Chair

\_\_\_\_\_  
Julie Kavanagh, Vice-Chair

\_\_\_\_\_  
Larry Ballantine, Selectman

\_\_\_\_\_  
Mary Anderson, Selectman

\_\_\_\_\_  
Donald Howell, Selectman

\_\_\_\_\_  
Date



## VI. PUBLIC HEARING

B. Public Hearing- Vote to Approve Proposed Water Rate & Fee Increases

**PROPOSED WATER RATES AND FEE INCREASES  
TOWN OF HARWICH**

The Harwich Board of Water/Wastewater Commissioners will be holding a public hearing on Thursday, June 16, 2022 at 11:00 a.m. at the Griffin Room at Town Hall, 732 Main Street, Harwich, MA 02645. The purpose of the hearing is to receive public input regarding the proposed new water rates and other new or increased fees established by the Board of Water/Wastewater Commissioners.

Proposed Rate and Fee Increases:

WATER RATES		
Base Rate .... No increase	45.00	Quarterly
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The proposed water rates and fee increases are available for viewing at <http://www.harwichwater.com/news-events/proposed-water-rates.html>. Hard copies are available at the Water Department office at 196 Chatham Road, Harwich MA and also at the Town Clerk's office at 732 Main Street, Harwich MA.

All interested parties are invited to attend. Written comments should be received by the Board of Water/Wastewater Commissioners on or before Noon on Monday, June 13, 2022 by mail or email to [commissioners@harwichwater.com](mailto:commissioners@harwichwater.com). The proposed water rates would go into effect on July 1, 2022.

Gary Carreiro, Chairman  
Harwich Board of Water/Wastewater Commissioners



# LEGAL ADVERTISING

Continued from Page 55

## TOWN OF HARWICH ZONING BOARD OF APPEALS LEGAL NOTICE

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David Ryer,  
Chair

The Cape Cod Chronicle  
June 9 and 16, 2022

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Water and Wastewater Commission  
Town of Harwich  
Gary Carreiro, Chair  
Allin P. Thompson, Jr., Vice Chair  
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Judith Underwood, Commissioner  
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The Cape Cod Chronicle  
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Chairman

The Cape Cod Chronicle  
June 2 and 9, 2022

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Gary Carreiro, Chairman  
Harwich Board of Water/Wastewater Commissioners

The Cape Cod Chronicle  
June 2 and 9, 2022

## AGENDA TOWN OF CHATHAM PLANNING BOARD MEETING JUNE 13, 2022 • 5:00PM REMOTE PARTICIPATION ONLY

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[https://teams.microsoft.com/join/19%3ameeting\\_MGU4NDMyMzEIMzMsZ50NDVlWZDENThMzIlZWNYzc1%40hread.v2?context=%7b%22id%22%3a%224f417a68-a412-4139-a47c-97515be2b99f%22%2c%22oid%22%3a%22fa2370df-b871-476e-9968-386c45120bcd%22%2d](https://teams.microsoft.com/join/19%3ameeting_MGU4NDMyMzEIMzMsZ50NDVlWZDENThMzIlZWNYzc1%40hread.v2?context=%7b%22id%22%3a%224f417a68-a412-4139-a47c-97515be2b99f%22%2c%22oid%22%3a%22fa2370df-b871-476e-9968-386c45120bcd%22%2d)

CALL IN NUMBER: +1 508-945-4410  
CONFERENCE ID: 588 133 004#

This meeting of the Chatham Planning Board is being conducted via remote participation in accordance with Section 20 of Chapter 20 of the Acts of 2021 and shall afford adequate, alternative means of public access via Microsoft Teams by calling the phone number: +1 508-945-4410 Conference ID: 588 133 004# or join the meeting online via Microsoft Teams through the link in the posted agenda.

Despite our best efforts, we may not be able to provide for real-time access, and we will post a record of this meeting on the Town's website as soon as possible. In accordance with Town policy the public can speak to any issue/hearing or business item on the agenda during the meeting when recognized by the chair.

MINUTES: May 23, 2022

SITE PLAN APPROVAL:  
Pre-Application

1238 Main Street/1238 Main Street, LLC/TS Land Surveying, LLC/Clark/Proposed change of use for portion of building from retail sales to fitness center (Formula Business) and another portion to bakery/restaurant.

RECOMMENDATION TO ZONING BOARD:

1238 Main Street/1238 Main Street, LLC/TS Land Surveying, LLC/Clark/Proposed change of use for portion of building from retail sales to fitness center (Formula Business) and another portion to bakery/restaurant.

Chairman's Comments:

PUBLIC COMMENT: The public can speak to any current or future issue relevant to the normal business of the Planning Board.

The full agenda for this meeting will be posted at least 48 hours prior to the meeting, excluding Saturdays, Sundays and legal holidays. Materials for the advertised agenda items are available for review on the Town of Chatham Website.

The Cape Cod Chronicle  
June 9, 2022

## HARWICH PLANNING BOARD PUBLIC HEARING NOTICE

The Harwich Planning Board will hold a public hearing beginning no earlier than 6:30 PM, Tuesday, June 28, 2022 in the Donn B. Griffin Room, Town Hall, 732 Main Street, Harwich, MA 02645 to consider the following matter(s). Any member of the public is invited to attend and provide comment to the Board. Written comments may be provided in advance.

Case no. **PB2022-13 Paul M. and Michelle P. Vasil, owners**, c/o William D. Crowell, Esq., seeks approval of a Modification of a Definitive Subdivision plan with waivers for Notre Dame Ave. Said application will result in one panhandle lot. The application is pursuant to MGL c. 41 §81.W and the Code of the Town of Harwich §325-18 (Q) and Chapter 400, Article II. The property is located at 10 and 0 Notre Dame Ave, Assessors' ID 21 / X3-2 and X3-3 in the R-M zoning district.

Case no. **PB2022-14 Kathleen E. and J. Alain Ferry, owners**, c/o William D. Crowell, Esq., seeks approval of a Use Special Permit for an accessory building with bedrooms pursuant to the Code of Town of Harwich §325-51, -14(Q) and -13. The property is located at 44 Chatham Road, Assessors ID 42 / A4, in the MRL-1 and the W-R Zoning Districts.

Documents and plans related to the application may be viewed on the [Planning Board's home page](#), are on file with the offices of the Town Clerk's and the Planning Department at Town Hall, 732 Main Street, Harwich, MA 02645 and may be viewed during regular Town Hall hours. Email [sbanta@town.harwich.ma.us](mailto:sbanta@town.harwich.ma.us).

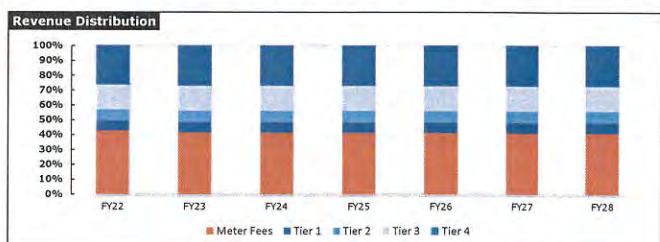
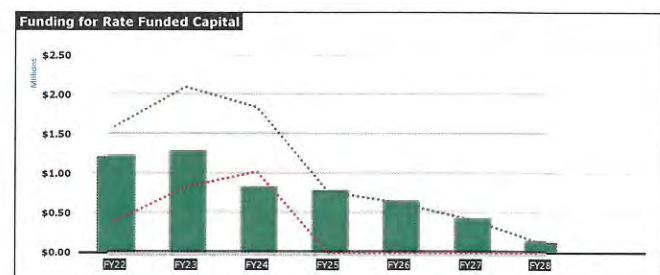
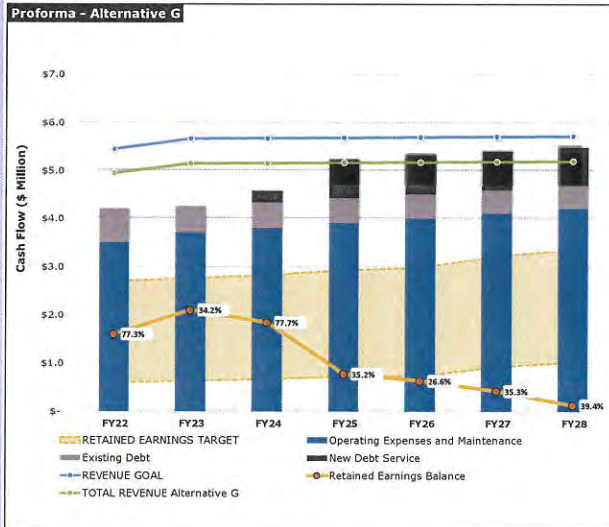
Duncan Berry,  
Chair

The Cape Cod Chronicle  
June 9 and 16, 2022

Legal Ad Deadline  
is Monday at Noon  
EXCEPT MONDAY HOLIDAYS  
when the deadline is  
Friday at Noon  
Please email your legal ads to:  
[barbara@capecodchronicle.com](mailto:barbara@capecodchronicle.com)

Proposed Rate Structure Alternative G (+\$10 Base FY22 & 5% Increase all Tiers (FY22 & FY23))

	FY22	FY23	FY24	FY25	FY26	FY27	FY28
<b>REVENUE Alternative G</b>							
<b>+\$10 Base FY22 &amp; 5% Increase all Tiers (FY22 &amp; FY23)</b>	5%	5%	0%	0%	0%	0%	
Total Rate Revenue	\$4,217,451	\$4,348,535	\$4,358,733	\$4,368,918	\$4,379,089	\$4,389,247	\$4,399,392
Non-Rate Revenue	\$735,273	\$799,000	\$799,000	\$799,000	\$799,000	\$799,000	\$799,000
<b>TOTAL REVENUE Alternative G</b>	<b>\$4,952,724</b>	<b>\$5,147,535</b>	<b>\$5,157,733</b>	<b>\$5,167,918</b>	<b>\$5,178,089</b>	<b>\$5,188,247</b>	<b>\$5,198,392</b>
Delta previous	\$524,891	\$131,084	\$10,199	\$10,185	\$10,171	\$10,158	\$10,143
Retained Earnings Contribution Goal	\$495,272	\$514,753	\$515,773	\$516,792	\$517,809	\$518,825	\$519,839
<b>REVENUE GOAL</b>	<b>\$5,447,996</b>	<b>\$5,662,288</b>	<b>\$5,673,506</b>	<b>\$5,684,710</b>	<b>\$5,695,898</b>	<b>\$5,707,072</b>	<b>\$5,718,231</b>
Surplus/Shortfall	-\$495,272	-\$514,753	-\$515,773	-\$516,792	-\$517,809	-\$518,825	-\$519,839
<b>Net Revenue (Revenue-Expense)</b>	<b>\$742,039.00</b>	<b>\$891,590.92</b>	<b>\$571,420.05</b>	<b>-\$43,936.66</b>	<b>-\$143,525.02</b>	<b>-\$212,423.72</b>	<b>-\$293,419.34</b>
Retained Earnings Expense	\$390,000	\$831,000	\$1,025,000	\$0	\$0	\$0	\$0
Retained Earnings Balance	\$1,603,029	\$2,104,610	\$1,845,030	\$776,093	\$632,568	\$420,145	\$126,725
Retained Earnings as Percent of Operating Expenses	38.1%	49.5%	42.5%	17.5%	14.0%	9.1%	2.7%
<b>Rate Funded Capital Analysis</b>	<b>FY22</b>	<b>FY23</b>	<b>FY24</b>	<b>FY25</b>	<b>FY26</b>	<b>FY27</b>	<b>FY28</b>
Shifted Retained Earnings (2 years)	\$1,603,029	\$2,104,610	\$1,845,030	\$776,093	\$632,568	\$420,145	\$126,725
Rate Funded Capital (from above)	\$390,000	\$831,000	\$1,025,000	\$0	\$0	\$0	\$0
Net Funding Available	\$1,213,029	\$1,273,610	\$820,030	\$776,093	\$632,568	\$420,145	\$126,725







**FY22 Year-to-Date Revenue Projection vs. Actual**

	Quarter 1		Quarter 2		Quarter 3		Year to Date		% Dif
	Projection	Actual	Projection	Actual	Projection	Actual	Projection	Actual	
Base Rate Revenue	\$ 450,000	\$ 452,385	\$ 450,000.00	\$ 452,610	\$ 450,000	\$ 452,970	\$ 1,350,000	\$ 1,357,965	0.59%
Consumption Revenue	\$ 1,434,899	\$ 1,473,550	\$ 310,101.00	\$ 331,059	\$ 170,983	\$ 159,724	\$ 1,915,983	\$ 1,964,333	2.52%
Total Quarterly Revenue	\$ 1,884,899	\$ 1,925,935	\$ 760,101	\$ 783,669	\$ 620,983	\$ 612,694	\$ 3,265,983	\$ 3,322,298	1.72%
Gallons Used	338,725,223	356,766,000	99,566,317	118,715,000	70,212,676	67,934,000	508,504,216	543,415,000	6.87%

	Current	Proposed
	FY22 Rates	FY23 Rates
Base Rate	\$ 45.00	\$ 45.00
Tier 1	\$ 1.35	\$ 1.42
Tier 2	\$ 2.78	\$ 2.92
Tier 3	\$ 4.15	\$ 4.35
Tier 4	\$ 6.01	\$ 6.31

Est Revenue	\$ 4,217,451	\$ 4,348,535
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## VII. OLD BUSINESS

### A. Sewer Regulations



Town of Harwich, Massachusetts

Water Department

## **Sewer Use Regulations**

Adopted by

Board of Water & Wastewater Commissioners

Adopted May 26, 2021



## Introduction

Pursuant to provisions of Massachusetts General Laws Chapter 83, Section 10, the Town of Harwich hereby establishes the following sewer use rules and regulations (Regulations) governing the use of the wastewater collection system in Harwich, County of Barnstable, Commonwealth of Massachusetts.

While these Regulations will apply to the wastewater collection system throughout the town, they have been specifically developed herein for the wastewater collection system to be implemented in the Pleasant Bay Watershed area of Harwich. Wastewater collected in this area will be conveyed to the Town of Chatham wastewater treatment facility. It is anticipated that these Regulations will be modified accordingly for systems to be implemented in other watersheds.

## Purpose

The purpose of these Rules and Regulations are:

- A. To establish the technical and administrative procedures for making connections to the sanitary sewer system including standards of materials and design;
- B. To establish requirements, restrictions, and controls on the quantities and quality of what may be discharged to the sanitary sewer system; such as discharges that may:
  1. Interfere with the operation of the sewer system, pumping station or publicly owned treatment works (POTW) in any way;
  2. Pass through the POTW, to the groundwaters, inadequately treated effluent that may cause contravention of standards for these waters or surface waters or cause violation of the POTW's Groundwater Discharge Permit (GWDP) or negatively impact the watershed into which treated effluent is discharged;
  3. Reduce the opportunity to reclaim or recycle treated wastewater and/or sludge from the system;
  4. Increase the cost or otherwise hamper or limit the disposal of sludges and other residuals;
  5. Endanger municipal employees or the public;
  6. Cause, directly or indirectly, any public nuisance condition;
- C. To prevent new sources of inflow and infiltration (I/I) and eliminate private source inflow;

- D. To provide for equitable distribution to all users of the POTW, all costs associated with the collection, transmission, treatment, and residuals disposal, and to provide for the collection of such costs; and
- E. To provide for the orderly planning of sewer systems' and treatment systems' components to improve the health and environmental quality of the Town of Harwich and its people and resources while discharging wastewater into the Chatham Sewer System.

The following rules and regulations are a part of the contract with every person who discharges wastewater into the Town of Chatham Sewer System from the East Harwich area, and governs the relationship between the Town of Harwich and its consumers, contractors and/or developers, and all other persons who install sewers, discharges wastewater, is connected into the sewer system or applies for a connection to the sewer system.

**Table of Contents**

**Introduction**..... 2

**Purpose**..... 2

**Article I. Definitions**..... 5

**Article II. Regulation of Sewer** ..... 8

**Article III. Building Sewers and Connections**..... 109

**Article IV. Use of Public Sewer** ..... 1110

**Article V. Protection from Damage**..... 1615

**Article VI. Power and Authority of Inspection** ..... 16

**Article VII. Penalties** ..... 1716

**Article VIII. Validity** ..... 1817

**Article IX. Collection of Sewer and Service Charges** ..... 1817

**Article X. Grievance and Variance Procedure**..... 18

**Article XI. Ordinance in Force**..... 1918

**Article XII. Land Use Controls – Wastewater Flow Management** ..... 19

**Appendix A. Design of Sewers**..... 22

**Appendix B. Construction Technical Specifications**..... 47

**Article I. Definitions**

Unless the context specifically indicates otherwise, the meaning of terms used in this ordinance shall be as follows:

**Section 1.** “**Act**” or “**the Act**” shall mean the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et seq, and the regulations promulgated thereunder, as amended from time to time.

**Section 2.** “**Board**” shall mean the Board of Wastewater Commissioners of the Town of Harwich.

**Section 3.** “**BOD**” (Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five (5) days at 20 degrees centigrade, expressed in milligrams per liter (mg/l).

**Section 4.** “**Building Drain**” shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer. The building drain ends at the building sewer which begins five (5) feet or (1.5) meters outside the inner face of the building’s wall.

**Section 5.** “**Building Sewer**” shall mean the extension from the building drain, five feet (5’) or one and one half (1.5) meters outside the inner face of the building’s wall, to the public sewer or other place of disposal.

**Section 6.** “**Combined Sewer**” shall mean a sewer receiving both surface runoff water and sanitary sewage.

**Section 7.** “**Department of Environmental Protection**”, or “**DEP**” shall mean the Massachusetts Department of Environmental Protection, established pursuant to M.G.L. Chapter 21, Section 26 or, where appropriate, the Administrator, Director or other duly authorized official of said agency.

**Section 8.** “**Director**” (or Superintendent) shall mean the person appointed by the Town of Harwich as the Superintendent of the Wastewater (or Sewer) Department of the Town of Harwich, who is vested with the authority and responsibility for the implementation and enforcement of these rules and regulations or the authorized deputy, agent, or representative.

**Section 9.** “**Environmental Protection Agency**”, or “**EPA**” shall mean the United States Environmental Protection Agency, or, where appropriate, the Administrator or other duly authorized official of said Agency.

**Section 10.** “**Garbage**” shall mean solid wastes from the domestic or commercial handling, storage, preparation, cooking, and dispensing or sale of produce.

**Section 11. “Industrial Wastes”** shall mean any water carried or liquid wastes resulting from any process or industrial manufacturing processes, trade, business, or activity listed in 310 CMR 15.004.

**Section 12. “Licensed Utility Installer”** or “L.U.I.” shall mean a person, as defined in Section 15, who upon submitting a License and Permit Bond, Certificate of Insurance, and pays the Utility Installer’s License fee, all of which are approved by the Director of the Sewer Department, is permitted to perform the installation of sanitary sewers or building sewers.

**Section 13. “Natural Outlet”** shall mean any outlet into a watercourse, pond, lake, or other body of surface ground water.

**Section 14. “NPDES”** shall mean National Pollutant Discharge Elimination System.

**Section 15. “Person”** shall mean any individual, partnership, co-partnership, firm, company, corporation, association, joint venture, joint stock company, trust, estate, governmental entity, or their legal representatives, agents or assigns. The masculine gender shall include the feminine, the singular shall include the plural where indicated by the context.

**Section 16. “pH”** shall mean the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in grams per liter of solution.

**Section 17. “Private Wastewater Collection, Treatment, and Disposal Facilities”** shall mean any system, not owned and/or controlled by a municipal (town) sewer department, used for the collection, treatment, and disposal of wastewater from one or more properties.

**Section 18. “Properly Shredded Garbage”** shall mean the wastes from the preparation, cooking, and dispensing and sale of food that has been shredded to such a degree that all particles will be carried freely under the conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch (1.27 centimeters) in any dimension.

**Section 19. “Public property”** shall mean land, right-of way, or easement owned or controlled by the Town, or other Town, the Commonwealth of Massachusetts, United States government, or any department, political subdivision, or governmental entity.

**Section 20. “Public Sewer”** shall mean a sewer in which all owners of abutting properties have equal rights and is controlled by a municipal sewer department.

**Section 21. “Sanitary Sewer”** shall mean a sewer which carries wastewater from residential dwellings or commercial facilities without industrial waters or waste and to which stormwaters, surface waters, and groundwaters are not intentionally admitted.

**Section 22. “Sewage”** shall mean a combination of the water-carrying wastes from residences, business buildings, institutions, and industrial establishments, together with such materials, surface waters, and storm waters as may be present. The preferred term is wastewater.



**Section 23. “Sewage Treatment Facility”** shall mean any arrangement of devices and structures used for treating wastewater. The preferred phrase is wastewater treatment facility.

**Section 24. “Sewage Works”** shall mean all facilities for collecting, pumping, treating, and disposing of wastewater. The preferred phrase is wastewater facilities.

