



TOWN COUNCIL – AGENDA REQUEST FORM

THIS FORM WILL BECOME PART OF THE BACKGROUND INFORMATION USED BY THE COUNCIL AND PUBLIC

Please submit Agenda Request Form, including back up information, 8 days prior to the requested meeting date. **Public Hearing requests must be submitted 20 days prior to requested meeting date to meet publication deadlines** (exceptions may be authorized by the Town Manager, Chairman/Vice Chair).

MEETING INFORMATION

Date Submitted: October 1, 2019
Submitted by: Merrimack Village District
Department:
Speakers: Merrimack Village District

Date of Meeting: October 23, 2019
Time Required: 20 minutes
Background Info. Supplied: Yes: No:

CATEGORY OF BUSINESS (PLEASE PLACE AN "X" IN THE APPROPRIATE BOX)

Appointment:	<input checked="" type="checkbox"/>	Recognition/Resignation/Retirement:	<input type="checkbox"/>
Public Hearing:	<input type="checkbox"/>	Old Business:	<input type="checkbox"/>
New Business:	<input type="checkbox"/>	Consent Agenda:	<input type="checkbox"/>
Nonpublic:	<input type="checkbox"/>	Other:	<input type="checkbox"/>

TITLE OF ITEM

Merrimack Village District - Wells Update

DESCRIPTION OF ITEM

The Town Council to be presented with an update on the status of Wells 4 & 5 Treatment Plant as well as the design of the treatment plants for Wells 7 & 8 and Wells 2 & 3.

REFERENCE (IF KNOWN)

RSA:	Warrant Article:	_____
Charter Article:	Town Meeting:	_____
Other:	N/A	

EQUIPMENT REQUIRED (PLEASE PLACE AN "X" IN THE APPROPRIATE BOX)

Projector:	<input type="checkbox"/>	Grant Requirements:	<input type="checkbox"/>
Easel:	<input type="checkbox"/>	Joint Meeting:	<input type="checkbox"/>
Special Seating:	<input type="checkbox"/>	Other:	<input type="checkbox"/>
Laptop:	<input type="checkbox"/>	None:	<input type="checkbox"/>

CONTACT INFORMATION

Name:	<u>Jill Lavoie</u>	Address:	<u>2 Greens Pond Road</u>
Phone Number:	<u>424-9241</u>	Email Address:	<u>jill.lavoie@mvdwater.org</u>

APPROVAL

Town Manager: Yes No: Chair/Vice Chair: Yes No:

Hold for Meeting Date: _____

Water System Infrastructure Improvements Merrimack Village District PFAS Treatment and CIP Wells 2, 3, 7 & 8

October 23, 2019



Introductions

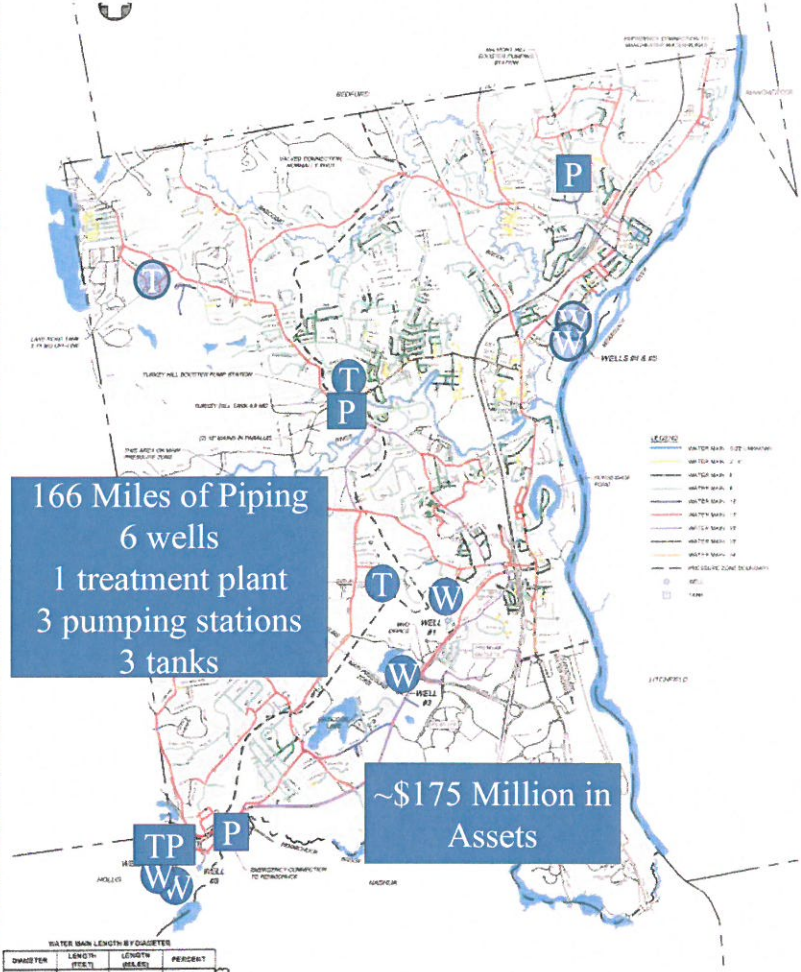
- Don Provencher
 - Chair, Board of Commissioners
- Ron Miner
 - Superintendent, MVD
- Jill Lavoie
 - Business Manager, MVD
- Keith Pratt
 - President, Underwood Engineers, Inc.
- Mike Metcalf
 - Sr. Project Manager, Underwood Engineers, Inc.



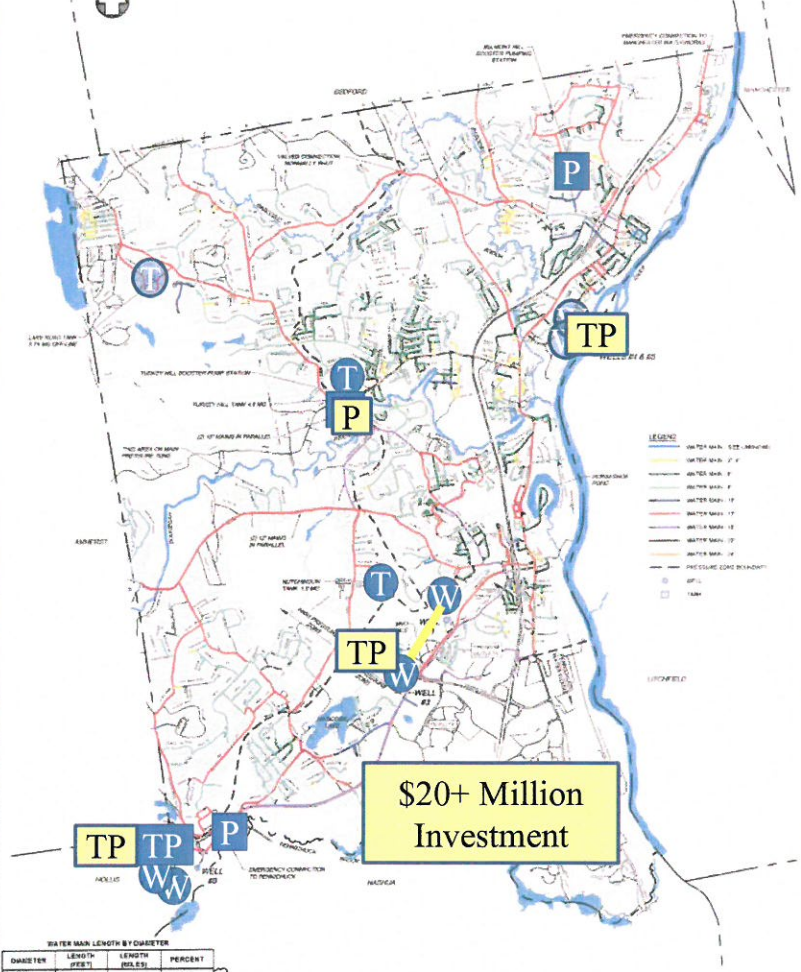
Agenda

- Background
- Wells #4 and #5 Update
- Wells #7 and #8
- Wells #2 and #3
- Challenges and Opportunities
- Questions and Answers

