

Site Development Plan 40B THE WINSOR AT MILLBROOK VILLAGE

RECEIVED
By Lauren Hache at 3:05 pm, Oct 05, 2023

SHEET INDEX

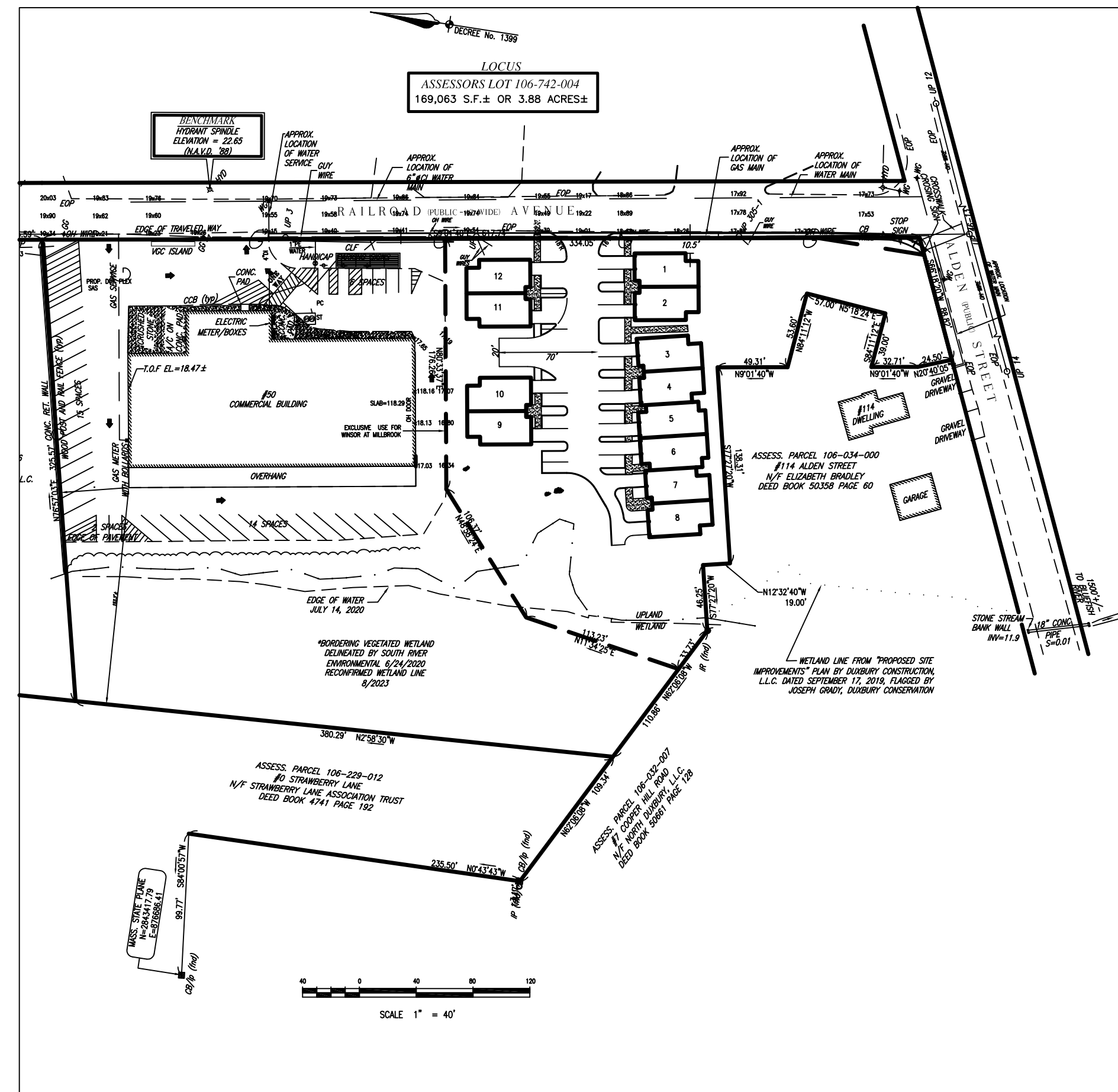
- 1 COVER/INDEX PLAN
- 2 EXISTING CONDITIONS PLAN
- 3 SITE LAYOUT PLAN 40 SCALE
- 4 SITE LAYOUT PLAN 20 SCALE
- 5 UTILITY PLAN
- 6 SEPTIC PLAN 1
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- 8 GRADING PLAN
- 9 CONSERVATION & LANDSCAPE PLAN
- 10 LANDSCAPE/LIGHTING PLAN
- 11 DRAINAGE DETAIL PLAN
- 12 DETAIL PLAN
- 13 SIDEWALK PLAN

DIMENSIONAL REQUIREMENTS

NB-2 ZONING DISTRICT	
ITEM	REQUIRED
MINIMUM LOT AREA	15,000 S.F.
MINIMUM LOT FRONTAGE	100 FT.
MINIMUM FRONT YARD	10 FT.
MINIMUM SIDE YARD	0 FT.
MINIMUM REAR YARD	0 FT.