**Section 25. “Sewer”** shall mean a pipe or conduit for carrying wastewater.

**Section 26. “Sewer Department”** shall mean the Town of Harwich’s wastewater collection, treatment, and disposal system(s) owned and operated by the Town of Harwich.

**Section 27. “Shall”** is mandatory; “May” is permissive.

**Section 28. “Slug”** shall mean any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds, for any period of duration, longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration or flows during normal operation.

**Section 29. “Storm Drain”** (sometimes termed “Storm Sewer”) shall mean a sewer which carries storm, surface, and drainage waters, but excludes wastewater and industrial wastes, other than unpolluted cooling water.

**Section 30. “Suspended Solids”** shall mean solids that either float on the surface of, or are in suspension in water, wastewater, or other liquids, and which are removable by laboratory filtering.

**Section 31. “Town”** shall mean the Town of Harwich, Massachusetts or its legal representative, agent, or assign.

**Section 32. “Town Administrator”** shall mean the Town of Harwich Board of Selectmen’s appointed Town Administrator.

**Section 33. “Watercourse”** shall mean a channel in which a flow of water occurs, either continuously or intermittently.

**Section 34. “Wastewater”** shall mean the liquid and water-carried industrial, non-domestic or domestic wastes, including sewage, industrial wastes, other wastes, or any combination thereof, from dwellings, commercial buildings, industrial facilities, and institutions, together with any groundwater, surface water and stormwater that may be present.

**Section 35. Abbreviations**

ANSI	American National Standards Institute
ASTM	American Society for testing and Materials
AWWA	American Water Works Association
BOD	Biochemical Oxygen Demand

CFR	Code of Federal Regulations
COD	Carbonaceous Oxygen Demand
CWMP	Comprehensive Wastewater Management Plan
DEP	Department of Environmental Protection
EPA	Environmental Protection Agency
HDPE	High Density Polyethylene
I/I	Inflow and Infiltration
MEP	Massachusetts Estuaries Project
MEPA	Massachusetts Environmental Policy Act
POTW	Publicly Owned Treatment Works
PVC	Polyvinyl Chloride
SSA	Sewer Service Area
TSS	Total Suspended Solids

## Article II. Regulation of Sewer

### Section 1. Existing Structures

Any structure in existence on July 1, 2016, regardless of its flow, may maintain that flow. To determine the approved wastewater flow for structures existing on or before July 1, 2016 the structures use and floor plan will be evaluated and allocated flow consistent with 310 CMR 15.203 System Sewage Flow Design Criteria and any Board of Health Regulation amending such in effect on July 1, 2016. -No person shall modify an existing structure or change its use so as to increase its wastewater flow. Design criteria contained in 310 CMR 15.203, and any Board of Health Regulation modifying such, shall be used to determine whether a proposed modification or change in use shall constitute an increase in wastewater flow. Expansion or modification of existing structures, which may result in increased flow, shall not be allowed unless the increase is in compliance with the Board of Health's Regulations in effect on July 1, 2016.

### Section 2. Determination of Present Wastewater Flow

Wastewater flow to the municipal sewer shall be determined using provisions set forth in 310 CMR 15.203: System Sewage Flow Design Criteria, and any local Board of Health Regulation modifying such in effect on July 1, 2016. The owner of any property shall, upon reasonable notice and request, allow an inspection of a property for a determination of flow by an agent of the Board of Health, except that in lieu of this inspection, the owner of the property may submit a floor plan with sufficient detail to account for all outside structure dimensions. This floor plan must bear the signature of approval of a Certified Septic System Inspector.

### Section 3. Undeveloped Parcels

For the purpose of determining wastewater flow, any existing lot, otherwise qualified, may be permitted for that wastewater flow as determined under the Board of Health's Regulations in effect on July 1, 2016, or 310 CMR 15,000 et. Seq, whichever is less. Parcels located within a



ZONE II of the public water supply or other designated nitrogen sensitive areas shall be limited to no more than 1 bedroom per 10,000SF of lot size or as allowed under Section 5. Aggregate Determinations of Flows and Nitrogen Loadings

#### **Section 4. Rebuilding because of fire, flood, storm or other acts of nature**

A property owner may rebuild a structure destroyed by fire, flood, storm or other acts of nature as a matter of right provided that the new structure does not exceed the wastewater flow of the structure being replaced except as allowed under 310 CMR 15.203 System Sewage Flow Design Criteria and any Board of Health Regulation amending such in effect on July 1, 2016.

#### **Section 5. Aggregate Determinations of Flows and Nitrogen Loadings**

(1) The 440 gallons per day per acre nitrogen loading limitation imposed by 310 CMR 15.214 may be calculated in the aggregate by using nitrogen credit land in accordance with an approved Facility Aggregation Plan or Community Aggregation Plan. Applicants proposing systems to be located within a community or region covered by a Community Aggregation Plan approved by the Department shall calculate aggregate determinations of flows and nitrogen loadings in accordance with the Plan and the Department's Guidelines for Title 5 Aggregation of Flows and Nitrogen Loading. All other applicants seeking aggregate determination of flows and nitrogen loading shall prepare a Facility Aggregation Plan in accordance with 310 CMR 15.216 and the Department's Guidelines for Title 5 Aggregation of Flows and Nitrogen Loading.

(2) To qualify as Nitrogen Credit Land, the land must: (a) be within the same Nitrogen Sensitive Area as the facility if the facility is in a Nitrogen Sensitive Area; (b) be within the same subdivision in an area where the use of both on-site systems and drinking water wells are proposed to serve the facility; (c) not have any manmade sources of nitrogen, including, but not limited to, wastewater discharges and nitrogen based fertilizer located thereon; (d) not be used for raising, breeding or keeping of animals; (e) be pervious; (f) be outside of Zone As, Velocity Zones and Regulatory Floodways; (g) not be covered by any surface water body including, but not limited to, a river, stream, lake, pond, or ocean; (h) not be currently designated as nitrogen credit land; and (i) meet the criteria set forth in the Department's Guidelines for Title 5 Aggregation of Flows and Nitrogen Loading.

#### **Section 56. Variances**

In the case of unusual and substantial hardship, not the result of acts or omissions of the landowner, the Board of Wastewater Commissioners, may apply for a variance to be held after a public hearing of which notice has been given by publication and posting for a minimum of two weeks, may grant a variance to Article II of these regulations~~this part of the regulation, provided that sufficient capacity exists and such relief may be granted~~ without substantially derogating



from the intent or purpose of this regulation or the latest version of the Town of Harwich Comprehensive Wastewater Management Plan (CWMP).

### Article III. Building Sewers and Connections

**Section 1.** No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the Superintendent. Any person proposing a new discharge into the system or a substantial change in the volume or character of pollutants that are being discharged into the /system shall notify the Superintendent in writing, and receive the Superintendents' written approval at least ninety (90) days prior to the proposed change in discharge or sewer connection.

No person shall construct, uncover, make any connections with or opening into, use, alter or disturb any public wastewater collection, treatment, and disposal facilities or appurtenance thereof without first obtaining a written permit from the Superintendent working on behalf of the Wastewater Commission.

**Section 2.** There shall be two (2) classes of building sewer permits for: (a) residential and commercial service and (b) service to establishments producing industrial wastes. In either case, the owner (or agent) shall make application on a special form furnished by the Town of Harwich. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the Superintendent and Director of the Health Department. A permit and inspection fees connection charges, and inspection fee shall be paid at the time the application is filed.

**Section 3.** All costs and expenses incident to the installation and connection of the building sewer to the sewer works shall be borne by the owner. The owner shall indemnify the Town from any loss or damage that may occur either directly or indirectly or occasioned by the installation or repair of the building sewer. Construction of all building sewers shall be performed only by a Licensed Utility Installer.

**Section 4.** A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private or public sewer is available or can be constructed to the rear building through either: an adjoining alley, courtyard, driveway, or easement. If these conditions exist, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer.

**Section 5.** Old building sewers may be used to connect new buildings only when they are found, on examination and test, to meet all requirements of these rules and regulations and are approved by the Superintendent.

Properties with building sewers that will be connected to the sewer system from a septic system, a portion of the existing pipe may be used as part of the building lateral to a public sewer or to a pumping system only if it meets the requirements in the previous paragraph.

**Section 6.** A property that is generating wastewater, where a common sewer is available for connection, shall be connected to the common sewer, within two-years (730) days of written

notification from the Board of Health, unless the Board determines a different connection schedule following a public hearing. For new construction, connection to the common sewer, where a common sewer is available for connection, shall be completed prior to the issuance of a Certificate of Occupancy.

In the case of construction of new common sewers, or extensions of existing common sewers, said Board of Health written notification shall follow notice from the Board of Water & Sewer Commissioners that said common sewer(s) are complete.

#### **Article IV. Use of Public Sewer**

**Section 1.** No person shall discharge or cause to be discharged any stormwater, surface water, ground water, roof runoff water, subsurface drainage water, uncontaminated cooling water or unpolluted industrial waters to any sanitary sewer.

**Section 2.** Stormwater and all other unpolluted drainage waters shall be discharged to such systems as are specifically designated as storm sewers or to a natural outlet as approved by the Town Conservation Commission, Town Surveyor of Highways (or equivalent), and/or the Commonwealth of Massachusetts DEP or EPA. Any such discharge may be subject also to an NPDES permit. It shall be the responsibility of the originator of the discharge to obtain all required permits.

**Section 3.** Cleaning, maintaining, and repairing of building sewers, from the building to the property line at the street, shall be done at the expense of the owner, provided there is a manhole or cleanout at the property line. If there is no manhole or cleanout at the property line, the owner shall be responsible for the building sewer from the building to the public sewer.

**Section 4.** No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer or wastewater works.

- A. Any liquids, solids or gases which, by reason of their nature or quantity, are or may be sufficient, either alone or by interaction with other substances, to cause fire or an explosion or be injurious, in any way to the sewage works, or to the operation of the sewage works, or to the safety and welfare of the workers and the public at large shall be prohibited from discharge to the wastewater works. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, carbides, hydrides, and sulfides, and any other substance which the Director, the Town of Chatham (for Harwich wastewater collected and treated in Chatham), the State, or EPA has determined to be a fire hazard to the sewer works.
- B. Any waters or wastes containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage collection or treatment process, constitute a hazard to humans or animals and/or create a public hazard in the receiving waters of the sewage treatment facility.



- C. Any water or wastes having a pH less than 5.5 or greater than 9.5 or having any other corrosive property capable of causing damage or hazard to structure, equipment, and/or personnel of the sewage works.
- D. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the sewage works, such as, but not limited to: fish scales, fish gurry, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, diapers, feathers, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails, and paper dishes, towels, cups, milk containers, and etc.
- E. Due to the special nature and environmental needs of the Town and the surface and groundwaters of the Town, no person shall discharge or cause to be discharged wastewater containing nitrogen and/or phosphorus compounds in a concentration greater than 50mg/L. Any non-domestic discharges having concentration greater than 50mg/L shall require a special permit from the Director. Said permit may include sampling, flow measurement, pretreatment, and/or special fees as a condition of permit issuance. Any non-domestic discharge having a BOD or TSS concentration greater than 300 mg/L shall require a special permit from the Director. Said permit may include sampling, flow measurement, pretreatment, and/or special fees as a condition of permit issuance.
- F. Any wastewater which will cause interference or pass through.

**Section 5.** No person shall discharge or cause to be discharged the following described substances, materials, water, or waste if it appears likely in the opinion of the **Director** that such waste can harm the wastewater treatment process, or equipment, have an adverse effect on the receiving stream or can otherwise endanger life, limb, public or private property or cause a nuisance.

Informing the opinion as to the acceptability of these substances, the Director will give consideration to such factors as: the quantities of subject substance in relation to flows and velocities in the sewers; material use in the construction of the wastewater collection and treatment facilities; nature of the wastewater treatment process; capacity of the wastewater collection and treatment facilities; and other factors which in the Directors judgment are pertinent.

The limitations on wastewater strength or mass discharge contained herein may be supplemented with more stringent limitations when, in the opinion of the Director they are warranted:

1. The limitations in this set of regulations are not sufficient to protect the POTW and the sewage works;
2. The limitations herein are not sufficient to enable the POTW to comply with applicable water quality standards, the effluent limitations specified in the POTW's groundwater discharge permit, or effluent reuse;

3. The POTW sludge or other residuals will be rendered unacceptable for disposal or reuse at the Town of Chatham treatment facility desires as the result of discharge of wastewaters at the above prescribed limitations;
4. Municipal employees or the public will be endangered or otherwise affected by nuisance conditions; or
5. Air or ground water impacts will be caused.

**The restricted substances are as follows:**

- A. Any solid, liquid, vapor, or gas having temperature higher than 65 degrees C (150 degrees F); however, such materials shall not cause the POTW influent temperature to be greater than 40 degrees C (104 degrees F). The Director reserves the right to prohibit or limit the discharge of wastes whose maximum temperatures are lower than 65 degrees C.
- B. Any water or waste containing fats, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between thirty-two (32) and one hundred and four (104) degrees F (0 and 40 degrees C).
- C. Any garbage that has not been properly shredded to a maximum of one half of an inch (1/2"), 1.27 centimeters, in any dimension. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric) or greater shall be subject to the review and approval of the Director.
- D. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
- E. Any waters or wastes containing iron chromium, copper, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage works exceeds any limits established by EPA or DEP for such material.
- F. Any waters or wastes containing phenols or other taste or odor producing substances in concentration exceeding limits, established by the Director, as necessary, after treatment of the composite sewage to meet the requirements of the State, Federal, or other public agencies having jurisdiction over sewage treatment facilities' discharge to receiving waters.
- G. Any radioactive wastes or isotopes of such half-life or in concentration as may exceed limits, established by the Director and not in compliance with applicable State or Federal regulations.
- H. Any water or wastes having a pH in excess of 9.5.



- I. Materials which exert or cause:
1. Unusual concentrations of inert suspended solids, such as, but not limited to: fullers earth, lime slurries, and lime residues or of dissolved solids, such as, but not limited to: sodium chloride and sodium sulphate.
  2. Excessive discoloration (such as, but not limited to: dye wastes and vegetable-tanning solutions).
  3. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage works.
  4. Unusual volume of flow or concentration of wastes constituting “slugs” as defined herein under Article 1, Definitions.
- J. Waters or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment processes employed, or are amenable to treatment only to such degree that the sewage treatment facilities’ effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.
- K. Concentration and/or mass-based limits-No person shall discharge, directly or indirectly, into the sewer works, wastewater containing any of the following substances in concentrations exceeding those specified below on either a daily basis or an instantaneous basis, except by permit. Limits are applicable at the point of exit from a property to the public sewer.

POLLUTANT	CONCENTRATION
	PARTS PER MILLION (mg/L)
Arsenic as As	0.05
Barium as Ba	5
Boron as B	5
Cyanides as Cn (amenable)	0.1
Fluoride as F	20
Chromium (total)	1
Chromium (Cr+6)	0.1
Magnesium as Mg	100
Manganese as Mn	5
Copper as Cu	1
Zinc as Zn	1
Cadmium	0.07
Lead	0.1
Tin	2
Silver	0.1

Mercury	0.01
Nickel	1

Note: All metals are to be measured as total metals.

**Section 6.** If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which contain the substances or possess the characteristics enumerated in Section 5 of this Article, and which in the judgment of the Director may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters or which otherwise create a hazard to life or constitute a public nuisance, the Director may:

- A. Reject the wastes.
- B. Require pretreatment to an acceptable condition before discharge to the public sewers.
- C. Require control over the quantities and rates of discharge and/or
- D. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges.

If the Director permits the pretreatment or equalization of waste flows, the design and installation of the pretreatment facility and equipment shall be subject to the review and approval of the Director and subject to the requirements of all applicable codes, ordinances, and laws.

**Section 7.** Grease, oil, and sand interceptors shall be provided when, in the opinion of the Director they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients; Except such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of the type and capacity approved by the Director, and shall be located as to be readily and easily accessible for cleaning and inspection. MDC Grease Interceptors shall be installed in the building sewer serving restaurants or hotels, boarding houses that prepare and serve food or business of a similar nature. Maintenance, operation, and repair of all installed interceptors shall be at the expense of the owner and subject to inspection by the Director or an authorized representative.

1. Grease traps shall be inspected monthly, for the months in use, by a duly appointed representative of the Town and shall be cleaned by a licensed septage hauler whenever the level of grease is 25% of the effective depth of the trap or at least every three months whichever is sooner. Facility owners/operators shall be responsible for notifying the Wastewater Department of extended periods of time (one [1] month or more) when the grease trap is not in use (i.e. the facility will be closed) to avoid being inspected and billed for those months.
2. Following pumping of a grease trap the grease trap shall be filled with treated water from the WPCF to a point above the discharge pipe.

**Section 8.** The owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters and other appurtenances, as determined by the Director, in the building sewer to facilitate observation, sampling, and measurement of wastes. Such manhole shall be accessible and safely located, and shall be constructed in accordance with plans approved by the Director. The manhole shall be installed by the owner at the owner's expense and shall be maintained by owner so as to be safe and accessible at all times.

**Section 9.** All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in this ordinance shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association and 40CFR, Part 136, and shall be determined from suitable samples taken at the control manholes provided. In the event that no special manhole has been provided, the control manhole shall be determined by the Director. (Normally the control manhole will be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected). Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewer works and to determine the existence of hazards to life, limb, and property. (The particular analyses involved will determine whether a twenty-four (24) hour composite of all outfalls of a premise is appropriate or whether a grab sample for samples should be taken. Normally, but not always, BOD and suspended solids analyses are obtained from 24-hour composites of all outfalls, whereas pH's are determined from periodic grab samples or continuous monitors).

**Section 10.** No statement contained in this Article shall be construed as preventing any special agreement or arrangement between the Town and any industrial concern whereby any waste of unusual strength or character may be accepted by the Town for treatment, subject to payment therefore, provided that such agreements do not contravene any requirements of existing federal, state, or local laws and are compatible with any user charge and industrial cost recovery system in effect.

#### **Article V. Protection from Damage**

**Section 1.** No person shall maliciously, willfully or negligently break damage, destroy, uncover, deface, or tamper with any structure, appurtenance or equipment which is a part of the sewage works. Any person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

#### **Article VI. Power and Authority of Inspection**

**Section 1.** The Director and other duly authorized employees of the Town of Harwich Wastewater Department, bearing proper credentials and identification, shall be permitted to enter all properties for the purpose of inspection, observation, measuring, sampling, and testing in accordance with the provisions of this ordinance. The Director, or their representative, shall have no authority to inquire into any processes including metallurgical, chemical, oil refining, ceramic, paper, or other industries beyond that point having a direct bearing on the kind and source of discharge to the sewers or waterways or facilities for wastes treatment.

**Section 2.** While performing the necessary work on private properties, referred to in Article VII, Section 1., above, the Director, or duly authorized representative of the Director shall observe all safety rules applicable to the premises established by the owner or occupant person and the owner and/or occupant person shall be held harmless for injury or death to the Director's representative and the Town shall indemnify the owner and/or occupant person against loss or damage to its property by Director's representatives and against liability claims and demands for personal injury or property damage asserted against the land owner /or occupant person and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the owner and/or occupant person to maintain safe conditions as required in Article V Section 9.

**Section 3.** The Director, and other duly authorized representative of the Wastewater Department, bearing proper credentials and identification shall be permitted to enter all private properties through which the Town holds a duly negotiated easement for the purpose of, but not limited to: operation, inspection, observation, measuring, sampling, repairing, and maintenance of any portion of the sewage works lying within said easement. All entry and subsequent work, if any in said easement, shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

#### Article VII. Penalties

**Section 1.** Any person found to be violating any provisions of these Rules and Regulations except Article IV shall be served by the Town with written notice stating the nature of violation and the offender shall permanently cease all violations. The Director may immediately halt or prevent any discharge of pollutants which reasonably appears to present an imminent endangerment to the health or welfare of persons. In the event that the Director determines that a discharge of pollutants reasonably appears to present an imminent endangerment to the health or welfare of persons, the Director may provide informal (oral or written) notice of such determination to the discharger. The offender shall, within the period of time stated in such notice, permanently cease all violations by immediately stopping or eliminating such discharge and shall submit written proof of the elimination of the discharge to the Director within forty-eight (48) hours of receipt of notice of the Director's determination. If said person fails to voluntarily halt such discharge, the Director will take such actions as deems necessary to prevent or minimize endangerment to the health or welfare of persons. Such actions may include, but are not limited to: seeking temporary injunctive relief, entry onto private property to halt such discharge, severance of the sewer connection, suspension of wastewater disposal service, suspension or revocation of a discharge permit, and/or implementation of legal action. After such discharge has been halted, the Director may take such other and further actions as may be necessary to ensure elimination of said discharge and to ensure compliance with the terms of these Rules and Regulation and any discharge permits issued hereunder.