Background



MERRIMACK VILLAGE DISTRICT
WATER WORKS



MERRIMACK VILLAGE DISTRICT
WATER WORKS

UNDE
engineers

UNDE
engineers

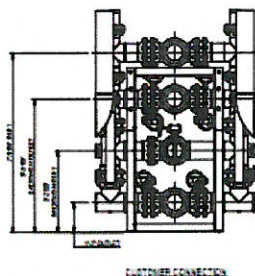
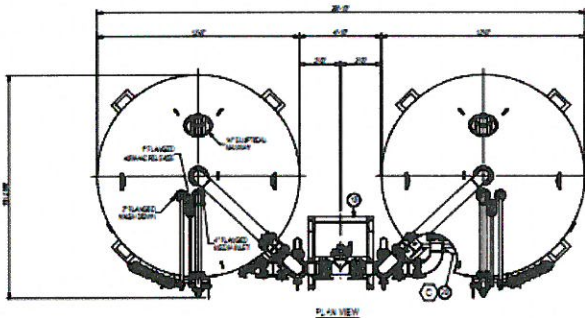
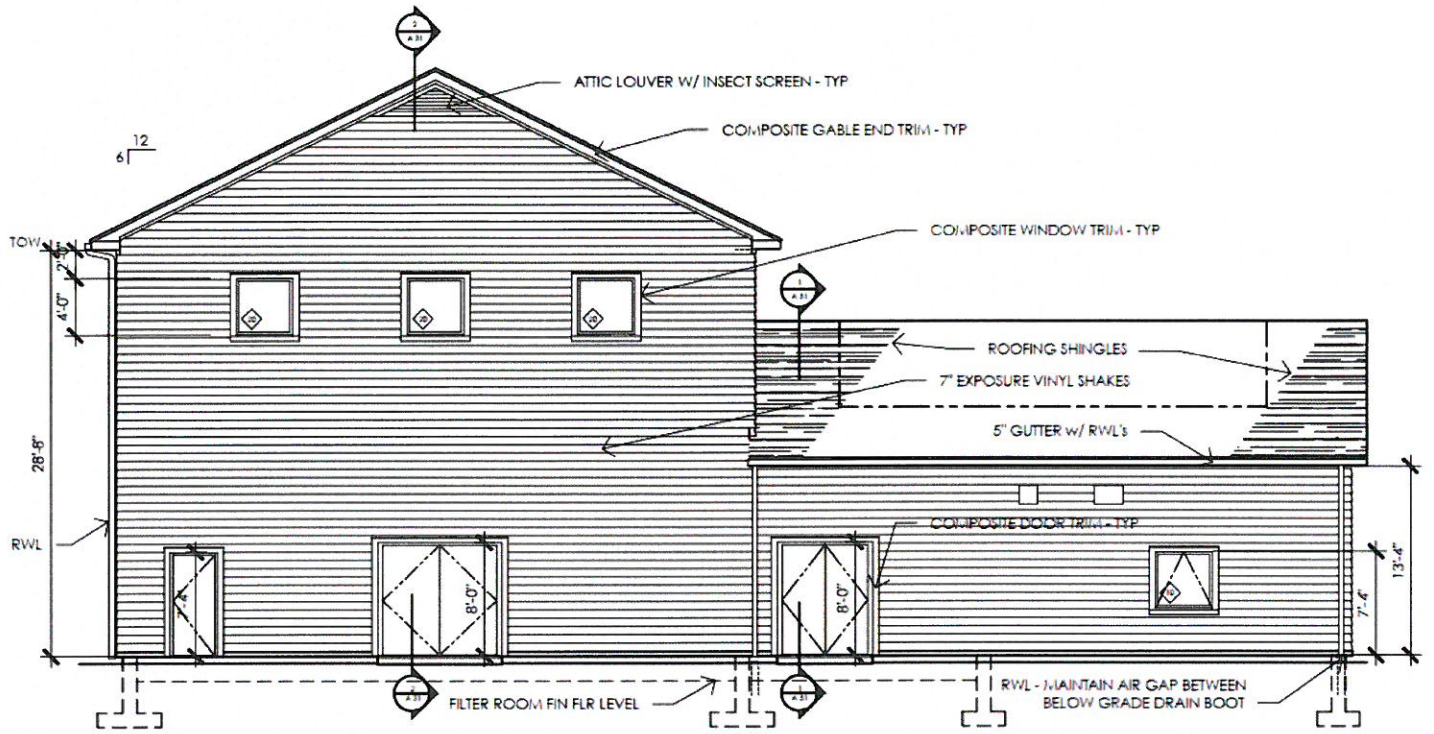
Wells #4 and #5



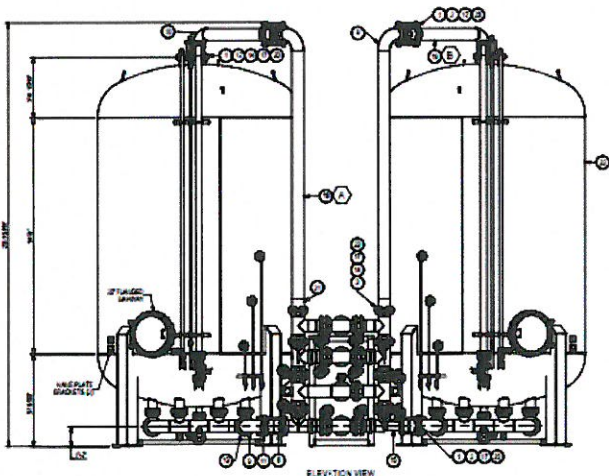
MERRIMACK VILLAGE DISTRICT
WATER WORKS
MERRIMACK, NH





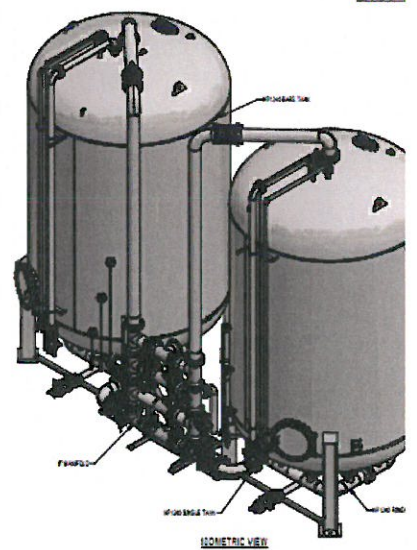


BILL OF MATERIALS						
POD	UNIT	QTY	FEM CODE	DESCRIPTION	MATERIAL	LE
1	40	1	W02001	ROOF SHINGLES	SHL. SHAL. ASD	
2	40	1	W02001	ROOFING SHINGLES	SHL. SHAL. ASD	
3	16	1	W02001	7" EXPOSURE VINYL SHAKES	SHL. SHAL. ASD	
4	1	1	W02001	5" GUTTER W/ RWL'S	SHL. SHAL. ASD	
5	1	1	W02001	ATTIC LOUVER W/ INSECT SCREEN - TYP	SHL. SHAL. ASD	
6	1	1	W02001	COMPOSITE GABLE END TRIM - TYP	SHL. SHAL. ASD	
7	1	1	W02001	COMPOSITE WINDOW TRIM - TYP	SHL. SHAL. ASD	
8	1	1	W02001	COMPOSITE DOOR TRIM - TYP	SHL. SHAL. ASD	
9	1	1	W02001	ROOFING SHINGLES	SHL. SHAL. ASD	
10	1	1	W02001	7" EXPOSURE VINYL SHAKES	SHL. SHAL. ASD	
11	1	1	W02001	5" GUTTER W/ RWL'S	SHL. SHAL. ASD	
12	1	1	W02001	ATTIC LOUVER W/ INSECT SCREEN - TYP	SHL. SHAL. ASD	
13	1	1	W02001	COMPOSITE GABLE END TRIM - TYP	SHL. SHAL. ASD	
14	1	1	W02001	COMPOSITE WINDOW TRIM - TYP	SHL. SHAL. ASD	
15	1	1	W02001	COMPOSITE DOOR TRIM - TYP	SHL. SHAL. ASD	
16	1	1	W02001	ROOFING SHINGLES	SHL. SHAL. ASD	
17	1	1	W02001	7" EXPOSURE VINYL SHAKES	SHL. SHAL. ASD	
18	1	1	W02001	5" GUTTER W/ RWL'S	SHL. SHAL. ASD	
19	1	1	W02001	ATTIC LOUVER W/ INSECT SCREEN - TYP	SHL. SHAL. ASD	
20	1	1	W02001	COMPOSITE GABLE END TRIM - TYP	SHL. SHAL. ASD	
21	1	1	W02001	COMPOSITE WINDOW TRIM - TYP	SHL. SHAL. ASD	
22	1	1	W02001	COMPOSITE DOOR TRIM - TYP	SHL. SHAL. ASD	
23	1	1	W02001	ROOFING SHINGLES	SHL. SHAL. ASD	



CUT LENGTH		
TAG	DESCRIPTION	CUT LENGTH (INCHES)
1	PIPE - 1/2" DIA	10.00
2	PIPE - 1/2" DIA	10.00
3	PIPE - 1/2" DIA	10.00

- ADDITIONAL NOTES:**
- 1) THIS DRAWING IS TO SHOW PRINCIPAL EQUIPMENT FOR CUSTOMER APPROVAL.
 - 2) ALL ELECTRICAL WIRING SHALL BE INSTALLED WITH STAINLESS STEEL CONDUIT.
 - 3) PROVIDE 2" AIR GAPS BETWEEN ALL CONTAINERS.
 - 4) VERIFY ALL DIMENSIONS WITH MANUFACTURER AND APPROVE BEFORE PROCEEDING WITH FABRICATION.
 - 5) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 6) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 7) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 8) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 9) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 10) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 11) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.
 - 12) PROVIDE ALL CONTAINERS WITH FLANGES AND APPROPRIATE CONNECTIONS TO MEET ALL SITE REQUIREMENTS.