**Section 2.** Any person who shall continue any violation beyond the time limit provided for in Article VIII, Section 1 shall be guilty of a misdemeanor, and on conviction thereof, shall be fined an amount not exceeding five thousand dollars (\$5,000) for each day for each violation of any provisions of these Rules and Regulations. Each day in which any such violation shall continue shall be deemed a separate offense. These penalties are stated in the Massachusetts General Laws, Chapter 83, as amended by Chapter 174 of the Acts of 1987. Enforcement action shall be



considered to begin immediately upon discovery of the violation for the purpose of calculating penalties, etc.

**Section 3.** Any person violating any of the provisions of this ordinance shall become liable to the Town for any expense, loss or damage occasioned by the Town by reason of such violation.

**Section 4.** Neither the Town nor any of its employees shall be liable for damages arising out of a malfunction of the system including, but not limited to, backups.

### **Article VIII. Validity**

**Section 1.** All ordinances or parts of ordinances in conflict with these Rules and Regulations of the Sewer Department are hereby repealed.

**Section 2.** The invalidity of any section, clause, sentence, or provision of this ordinance shall not affect the validity determined by the Board as to which of any other part of this ordinance which can be given effect without such invalid part or parts.

### **Article IX. Collection of Sewer and Service Charges**

#### **Section 1. Establishment of Rates**

Rates and fees for water and sewer shall be determined by the Harwich Board of Water and Wastewater Commissioners as instructed under applicable Massachusetts General Law Chapters 40 and 83.

#### **Section 2. Bills Payable**

Bills are due and payable within thirty (30) days from the date of issuance. The failure of the customer or his/her agent to receive notice of their bill or other related charges does not relieve them from the obligation for payment or from the consequences of nonpayment under the Department Rules & Regulations and under applicable Massachusetts General Laws Chapters 40 and 83.

All sewer bills that are outstanding after 30 days will be mailed a demand notice which shall be due within fourteen (14) days. If the charges are still unpaid after the due date of the demand notice, a demand fee will be assessed. If the water service shall be turned off for non-payment of the sewer service charges, the water service will not be turned on until all past charges are paid in full, including all expenses associated with collection of such sewer charges and the shut off of water service. In order to turn off or plug a sewer service without causing a health problem the water service shall also be turned off. Such shut off of water charges shall be as approved by the Commissioners as water rates and charges of the Water Department.

### **Article X. Grievance and Variance Procedure**

A person who seeks a variance or feels aggravated due to the interpretation of these Rules and Regulations as it affects them shall have recourse, without prejudice or retribution, to seek a

response to the alleged situation, condition, problem or misunderstanding in the following manner:

**Step 1.** The person shall present the issue to the Director in writing using the forms available at the Wastewater Departments' office, documenting the time and/or dates of the circumstances and reasons for a variance request or said grievance. The person may expect a reply to the request for variance or grievance within thirty (30) days from the date of filing with the Director.

**Step 2.** Should the issue not be resolved with the response from the Director or not received within thirty (30) days, the person may take the issue to the Wastewater Commission. Such submission shall include copies of all written documentation of the variance request or said grievance, with all sequence of actions or inactions taken to date.

The Wastewater Commission will use its best effort to hold a hearing within forty-five (45) days of receipt of an application for an abatement, variance or grievance request, and shall render a decision within forty-five (45) days after holding such hearing on the application for a abatement, variance or grievance request.

**Step 3.** Should the issue not be resolved with the response from the Wastewater Commission or not received within forty-five (45) days after the Wastewater Commission closes the hearing on a person's application for abatement, variance or grievance request, the person may take the issue to the Board of Selectmen. Such submission shall include copies of all written documentation of the variance request or said grievance, with all sequence of actions or inactions taken to date. The Board of Selectmen will use their best effort to hold a hearing within sixty (60) days of receipt of an application for an abatement, variance or grievance request and shall render a decision within forty-five (45) days from date of the hearing.

#### **Article XI. Ordinance in Force**

**Section 1.** This ordinance shall be in full force and effect from and after its passage, approval, recording, and publication as provided by law.

#### **Article XII. Land Use Controls – Wastewater Flow Management**

##### **Preamble**

*The Town of Harwich Board of Selectmen being responsible for the design and construction of the town sewer systems and for the implementation of the Comprehensive Wastewater Management Plan (CWMP) adopt the following Land Use Control – Wastewater Flow Management regulation to achieve Flow Neutral requirements. Sewer Service Areas (SSAs) to be implemented over eight phases during a 40-year period and wastewater flow projections for those areas have been defined after completing a comprehensive and deliberate study of the existing and projected wastewater needs of the Town. Reference is hereby made to the Final CWMP accepted by the Secretary of the Massachusetts Executive Office of Energy and*

*Environmental Affairs (EOEEA) in 2016. The intent of this regulation is to manage the wastewater flows in Town to those projected in the approved CWMP, and sewage treatment provided through intermunicipal agreements and/or in the case of construction of a wastewater treatment facility, the issuance of flow limits issued through a MassDEP Groundwater Discharge permit.*

## **Background**

Any owner of a house, building, or other structure used for human habitation, occupancy, employment, or recreation shall install sanitary facilities thereon in order to connect at his or her own expense to a public sanitary sewer of the Town based on the following sections. All Connection and Extension Permits for sanitary sewers shall be issued at the sole discretion of the Harwich Board of Selectmen. Implementation of the Comprehensive Wastewater Management Plan and construction of the sewer systems are the responsibility of the Board of Selectmen. The Town of Harwich completed a CWMP in 2016 prepared by CDM Smith Inc., to provide a comprehensive wastewater management plan that outlines the existing and future wastewater needs of the Town in order to protect and restore water quality.

To analyze existing wastewater flows and estimate future wastewater needs, the Town was divided into eight Sewer Service Areas primarily by watershed. The Campground Area, Great Sand Lakes area, and the Route 28 Harwich Port area are outside of the Massachusetts Estuaries Project (MEP) watershed areas and thus are grouped separately. Figure 13-4 from the CWMP shows the watersheds and SSAs. Existing and future wastewater flows were also calculated for each of the five watersheds. The approved March, 2016 CWMP, used water use data from 2004 through 2007 to estimate existing and future wastewater needs, identifying a future need of 1,259,000 gallons per day (gpd). The sewer service area flows for each of the eight (8) watershed areas are summarized in attached Table 1-1.

The Harwich Board of Selectmen will use information and recommendations included in the CWMP as a guide when considering applications for new connection and extension permits and thereby manage the capacity within the sewer system to serve the needs of the Town for the 40-year planning period.

## **Regulation: Land Use Control – Wastewater Flow Management**

The Harwich Board of Selectmen are adopting this new Sewer Use Regulation article that will ensure managed smart growth and prevent excessive growth based on availability of municipal sewer service.

## **General Land Use Controls**

The Sewer Use Regulation as adopted by the Board of Selectmen delineates and designates eight SSAs and the wastewater flow to be allocated to those individual areas. The areas are shown on Figure 1-1 and the flows are shown on Table 1-1, are both attached and made a part of this sewer use regulation Article XII. Those flows shall be utilized as a guide by the Town in allocating

flows for new connections within the individual SSA during the noted 40-year planning period (2017-2057). Flows are based on actual flows.

### **Wastewater Flow Management**

The Board of Selectmen reserve the right to reallocate flows within all SSAs provided that the following provisions are met:

1. An applicant seeking to alter a SSA or flow within a SSA shall be responsible for all costs associated with that change including potential for filing a Notice of Project Change with the Massachusetts Environmental Policy Act (MEPA) Office as well as burden of proof to demonstrate the public health need or water quality need, and public benefit;
2. A re-allocation of flows within the SSA shall not exceed the total project flow increase for Harwich in the projected 40-year planning period as presented in the March, 2016 CWMP and shown in Table 1-1;
3. A re-allocation of flow from one SSA to another SSA without exceeding the total flow increase shall be subject to a simple majority vote of the Board of Selectmen; and
4. A re-allocation of flows to an area outside an existing SSA shall only be allowed under the following circumstances:
  - a. For non-public health emergencies or water quality benefits, by unanimous vote of the Board of Selectmen and by positive vote of a legally convened town meeting if zoning changes or Town funding is required. This provision is possible provided the total flow for the projected 40-year planning period is not exceeded.
  - b. For public health emergencies, by unanimous vote of the Board of Selectmen and by recommendation of the Harwich Board of Health. This provision is possible provided the total flow for the projected 40-year planning period is not exceeded.

### **Abandonment of Systems**

Existing on-site septic systems that are connected to the Town's sewer system shall comply with Commonwealth of Massachusetts – Department of Environmental Protection Regulations 310 CMR 15.354 – Abandonment of Systems and any local Harwich Board of Health regulations.

### **Adopted**

The Board of Selectmen for the Town of Harwich, MA, do hereby adopt the following Land Use Control – Wastewater Flow Management regulation. The sewer service areas and projected wastewater flows have been designated following comprehensive and deliberate study of the



existing and projected wastewater needs of the Town. Reference is hereby made to the Final Comprehensive Wastewater Management Plan (CWMP) accepted by the MEPA Office in 2016.

<b>Sewer Service Areas</b>		
<b>Sewer Service Area Name</b>	<b>Flow Allocation</b>	<b>Approved Flow</b>
<b>(SSAs)</b>	<b>(in gpd)</b>	<b>(in gpd)</b>
Allen Harbor	61,500	0
Herring River	628,000	0
Route 28/Out MEP	28,000	0
Pleasant Bay	326,000	300,000 (1)
Saquatucket Harbor	113,000	0
Wychmere Harbor	31,900	0
Campground	34,800	0
Great Sand Lake	35,800	0
<b>CWMP Total Flow</b>	<b>1,259,000</b>	<b>300,000</b>

1. Town has an executed Inter-municipal Agreement with the Town of Harwich for 300,000 gallons to service the Pleasant Bay Sewer Service Area.
2. Phased approvals for wastewater flow to the listed SSAs will be approved by the town Wastewater Commissioners as inter-municipal agreements and construction of a wastewater treatment facility with an issued MassDEP Groundwater Discharge Permit that outline maximum available sewer flows.

## **Appendix A. Design of Sewers**

### **Section 1. General**

Wastewater collection systems shall be designed separately from stormwater systems. Wastewater collection systems shall not allow for the introduction of rain water, noncontract cooling water, and groundwater from foundation drains, sump pumps, surface drainage or any other source of inflow. Overflows from wastewater collection systems shall also not be permitted.

New sanitary sewers and all extensions to sanitary sewers owned and operated by the Town of Harwich shall be either gravity sewers or low pressure sewers and shall be designed by a

professional civil engineer, or registered sanitarian for systems generating less than 2000 gpd licensed to practice in the Commonwealth of Massachusetts, in accordance with the Guides for the Design of Wastewater Treatment Works (TR-16), and in strict accordance with appropriate Massachusetts codes and the Town of Harwich Rules and Regulations of the Sewer Department. Plans and specifications shall be submitted to and approved by the Director before initiating any construction. The design shall anticipate and allow for flows from all possible future extensions or development within the immediate drainage area in conformance with Town planning documents.

**Section 2.** Building sewers shall be constructed of such materials and shall be a minimum four (4") inch diameter pipe for single family residential connections and six (6") inch diameter pipe for multi-family, commercial or industrial connections or as the Superintendent may determine. Sewer pipe shall be made from: ductile iron with the outside coated with extra heavy bituminous coating approved for buried utilities and the inside cement lined, minimum schedule 35 P.V.C. or acceptable substitute approved by the Superintendent. The building sewer shall be laid straight in line and grade.

Single family residential building sewers must have watertight wye cleanouts, with H-20 rated valve frame and cover box, with the word "SEWER" in raised lettering, at all locations where pipe size, slope or direction changes and at the property line. Additional cleanouts may be required for runs of 100 feet or more, or at the discretion of the Director. The cleanout shall be brought to within four (4") inches below final grade, except for paved surfaces, (bituminous concrete, concrete, paving blocks, etc.) the cover shall be flush with the finished surface. Cleanouts in pressure sewers shall be located and constructed per the manufacturer's recommendation.

For multi-family, commercial or industrial sewer connections manholes shall be used at all locations where pipe size, slope or directions changes. Commercial or industrial sewer connections shall include a sampling station, to be used for discharge sampling, located in the road layout at the property line. The sampling station shall consist of a precast manhole with approved frame & cover.

### **Pressure Sewer Laterals**

If building is to be connected to a low-pressure sewer or requires a pump to lift sewage to a gravity sewer, the gravity portion of the installation shall meet the requirements of the previous paragraph. The pressure pipe shall be minimum 1-1/4 inch diameter if a grinder pump is used and 2-inch diameter if a grinder pump is not used or other such larger size if the sewage flow and characteristics differ from a single-family residence.

### **Materials**

Polyethylene for 1-1/4 –inch pipe through 4-inch pressure pipe with material conforming to ASTM D3350, Type PE-4710 HDPE pressure Class PC 200, SDR-11. Fittings for use with

polyethylene pipe and tubing shall be manufactured and furnished by the pipe supplier and in conformance with AWWA C901 requirements. Joints for polyethylene pipe shall be jointed by the butt fusion method in a manner recommended by the pipe manufacturer.

Polyvinyl Chloride (PVC) Pipe- ASTM D2241 PVC pressure pipe material conforming to ASTM D1784, minimum class SDR 21 for pipe 1-1/4-inch through 4-inch, push-on joint conforming to ASTM D3139 with flexible elastomeric gaskets conforming to ASTM F477.

A ball valve with curb stop and check valve shall be installed on all low pressure and force mains, as close as feasible to a property line. Ball valves for low pressure sewers shall be true union type constructed from PVC Type I cell classification with EPDM O-rings. All valve components shall be replaceable. Ball valves 2 inch and smaller shall be pressure rated to 235 psi, while valves larger than 2 inches shall be rated to 150 psi. Ball valves shall have a Safe-T-Block seal carrier to stop flow in either direction, allowing safe removal of the downstream union nut for system service or modification. Ball valves shall be true union ball valves as manufactured by Spears Manufacturing Company, or equal. Check valves for low pressure sewer laterals shall be made of stainless steel or fabric-reinforced synthetic elastomer to allow for a positive seal with minimum backpressure. Check valves shall be true union ball check valves.

Curb stop valves shall be of brass or bronze construction and two rubberized O-ring seals to provide pressure-tight seal. Curb stop valves shall be figure H-15204 as manufactured by Mueller-Oriseal, B22 as manufactured by Ford Meter Box Company, Hayes, Nueseal, or equal. Curb boxes shall be 2-1/2 inch shaft size two-piece screw type. They shall be adjustable from 48-inch to 72-inch. Curb boxes shall be constructed of cast iron and thoroughly coated with two coats of asphaltum varnish. Curb box shall be stainless steel supplied with a hole in the "U" portion for the insertion of a stainless-steel pin. Pins shall be supplied and shall be made of stainless steel. Curb boxes shall be as manufactured by Ford Meter Box Company, Mueller Company, or equal.

Gravity or low-pressure pipe shall have magnetic marking tape 2 inches wide with the words "SANITARY SEWER BELOW," installed not more than two (2') feet below finished grade on all mainline and service laterals.

**Section 3.** Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. All buildings in which any **building** drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer or public sanitary sewer, as specified by the Director.

### **Low Pressure Grinder Pumps or Lift Pumps**

Each property serviced by a low-pressure sewer shall have a dedicated pre-manufactured pump station suitable for the flow, pressure and other conditions defined by the property and the public sanitary sewer. The station shall include an in-ground self-contained unit with submersible motor, level controls, sensors, alarms, and an emergency generator plug-in connection.

Properties whose sewage quantities and characteristics are equivalent to four or more families shall install a duplex pump. Refer to further requirements in Appendix A, Design of Sewers, Section 23 - Grinder Pump Systems.

**Section 4.** No person shall make connection of roof downspouts, exterior foundation drains, areaway drains, or other sources of surface runoff or ground water to a building sewer or building drain which is connected directly or indirectly to a public sanitary sewer.

**Section 5.** Exhaust from engines, blowoff from boilers, drainage of gasoline or any explosive liquor, liquids, or other flammable substances shall not be permitted to be discharged into any building sewer which is connected directly or indirectly to a public sanitary sewer. At the time a connection is made to the Town's sanitary sewer system, the interior plumbing shall be inspected to ensure that no connections to roof drains, yard drains, foundation drains, sump pumps, or other sources of drainage water is connected to the sanitary sewer.

**Section 6.** The connection of the building drain into the building sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the Town.

**Section 7.** The Licensed Utility Installer, listed on the approved sewer connection permit, shall notify the Water and Sewer Departments, a minimum of 72 hours, before the building sewer will be ready for connection to the public sewer. The Director will schedule the time and date to perform an inspection of the building sewer's connection to the public sewer, connection shall be made only under the supervision of the Director or their representative.

**Section 8.** All excavations for building sewer installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other public property and/or private property disturbed in the course of the work shall be restored in a manner satisfactory to the Director.

**Section 9a.** Plumbers and private contractors, of established reputation and experience, who have paid the required filing fees, as stated in Section 13b, and have provided the required license and permit bonds, as stated in Section 13c, and have submitted a Certificate of Insurance with required coverage, as stated in Section 13d, may be approved by the Director as a Licensed Utility Installer (L.U.I.).

Applicants for licenses for installing sewer main and sewer services shall attend a training seminar on the installation of low-pressure pumps that is conducted by the manufacturer, and the applicant shall show evidence of course completion.

Note: The installation of grinder pumps may require other permits such as, but not limited to: electrical and plumbing.

**Section 9b.** Applicants for licenses as sewer main and sewer service installers (Licensed Utility Installer) are required to pay a filing fee. As set by the Board (see rates and fees schedule).



**Section 9c.** Applicants for licenses as sanitary sewer and building sewer installers (Licensed Utility Installer) shall obtain a License and Permit Bond in the amount of Five Thousand (\$5,000.00) Dollars or an amount equal to 100% of the construction cost of any proposed sewer connection located within or on public property or an amount approved by the Director, whichever is greater. Said license and permit bond shall remain in full force and effect for a period of one (1) year from date of acceptance by the Town of the L.U.I.'s last sewer connection. This bond will guarantee that the Licensed Utility Installers (L.U.I.) will comply with the statutes, regulations, or ordinances of the Town of Harwich. The license and permit bond shall be duly executed by the Principal of the L.U.I. and by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Director.

**Section 9d.** Before any Licensed Utility Installer performs any work in, on, under or around streets, sidewalks and property belonging to the Town of Harwich, it will be necessary to furnish, simultaneously with the submittal of the License and Permit Bond, a Certificate of Insurance showing that the contractor has the following coverage:

- |  |                                    |                                  |
|--|------------------------------------|----------------------------------|
| 1. General Liability -   | \$500,000<br>\$500,000-\$1,000,000 | Property Damage<br>Bodily Injury |
| 2. Automotive Liability-   | \$500,000<br>\$500,000-\$1,000,000 | Property Damage<br>Bodily Injury |
| 3. Workmen's Compensation and Employer's Liability as required under Massachusetts General Laws. |                                    |                                  |
| 4. Insurance shall include coverage for collapse of underground structures.                      |                                    |                                  |
| 5. Insurance shall include coverage for projects completed operations.                           |                                    |                                  |

All above insurance coverage shall remain in full force and effect for a period of at least one (1) year from the date of acceptance by the Town of the last sewer connection installed by the L.U.I. The L.U.I. shall take all responsibility for the work, and take all precaution for preventing injuries to persons and property in or about the work.

**Section 9e.** The L.U.I. shall pay all debts for labor and materials contracted for or by them on account of the work and shall assume the defense of and indemnify and save harmless the Town of Harwich and its Officers and Agents from all claims relating to labor and or alleged infringement of inventions, patents, or from injuries to any person or corporation caused by the acts of negligence of the L.U.I. any of its agents or employees, or any subcontractor, in doing the work or in consequence of any improper materials, implements, or labor used therein.

**Section 9f.** Before the L.U.I.'s License and Permit Bond or any coverage listed in the L.U.I.'s Certificate of Insurance expires, the L.U.I.'s shall send a revised License and Permit Bond or Certificate of Insurance to the Water and Sewer Department showing that the bond or insurance coverage, is still in place. The Licensed Utility Installer shall NOT perform any work in, on, under or around streets, sidewalks and property belonging to the Town of Harwich or any other

public property if their License and Permit Bond or any coverage listed in their Certificate of Insurance has elapsed.

**Section 9g.** Approved Licensed Utility Installers will renew their Utility Installers Licenses by submitting a revised License and Permit Bond, Certificate of Insurance, and License Fee by January 1st of each year. All Utility Installers' Licenses expire at Midnight, December 31st of each year.

**Section 10.** All sanitary sewer extensions shall require inspection by a qualified inspector or the Director may determine that a building sewer installation or repair will require full time inspection by a qualified inspector. In either case the Director will designate a private inspector as Town Inspector who shall represent the interest of the Town of Harwich during construction of any sanitary sewer extension or building sewer installation or repair, and will monitor and inspect the ongoing progress of the work, full-time observation is required. The costs for the services performed by said Town Inspector shall be paid by the developer or owner, through the Water and Sewer Departments. Flows will not be permitted to be discharged from any service connection until a Certificate of Compliance is submitted by the Town Inspector and the report is approved by the Director.

**Section 11.** After the completion of any building sewer's repairs or connection to the municipal sewer, the L.U.I. shall fill out a sewer connection tie card, on the forms provided at the Water and Sewer Departments' office, for each building sewer the L.U.I. has performed work on. The tie-card shall be completed before the inspection of the L.U.I.'s work, and before the L.U.I. backfills the building sewer and connection to the municipal sewer.

**Section 12.** After completion and before the final inspection of any sanitary sewer connection or building sewer connection for residential dwellings with four (4) or more dwelling units, industrial connections, commercial connections with five (5) or more water closets, commercial connection with industrial water or waste, connections of private sewer system or whenever the Director requires, the Licensed Utility Installer, developer or owner will furnish a reproducible digital "as-built" drawing (1" = 20') in .PDF and .DWG format to the Director. The as-built drawing(s) shall contain a plot plan(s) with building(s) and highway layouts, sewer layouts with profiles, force mains, force main gates, pump station(s), pump station(s) details, and descriptions of each building sewer showing the depth of all connections, pipes, and manholes, using buildings or other permanent markers as reference points. The as-built drawing (s) shall contain any other information deemed necessary by the Director.

### **Section 13. Alternative Sewer Collection Systems**

Sewer collection systems not stated in these Rules and Regulations of the Sewer Department shall only be permitted with the Director's conditional approval.

### **Section 14. Design Capacity and Design Flow**

#### **Design Factors**

- Peak hourly sewage flow
- Additional peak flows of industrial and commercial wastes
- Maximum groundwater infiltration
- Topography of the immediate area
- Difficulty of installation

### **Design Period**

Sewage collection systems shall be designed for a life span of 50 years, and interceptor sewers shall be designed to handle the maximum capacity of uses in the drainage area as determined by the Director.

### **Design Flow**

Submit a detailed description of the procedures used for calculating sewer design flow to the Director.

The Massachusetts 310 CMR 15.000, the State Environmental Code, Title 5, shall be used for calculating the design flow for sewers. If the Massachusetts 310 CMR 15.000, the State Environmental Code, Title 5, does not have a flow rate for the proposed use, the following methods may be used with the approval of the Director:

### **Flow Related to Water Consumption**

When available, use existing sewage flow and/or consumption data as a basis for sewer design. If such data are not available, using flow data from a similar community or users;

### **Per Capita Flow**

Where actual flow data cannot be obtained, base residential flows from new collection systems on an average daily per capita flow of not less than 70 gallons per day (0.27 m<sup>3</sup>/day). Add an appropriate allowance for infiltration to this flow;

In all cases, add a minimum allowance of 250-500 gpd/in. diam/mile of sewer (0.24-0.48 m<sup>3</sup>/cm of pipe diam/km/day) for infiltration to the water consumption, per capita flow or any other calculation method required by the Director.

## **Section 15. Details of Gravity Sewer Pipe Design and Construction**

### **Minimum Sewer Pipe Size**

No gravity sewer shall be less than 8 inches in diameter (20 cm).

### **Depth**

In general, sewers shall be deep enough to drain basement fixtures and to prevent freezing. Water tight insulation shall be provided for sewers that cannot be placed deep enough to prevent freezing. For house connections chimneys (vertical pipe) preformed block units shall be used when the sewer main is greater than or equal to 12 feet deep.

**Buoyancy**

Where high groundwater conditions are anticipated, the buoyancy of sewers shall be considered, and the floatation of pipe shall be prevented with appropriate design and construction of the sewer.

**Slope**

**Minimum Slopes**

All sewers shall be designed and constructed to give a velocity (when flowing full) of not less than 2.0 feet per second (0.61 m/s) based on Manning’s formula using an “n” value of 0.013. The Director may permit the use of other “n” values if deemed justified on the basis of research or field data. The following minimum slopes shall only be used if absolutely necessary because of grade restrictions; however, greater slopes are desirable.

<b>Minimum Slope in Feet</b>	
<b>Sewer Size</b>	<b>per 100 Feet (m/100m)</b>
8 inches (203 mm)	0.4
10 inches (254 mm)	0.28
12 inches (305 mm)	0.22
14 inches (356 mm)	0.17
15 inches (381 mm)	0.15
16 inches (406 mm)	0.14
18 inches (457 mm)	0.12
21 inches (533 mm)	0.1
24 inches (610 mm)	0.08
27 inches (686 mm)	0.067
30 inches (762 mm)	0.058
36 inches (914 mm)	0.046
42 inches (1067 mm)	0.037

The use of oversized sewers in order to justify flatter slopes is not permitted.

**Slope Between Manholes**

Sewers shall be laid out with uniform slope between manholes.

**High Velocity Protection**



Velocities greater than 12 feet per second (3.7 m/s) shall not be permitted under any flow conditions, unless the Director approves special provisions that will protect against pipe erosion and impact.

### **Steep Slope Protection**

Securely anchor sewers on 15 percent slopes, or greater, to prevent displacement.

### **Impervious Dams**

Impervious dams shall be installed every 300 feet to control the flow of groundwater within the pipe bedding material, when:

- The surrounding native material is considerably less impervious than the pipe bedding material;
- The pipe bedding could produce a hydraulic head of 25 feet on the pipe gaskets and joints during periods of high groundwater flow; and/or
- The sewer is constructed downstream of a waterway or wetland crossings.

### **Alignment**

Sewers shall be laid out in a straight line and alignment, and shall be checked with a laser beam.

### **Sewer Pipe Material**

Sewer pipe material shall be as specified in Appendix B, Construction Technical Specifications, Section 12.

### **Sewer Pipe Inspection and Testing**

The specifications shall include deflection and leakage testing of sewer pipes, as stated in Appendix B, Construction Technical Specifications, Sections 17 and 18.

## **Section 16. Details of Sewer Manhole and Cleanout Design and Construction**

Manholes and cleanouts shall be as specified in Appendix B, Construction Technical Specifications, Section 13.

### **Manhole Inspection and Testing**

The specifications shall include a requirement for the inspection and testing of manholes for leaks or damage as specified in Appendix B, Construction Technical Specifications, Section 21.

## **Section 17. Inverted Siphons (Depressed Sewers)**

Inverted siphons shall only be allowed if there is no other option and it is approved by the Director. Depressed sewers shall have no less than two barrels with a minimum pipe size of 6 inches (15 cm) and shall be provided with necessary appurtenances for convenient flushing and maintenance. Manholes shall have adequate clearances for cleaning equipment and for inspection and flushing. The design shall provide for sufficient heads and pipe sizes to secure velocities of at least 3.0 feet per second (0.92 m/s) for average flows under initial conditions. The inlet and outlet details shall be arranged so that the normal flow is diverted to one barrel and so that either barrel may be taken out of service for maintenance. A hose connection shall be provided to the siphon for flushing purposes.

### **Section 18. Aerial Crossings**

Aerial crossings shall only be allowed if there is no other option, and it is approved by the Director. All aerial crossings shall provide appropriate support for all joints and pipes used for aerial crossing. The supports shall withstand frost heaves as well as overturning, settlement, flooding, thermal expansion, vibrations, and other loads that may act against the piping. Precautions against freezing shall be provided (e.g., insulation and increased slope). Expansion joints between above-ground and below-ground sewers shall be provided. Where buried sewers change to aerial sewers, special construction techniques to minimize damage from frost heaves shall be used. Ductile iron pipe with restrained mechanical joints are required. The bottom of the pipe shall be no lower than one (1') foot above the 100-year flood elevation level.

### **Section 19. Location of Sewers in Streams**

**Sewers shall be designed to minimize the number of stream crossings.**

#### **Cover Depth**

The top of all sewers entering or crossing a stream shall be sufficiently below the natural bottom of the stream bed to protect the sewer line. The following cover requirements shall be met:

- 1 foot (305 mm) of cover where the sewer is located in rock.
- 3 feet (914 mm) of cover in other material. In major streams, more than 3 feet (914 mm) of cover shall be required.
- In paved stream channels, the top of the sewer line shall be at least 1 foot (305 mm) below the channel pavement.

#### **Horizontal Location**

Sewers located along streams shall be located sufficiently outside of the stream bed to allow for stream widening in the future and for the prevention of siltation during construction.

#### **Structures**

Locate sewer manholes or other structures outside of streams whenever possible. Where structures must be located in a stream, they shall not interfere with the free discharge of flood flows or navigation in the stream. The manholes' covers shall be no lower than one (1') above the 100-year flood elevation level.

### **Alignment**

Sewers shall cross streams perpendicular to the flow without a change in grade.

### **Materials**

Sewers entering or crossing streams shall be watertight and free from changes in alignment or grade. Joints shall be restrained in order to prevent movement from stream forces. Ball-and-socket or restrained joints designed for hard service applications shall be provided.

Backfill materials shall be stone, coarse aggregate, washed gravel, or other materials that will not readily erode, cause siltation, damage pipe during backfill, or corrode the pipe and shall be approved by the Director. In large stream crossings, where required by the Director, place riprap over the sewer pipe for stability and to prevent erosion.

### **Siltation and Erosion**

The design engineer or L.U.I. shall include construction methods that will minimize siltation and erosion in the project specifications the construction methods for sewers in or near streams. Such methods shall control siltation and erosion by limiting unnecessary excavation, including disturbing or uprooting of trees and vegetation, dumping of soil or debris, or pumping silt-laden water into the stream. Specifications shall require cleanup, grading, planting, and restoration of all work areas to begin immediately.

## **Section 20. Protection of Water Supplies**

### **Cross Connections**

No physical connection shall exist between a public or private potable water supply system and a sewer or any appurtenance that would permit the passage of wastewater or polluted water into the potable supply. No sewer shall come into contact with a water pipe and no water pipe shall pass through any part of a sewer manhole or any part of the sewer system.

### **Relation to Water Works Structures**

Sewers shall be located as far as possible from public water supply wells or other potable water supply sources and structures.

Engineering plans shall show all existing waterworks units, such as treatment facilities, basins, pipes, wells, or other waterworks units that are within 50 feet of the proposed sewer or to within the minimum distances required by the Director.

### **Water Mains' Relation**

#### **Horizontal Separation**

Whenever possible, lay out sewers at least 10 feet (3.0 m) from any existing or proposed water main. If local conditions prevent a lateral Separation of 10 feet, the Director may make an exception on a case-by-case basis when supported by data from the design engineer. Such an exception may allow the sewer to be installed closer than 10 feet to a water main, provided that it is laid out in a separate trench with the top (crown) of the sewer at least 18 inches (46 cm) below the bottom (invert) of the water main or is encased in a water tight sleeve.

#### **Vertical Separation**

Whenever sewers must cross water mains, lay out the sewer so that the top of the sewer is at least 18 inches (46 cm) below the bottom of the water main. The sewer joints should be equidistant and located as far away as possible from the water main joints. When the sewer cannot meet the above requirements, relocate the water main to provide for this separation or reconstruct it with mechanical-joint pipe for a distance of 10 feet (3.0 m) on each side of the sewer. One full-length (twenty feet) water main pipe shall be centered over the sewer so that both joints will be as far from the sewer as possible.

Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

When it is impossible to achieve horizontal and/or vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical-joint cement-lined ductile iron pipe or another equivalent that is watertight and structurally sound. Both pipes shall be pressure tested to 150 psi to ensure that they are watertight, and one of the pipes shall be installed in a water tight sleeve for a horizontal perpendicular distance of 10 feet (3.0) on each side of the other pipe. Any joints in the watertight sleeve shall be as far as possible from the water main's intersection with the sewer.

### **Section 21. Details of Low-Pressure Sewer Design and Construction**

Layout: The branched configuration of a pressure sewer is required. Looped piping shall not be permitted. Pipe routing shall include long radius sweeps no less than those recommended by the pipe manufacturer.

Pressure pipes shall be designed and installed so that a minimum of five (5) feet of cover material exists over the crown of the pipe at all times. Appurtenances such as isolation valves, air release valves, and clean-outs shall be provided as required by the Director.



**Pipe Size:** The diameter of the pressure sewer shall be calculated so that it provides a cleansing velocity based on the average daily flow of the system. Force Mains shall have a minimum velocity of three feet per second, 3ft/sec.

Minimum low-pressure sewer pipe sizes shall be as follows (unless there is a significant change in grade):

<b>Number of Homes or Equivalent</b>	<b>Minimum Pipe Size</b>
1-3	1.5
4-9	2
10-18	2.5
19-30	3 (Model recommended)
>30	Must be modeled

### **Isolation Valves**

Isolation valves shall be required to allow isolation of individual girder units, system expansion, and at key locations such as at the property line.

Ball valves for low pressure sewer manholes shall be true union type constructed from PVC Type I cell CLASSIFICATION WITH EPDM O-RINGS. All valve components shall be replaceable. Ball valves 2 inches and smaller shall be pressure rated to 235 psi, while valves larger than 2 inches shall be rated to 150 psi. Ball valves shall have a Safe-T-Block seal carrier to stop flow in either direction, allowing safe removal of the downstream union nut for system service or modification. Ball valve ends shall be as needed to connect to Schedule 430 PVC pipe in low pressure sewer manholes. Ball valves shall be true union ball valves as manufactured by Spears Manufacturing.

### **Curb Stop Valve**

Curb stop valves shall be located at the property line of the street or easement of the sewer main. Curb stop valves shall be of brass or bronze construction and two rubberized O-ring seals to provide pressure-tight seal. Curb stop valves shall be figure H-15204 as manufactured by Mueller-Oriseal, B22 as manufactured by Ford Meter Box Company, Hayes, Nuseal, or equal. Curb boxes shall be 2-1/2-inch shaft size two-piece screw type. They shall be adjustable from 48-inch to 72-inch. Curb boxes shall be constructed of cast iron and thoroughly coated with two coats of asphaltum varnish. Curb box rods shall be stainless steel supplied with a hole in the "U" portion for the insertion of a stainless-steel pin. Pins shall be supplied and shall be made of stainless steel. Curb boxes shall be as manufactured by Ford Meter Box Company, Mueller Company, or equal.

**Air Release Valves**

Air and vacuum valves shall be installed on low pressure mains. The air and vacuum valves shall be designed to release air from the main when the main is being filled and/or air becomes entrapped in the main, and to admit air into the sewer main when pumps are stopped and the main is being drained by gravity. The body and cover of air and vacuum valve shall be cast iron, floats of stainless steel, protective hood of steel, seats of Buna-N, and miscellaneous internal parts of stainless steel, Manufacturer-Crispin, or equal. Air and vacuum valves shall be located in a manhole or structure with a diameter of 60 inches to allow access for repairs and maintenance.

**Cleanout Connections**

Cleanouts shall be installed on the pressure mains at sags and other locations where debris can accumulate and clog the lines, and proper valving to conduct required maintenance shall be provided.

**Miscellaneous**

Magnetic marking tape two (2) inches wide with the words "SANITARY SEWER BELOW," shall be installed not more than 2 feet below finished grade on all mainline and service laterals.

**Section 22. Force Mains****Minimum Size**

Force mains shall have a minimum velocity of three feet per second, 3ft/sec.

**Force Main Pipe Material**

Force main pipe material shall be as specified in Appendix B, Construction Technical Specification, Section 14.

**Velocity**

At design average flow, velocity in excess of 3 feet per second (0.91m/s) shall be maintained.

When the daily average design detention time, in the force main, exceeds 20 minutes, the manhole and sewer line receiving the force main discharge or the sewage shall be treated so that corrosion of the manhole and the exiting line are prevented. The corrosion is caused by sulfuric acid biochemically produced from hydrogen sulfide anaerobically produced in the force main.

**Variable Terrain**

As far as possible, the alignment and depth of a force main should provide a constant upgrade profile. All force mains shall be designed and installed so that a minimum of five (5') feet of cover material is over the crown (top) of the pipe at all times.

**Air Relief Valve**

An automatic air relief valve shall be placed at all relative high points in the force main and at 400 foot intervals on level force main runs. All air relief valves shall be protected from freezing.

**Drain Valves**

Drain valves at all relative low points in the force main shall be provided. These valves shall be connected to gravity sewers or provided with connections for vacuum pumper trucks. All drain valves shall be protected from freezing.

**Termination**

Force mains shall enter the gravity sewer at a point not more than 2 feet (0.61 m) above the flow line of the receiving manhole.

**Testing**

Leakage Testing shall be as specified in Appendix B, Construction Technical Specifications, Sections 17 and 18.

**Section 23. Grinder Pump Systems**

Pumping equipment shall include an integral grinder capable of handling a reasonable quantity of foreign objects that may find their way into a building's sewerage system. The grinder pump shall be capable of processing foreign objects without jamming, stalling, or overloading, and without making undue noise. The grinder shall provide a positive flow of solids into the grinding zone. Grinder pump stations shall be of the wetwell type.

A list of suitable manufacturers will be available from the Director. Properties whose sewage quantities and characteristics are equivalent to four or more dwelling units shall install a duplex pump.

**Design of Pump Station**

Access: Outside installation shall be designed with the service manhole constructed of the same material, and at least as thick as the tank. The manhole shall have an opening at

the surface with a minimum inside diameter of 30 inches (76 cm); its cover shall be securely lockable. The size of the manhole shall allow for the performance of maintenance and repair functions.

### **Tank**

Construct each tank of concrete or custom-molded, fiberglass reinforced polyester resin using a filament wound process, layup and spray technique, or other approved process that will ensure a smooth and resin rich interior surface that is designed for two times the maximum loading.

The basin shall be concrete, fiberglass-reinforced polyester resin, or other material meeting the minimum strength specifications herein. The basin shall be furnished with one PVC closet flange or one flexible inlet flange suitable for connection to the household gravity line. At a minimum, the basin wall and bottom shall withstand two times the anticipated maximum pressure exerted on the basin, either from soil loadings or buoyancy forces. All station components must function normally when exposed to these loadings. All seals and joints shall pass factory tests to ensure that they are water tight.

### **Electrical Equipment**

Wiring and electrical connections shall be NEMA rated for the environment in which they are to be placed. System shall include an emergency generator plug-in connection.

### **Pumps**

#### **Pump Removal**

The grinder pump shall be readily removable without the need for manual disconnection of piping.

#### **Grinder**

The grinder shall be positioned immediately below the pumping elements, securely fastened to the pump motor shaft, and driven directly by the same motor. The grinder shall be a rotating type with a stationary hardened and ground stainless steel shredding ring that carries stainless steel cutter bars. This assembly shall be dynamically balanced and run without objectionable noises or vibrations over the entire range of recommended operating pressures.

#### **Pump Opening**

The grinder shall be capable of reducing all components in normal domestic sewage or the sewage to be discharged from the building drain, including a reasonable amount of



foreign objects (e.g., paper, wood, plastic, glass, and rubber). Objects shall be reduced to finely divided particles that will pass through the passages of the pump and a minimum 1.25-inch (3.2 cm) diameter discharging pipe.

#### **Intake**

The grinder shall be positioned so that solids are fed into it from the bottom in an upward flow, reducing the possibility of overloading or jamming. In addition, sufficient turbulence shall be created to keep the tank bottom free of permanent deposits or sludge banks.

#### **Check Valve**

The grinder pump shall be equipped with a check valve that is installed in a horizontal position on the discharge pipe. This valve shall provide a full-ported passageway when open.

#### **Ventilation**

Adequate ventilation shall be provided in accordance with local and national codes.

#### **Controls**

Sensing devices to detect wastewater levels for initiating pump operation and to detect high water levels shall be installed. Level sensing devices shall only be used and shall not be located near flows entering the well.

### **Section 24. Pumping Station**

#### **Design Capacity**

A sewage pumping station shall handle the projected peak sewage flows of its tributary sewer collection system. As recommended by TR-16, Guides for the Design of Wastewater Treatment Works (Technical Report #16) and the Hydraulic Institute's Recommended Standards for Pumping Stations. This information may be included in the Comprehensive Management Plan or other engineering report and any applicable updates or amendments. Pumping stations shall accommodate future expansion, when in the opinion of the Director it is appropriate.

#### **Site Layout**

Stations shall be readily accessible to personnel and service vehicles during all weather conditions.

#### **Flood Protection**

Wastewater pumping stations shall be protected from physical damage by the 100-year flood elevation and shall remain fully operational and accessible during the 100-year flood. All entrances and/or unsealable openings of the station shall be a minimum of one (1') foot above the 100-year flood elevation. These flood elevations shall be determined from the Federal Emergency Management Agency, and U.S. Army Corps of Engineers, and from the local regulations and ordinances.

### **Environmental Considerations**

Wastewater pumping stations shall be sensitive to the environmental conditions of the site. Visual impacts, architectural style, security, noise levels, odor control, and landscaping shall be considered carefully in station design and shall be reviewed and approved by the Director.