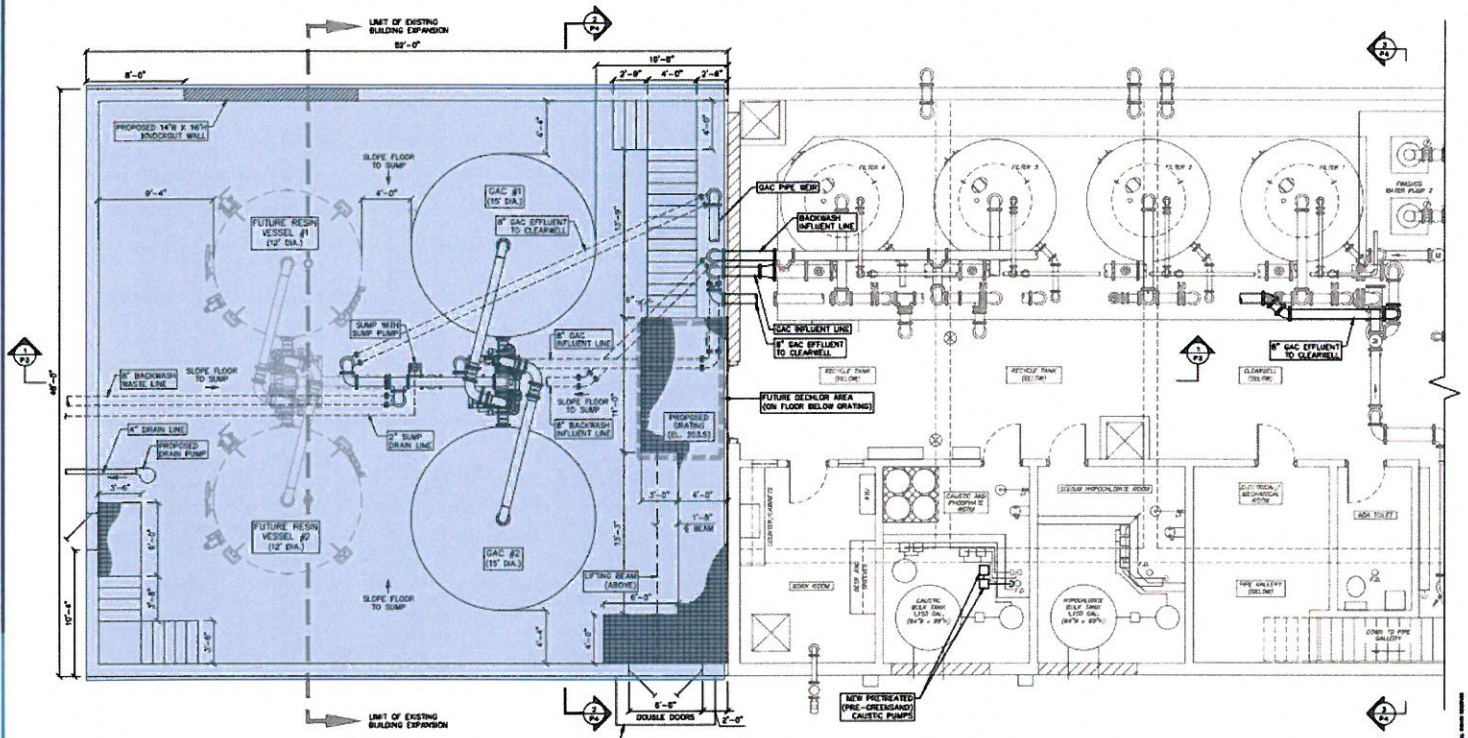
Wells #7 and #8



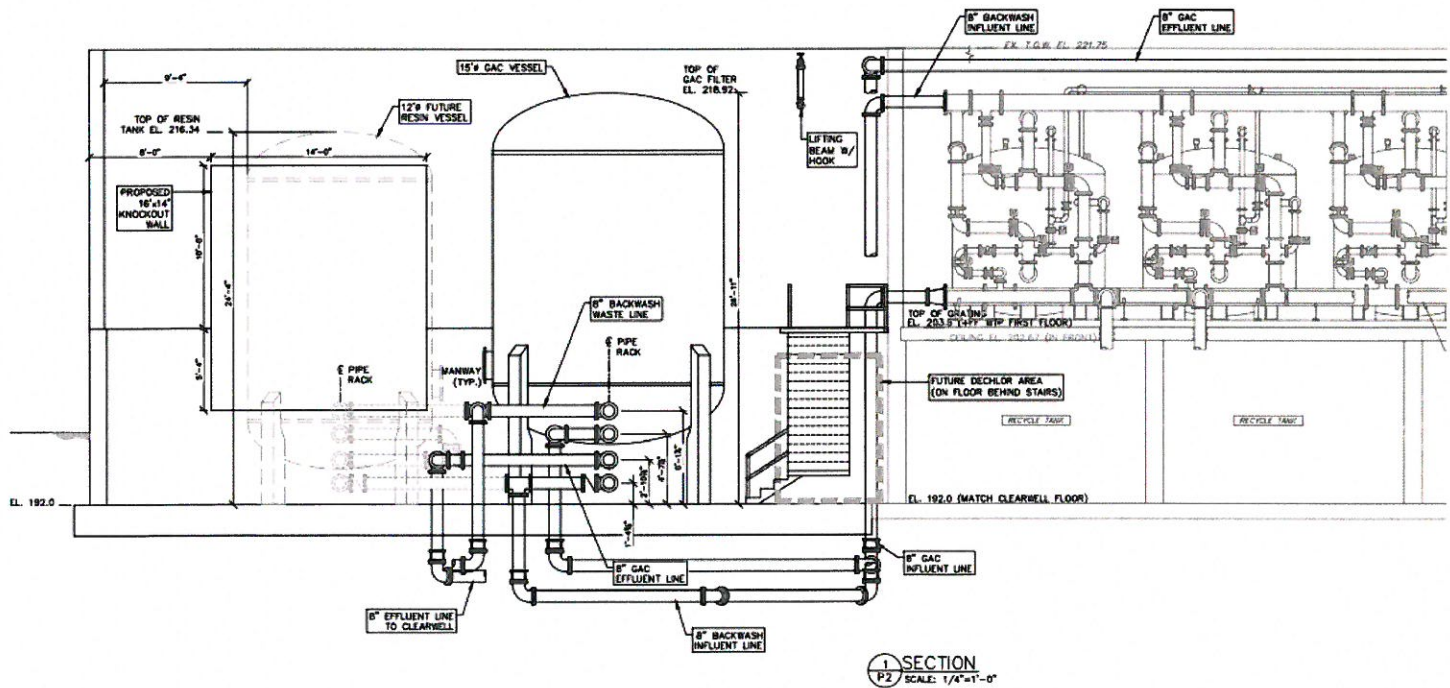
Existing Treatment Plant - #7/#8



Well 7 & 8 Addition

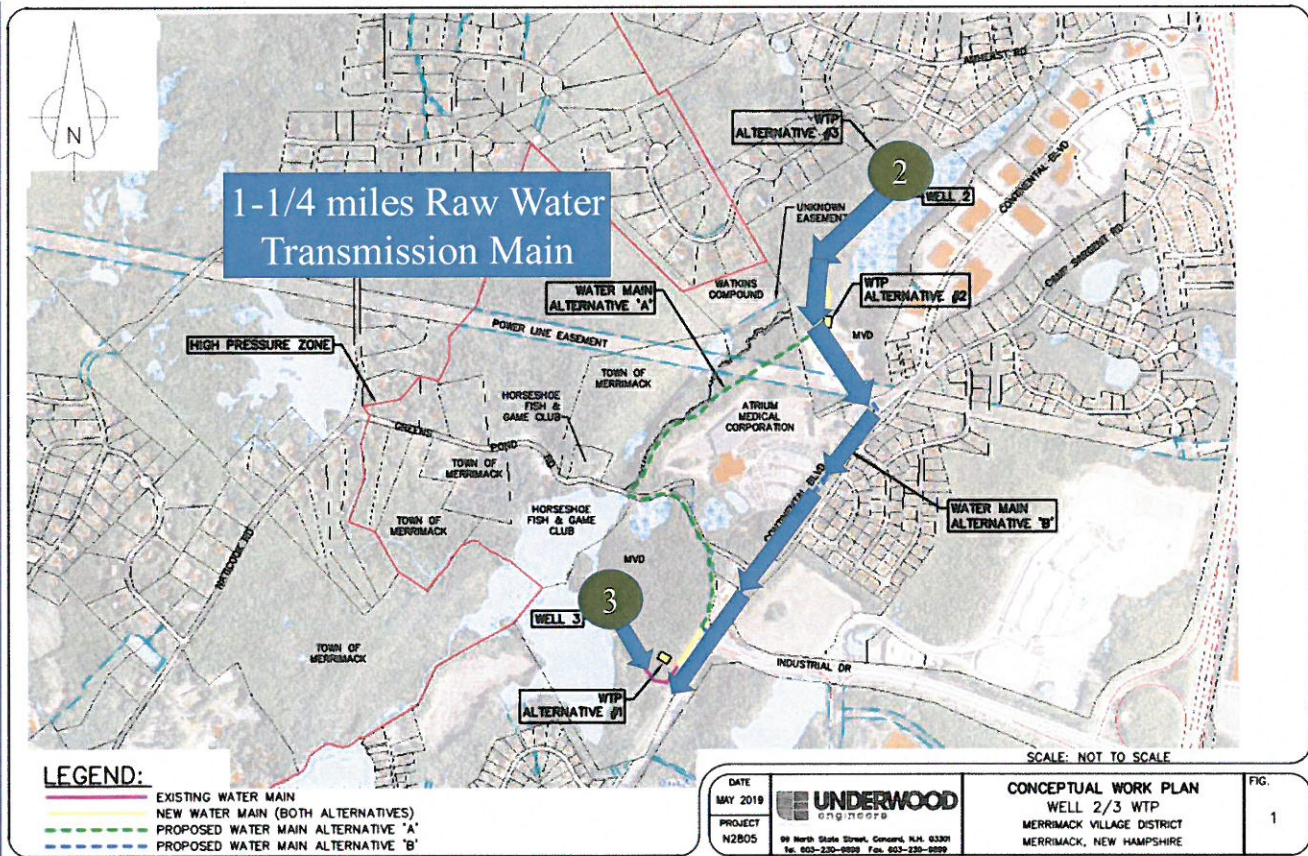


Well 7 & 8 Addition



SECTION P-2
SCALE: 1/4"=1'-0"

Wells #2 and #3



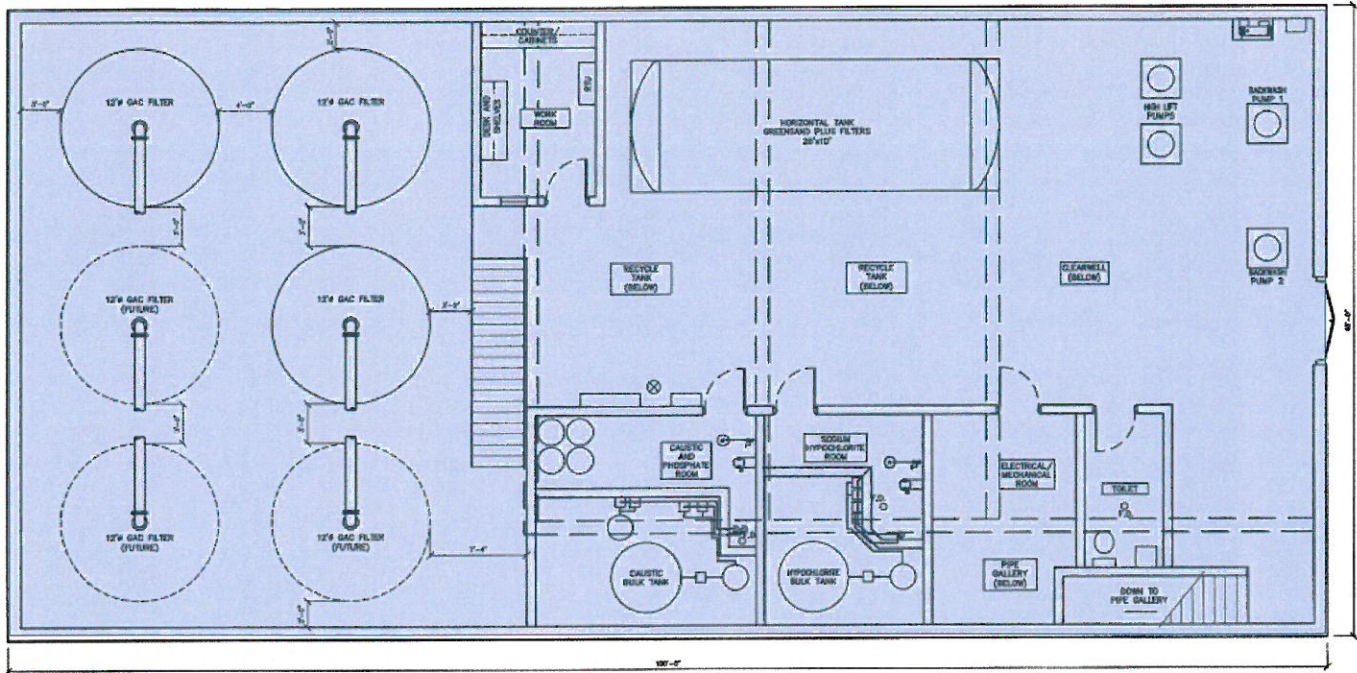
Well #2



Well #3

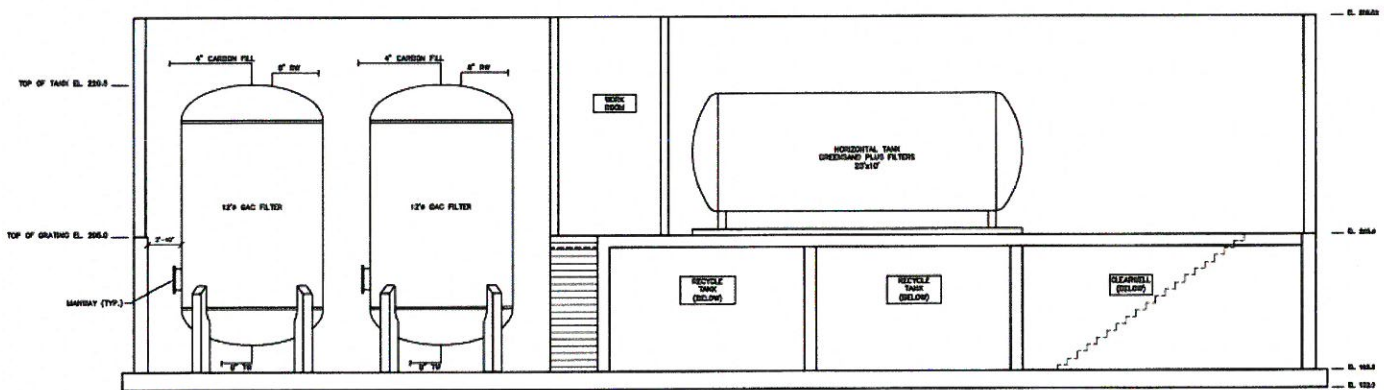


Well #2 & #3 Fe/Mn & PFAS Removal



GAC PFAS TREATMENT OPTION

Well #2 & #3 Fe/Mn & PFAS Removal



GAC PFAS TREATMENT OPTION

SCALE: 1/8" = 1'-0"