### **Types of Stations**

Wastewater pumping stations fall into three categories: wetwell/drywell, submersible, or suction lift. The preferred type of station is the Suction Lift type. The Director may approve other types under certain circumstances.

### **Structural Design**

#### **Earthquake Loads and Uplift Forces**

Stations shall withstand earthquake loads and uplift forces from high groundwater conditions.

#### **Separation**

Wet and drywells, including their superstructure, shall be completely separated. Common walls shall be sealed against gas leaks.

#### **Equipment Removal**

Provisions shall be made for removing all equipment (i.e., pumps, motors, mechanical screens, motor control centers, etc.) from the station. Access openings, hatches, and/or skylights shall be sized accordingly. Permanent hoisting devices shall be provided as necessary.

#### **Substructure**

Station substructures shall be constructed of reinforced concrete, either cast-in-place or precast. Small, prefabricated stations may be constructed of steel plate or fiberglass with the approval of the Director.

**Access**

The designer shall minimize the confined spaces and shall indicate which spaces meet the definition of confined space on the drawings. Suitable, safe, and separate means of access shall be provided for dry and wetwells. Stairways and/or steps are required for drywells and wetwells containing either bar screens or mechanical equipment that requires inspection or maintenance. A landing with railings shall be provided for stairways or ladders for every 10 vertical feet. Local, state and federal safety codes shall govern in all cases.

**Pumps****Number of Pumps**

As a minimum, two pumps shall be provided, with each pump being capable of handling peak design flows. Where three or more pumps are provided, the overall station capacity shall be capable of handling peak design flow when any one pump is out of service.

**Design**

Pumps shall be designed specifically for wastewater use and shall be non-clogging and as allowed by the Director.

**Incoming Wastewater and Rate Discharge**

Pumping stations shall balance the rate of incoming wastewater with the rate discharged.

Each pump shall have an individual intake valve.

Pump suction and discharge openings shall be a minimum of 4 inches in diameter.

**Centrifugal Pumps**

Centrifugal pumps shall be used in the drywell/wetwell pumping stations. The pump casing and suction elbow shall be provided with a clean-out access port. Impellers shall be enclosed or semi-open. To ensure primed pump conditions, the wetwell level shall not drop below the centerline of the pump impeller under normal operating conditions.

**Submersible Pumps**

Submersible pumping stations may be used when, in the opinion of the Director, circumstances warrant. It shall be possible to remove and replace the submersible pumps without dewatering the wetwell or disconnecting the piping. Pumps shall be of the pull-up design, using a lifting cable and guides for pump removal. The pump shall be

connected to the fixed discharge piping with a self-locking coupling. Shaft seal failure or potential seal failure detection alarms shall be provided. Submersible pumps may also be used in a wetwell/drywell configuration, with the Director's approval.

### **Suction Lift Pumps**

Suction pumps shall be self- or vacuum-priming.

**Location:** The pump equipment compartment shall be above grade or offset, and shall be isolated from the wetwell to prevent humid and corrosive sewer atmospheres from entering the equipment compartment. Access to the wetwell shall not be located in the equipment compartment. Valves shall not be located in the wetwell.

### **Self-priming Pumps**

Self-priming pumps shall be capable of rapid priming at the lead pump-on elevation. Such self-priming and repriming shall be accomplished automatically under design operating conditions. Suction piping shall not exceed the size of the pump suction and shall not exceed 25 feet (7.6 meters) in total length. Priming lift at the lead pump on elevation shall include a safety factor of at least 4 feet (1.2 meters) from the maximum allowable priming lift for the specific equipment at design operating conditions. The combined total of dynamic suction lift at the pump-off elevation and required net positive suction head at design operating conditions shall not exceed 22 feet (6.7 meters).

### **Vacuum-priming Pumps**

Vacuum-priming pump stations shall be equipped with dual vacuum pumps capable of automatically removing all air from the suction lift pump. The vacuum pumps shall be adequately protected from sewage damage. The combined total of dynamic suction lift at the pump-off elevation and required net positive suction head at design operating conditions shall not exceed 22 feet (6.7 meters).

## **Wetwells**

### **Divided Wells**

The wetwell shall be divided into two sections that are properly interconnected and gated to facilitate repair and cleaning.

### **Storage Capacity**

The effective storage capacity of the wetwell shall be based upon the recommended number of pump starts per hour and the design filling time. The effective volume of the wetwell shall be based on a filling time of 30 minutes under design average-daily-flow



rates. To determine the frequency of starts used for design, refer to the pump manufacturer's warranty.

Where tributary wastewater flows are anticipated to be significantly less than the design average flow, provisions should be made so that the filling time under initial conditions does not exceed 30 minutes (i.e., providing a divided wetwell or shortening the wetwell operation range) and the duration of storage in the pump station and force main does not result in septic conditions in the system or the release of objectionable odors to the environment.

### **Pump Protection**

Pumps shall be protected from large solids by readily accessible mechanically cleaned bar racks (screen) or combination device located at the wetwell influent. Bar racks should have clear opening not exceeding 1.25 inches (3.1 cm) unless pneumatic ejectors are used or special devices are installed to protect the pumps from clogging or damage.

### **Floor Slope**

The wetwell floor shall have a minimum slope of 1-to-1 to the hopper bottom. The horizontal area of the hopper bottom shall be no greater than is needed for proper installation and function of the wetwell inlet.

### **Vortexes**

The wetwell and suction inlets of dry-pit pumps shall eliminate the possibility of vortexes. The required submergence of the intake valves shall be determined for the dry-pit pump's location. Intake valves should be flared, with the inlet opening facing down. Every effort shall be made to minimize flow rotation in the wetwell.

### **Sewage Channels**

Sewage channels located in wetwells shall be covered with nonskid, corrosion-resistant grating. They shall be installed flush with a floor, and capable of supporting anticipated loads. All channels shall be drained when not in use. Where the side meets the floor of the channel, fillets shall be provided.

### **Inlet Sewers**

Sewer piping entering the wetwell shall not have air in the pump suction line.

### **Drywells**

Automatic heating and dehumidification equipment shall be provided in all drywells. The electrical requirements shall meet those outlined in subsequent paragraphs of this section.

A sump pump shall be provided in the drywell to remove extraneous water. The discharge pipe of the sump pump shall be equipped with dual check valves and shall be pumped from the drywell into the wetwell above the high-water level. Water ejectors connected to a potable water supply shall not be permitted. All floor and walkway surfaces shall slope to a point of drainage. Pump seal leakage shall be piped or channeled directly to the sump.

### **Valves**

Suitable shutoff valves shall be placed on the suction lines and on the discharge lines of each pump (except on submersible and vacuum-primed pumps). A suitable check valve shall be placed on a horizontal section of each discharge line between the shutoff valve and the pump.

Unless adequate space is available in a dry pit pump room, valves on the discharge piping (including flow meters, if required) shall be in a separate underground precast concrete vault.;

Every pump station shall include appropriate valves and quick disconnects to allow the Town to bypass the existing pumping equipment and valves. The piping shall allow the Town to install temporary piping into the wet well, and discharge to a location downstream of the check and shutoff valves.

Valves shall not be located in wetwells.

## **Section 24. Controls**

All pump stations, grinder pump stations, vacuum sewer stations, and other sewer handling facilities required by the Director shall be connected to the Water and Sewer Departments' Supervisory Control and Data Acquisition (SCADA) System.

All sensing, alarm, and SCADA system devices shall be of the same type, configuration, and function as that used by the Water and Sewer Departments. Each pumping station shall have its own screen display, processor logic controller (PLC), and communications equipment for the SCADA system and shall also display the required monitoring controls and alarm on the all SCADA system screens of the water and/or sewer systems.

### **Level Sensing Devices**

Level sensing devices shall not be affected by flows entering the wetwell or by the suction of the pumps. All wall penetrations between the wet and drywells shall withstand gas leaks and be located as high as possible to prevent overflow from the wetwell to the drywell. The pumps shall be automatically alternated. Running-time meters shall be installed at all pumping stations for each pump.

### **Alarm Systems**

Alarm systems shall be provided for all pumping stations. At a minimum, the alarm system shall be activated in any one of the following cases:

- High water in the wetwell;
- Low water in the wetwell;
- Loss of one or more phases of power supply;
- High water level in the pump room sump;
- Loss of the alarm transmission or communications;
- Loss of air pressure in the bubbler tube system/level sensing trouble or failure;
- Standby power failure or malfunction of the pump;
- Flooding of building or drywell;
- Smoke/fire alarms;
- Low temperature;
- Surge suppressor failure;
- PLC processor failed;
- PLC low battery;
- Intrusion; and
- Three spare connections

### **Section 26. Pump Station Ventilation**

#### **General**

Adequate ventilation shall be provided for all pumping stations. Where the pump pit is below the ground surface, mechanical ventilation is required, especially when screens or mechanical equipment requiring maintenance or inspection are located in the wetwell. The wet and dry well ventilation systems shall not be connected. In pits more than 15 feet (4.6 m) deep, multiple inlets and outlets shall be installed. Switches for the operation of ventilation equipment shall be marked and located conveniently. If odors are a problem, an odor control system shall be installed.

#### **Wetwells**

Ventilation may be either continuous or intermittent. For continuous ventilation, at least 12 air changes per hour shall be provided. For intermittent ventilation, at least 30 air changed per hour shall be provided. Heating shall be installed where needed.

#### **Drywells**

Ventilation shall be continuous. Heating and dehumidification are required. At least 6 complete air changes per hour shall be provided.

### **Section 27. Flow Measurement**

Suitable devices, as approved by the director, for measuring wastewater flow and power consumption shall be installed in all pump stations.

### **Section 28. Pump Station Water Supply**

Water under pressure shall be provided for cleanup at the pumping station. If a public water supply is used, a Reduced Pressure Zone (RPZ) backflow preventer or other approved device shall be installed on the water service entering the station. No other potable water supply and other piping systems or fixtures shall be connected to the systems supplied by the public water supply.

### **Section 29. Electrical**

#### **Electric Equipment**

Electrical systems shall be designed and installed in strict conformance with the latest edition of the National Electrical Code. Electrical equipment in enclosed places where gas may accumulate shall be noncorrosive and in compliance with the National Electrical Code requirements for Class I Group D, Division I locations.

#### **Submersible Pump Motors**

Electrical supply and control circuits shall allow disconnection at a junction box located at or accessible from outside the wetwell. Terminals and connectors shall have watertight seals located outside of the wetwell and shall be protected by separate strain relief.

The motor control center shall be located outside of the wetwell and protected by a conduit seal or other appropriate sealing method meeting the requirements of the National Electrical Code for Class 1, Division 2 locations.

The pump motor shall meet the requirements of the National Electrical Code for Class 1, Division 2 locations.

Submersible pump motors that are totally submerged during the pumping cycle are not required to protect against explosions.

Power cords for pump motor shall be flexible and serviceable under conditions of extra hard use. Ground fault interruption protection shall deenergize the circuit in the event of any failure in the electrical integrity of the cable.

Power cord terminal fittings shall be provided with strain relief appurtenances, and shall facilitate field connecting.

### **Section 30. Emergency Operations**



When the Director deems it is necessary, an independent natural gas or propane engine-generator type source of electric power shall be provided for electrically driven pumps. This source shall be automatically activated when or if any phase of the power supply fails or upon any fluctuation in voltage. Installation shall comply with all applicable requirements of the National Electrical Code.

### **Small Pumping Stations**

When the Director agrees that a small pump station does not require a permanent alternative power supply, electrical connections for portable standby generator or pneumatic connection for portable air compressor shall be installed as approved by the Director.

### **Controls**

Provisions shall be made for automatic and manual startup and cut-in. The controls shall be such that upon automatic startup under emergency conditions, shutdown can be accomplished only manually, except in conditions that would damage the generator or engine.

### **Size**

Unit size shall be sufficient to start up and run all pumps needed to handle peak flows as well as lighting, ventilation, pump controls, and the sump pump.

### **Exerciser**

The engine controls shall be equipped with an automatic exerciser that may be set on any selected schedule to start the generator, to run it under no-load conditions, and to shut it off without activating the alarm system.

### **Noise Attenuation**

Noise attenuation components must be incorporated in the design to produce no more than 60 decibels (db) of noise at the property line.

## **Section 31. Safety**

Adequate provisions shall be made to protect the operator and visitors from hazards. The design and construction of pumping stations shall meet all prescribed local, state, and federal safety laws and codes. Safety provisions shall include the following:

- Handrails at openings, stairways, and other hazardous areas;
- Guards around the belt drives, gears, rotating shafts, and moving equipment;
- Warning signs as appropriate;
- Provisions for power lockout controls at all pumps and equipment;

- Eye wash stations where chemicals are used;
- Adequate lighting in all areas of the pumping station;
- Provisions for confined space entry in accordance with OSHA and regulatory agency requirements;
- First aid equipment; and
- Fire extinguisher.

### **Section 32. Overflows and Bypasses**

Overflows and bypasses shall not be allowed on pumping stations serving sanitary sewage collection systems.

### **Section 33. Site Protection and Aesthetics**

The Director will review the design and location of the pump stations and may determine that fencing, aesthetics vegetation plantings, intrusion alarms, and aesthetics superstructures style or any other site conditions may warrant site protection and/or aesthetics.

### **Section 34. Odor Control**

Odor control equipment may be required by the Director, depending on the siting of the pumping station and force main discharge point.

## **Appendix B. Construction Technical Specifications**

The owner of the property, the developer, and/or Licensed Utility Installer, shall construct and install all sanitary sewers and all building sewers in accordance with the following rules and regulations:

**Section 1.** The owner, developer, or L.U.I. shall submit to the Director (for approval) plans and profiles of the proposed public sewer extensions and/or building sewer connections.

**Section 2.** The owner, developer or L.U.I. of a subdivision shall submit to the Director, a subdivision plan approved by the Harwich Planning Board along with the plans and profiles of the proposed public sewer extension.

**Section 3.** The Contractor doing all the work shall be approved by the Director as a Licensed Utility Installer (L.U.I.) as described in Article II-Building Sewers and Connections, Sections 13a through 13g.

**Section 4.** All materials, including pipe and manhole structures, shall be of the same make and quality used by the Harwich Sewer Department and approved by the Director.

**Section 5.** Public sewers and building sewers shall be laid using a transit or laser level. All sewer pipes shall be laid on a bed of crushed stone of at least six inches (6") in depth under the pipe and crushed stone shall extend at least halfway up the side of the pipe. Approved gravel, with no stones larger than two inches (2") in any dimension, shall be used to cover pipe to one foot above pipe. The rest of the backfill material must be approved by the Director, Massachusetts Highway Department or Town of Harwich Department of Public Works. The approved backfill material shall be placed in mechanically compacted lifts of no more than six inches (6") deep or as specified by the Harwich Surveyor of Highways, Massachusetts Highway Department, or other specifications more stringent than the above. The approved backfill material above the gravel shall contain no stones greater than 6 inches in any dimension.

**Section 6.** Impervious dams shall be considered every 300 feet to control the flow of groundwater within the pipe bedding material when:

- The surrounding native material is considerably less impervious than the pipe bedding material;
- The pipe bedding could produce a hydraulic head of 25 feet on the pipe gaskets and joints during periods of high groundwater flow; and/or
- The sewer being constructed is downstream of any waterway and wetland crossings.

**Section 7.** Sewers may be deep enough to drain basement fixtures, and shall be deep enough to prevent freezing. Watertight insulation shall be provided for sewers that cannot be placed deep enough to prevent freezing.

House connections chimneys (vertical pipe) preformed block shall be used when the sewer main is greater than or equal to 12 feet deep.

**Section 8.** Where high groundwater conditions are anticipated, the buoyancy of sewers shall be considered, and the floatation pipe of pipe shall be prevented with appropriate design and construction of the sewer.

**Section 9.** No mud, gravel or debris shall be allowed to enter the sewer pipes at any time. All pipes shall be capped at end of day's laying and water shall be pumped out of excavation prior to removing the cap.

**Section 10.** Building sewer connection to the public sewer shall have a wye branch fitting, as approved by the Director, made of the same type of materials as the sewer main being tapped.

**Section 11.** Minimum size of gravity public sewer pipe diameter shall be eight (8") inches and building sewer pipes shall not be less than four (4") inches in diameter. Minimum sizes of low-pressure sewer mains shall be in accordance with Article IV-Design of Sewers, Section 9. Details of Low-Pressure Sewer Design and Construction.

**Section 12.** Sewer pipe and building sewer pipe material shall be:

A. Reinforced Concrete Pipe shall meet the following specification:

- Portland cement shall conform to ASTM C-150 Type II;
- The pipe and its appurtenances shall conform to ASTM Specification C-76;
- The reinforcing wire cage shall conform to ASTM Specification A 15, A 82, or A 185, as appropriate;
- Entrained air shall be 5.0% to 9.0% by ASTM C-890;
- Water absorption and three-edge bearing tests shall conform to ASTM Specification C-497; and
- Gaskets shall conform to Sections 3.3 and 3.4 of AWWA Specification C-302.

Note: non-reinforced concrete pipe shall not be used.

B. Extra Heavy Cast Iron Pipe shall meet the following specifications:

Pipe, fittings, and appurtenances shall conform to the requirements of ASTM Specification A-74 or ANSI A-21.11 and gaskets shall conform to ASTM Specification C-564.

C. Heavy Wall Polyvinyl Chloride (PVC) Pipe shall meet the following specifications:

Pipe shall be made from Class 12454-B materials or better in accordance with ANSI/ASTM Specification D-1784, and shall ultraviolet light (UV) protected.

The pipe and accessories shall conform to the requirements of the following, with a minimum pipe stiffness of 46 PSI at a maximum deflection of five percent (5%):

ANSI/ASTM	D 3034	(4" – 15")
ASTM	F 679 Type I	(18" – 27")

D. Ductile Iron Pipe shall meet the following specifications:

- Pipe, fittings, and appurtenances shall be manufactured in accordance with ASTM Specification A-746;
- Pipe shall have a minimum thickness of Class 50;
- Fittings shall conform to ANSI Specification A-21.11 and have a minimum pressure class rating of 150 PSI;



All pipe and fittings shall be cement mortar lined in accordance with ANSI Specification A-21.4 at twice the specified thickness, and have an internal and external bituminous seal coating and closure pieces shall be jointed by means of a mechanical coupling of the cast sleeve type.

- E. Extra Strength Vitrified Clay Pipe shall meet the following specifications:

Pipe shall conform to the current requirements of NCPI Specification ER 3300 – 67 and meet the requirements of ASTM Specification C 700.

Note: standard strength vitrified clay pipe shall not be used.

- F. Acrylonitrile – Butadiene - Styrene (ABS) Pipe shall meet the following specifications:

Pipe and fittings shall conform to the requirements of ASTM Specification D 2661.

- G. Plastic Pipe, sizes 4 inches through 12 inches, shall be ANSI/ASTM D3034, SDR-35 Type PSM Poly (Vinyl Chloride) (PVC) material; minimum pipe stiffness ( $F/Y$ ) is 46 psi; bell and spigot style and rubber gasket conforming to ASTM F477.

- H. Low Pressure Mains and Services for 1-1/4-inch pipe through 4-inch pressure pipe shall be polyethylene pipe with material conforming to ASTM D3350, Type PE-3408 pressure Class PC 160, SDR-11. Fittings for use with polyethylene pipe and tubing shall be manufactured and furnished by the pipe supplier and in conformance with AWWA C901 requirements. Joints for polyethylene pipe shall be jointed by the butt fusion method in a manner recommended by the pipe manufacturer.

Pipe sizes 1-1/4 inches through 4 inches shall be Polyvinyl Chloride (PVC) pipe ASTM D2241 PVC pressure pipe material conforming to ASTM D1784, minimum class SDR 21 for pipe 1-1/4-inch, push-on joint conforming to ASTM D3139 with flexible elastomeric gaskets conforming to ASTM F477.

Fittings for use on PVC pressure pipe of 4-inch nominal inside diameter or greater shall be ductile iron with mechanical joints as described in ANSI 21.10/AWWAC110. The coatings and linings of the fittings shall be as specified for ductile iron pipe.

- I. Other pipe materials:

Other pipe materials shall require prior written approval of the Director before being installed.

Materials for sewer construction shall be appropriate for local conditions, including the character of industrial wastes, septicity, soil characteristics, external loadings, and problems such as abrasion and corrosion. All sewers shall be able to withstand damage from superimposed loads. Proper allowances for soil and potential groundwater conditions, as well as the width and depth of the trench shall be used. Where necessary,

special bedding, haunching and initial backfill, concrete cradles, or other special construction elements shall be used.

The minimum internal pipe diameter shall be eight (8) inches for gravity sewers.

Joints for the selected pipe shall be designed and manufactured such that "O" ring gaskets of the "snap-on" type are used.

Gaskets shall be continuous, solid, natural or synthetic rubber, and shall provide a positive compression seal in the assembled joint.