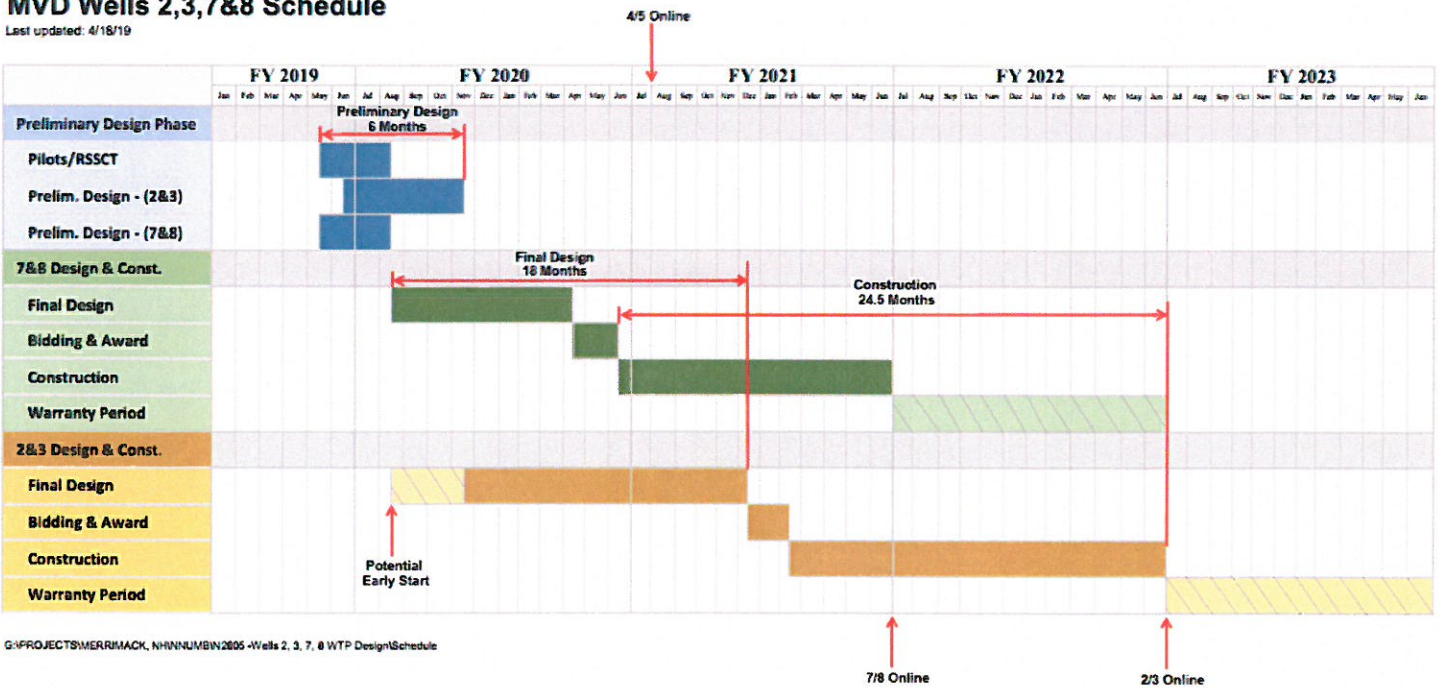
Schedule



Master Schedule

MVD Wells 2,3,7&8 Schedule

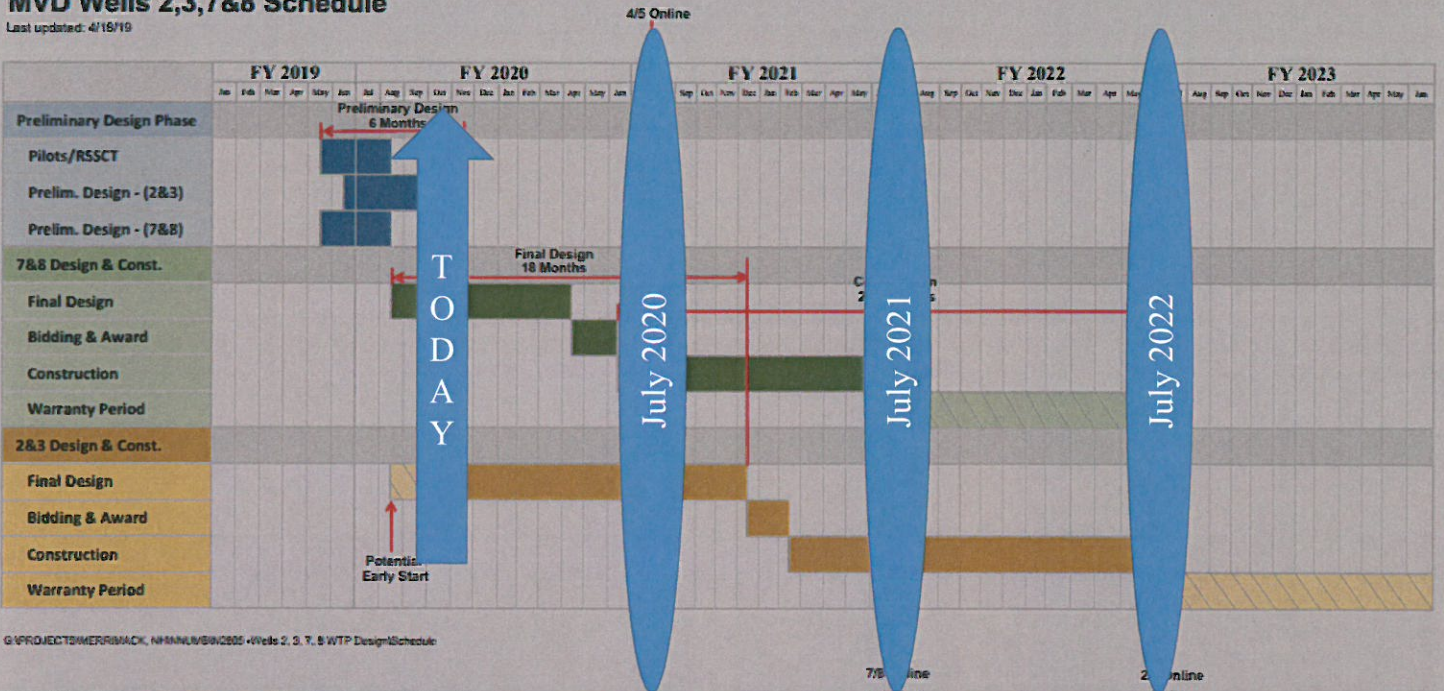
Last updated: 4/18/19



Systems Online - Target

MVD Wells 2,3,7&8 Schedule

Last updated: 4/18/19



Challenges and Opportunities

Funding

Wells #2/#3 and #7/#8



Funding Request – May 2019 #2, #3, #7, and #8

Source	Request
DWGWTF Loan	\$6,264,500
DWGWTF Grant	\$1,450,000
DWSRF or NH Municipal Bond Bank	\$6,500,000
MVD Capital Reserves	\$285,500
TOTAL	\$14,500,000