Joint preparation and assembly shall be in accordance with the manufacturer's recommendations.

Wye branch fittings, as approved by the Director, shall be installed for connection of laterals.

### **Bedding, Haunching, and Initial Backfill**

Based on the bedding support of the type of soil and potential groundwater conditions, use the following for the anticipated loads:

- Bedding classes A, B, and C, or crushed stone as described in the American Society of Testing Materials standard ASTM C 12, should be used for all rigid pipe, or
- Materials for bedding, haunching, and initial backfill, or classes I, II, or III as described in ASTM D 2321, should be used for all flexible pipe.

### **Safety and Load Factors**

Selection of pipe class shall be predicated on the following criteria:

Safety factor	-	1.5
Load factor	-	1.7
Weight of soil	-	120 lbs/cu.ft.
Wheel loading	-	H-20

## **Section 13. Manholes and Cleanouts**

### **Manhole and Cleanout Size**

#### **Cleanouts**

Cleanouts shall be constructed of the same material as the building sewer. The size of the cleanout shall be the same size as the building sewer up to six (6") inches in diameter, for

building sewers larger than six (6") inches in diameter manholes shall be used. Cleanouts shall be sealed with removable, re-useable threaded screw-in plug or screw-on cap.

### **Manholes**

Manholes shall be minimum of four (4') feet in diameter with a minimum access diameter of 30 inches (76 cm). Larger diameter manholes may be required by the Director. A minimum drop of 0.10 foot shall be used between entrance and exit inverts.

### **Location**

Manholes and cleanouts shall be installed at the end of each line; at all changes in grade, size, or alignment; and at all intersections. Distances shall not be greater than 300 feet for sewers measuring 15 inches (38 cm) or less in diameter, or 400 feet for sewers 18-30 inches (46-76 cm) in diameter. Greater distances may be permitted for larger sewers or for those carrying a settled effluent, but only with prior approval of the Director. The top of the manhole cover shall be no lower than one (1') foot above the 100-year flood elevation level. Junction manholes on low pressure sewers shall be installed at all intersections

### **Drop Type**

A drop pipe for a sewer pipe with an invert entering a manhole of more than 24 inches (61 cm) above the manhole invert shall be provided. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches (61 cm), the invert shall be filleted to prevent solids deposition.

Drop manholes shall be constructed with an outside drop connection. Outside drop connections shall be encased in concrete, and shall provide access for cleaning as the sewer enters the manhole at the top of the drop connection.

Inside drop connections may be used provided the manhole has the area to facilitate safe access into the manhole with the inside drop in place, and shall be approved by the Director. The inside drop connection shall be secured to the interior wall of the manhole, and shall provide access for cleaning as it enters the manhole at the top. Internal drop pipes and fittings shall be PVC plastic sewer pipe in compliance with ASTM D2241. Corrosion resistant anchors shall be used to attach the drop pipe to the inside surface of the manhole barrel.

### **Structural Base**

Manhole bases shall be constructed or placed on a minimum of twelve (12) inches of crusher run with a maximum stone diameter in all directions of one half ½ inch and free of organic materials.

### **Diameter**

The manhole's minimum diameter shall be 48 inches (122 cm) for standard manholes and 60 inches (153 cm) for inside drop manholes. A minimum access diameter of 30 inches (76 cm) shall be provided. Larger openings shall be provided for manholes that house equipment, as specified by the Director.

### Materials

Manholes shall be precast concrete with barrel sections, cones, and bases, manufactured in compliance with ASTM C 478, and shall have an O-ring or bituminous-based gasketed joints. "Precast concrete walls shall be made up using straight, circular barrel sections and eccentric cone sections if manhole steps are required, and concentric cone sections where no steps are required. Manholes can also be poured-in-place concrete. Other types are allowed subject to the approval of the Director.

All tongue-and-groove (or male and female joints in the precast wall, including the joint at the top of the base, shall be made up using the "Snap-On" type O-ring gasket, and shall conform to ASTM C443; except that joint taper shall not exceed 3-1/2 degrees. The precast sections shall be provided with a special groove (cast into the male end) to receive and hold the gasket in position during joint assembly. After joint assembly, the gap between sections shall be packed on the inside and outside with Anti-Hydro "Azpandretes," Masterflow 713 by Master Builders; or Five Star Grout by U.S. Grout Corp., and shall be troweled smooth so that no projections remain on the inside.

Manhole bases shall be constructed of 4,000 psi (28 day) concrete 8 inches thick, or shall be precast bases properly bedded in the excavation. Field constructed bases shall be monolithic, properly reinforced, and extend at least 6 inches beyond the outside walls of lower manhole sections. Precast manhole bases shall extend at least 6 inches beyond the outside walls of lower manhole sections.

Manholes shall be constructed using minimum 4-foot diameter, precast concrete manhole barrel sections, and an eccentric top section, conforming to ASTM Specification C-478, with the following exceptions on wall thickness:

<b>Manhole Diameter</b>	<b>Wall Thickness</b>
<b>in Feet</b>	<b>in Inches</b>
4	5
5	6
6	7
6-1/2	7-1/2
7	8
8	9



All Sections shall be cast solid, without lifting holes. Flat top slabs shall be a minimum of 8 inches thick and shall be capable of supporting a H-20 wheel loading.

All joints between sections shall be sealed with "O" ring rubber gasket, meeting the same specifications as pipe joint gaskets, or butyl joint sealant completely filling the joint.

All joints shall be sealed against infiltration. All metal parts shall be thickly coated with bitumastic or elastomeric compound to prevent corrosion.

No holes shall be cut into the manhole sections closer than 6 inches from joint surfaces.

Manholes which extend above grade shall not have an eccentric top section. The top plate shall be large enough to accommodate the cover lifting device and the cover.

### **Manhole Covers**

The elevation of the top section shall be such that the cover frame top elevation is one (1) foot above the 100-year flood elevation (in a field), 0.5 foot above a lawn elevation, or at finished road or sidewalk grade.

When located in a traveled area (road or sidewalk), the manhole frame and cover shall be heavy duty cast iron. When located in a lawn or in a field, the manhole frame and cover may be light duty cast iron. The cover shall provide a minimum access diameter of 30 inches (76 cm). The mating surfaces shall be machined, and painted with tar pitch varnish. The cover shall not rock in the frame. Infiltration between the cover and frame shall be prevented by proper design and construction. Covers shall have "Sewer" cast into them. Covers shall be designed so that infiltration is prevented.

Manhole frames, installed at grade, shall be set in a full bed of mortar with no less than two nor more than four courses of brick underneath to allow for later elevation adjustment. In lieu of brick, grade rings may be used for elevation adjustment. Grade rings shall not exceed 6 inches in depth. The total number of grade rings shall not exceed 12 inches in height, however, in no event shall more than 3 grade rings be used.

Manholes which extend above grade, shall have the frames cast into the manhole top plate. The top plate shall be securely anchored to the manhole barrel, by a minimum of six, ½ inch diameter, corrosion resistant anchor bolts, to prevent overturning when the cover is removed. The anchor bolts shall be electrically isolated from the manhole frame and cover.

### **Ladders**

Manhole steps are to be provided in manholes. Steps are to be cast in or grouted solid into the precast units at intervals of 12 inches. Steps shall be in conformance with OSHA requirements having drop front or equivalent. Bolted-on type is not acceptable. Manhole

steps to be M.A. Industries, Inc. copolymer polypropylene reinforced with ½-inch steel rod or equal.

### **Flow Channel or Invert**

The flow channel through the manholes shall conform in shape and slope to that of the sewers entering and leaving the manholes. Construct the top of the flow channel so that the flow will remain in the channel under peak conditions. Form or shape the channel walls to the full height of the crown of the outlet sewer and so as not to obstruct maintenance, inspection, or flow in the sewers. When curved flow channels are required, including branch inlets, increase minimum slopes to maintain acceptable velocities. Provide a minimum 0.1-foot drop through the manhole.

### **Bench or Shelf**

Provide a bench on each side of every manhole channel. The bench should have a slope of no less than 0.1 inch per foot or no greater than 0.5 inch per foot. No lateral sewer, service connection, or drop manhole pipe should discharge onto the surface of the bench.

### **Manhole Inverts**

Manhole inverts shall be constructed by laying sewer bricks on their long side with their water structured face up, in straight line or sweeping arch to from the bottom of the invert, from pipe to pipe. Additional sewer bricks will fan out with their water structure facing towards the center of the invert from the invert brick. The invert's width will be the same diameter of the effluent pipe of the manhole. The minimum height of the shelf shall be equal to the crown of the manhole's effluent pipe and it shall be constructed from sewer brick with their water structured face up.

### **Buoyancy**

Where high groundwater conditions are anticipated, the manholes shall be designed and constructed to prevent floatation.

### **Watertightness**

Solid or watertight manhole covers shall be used in areas subject to flooding. All manhole lift holes and grade adjustment rings shall be sealed with a nonshrinking mortar or other material approved by the Director. A bituminous coating shall also be used on the exterior. Inlet and outlet pipes shall be joined to the manhole with a gasketed, flexible watertight connection or with another watertight connection arrangement that allows for differential settlement of the pipe and the manhole.

The Contractor shall furnish manholes waterproofed over the entire exterior surface that will be below finished grade. The water proofing shall not mar or interfere with the specified exterior finish for these structures. Waterproofing shall be accomplished prior to structure installation for precast sections, and shall be applied to dry surfaces under proper weather conditions.

Waterproofing shall consist of a two-coat application of coal tar compound as manufactured by Koppers Bitumastic Super Service Black; Tnemec Heavy Duty Black 46-449; Preco Nitroproof 600; or equal, and shall be applied according to manufacturer's specification. Total thickness of the two-coat application shall not be less than 16 mils.

### **Pipe Connections**

Pipes being connected to new manholes shall be connected to the manhole with cast-in-place rubber boot with clamp around gasket. Pipes being connected to existing manholes shall be core drill opening and seal with link seal water stop between pipe and manhole wall.

## **Section 14. Force main pipe shall be either**

### **A. Ductile Iron Pipe**

- Pipe shall conform to ANSI A21.51;
- The minimum wall thickness shall be Class 52 (ANSI A21.50);
- The pipe shall be clearly marked with either "D" or "DUCTILE";
- Fittings shall conform to ANSI A21.10;
- Pipe shall be furnished with push-on joints and fittings shall be furnished with mechanical joints. Both conforming to ANSI A21.11; and
- Pipe and fittings shall be cement mortar lined and have an internal and external bituminous seal coating.

### **B. Polyvinyl Chloride (PVC) Plastic Pipe**

- Pipe shall conform to ASTM D2241;
- Materials used in the manufacturer of PVC pipe shall meet ASTM C1784; and be ultraviolet light (UV) protected;
- The minimum wall thickness shall be SDR-21;
- Fittings shall conform to ASTM D2241; and
- Joints and gaskets shall conform to ASTM D2241, D1869, and F477.

### **C. Other pipe materials**

- Other pipe materials shall require prior written approval of the Director before being installed.

Trenching, bedding, and backfilling shall be as approved by the authority having jurisdiction over the property, such as but not limited to: the Massachusetts Highway Department, Town of Harwich Department of Public Works, or Harwich Wastewater Superintendent.

Joint preparation and assembly shall be in accordance with the manufacturer's written instructions.

Anchorage, concrete blocking, and/or mechanical restraint shall be provided when there is a change of direction of 7-1/2 degrees or greater.

When the daily average design detention time, in the force main, exceeds 20 minutes, the manhole and sewer line receiving the force main discharge or the sewage shall be treated so that corrosion of the manhole and the exiting line are prevented. The corrosion is caused by sulfuric acid biochemically produced from hydrogen sulfide anaerobically produced in the force main.

The force main shall terminate, in the receiving manhole, at a PVC plastic sewer pipe "T". The vertical arms of the "T" shall be twice the diameter of the force main. The upper arm shall be at least 4 feet long; the lower arm shall terminate in a PVC plastic sewer pipe 90-degree elbow in a flow channel directed to the manhole exit pipe. The "T" and its arms shall be securely fastened to the inside surface of the manhole wall using corrosion resistant anchors.

Force mains shall have a minimum velocity of three feet per second, 3ft/Sec.

**Section 15.** No sanitary sewer pipe shall be left open into an unfinished house or cellar hole. All pipes must be capped to prevent the flow of surface water or debris from entering the sanitary sewer.

**Section 16.** All sewer works located in the flood plain district area, established under the zoning by-law, shall require that new and replacement sewer works be designed and constructed to minimize or eliminate infiltration of flood waters into the system or discharge sewerage from the system into the floodwater.

## **Section 17. Sewer Pipe Testing**

### **A. General**

The L.U.I. shall test the first section of pipeline as soon as it is installed to demonstrate that the work conforms to these specifications. The initial section shall not be less than five hundred (500) feet and not more than one thousand (1000) feet of pipeline. Testing of pipe shall closely follow pipe laying.



For all sewer pipe tests, the L.U.I. shall furnish an air or water test pump, an air or water meter, and suitable pressure gauge. The L.U.I. shall also furnish all labor and materials required to install suitable temporary testing plugs or caps for the pipeline and perform the test. The meter and gauge shall be installed by the L.U.I. in such a manner that all air or water entering the section under the test will be measured and the pressure in the section indicated and they shall be kept in use throughout all tests.

The scheduling of deflection and pressure and leakage tests shall be as approved and attended by the Town of Harwich's Sewer Department or Town Inspector.

Before accepting any sewer segment, the L.U.I. shall provide a television tape of the entire sewer including point of connection an existing sewer or pumping station. Television inspection shall be performed by a firm specializing in this work and shall produce the following information:

1. A continuous videotape recording of the entire length of pipe being inspected. The tape shall include location of each section, direction of camera travel, a commentary of the pipe's condition, and various irregularities found and lateral connections.
2. The section of pipe being televised shall be identified at least once every 50 ft.
3. Documentation on television logs and voice recorded on tape shall consist of the following information:
  - a. Distance from the numbered manhole point of beginning on each sewer section to the location of the specific condition being inspected.
  - b. Angular orientation of all above conditions inside pipe (i.e., leak at 10:00, service connection at 3:00).
  - c. Sewer size, material, and joint spacing.

#### B. Deflection

Deflection tests shall be performed on all flexible pipes. The tests shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the pipe system.

No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent, the pipe shall be replaced.

The rigid ball or mandrel used for the deflection test shall have a diameter of not less than 95 percent of the base inside diameter or the average inside diameter of the pipe as specified by ASTM D 2122 Standard Test Method of Determining Dimensions of

Thermoplastic Pipe and Fittings. The tests shall be performed without mechanical pulling devices.

### C. Air Testing

The Town requires air testing in lieu of the exfiltration or infiltration tests. The L.U.I. shall submit the proposed method of air testing to the Director for approval. All air testing shall be performed in accordance with the procedures described in ASTM C828-86 for Clay Pipe or ASTM C924 for Concrete Pipe or those procedures approved by the Director, and shall be specifically designed and manufactured for testing pipelines with low-pressure air and shall be provided with an air regulator valve or air safety valve set to prevent the air pressure in the pipeline from exceeding ten (10) psi. If the results of the air test are unsatisfactory, the L.U.I. shall repair the sewer pipe and perform the air tests until the sewer pipe passes the air test. If site conditions are not conducive to air test, as determined by the Director, the L.U.I. will be required to perform an exfiltration and/or an infiltration test as outlined below.

Low pressure air tests shall conform to ASTM Specification C 828. All sections to be tested shall be cleaned and flushed, and shall have been backfilled, prior to testing. Air shall be added until the internal pressure of the test section is raised to approximately 4.0 PSIG. The air pressure test shall be based on the time, measured in seconds, for the air pressure to drop from 3.5 PSIG. Acceptance is based on limits tabulated in the "Specification Time Required for a 1.0 PSIG Pressure Drop" in the Uni-Bell PVC Pipe Association "Recommended Practice For Low-Pressure Air Testing of Installed Sewer Pipe".

Before pressure is applied to the line all connections shall be firmly plugged. Before the test period starts, the air shall be given sufficient time to cool to ambient temperature in the test section.

If the test section is below groundwater, the test pressure shall be increased by an amount sufficient to compensate for groundwater hydrostatic pressure, however, the test pressure shall not exceed 10 PSI.

The pressure test gauge shall have been recently calibrated, and a copy of the calibration results shall be made available to the Director prior to testing.

### Exfiltration Test

If for any reason, approved by the Director, air testing cannot be performed, the Director shall require exfiltration testing. Leakage tests by exfiltration shall be made before or after backfilling at the discretion and under the supervision of the Town Inspector. The length of pipe to be tested shall not exceed 1,000 feet and be such that the head over the crown at the upstream pipe is not less than two (2) feet and the head over the downstream

pipe crown is not more than six (6) feet. The pipe shall be plugged, by pneumatic bags or mechanical plugs, in such a manner that the air can be released from the pipe while it is being filled with water. Before any measurements are made, the pipe shall be kept full of water long enough to allow absorption of water and the escape of any trapped air. Following this, a test period of at least two hours shall begin. Provisions shall be made for measuring the amount of water required to maintain the water at a constant level during the minimum two (2) hours test period. If any joint shows an appreciable amount of leakage, the joining material shall be removed and replaced. If the water required to maintain a constant level in the pipe does not exceed twenty-five (25) gallons per nominal diameter, in inches, per 24 hours per mile of pipe and if all leakage is not confined to a few joints, workmanship shall be considered satisfactory. If the amount of leakage indicates defective joints or broken pipes, they shall be corrected or replaced.

### **Infiltration Test**

If for any reason, approved by the Director, air testing and exfiltration testing cannot be performed, the Director shall require infiltration testing be performed. Pipe shall be tested for infiltration after backfill has been placed and the ground water allowed to return to normal elevation. Infiltration tests shall be made only under the supervision of the Town Inspector, and the length of line to be tested shall be not less than the length between adjacent manholes and not more than the total length of each size pipe and shall not exceed 1000 feet. The allowable infiltration shall be twenty-five (25) gallons per nominal diameter, in inches, per 24 hours per mile of pipe in each section tested as determined by means of V-Notch weirs, pipe spigots, or by plugs in the end of the pipe to be furnished and installed by the L.U.I., in an approved manner, and at such times and locations as may be directed by the Town Inspector.

There shall be no gushing or spurting leaks. If an inspection of the completed sewer or any part thereof shows pipes or joints which allow noticeable infiltration of water, the defective work or material shall be replaced or repaired.

### **Section 18. Sewer Force Main Testing**

The sewer force main pipe shall be given pressure and leakage tests in sections of approved length as approved by the Director. For these tests, the L.U.I. shall furnish a water test pump, water meter, and a pressure gauge. The L.U.I. shall also furnish all labor and equipment to install suitable temporary testing plugs or caps for the pipeline and to perform the tests. The meter and gauge shall be installed by the L.U.I. in such a manner that all water entering the section under the test will be measured and the pressure in the section indicated and they shall be kept in use throughout all tests.

The scheduling of pressure and leakage tests shall be as approved and attended by the Town Inspector.

The section of pipe to be tested shall be filled with water by pumping water into it and opening the air release valves and expelling all air from the pipe. If air release assemblies are not

available at high points for releasing air, the L.U.I. shall perform: all excavation(s); make the necessary tap(s) at such highpoint(s); plug said holes of the tapping saddles after completion of the test with brass or bronze plug(s); and backfill the excavation(s).

The L.U.I. shall make a leakage test by metering the flow of water into the pipe while maintaining (in the section being tested) a pressure equal to 1.5 times the highest pressure to which the pipe will be subjected under normal conditions of service or 150 psi, whichever is greater. This shall be done by placing the section under pressure by pumping.

The lengths of joint to be used in determining the allowable leakage shall be based on the nominal diameter of the pipe. The allowable leakage shall be less than 11.65 gallons per inch diameter per day per mile of force main tested, maintaining a pressure within 5 psi for a minimum of two (2) hours duration. If the section shall fail to pass the pressure test, the L.U.I. shall locate and repair or replace the defective pipe, fitting, or joint, at the L.U.I.'s own expense.

If, in the judgment of the Director, it is impracticable to follow the foregoing procedure exactly, modifications in the procedures may be made if approved by the Director, but in any event the L.U.I. shall be responsible for the ultimate tightness of the line within the above leakage requirements with no allowances for leakage from valves.

#### **Section 19. Low Pressure Sewer Testing**

The sewer low pressure pipe shall be given pressure and leakage tests in sections of approved length as approved by the Director. For these tests, the L.U.I. shall furnish a water test pump, water meter, and suitable pressure gage. The L.U.I. shall also furnish all labor and equipment required to install suitable temporary testing plugs or caps for the pipeline and perform the test. The meter and gage shall be installed by the L.U.I. in such a manner that all water entering the section under the test will be measured and the pressure in the section indicated and they shall be kept in use throughout all tests.

The scheduling of pressure and leakage tests shall be as approved and attended by the Town Inspector.

The section of pipe to be tested shall be filled with water by pumping water into it and opening the air release valves and expelling all air from the pipe. If air release assemblies are not available at high points for releasing air, the L.U.I. shall perform: all excavation(s); make necessary tap(s) at such highpoint(s); plug said holes of the tapping saddles after completion of the test with brass or bronze plug(s); and backfill the excavation(s).

The L.U.I. shall make a leakage test by metering the flow of water into the pipe while maintaining (in the section being tested) a pressure equal to 1.5 times the highest pressure to which the pipe will be subjected under normal conditions of service or 150 psi whichever is greater. This shall be done by placing the section under pressure by pumping.

The lengths of joint to be used in determining the allowable leakage shall be based on the nominal diameter or the pipe. The allowable leakage shall be less than 11.65 gallons per inch



diameter per day per mile of pipe tested, maintaining a pressure within 5 psi for a minimum of two (2) hours duration. If the section shall fail to pass the pressure test, the L.U.I. shall locate and repair or replace the defective pipe, fitting, or joint at the L.U.I.'s own expense.

If, in the judgment of the Director, it is impracticable to follow the foregoing procedure exactly, modifications in the procedures may be made if approved by the Director, but in any event the L.U.I. shall be responsible for the ultimate tightness of the line within the above leakage requirements with no allowances for leakage from valves.

### **Section 20. Cleaning Sewer Lines**

At the conclusion of the work, the L.U.I. shall thoroughly clean all pipelines by washing with water or other means to remove all dirt, stones, pieces of wood, or other material which may have entered the pipes during the construction period. Debris cleaned from the lines shall be removed from the low end of the pipeline by installing a screening device that will prevent any debris from entering the public sewer system or a section of the sewer works already approved. If after this cleaning, obstructions remain, they shall be removed. After the pipelines are cleaned and if the groundwater level is above the pipe or following a heavy rain, the Town Inspector will examine the pipes for leaks. If any defective pipes or joints are discovered, they shall be repaired or replaced as directed by the Town Inspector.

### **Section 21. Sewer Manhole Leakage Tests**

Leakage tests shall be made and observed by the Town Inspector on each manhole. The test shall be the exfiltration test or vacuum test as described below:

For these tests, the L.U.I. shall furnish an air or water test pump, an air or water meter, and suitable pressure gage. The L.U.I. shall also furnish all labor and materials required to install suitable temporary testing plugs or caps for the pipeline, and perform the test. The meter and gage shall be installed by the L.U.I. in such a manner that all air or water entering the manhole under the test will be measured and the pressure in the manhole indicated and they shall be kept in use throughout all tests.

After the manhole has been assembled in place, all lifting holes and exterior joints surface shall be filled and pointed with an approved non-shrinking mortar. The test shall be made prior to placing the shelf and invert and before filling and pointing the interior horizontal joints. If the groundwater table has been allowed to rise above the bottom of the manhole, it shall be lowered for the duration of the test. All pipes and other openings into the manhole shall be suitable plugged and the plugs braced to prevent blow out.

#### **Exfiltration Testing**

The manhole shall then be filled with water to the top of the cone section. If the excavation has not been backfilled and observation indicates no visible leakage that is, no water visible moving down the outside surface of the manhole, the manhole may be considered to be satisfactory water-tight. If the test, as described is unsatisfactory, as

determined by the Town Inspector or if the manhole excavation has been backfilled, the test shall be continued. A period of time may be permitted, if the Contractor so wishes, to allow for absorption. At the end of this period the manhole shall be refilled to the top of the cone and the measuring time of at least two (2) hours shall begin. This amount shall be extrapolated to a 24-hour rate and the leakage determined on the basis of depth. The leakage for each manhole shall not exceed one (1) gallon per vertical foot per day, a twenty-four (24) hour period shall equal one day. If the manhole fails this requirement, but the leakage does not exceed three (3) gallons per vertical foot per day, repairs by approved methods may be directed by the Town Inspector to bring the leakage within the allowable rate of one (1) gallon per foot per day. Leakage due to a defective section or joint or exceeding the three (3) gallon vertical foot per day, shall be the cause for the rejection of the manhole. It shall be the L.U.I.'s responsibility to uncover the manhole, as necessary, and to disassemble, reconstruct, or replace it as directed by the Town Inspector. The manhole shall then be retested and, if satisfactory, interior joints shall be filled and pointed and the invert constructed.

No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorptions, etc., it will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete. Furthermore, the L.U.I. shall take any steps necessary to assure the Town Inspector that the water table is below the bottom of the manhole throughout the test.

If the groundwater table is above the highest joint in the manhole, and there is no leakage into the manhole, as determined by the Town Inspector, such a test can be used to evaluate the water-tightness of the manhole. However, if the Town Inspector is not satisfied, the Contractor shall lower the water table and carry out the test as described hereinbefore.

### **Vacuum Testing**

The vacuum test shall be based on the time, measured in seconds, for the vacuum to decrease from 10 inches of mercury to 9 inches of mercury for manholes.

Acceptance of manholes is based on the following:

Manhole	Manhole Diameter	Time to Drop 1" Hg
		(10" to 9")
10 ft or less	4 ft	120 seconds
10 ft to 15 ft	4 ft	150 seconds
15 ft to 25 ft	4 ft	180 seconds

NOTE: For 5ft diameter manholes, add 30 seconds to the times above

For 6ft diameter manholes, add 60 seconds to the times above

The vacuum test gauge shall have been recently calibrated, and a copy of the calibration results shall be made available to the Director prior to testing.

If the test on the manhole fails (the allowable gallons or the time is less than that tabulated above), necessary repairs shall be made and the vacuum test repeated, until the manhole passes the test.

**Section 22. Manhole Cleaning**

All new manholes shall be thoroughly cleaned of all silt, debris and foreign matter of any kind, prior to final inspection.

VIII. NEW BUSINESS

A. Superintendent's Evaluation



Board of Water & Wastewater Commissioners (BOWWC)

**EVAL SUMMARY FOR DANIEL PELLETIER, SUPERINTENDENT OF WATER & WASTEWATER**

Effective 7/1/2021

Note: Newest members; Donahue & Gough partial evaluations included in average where applicable

	Possible	Thompson	Carreiro	Underwood	Donahue	Gough	Average
<b>A 1</b>		4	4	4		3	3.750
2		4	0	4		3	2.750
3	20	1	0	4		4	2.250
4		1	4	0		4	2.250
5		4	4	0		4	3.000
	<b>20</b>	<b>14</b>	<b>12</b>	<b>12</b>	<b>0</b>	<b>18</b>	<b>14.000</b>
<b>B 1</b>	6	5	6	6	6	5	5.600
2	6	5	6	6	5	5	5.400
3	6	4	5	5	5	6	5.000
4	6	5	6	5	6	5	5.400
5	6	5	6	5	5	5	5.200
6	6	6	6	6	6	6	6.000
7	6	5	6	6	6	5	5.600
8	6	5	6	6	5	5	5.400
9	1	1	1	1	1	1	1.000
10-1		3					
10-2		3					
10-3	12	3	12	12		12	12.000
10-4		1					
10-5		1					
	<b>61</b>	<b>52</b>	<b>60</b>	<b>58</b>	<b>45</b>	<b>55</b>	<b>56.600</b>
<b>C 1</b>		1	1	0	1	1	0.800
2	4	0	1	1	1	1	0.800
3		1	1	1	1	1	1.000
4		1	1	1	1	2	1.200
	<b>4</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>3.800</b>
Total	<b>85</b>	<b>69</b>	<b>76</b>	<b>73</b>	<b>49</b>	<b>78</b>	<b>74.400</b>
Overall			EX		EX		EX

Gary Carreiro, Chair  
BOWWC CHAIR

Date

Noreen Donahue  
BOWWC

Date

Judith Underwood  
BOWWC VICE CHAIR

Date

John Gough  
BOWWC

Date

Allin Thompson  
BOWWC CLERK

Date

Daniel Pelletier  
SUPERINTENDENT OF WATER & WASTEWATER

Date



**DEPARTMENT HEAD EVALUATION FORM – Water Department**

<b>Name</b>	<u>Daniel Pelletier</u>	<b>Completed By</b>	<u>BOWWC</u>
<b>Job Title</b>	<u>Water &amp; Wastewater Supt.</u>	<b>Classification</b>	<u>M8</u>
<b>Supervisor(s)</b>	<u>Board of Water Commissioners</u>	<b>Current Step</b>	<u>10 (\$135,543)</u>
<b>Department</b>	<u>Water</u>	<b>New Step (if appl.)</b>	<u></u>
<b>Anniversary Date</b>	<u>7/1/22 (hire date 6/1)</u>	<b>Evaluation Date</b>	<u>TBD</u>

<b>Department Head Evaluation – Water</b>
Department Head completes self-evaluation, BOWWC completes individually and then combined evaluation, and both are submitted to the Town Administrator.

**Key for Performance Evaluations:**

- EX Exceptional** Performance far exceeds expectations due to exceptionally high quality of work performed in all essential areas of responsibility.
- EE Exceeds Expectations** Performance consistently exceeded expectations in all essential areas of responsibility and the quality of work overall was excellent.
- ME Meets Expectations** Performance consistently met expectations in all essential areas of responsibility at times possible exceeding expectations and the quality of work overall was very good.
- IN Improvements Needed** Performance did not consistently meet expectations or performance to meet expectations in one or more essential areas of responsibility.
- UN Unsatisfactory** Performance was consistently below expectations in the most essential areas of responsibility and/or reasonable progress towards critical goals was not made. Significant improvement is needed in one or more important areas.

**A. Last Evaluation’s Goals (if appl.) (20 points total)**

Goals ****FROM FY21 EVALUATION****	Comments	Rating / Points Per Section					Points
		0 UN	1 IN	2 ME	3 EE	4 EX	
1. Design/Construct Pleasant Lake Tank upgrades							
2. Install new standby generator at T1 (main office)							
3. Re-design flushing program / new roads / address existing flow issues							



4.	DWSP Grant for land acquisition relative to water resource protection							
5.	5a. Capital Plan Amendment & 5b. Begin well exploration off North Westgate Rd.							

**B. Job Success Factors; Items 1-8 (48 points total)**

**1. Problem Solving / Decision Making (6 points)**

Anticipates, identifies and prevents problems, involves others in seeking solutions. Makes clear and consistent decisions, acts with integrity in all decision making and makes timely decisions.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**

**2. Strategic Planning and Organizing (6 points)**

Aligns priorities with broader goals, measures outcomes, uses feedback to change as needed, evaluates alternatives, solutions oriented, develops realistic plans, meets deadlines & follows through.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**

**3. Communication (6 points)**

Connects with peers, subordinates and public, actively listens, clearly and effectively shares information, demonstrates effective oral and written communication skills. Seeks to clarify and confirm the accuracy of understanding of vague terms and instructions.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**

**4. Leadership (6 points)**

Accepts responsibility for own work, develops trust and credibility, demonstrates honest and ethical behavior, engages the talents, experiences and capabilities of others. Results-oriented and desire to excel in job.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	





**Comments:**

**5. Teamwork (6 points)**

Successfully works with others to achieve desired results, contributes to team projects, exchange ideas and opinions, helps prevent, resolve conflicts, develops positive working relationships and is flexible, open-minded promoting mutual respect for all.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**

**6. Customer Orientation (6 points)**

Listens, identifies, and responds quickly and effectively to internal and external customers' needs and sets work activities accordingly; goes beyond what is expected and follows up to ensure customer satisfaction.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**

**7. Productivity (6 points)**

Maintains fair work load; takes on additional responsibilities as needed; manages priorities; develops and follows work procedures; completes assignments on time and to specifications.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**

**8. Quality (6 points)**

Demonstrates accuracy, thoroughness, and reliability; manages time and priorities; develops and follows work procedures.

**Ratings & Points**

0-1	2-3	4	5	6	Points
UN	IN	ME	EE	EX	

**Comments:**





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**9. Department Specific Competency (if appl.) (1 point)**

Complaint Letters  
 0 Letters (1 points)  
 1 Letter (-1 point)  
 2 Letters (-2 points)  
 2+ Letters (-3 points)

# of Inc.	Points
	1

Department Avg

(2 points)  
 (1 point)  
 (0 points)

Points	Average	Points
		1

Accident Reports (Tracking Only)  
 Vehicles & Buildings

# of Inc.

**10. Goals & Objectives for Following Year (12 points) 3 attainable (3 pts), 1 possible (1 point) and 1 "if time permits" (2 pts)**

	Points
1. FY22 Capital Plan; New Source Exploration <span style="color: red;">****FROM FY21 EVALUATION****</span>	
2. FY22 Capital Plan; Route 28 Water Main Replacement <span style="color: red;">****FROM FY21 EVALUATION****</span>	
3. FY22 Capital Plan; Station 8 Generator <span style="color: red;">****FROM FY21 EVALUATION****</span>	
4. FY23 Capital Plan; New Well Construction <span style="color: red;">****FROM FY21 EVALUATION****</span>	
5. FY23 Capital Plan; Route 28 Water Main Construction <span style="color: red;">****FROM FY21 EVALUATION****</span>	

**C. Extra Credit (4 points total)**

**Points**

1. **Has the employee come up with any cost saving ideas/solutions within the last fiscal year? (1 point)**

--	--

2. **Has the employee obtained any grants/performance incentives? (1 point)**

--	--

3. **Has the employee been able to "turn back" any funds in the prior fiscal year? How much (% or \$)? (1 point)**

FY20 \$465,865, FY21 TBD Calculation: Actual Revenue (-) Expenses (Indirects + S&W + O&M) = Funds turned back	
--	--



4. Has the employee obtained letters of commendation? (Include copies, no more than 2) (1 point)

Empty rectangular box for providing copies of letters of commendation.

Overall Rating (select one; UN, IN, ME, EE, EX)	Letter Rating _____
Total Points (Add all sections; Includes 1 point for Item 9. Department Specific Competency, 85 possible points)	Total Points _____

Professional Development Plan/Comments (below)

Empty rectangular box for providing professional development plan or comments.

Signatures:

Employee Name \_\_\_\_\_

Employee Signature \_\_\_\_\_ Date \_\_\_\_\_

Employee signature also indicates that I have received a copy of this evaluation.

I will like to include comments regarding my evaluation.

Board of Water/Wastewater Commissioners:

Chair \_\_\_\_\_ Date \_\_\_\_\_

Vice Chair \_\_\_\_\_ Date \_\_\_\_\_

Clerk \_\_\_\_\_ Date \_\_\_\_\_

Do not make changes on payroll until you are in receipt of a fully-executed Personnel Action Form.

# TOWN OF HARWICH

## REQUEST FOR PERSONNEL ACTION

Employee Pelletier, Daniel EID# 3119  
Department Water Department Bargaining Unit (If applicable) PBL  
New/Current Title Water/Wastewater Superintendent Grade M8 Step 10  
Salary/Hourly Rate \$135,543.00  
Proposed Title \_\_\_\_\_ Grade \_\_\_\_\_ Step \_\_\_\_\_  
Salary/Hourly Rate \_\_\_\_\_

Effective Date\* 7/1/2022 Pay From Account (Org/Obj) 13204501-514000

\* Date of Hire (1st day worked); Effective date of Step; Last day worked; etc. **Required**

Employee is (check one):  full time  part-time  seasonal  temporary

PLEASE NOTE # OF HOURS EMPLOYEE WILL BE REGULARLY SCHEDULED TO WORK PER WEEK  
\_\_\_\_\_

### ACTION REQUESTED - Check appropriate box(es)

- |  |   |   |   |
|--|---|---|---|
| <input type="checkbox"/> Appointment                       | <input type="checkbox"/> Change: Part-time to Full Time | <input type="checkbox"/> _____ % COLA           | <input type="checkbox"/> Demotion       |
| <input type="checkbox"/> Discharge                         | <input type="checkbox"/> Hire above first step          | <input type="checkbox"/> Promotion              | <input type="checkbox"/> Reassignment   |
| <input type="checkbox"/> Reclassification                  | <input type="checkbox"/> Retirement                     | <input type="checkbox"/> Resignation            | <input type="checkbox"/> Step-Increase* |
| <input type="checkbox"/> Suspension                        | <input type="checkbox"/> Temporary Promotion            | <input type="checkbox"/> Other:                 |   |
| <input checked="" type="checkbox"/> Longevity Calculation: | <u>1% \$1,355.43</u>                                    | <input type="checkbox"/> Other Bonus / Stipend: | _____                                   |

\* Step Increase - Please attach Supervisor's Evaluation

Remarks: \_\_\_\_\_

Superintendent of Water & Wastewater

Requested by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Water & Wastewater Commissioner

Reviewed by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Assistant Town Administrator

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Town Administrator

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

### For use by Town Accountant

Posted by: \_\_\_\_\_ Date \_\_\_\_\_



Water & Wastewater OPEN Articles (MUNIS) & FY22 ATM Capital Plan Snapshot  
6/6/2022

Org	Object	Project	Description	FY22 Budget
04440A8	617011	1711	ATM 17 #11 IMA PURCHASE FEE	4,883,016.99
04440A8	617012	1712	ATM 17 #12 COLD BROOK PROJECT	1,922,219.29
04440A8	618014	1814	ATM 18 #14 WW CONSTRUCT	5,442,019.71
132045A2	619017		ATM 19 #17 T1 MAIN GENERATOR	65,000.00
04440A8	621001		STM 21 #1 CWMP UPDATE	250,000.00
04440A8	621002		STM 21 #2 ADD'L WW DESIGN P3	2,100,000.00
04440A8	621004		STM 21 #4 RTE 28 WW DESIGN	200,000.00
0470	621023		ATM 21 LAND ACQUISITION	175,000.00
0470	621024		ATM 21 NEW WATER SOURCE	250,000.00
0470	621025		ATM 21 RTE 28 WATER MAIN	500,000.00
0470	621026		ATM 21 STATION 8 GENERATOR	50,000.00
TBD	TBD		ATM 22 #21 WATER MAIN DESIGN	300,000.00
TBD	TBD		ATM 22 #23 WATER DEPT VEHICLES	90,000.00

Department	Title	FY2023	FY2024	FY2025	FY2026	FY2027	Five Year Total
Water Department	Vehicle replacements	90,000	0	125,000	0	0	215,000
Water Department	Equipment replacements	0	0	125,000	0	0	125,000
Water Department	Pavement management plan	0	175,000	0	0	0	175,000
Water Department	New well construction	0	500,000	0	0	0	500,000
Water Department	Rt. 28 water main replacement	0	7,000,000	0	0	0	7,000,000
Water Department	Paint Pleasant Lake Ave. tank	0	0	1,750,000	0	0	1,750,000
Water Department	Distribution system upgrades	0	0	10,000,000	0	0	10,000,000
Water Department	Pipe discontinuity upgrade	0	0	0	1,500,000	0	1,500,000
Water Department	Watermain design	300,000	0	0	0	0	300,000
<b>Water Department</b>							
Wastewater Department	E. Harwich Collection System Expans.	0	30,000,000	0	0	0	30,000,000
Wastewater Department	Phase 4 Collection System design	0	0	2,500,000	0	0	2,500,000
Wastewater Department	Rt. 28 sewer main installation	0	2,000,000	0	0	0	2,000,000
<b>Wastewater Department</b>							



Board of Water & Wastewater Commissioners  
**2022 Request for *Anonymous Water Employee Feedback***  
*for Superintendent Evaluation*

	Clear Strength	Capable and Effective Performance	Could Benefit from Development	Needs Significant Improvement	N/A Not Observed or Cannot Comment on
<b>Interpersonal</b>					
1. Treats employees with respect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Behaves in a fair and trustworthy manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Handles tough employee issues fairly and effectively; works well to resolve conflicts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Handles job-related stress effectively (does not blame others, become hostile or overly moody); keeps in control of his/her feelings and behavior. Doesn't let personal problems affect work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Keeps employees informed of information they need to do their jobs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Leadership</b>					
6. Provides the necessary training, guidance, and motivation to help employees meet and exceed their job responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Creates an open and trusting environment where people feel safe to discuss concerns, ideas and opinions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Provides appropriate recognition to employees for good performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Systematically works to improve the department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Results Orientation/Leading Change</b>					
10. Holds all employees accountable for their performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Communication Skills</b>					
11. Communicates effectively with all levels of the department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Board of Water & Wastewater Commissioners  
**2022 Request for *Anonymous* Water Employee Feedback**  
*for Superintendent Evaluation*

	Clear Strength	Capable and Effective Performance	Could Benefit from Development	Needs Significant Improvement	N/A Not Observed or Cannot Comment on
<b>Continual Improvement</b>					
12. Looks for ways to improve work processes and procedures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Teamwork</b>					
13. Uses his/her Assistant Superintendent's and Foreman's knowledge to help make informed decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Embraces safety procedures and makes employees work within safety policies, takes immediate action when unsafe acts are observed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Works well with the unions and their representatives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