Piloting and RSSCT

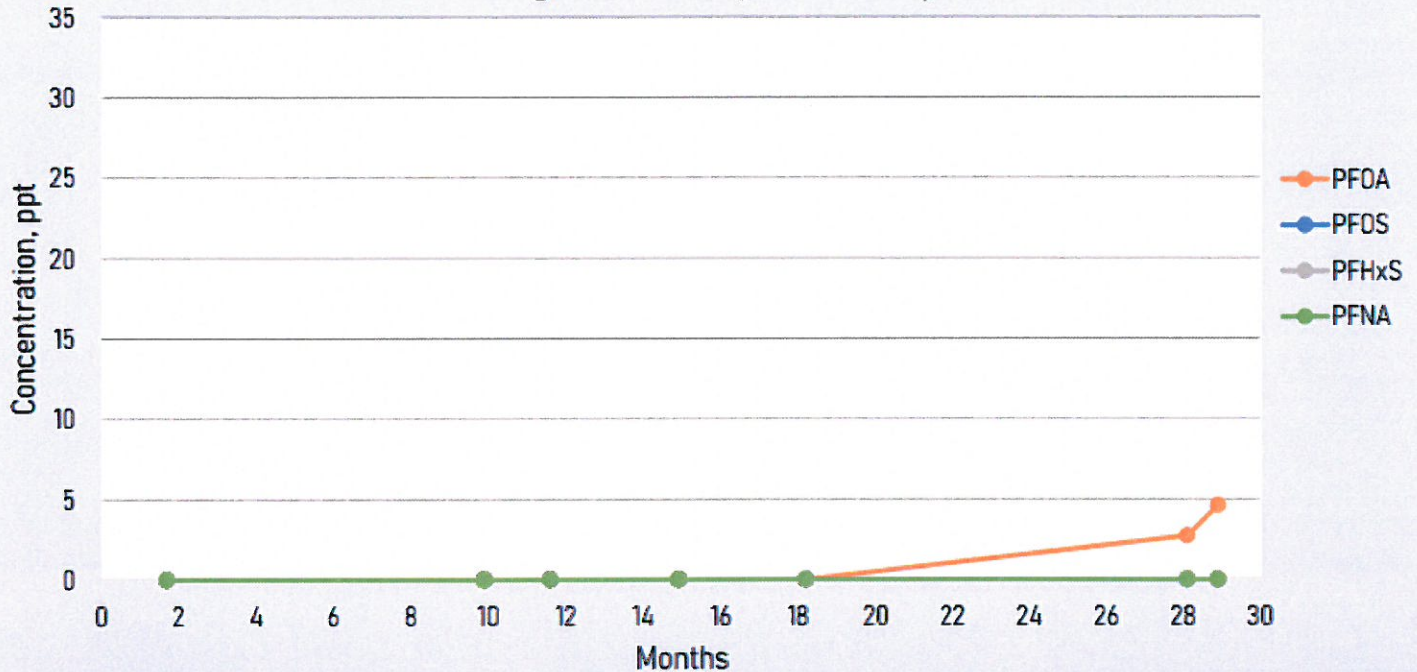
Fe/Mn and GAC



MERRIMACK VILLAGE DISTRICT
WATER WORKS
MERRIMACK, NH



MVD Well 7/8 RSSCT October 2019
 Calgon F400AR (bituminous)
 Regulated Compounds Only



Evaluating Short Chain Too

1. Perfluorobutane sulfonic acid	PFBS
2. Perfluoroheptanoic acid	PFHpA
3. Perfluorohexanesulfonic acid	PFHxS
4. Perfluorononanoic acid	PFNA
5. Perfluorooctanesulfonic acid	PFOS
6. Perfluorooctanoic acid	PFOA
7. Perfluorohexanoic Acid	PFHxA
8. Perfluorobutanoic Acid	PFBA
9. Perfluoropentanoic Acid	PFPeA
10. Perfluoropentane Sulfonic Acid	PFPeS

GAC Conditioning

GAC Conditioning

GAC Arsenic Leaching Tests, ppb
Merrimack Village District
2018-2019

Wells 4&5

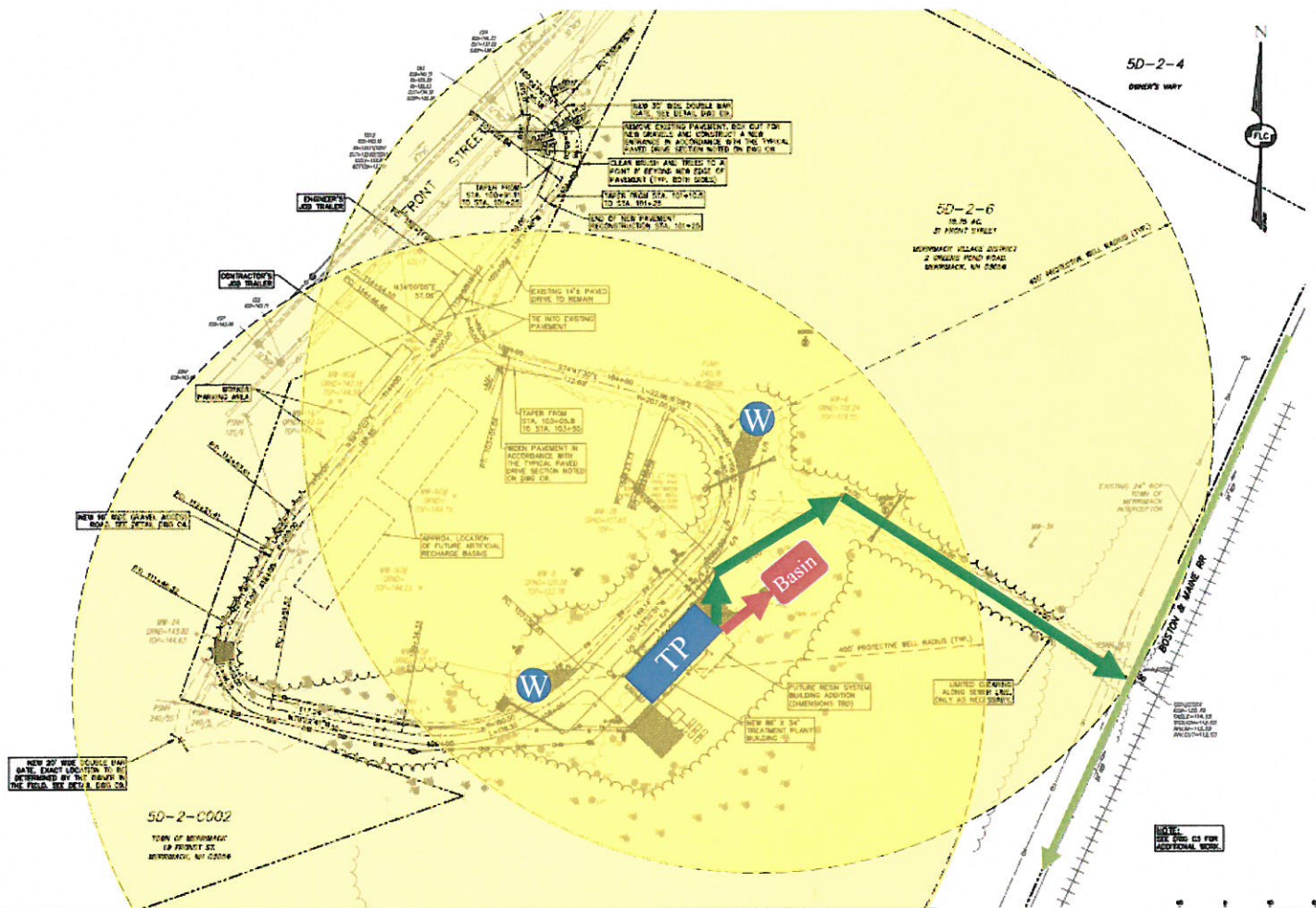
Hours	GAC 1	GAC 2	GAC 3	GAC 4
0	0	0	0	0
24	58.3	438	0.689	1.74
36	40.3	134	0.689	4.07

Wells 7&8

Hours	GAC 1A	GAC 2A	GAC 5	GAC 4
0	0	0	0	0
24	6.14	17.1	34.8	1.42
36	8.38	4.81	23	2.43

Wells 2&3

Hours	GAC 1A	GAC 2A	GAC 3	GAC 4
0	0	0	0	0
24	8.65	11.9	0.689	2.65
36	13.5	5.83	0.689	2.72
24	9.06	6.34	0.689	1.88



New MCL's

Wells #2/#3 and #7/#8

New MCL's

Adopt Env-Dw 705.06 to read as follows:

Env-Dw 705.06 MCLs and MCLGs for Per- and Polyfluoroalkyl Substances (PFAS) Contaminants.