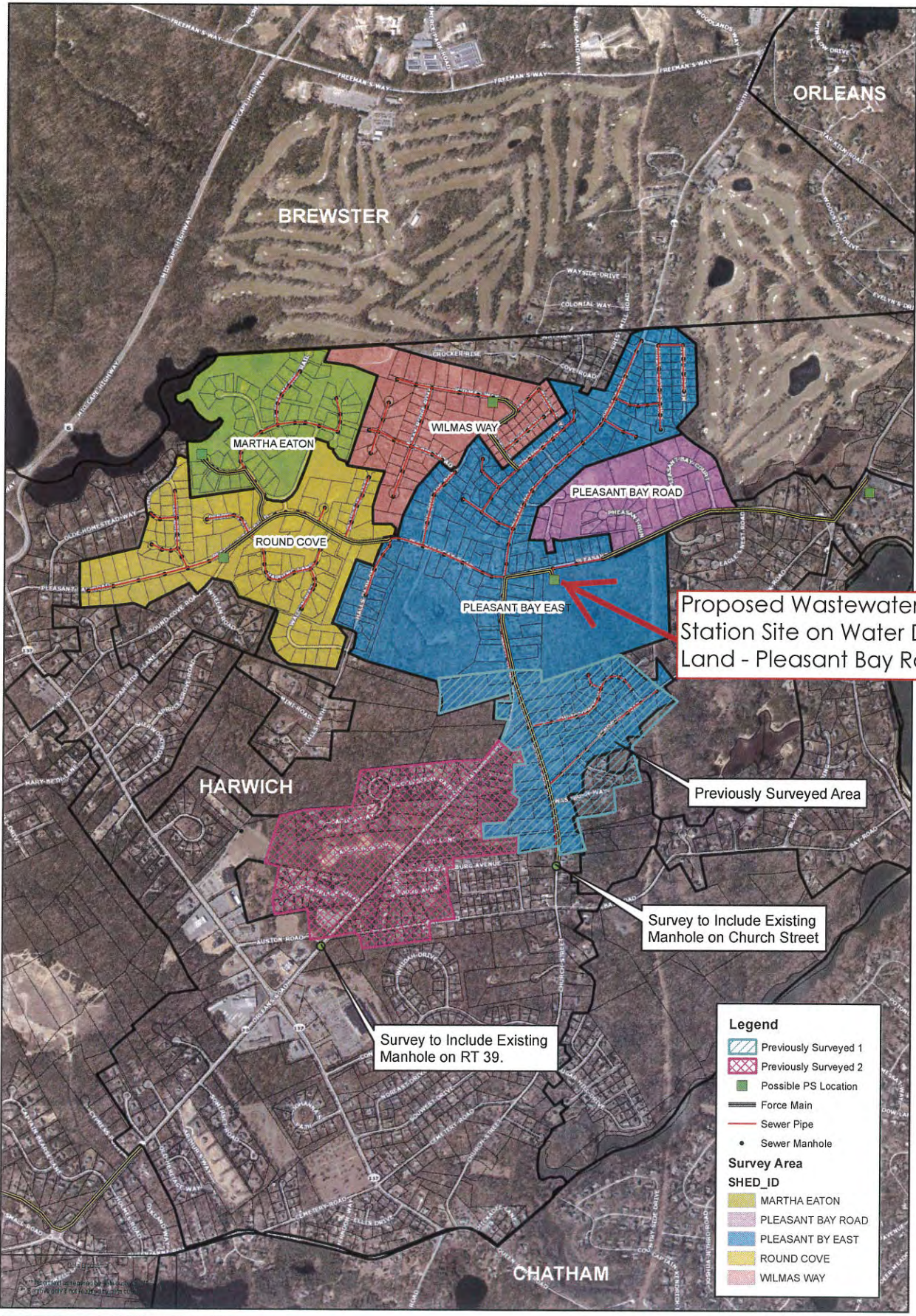
**Other General Comments**

Note: If you decide to add additional comments, please focus your comments on work behaviors and styles that you believe are relative to their development. The comments that you write/enter, will not be viewed by the individual receiving feedback.

VIII. NEW BUSINESS

B. Phase 3 Wastewater Pump Station Site- Water  
Department land on Pleasant Bay Road





Proposed Wastewater Pump Station Site on Water Dept. Land - Pleasant Bay Rd.

Previously Surveyed Area

Survey to Include Existing Manhole on Church Street

Survey to Include Existing Manhole on RT 39.

**Legend**

- Previously Surveyed 1
- Previously Surveyed 2
- Possible PS Location
- Force Main
- Sewer Pipe
- Sewer Manhole

**Survey Area**

**SHED\_ID**

- MARTHA EATON
- PLEASANT BAY ROAD
- PLEASANT BY EAST
- ROUND COVE
- WILMAS WAY

Paper Size ANSI B  
 0 560 1,120  
 Feet

Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet

© 2022 GHD  
 10/13/22



TOWN OF HARWICH, MASSACHUSETTS  
 PHASE 3 SEWER DESIGN

SEWRSHED MAP &  
 SURVEY AREA

Project No. 12577255  
 Revision No. -  
 Date 04/06/2022

FIGURE 1





VIII. NEW BUSINESS

D. Water/Sewer Bill Sweepstakes Insert

# InvoiceCloud<sup>®</sup> Sweepstakes



SAVE TIME  
PAY YOUR BILL ONLINE!  
[WWW.HARWICHWATER.COM](http://WWW.HARWICHWATER.COM)

Pay your bill online between  
July 1 and August 31 to be  
entered to win 1 of 90 prizes!

Sign up for paperless for a second chance to win.



2022 Prizes include:

5 \$4,000 travel vouchers, 5 Apple Watches,  
and 80 Amazon Gift Cards.

No payment or purchase necessary. Visit [bit.ly/GlobalSweeps](http://bit.ly/GlobalSweeps) for official rules.

Customers who make an online payment and are already  
enrolled in paperless automatically receive two entries.

## XI. CORRESPONDENCE



Date May 2022  
PWS No. 4126000

Monthly Weather Report  
Harwich Water Department

Day	Snow Fall (in.) (Gallons)	Rain Fall (in.)	Temperature High (°F)	Temperature Low (°F)	Temperature AVG (°F)	Weather Comments	Operator
1		0.00	63	40	52		
2		0.41	54	46	50		
3		0.41	53	47	50		
4		0.53	55	47	51		
5		0.01	62	50	56		
6		0.01	61	47	54		
7		0.01	51	46	49		
8		0.01	52	46	49		
9		0.01	53	46	50		
10		0.01	54	47	50		
11		0.01	51	46	48		
12		0.01	64	48	56		
13		0.01	65	53	59		
14		0.01	73	56	64		
15		0.26	65	55	60		
16		0.26	61	54	58		
17		0.00	68	54	61		
18		0.00	68	53	61		
19		0.28	57	52	54		
20		0.00	59	50	55		
21		0.32	69	54	62		
22		0.00	71	58	64		
23		0.00	67	54	61		
24		0.00	61	48	55		
25		0.00	60	44	52		
26		0.00	63	46	55		
27		0.00	65	59	62		
28		0.46	64	60	62		
29		0.00	73	58	66		
30		0.00	73	55	64		
31		0.00	82	57	69		
<b>Total</b>		<b>3.03</b>					
<b>Average</b>		<b>0.10</b>	<b>62.5</b>	<b>50.9</b>			
<b>Max</b>		<b>0.53</b>	<b>81.7</b>	<b>60.0</b>			
<b>Min</b>		<b>0.0</b>	<b>50.6</b>	<b>40.3</b>			

Date May 2021  
 PWS No. 4126000

Monthly Weather Report  
 Harwich Water Department

Day	Snow Fall (in.) (Gallons)	Rain Fall (in.)	Temperature High (°F)	Temperature Low (°F)	Temperature AVG (°F)	Weather Comments	Operator
1		0.19	60	45	52		
2		0.00	62	45	54		
3		0.00	64	50	57		
4		0.53	52	48	50		
5		0.18	51	48	49		
6		0.00	62	47	55		
7		0.00	60	44	52		
8		0.00	53	46	50		
9		0.00	62	47	54		
10		0.87	56	47	51		
11		0.00	63	46	54		
12		0.00	63	47	55		
13		0.00	66	44	55		
14		0.00	71	46	58		
15		0.00	70	50	60		
16		0.00	76	54	65		
17		0.00	73	50	61		
18		0.00	74	52	63		
19		0.00	73	53	63		
20		0.00	66	50	58		
21		0.00	64	47	56		
22		0.00	65	56	60		
23		0.00	82	59	70		
24		0.00	63	52	57		
25		0.00	66	52	59		
26		0.00	70	60	65		
27		0.00	79	63	71		
28		0.00	65	49	57		
29		1.60	49	45	47		
30		0.56	52	48	50		
31		0.42	58	52	55		
<b>Total</b>		<b>4.35</b>					
<b>Average</b>		<b>0.14</b>	<b>64.2</b>	<b>49.6</b>			
<b>Max</b>		<b>1.60</b>	<b>81.8</b>	<b>62.8</b>			
<b>Min</b>		<b>0.0</b>	<b>49.3</b>	<b>44.1</b>			

Month/Year May 2022

PWS No. 4126000

## Monthly Pumpage Report Harwich Water Department

Date	T1				T2				T3		T10	T11		
	Main 1	Main 2	Main 3	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 8	Well 9	Pump 10	Pump 11
1	60,371	53,797	68,342	103,292	73,542	84,352	152,944	142,521	149,294	142,684	146,237	142,288	171,000	155,700
2	73,759	65,426	83,581	126,849	90,226	103,936	187,468	145,880	150,879	146,096	148,076	144,004	207,418	156,496
3	59,293	52,648	67,060	103,642	73,028	84,677	148,725	78,131	79,972	78,019	37,683	36,729	162,222	94,834
4	48,274	40,779	51,729	79,420	55,921	64,577	113,539	85,492	89,271	85,032	185,506	180,776	75,953	116,262
5	44,552	41,752	53,373	80,463	57,220	65,848	119,621	83,855	85,231	84,426	57,413	55,820	141,376	58,451
6	61,535	52,476	67,287	101,688	72,562	83,535	151,321	140,101	146,741	139,806	166,677	162,084	160,115	176,127
7	47,331	41,913	53,452	78,762	57,038	64,883	122,398	112,993	112,034	112,967	119,401	119,221	133,667	129,073
8	64,680	59,503	76,024	114,215	82,004	93,941	173,324	159,074	163,935	159,915	132,408	125,945	198,233	136,326
9	52,220	46,212	59,436	90,867	64,345	74,378	132,976	121,722	127,413	121,835	124,894	121,357	145,880	132,538
10	74,692	66,127	84,965	129,513	91,996	106,399	189,967	174,403	180,542	174,770	177,538	172,820	209,228	188,086
11	43,694	38,607	50,379	77,227	54,695	63,308	112,228	102,892	105,651	102,958	104,994	102,181	123,044	110,870
12	79,590	69,908	91,284	138,518	98,530	113,687	204,341	187,343	193,436	187,627	191,199	186,111	224,559	202,592
13	47,795	42,335	55,204	83,604	59,193	68,589	121,954	111,655	115,047	111,767	114,211	111,157	133,592	122,275
14	80,164	70,589	92,389	138,944	98,888	114,065	205,474	188,417	194,599	188,644	192,264	187,396	225,676	201,581
15	85,746	75,489	97,517	148,611	105,764	122,093	219,987	201,486	207,771	201,970	190,731	184,567	240,660	217,760
16	60,643	50,937	64,476	100,856	71,649	82,900	148,145	136,302	141,073	135,869	169,196	168,085	154,933	190,928
17	69,472	63,073	80,197	125,159	88,924	103,048	184,356	123,769	127,545	124,553	142,028	135,174	209,151	138,210
18	133,294	117,496	147,743	236,697	166,708	194,564	334,225	135,257	137,113	135,356	315,203	307,814	365,120	331,493
19	43,955	38,787	48,727	75,772	54,107	62,467	113,079	103,483	106,130	103,841	105,654	102,954	124,392	111,625
20	101,609	89,512	112,519	177,656	126,047	146,252	257,956	236,109	243,004	236,544	241,996	236,040	280,932	254,981
21	69,789	61,579	77,394	128,235	88,714	104,880	170,264	0	0	0	160,460	156,635	186,939	169,996
22	113,147	100,171	125,786	206,250	143,177	168,801	277,677	0	0	0	260,810	254,494	305,018	276,599
23	128,544	113,313	140,974	236,028	163,012	193,106	311,546	16,567	15,384	16,551	308,205	305,728	279,160	337,185
24	79,302	70,126	87,847	135,487	97,599	112,380	205,408	187,966	193,756	188,583	178,087	170,191	225,843	175,957
25	131,737	116,531	145,514	229,220	163,789	189,911	338,152	308,906	323,540	309,455	317,306	309,263	370,707	337,140
26	90,809	78,196	98,088	154,482	109,910	127,511	225,002	234,799	244,366	234,661	235,968	229,838	239,223	249,433
27	174,665	156,794	197,767	299,686	218,196	249,904	465,751	423,898	411,805	425,543	397,079	386,675	517,096	412,033
28	76,523	65,570	82,359	127,362	90,981	105,248	189,845	175,214	180,767	175,009	206,505	204,491	202,069	229,442
29	98,179	88,642	112,189	172,496	124,542	143,321	262,146	240,500	250,431	241,298	213,163	204,671	297,191	215,830
30	169,189	149,057	189,186	297,928	211,586	246,303	430,867	392,988	411,057	393,727	404,981	395,421	107,970	428,908
31	80,533	71,135	89,938	137,652	99,657	114,424	210,256	192,908	198,803	193,096	195,067	190,120	173,354	207,135
<b>Pumps :</b>	<b>2,545,088</b>	<b>2,248,483</b>	<b>2,852,725</b>	<b>4,436,581</b>	<b>3,153,551</b>	<b>3,653,287</b>	<b>6,480,941</b>	<b>4,944,630</b>	<b>5,086,592</b>	<b>4,952,602</b>	<b>5,940,940</b>	<b>5,790,050</b>	<b>6,591,721</b>	<b>6,265,866</b>
<b>MIN :</b>	<b>43,694</b>	<b>38,607</b>	<b>48,727</b>	<b>75,772</b>	<b>54,107</b>	<b>62,467</b>	<b>112,228</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37,683</b>	<b>36,729</b>	<b>75,953</b>	<b>58,451</b>
<b>MAX :</b>	<b>174,665</b>	<b>156,794</b>	<b>197,767</b>	<b>299,686</b>	<b>218,196</b>	<b>249,904</b>	<b>465,751</b>	<b>423,898</b>	<b>411,805</b>	<b>425,543</b>	<b>404,981</b>	<b>395,421</b>	<b>517,096</b>	<b>428,908</b>
<b>STATIONS :</b>	<b>25,370,855</b>				<b>14,983,825</b>				<b>11,730,990</b>		<b>6,591,721</b>	<b>6,265,866</b>		
<b>TOTAL :</b>	<b>64,943,057</b>													

Month/Year May 2021

PWS No. 4126000

## Monthly Pumpage Report Harwich Water Department

Date	T1				T2				T3		T10	T11			
	Main 1	Main 2	Main 3	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 8	Well 9	Pump 10	Pump 11	
1	47,625	43,048	35,811	79,591	56,069	69,442	108,579	133,516	140,723	133,785	139,984	136,122	119,508	147,209	
2	51,215	46,298	38,857	85,105	60,176	74,522	117,458	152,260	160,816	152,556	159,568	155,509	129,274	167,729	
3	79,596	71,885	60,295	131,925	93,114	115,793	182,080	127,549	134,505	127,779	130,305	127,349	152,930	140,418	
4	57,954	52,288	43,686	96,442	67,660	84,361	131,291	112,963	119,050	113,154	109,485	105,904	133,495	104,885	
5	14,313	14,869	12,762	26,720	19,229	23,554	39,143	235,913	248,676	235,695	249,378	241,568	89,567	241,982	
6	66,481	59,864	48,716	113,888	78,884	99,318	147,703	108,348	114,076	108,553	115,669	112,160	161,996	121,357	
7	137,750	121,394	99,707	232,444	161,122	202,887	302,880	4,118	4,340	4,616	0	0	326,578	0	
8	50,534	45,480	37,606	85,768	59,529	74,762	113,073	161,887	170,875	162,134	169,813	165,441	111,488	178,317	
9	52,767	47,393	39,545	89,059	62,210	77,875	119,252	174,898	184,640	175,416	183,428	178,909	131,278	192,529	
10	60,106	53,935	44,878	101,732	71,025	88,834	135,956	141,998	149,872	142,252	148,760	144,636	149,348	156,291	
11	58,958	53,007	44,182	99,423	69,675	87,045	133,813	140,123	147,799	140,327	147,252	142,694	146,918	154,145	
12	108,171	97,311	80,185	183,763	128,084	160,758	243,795	124,033	130,817	124,472	129,739	125,918	267,761	117,099	
13	95,660	85,685	71,326	160,906	112,656	141,008	215,787	119,737	126,380	119,974	125,208	121,631	237,504	131,806	
14	64,845	58,305	48,825	108,519	76,502	95,056	148,291	238,964	252,316	239,415	250,628	245,231	162,853	263,394	
15	56,783	50,994	42,640	95,003	66,903	83,344	129,641	283,327	299,264	283,833	297,322	290,959	142,358	311,734	
16	70,550	65,486	55,962	119,125	84,865	105,298	169,551	290,258	306,046	291,170	304,643	295,451	189,124	319,784	
17	134,275	120,624	101,135	225,228	158,321	197,719	306,348	191,918	200,006	192,184	200,125	193,550	336,254	209,088	
18	157,674	141,691	117,303	267,167	186,287	234,320	355,989	139,406	146,516	139,868	146,404	141,870	390,054	153,028	
19	131,489	118,322	99,171	220,477	154,794	193,838	300,730	250,567	263,696	250,863	262,373	255,146	405,636	274,076	
20	76,349	68,663	58,341	125,595	88,972	110,654	176,330	264,487	278,810	264,908	278,469	270,224	364,819	320,467	
21	192,438	173,085	146,153	321,176	226,276	282,706	442,684	178,260	187,725	178,674	187,006	180,643	526,958	257,589	
22	79,958	71,854	61,466	131,755	93,605	116,221	186,277	301,093	317,696	301,900	312,302	303,517	252,590	331,851	
23	172,298	154,809	129,286	291,812	203,695	255,234	391,789	228,543	237,120	228,195	268,140	261,529	429,225	284,353	
24	156,206	139,980	116,927	264,946	184,297	231,432	355,319	313,398	330,589	314,598	298,311	289,146	389,521	308,835	
25	127,889	114,918	96,364	216,706	150,874	189,486	291,805	247,909	261,512	248,405	259,864	252,665	344,905	273,022	
26	210,060	187,205	155,521	361,627	250,129	315,659	476,171	252,483	266,393	252,666	264,803	260,276	419,917	258,616	
27	70,716	64,767	53,632	123,311	85,185	107,926	163,423	437,695	462,017	438,615	458,932	447,115	185,001	481,883	
28	84,367	75,713	63,035	143,844	99,899	125,402	191,919	364,178	384,338	364,847	382,358	373,343	406,498	400,674	
29	30,652	27,579	23,241	51,337	35,937	44,784	70,233	327,873	346,027	328,069	344,041	333,277	393,770	360,645	
30	22,191	19,895	16,376	38,213	26,240	32,986	49,402	359,547	379,144	360,059	378,031	364,662	448,227	395,627	
31	58,165	52,094	42,548	101,071	69,242	87,505	129,467	231,295	243,872	231,643	242,376	236,331	277,662	364,796	
<b>Pumps :</b>	<b>2,778,035</b>	<b>2,498,441</b>	<b>2,085,484</b>	<b>4,693,675</b>	<b>3,281,455</b>	<b>4,109,728</b>	<b>6,326,179</b>	<b>6,638,542</b>	<b>6,095,656</b>	<b>6,650,625</b>	<b>6,944,717</b>	<b>6,752,776</b>	<b>8,223,017</b>	<b>7,423,229</b>	
<b>MIN :</b>	<b>14,313</b>	<b>14,869</b>	<b>12,762</b>	<b>26,720</b>	<b>19,229</b>	<b>23,554</b>	<b>39,143</b>	<b>4,118</b>	<b>4,340</b>	<b>4,616</b>	<b>0</b>	<b>0</b>	<b>89,567</b>	<b>0</b>	
<b>MAX :</b>	<b>210,060</b>	<b>187,205</b>	<b>155,521</b>	<b>361,627</b>	<b>250,129</b>	<b>315,659</b>	<b>476,171</b>	<b>437,695</b>	<b>462,017</b>	<b>438,615</b>	<b>458,932</b>	<b>447,115</b>	<b>526,958</b>	<b>481,883</b>	
<b>STATIONS :</b>	<b>25,772,998</b>				<b>20,284,823</b>				<b>13,697,493</b>		<b>8,223,017</b>	<b>7,423,229</b>			
<b>TOTAL :</b>	<b>75,401,560</b>														