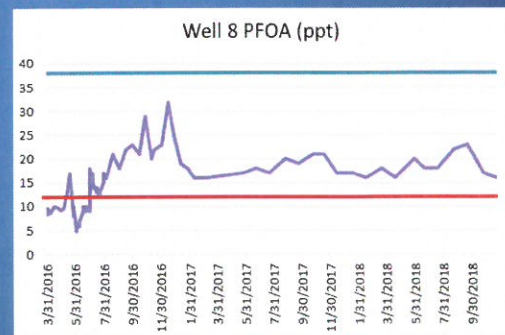
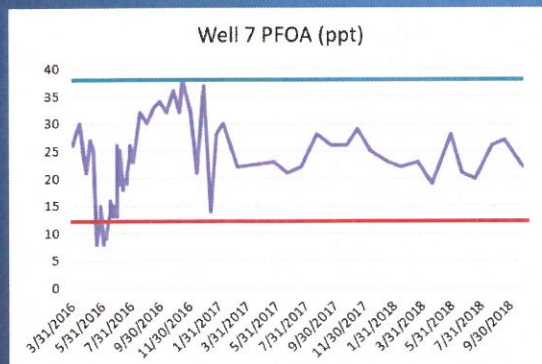
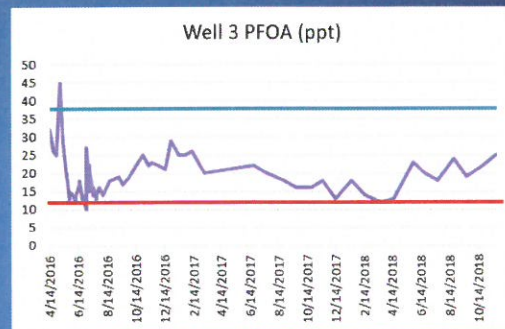
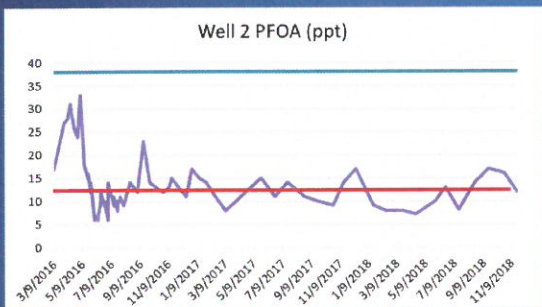
(a) The MCLs and MCLGs for the per- and polyfluoroalkyl substances contaminants specified in (b), below, shall apply to community water systems and non-transient non-community water systems.

(b) The MCLs and MCLGs for PFAS contaminants shall be as specified in Table 705-7, below:

Table 705-7: PFAS Contaminant MCLs and MCLGs

PFAS Contaminant	MCL (mg/L)	MCLG (mg/L)
Perfluorohexane sulfonic acid (PFHxS)	0.000018	0
Perfluorononanoic acid (PFNA)	0.000011	0
Perfluorooctane sulfonic acid (PFOS)	0.000015	0
Perfluorooctanoic acid (PFOA)	0.000012	0

PFOA Concentration History

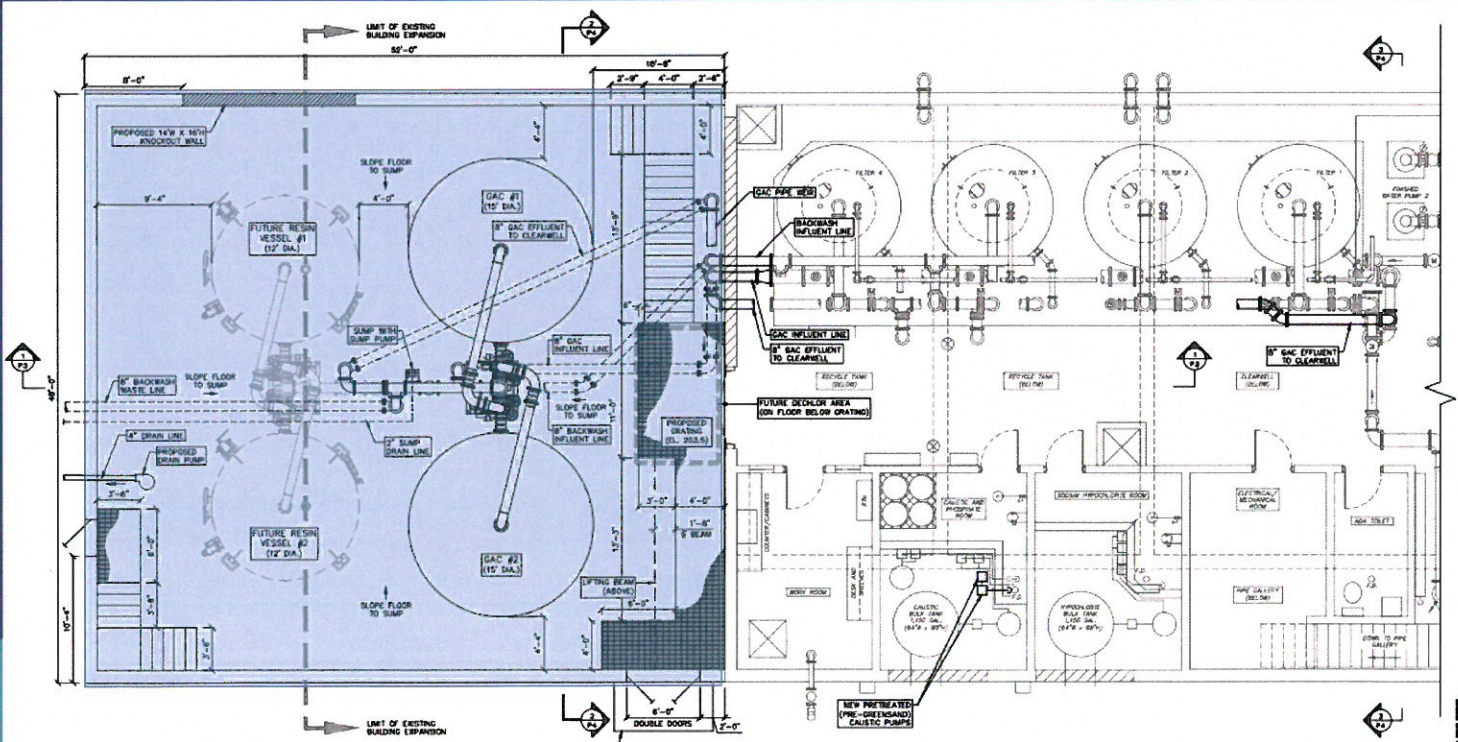


Impact of New Standards

- Now a regulatory requirement to treat
 - Lag Vessels Required
 - Larger WTP's
 - Preliminary estimate – add \$3 million



Well 7 & 8 Addition



Current Capital Projects - Increases

Project	Budget	Additional
Turkey Hill Booster	\$1,300,000	
Wells #4 and #5 PFAS	\$4,160,000	\$1,000,000
Wells #7 and #8 PFAS	\$3,600,000	\$1,500,000
Wells #2 and #3 PFAS	\$6,400,000	\$1,500,000
Wells #3 Fe/Mn	\$4,500,000	
TOTAL	\$19,960,000	\$4,000,000

Total = \$24.0 M
PFAS = \$18.2 M



MERRIMACK VILLAGE DISTRICT
WATER WORKS
MERRIMACK, NH

Technical Review

UNH



MERRIMACK VILLAGE DISTRICT
WATER WORKS
MERRIMACK, NH

Commissioner Comments



MERRIMACK VILLAGE DISTRICT
WATER WORKS
MERRIMACK, NH

Questions and Answers



MERRIMACK VILLAGE DISTRICT
WATER WORKS
MERRIMACK, NH