REFERENCES

ADDRESS: 507 FOUNDRY STREET
 OWNER: 50 RR AVE DUXBURY, LLC
 DEED: BOOK 44285 PAGE 266
 ASSESSORS: A PORTION OF 106-742-004
 LOT AREA: 62,463± S.F.

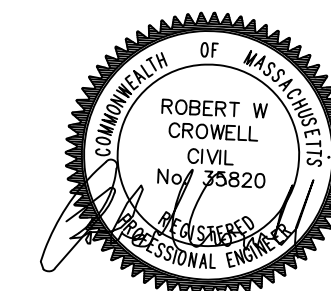


**50 RAILROAD AVENUE
DUXBURY, MA**

COVER INDEX PLAN
THE WINSOR
at
MILLBROOK VILLAGE
DUXBURY, MA

PREPARED FOR
THE WINSOR
at
MILLBROOK VILLAGE LLC

CROWELL ENGINEERING
981 LONG POND ROAD
PLYMOUTH, MA 02360
774-283-0443



△#	REVISIONS PER:	DATE:	DATE ISSUED:	11/30/22	DRAWING NAME:
1	SUBMIT TO ZBA	6-15-23	DWG. SCALE:	1"=80'	
2	REVIEW ENGINEER	7-5-23	DRAWN BY:	BC	
3	REVIEW ENGINEER	9-12-23	REVIEWED BY:		
4	REVIEW ENGINEER	9-22-23	PROJECT NO:		
5	ZBA REVS	10-4-23			

DRAINAGE TEST HOLES

INFILTRATION SYS			BASIN 2		
DTP-1	9-8-22	16.6	DTP-2	9-8-22	16.1
0-42"	FILL	SL 10YR3/3	0-3"	FILL	SL 10YR3/3
42-44"	A	SL 10YR6/8	3-32"	A	SL 10YR6/8
44-55"	B	SL 2.5Y6/4	32-50"	B	SL 2.5Y6/4
55-78"	C	L 2.5Y5/6	50-63"	C1	SL 2.5Y5/3
			63-74"	C2	SL 2.5Y5/6

WEEPING @ 65" (11.2)
ADJ GND WTR ELEV=13.25

MOTTLING @ 34" (ELEV=13.25)

DEEP HOLES			BASIN 1		
TEST PIT #	PERFORMED BY:	DATE	DTP-3	9-8-22	15.5
1-3	WITNESSED BY: S.R. PHINNEY ROBERT CROWELL	9-8-22	0-36"	A	SL 10YR6/8
			36-52"	B	SL 2.5Y6/4
			50-63"	C1	SL 2.5Y5/3
			63-74"	C2	SL 2.5Y5/6

USE ELEV=13.25 FOR GND WTR
FOR BASIN 2 & INFILTRATION SYS

WEEPING @ 37" (12.41)
MOTTLING @ 34" (ELEV=12.66)

SEPTIC SYSTEM TEST HOLES

D.O.H. 1 (12-29-05)		D.O.H. 2 (12-98-05)	
0"	FILL	0"	FILL
20"	C1- SAND 10YR5/6	18"	A - LOAMY SAND 10YR5/6
72"	C2- SAND 10YR5/6	36"	B- LOAMY SAND 10YR5/6
84"	C2- SAND 10YR5/6	50"	NO GRAVEL
132"		120"	C-COURSE SAND 10YR5/6

ADJ GND WTR 40" (EL=14.7)
STANDING 59"
PERC AT 48"
RATE: <2 MPI

MOTTLING @ 48" (EL=14.1)
STANDING 96"
PERC AT 58"
RATE: 2 MPI

D.H. NO. 3 (12-29-05)		D.O.H. 4 (11-8-06)	
0"	A - LOAMY SAND 10 YR 2/1	0"	FILL
10"	B- LOAMY SAND 10YR 4/6	18"	A - LOAMY SAND 10YR5/6
23"	C1- SAND 10YR5/6	36"	B- LOAMY SAND 10YR5/6
		50"	NO GRAVEL
		120"	C-COURSE SAND 10YR5/6

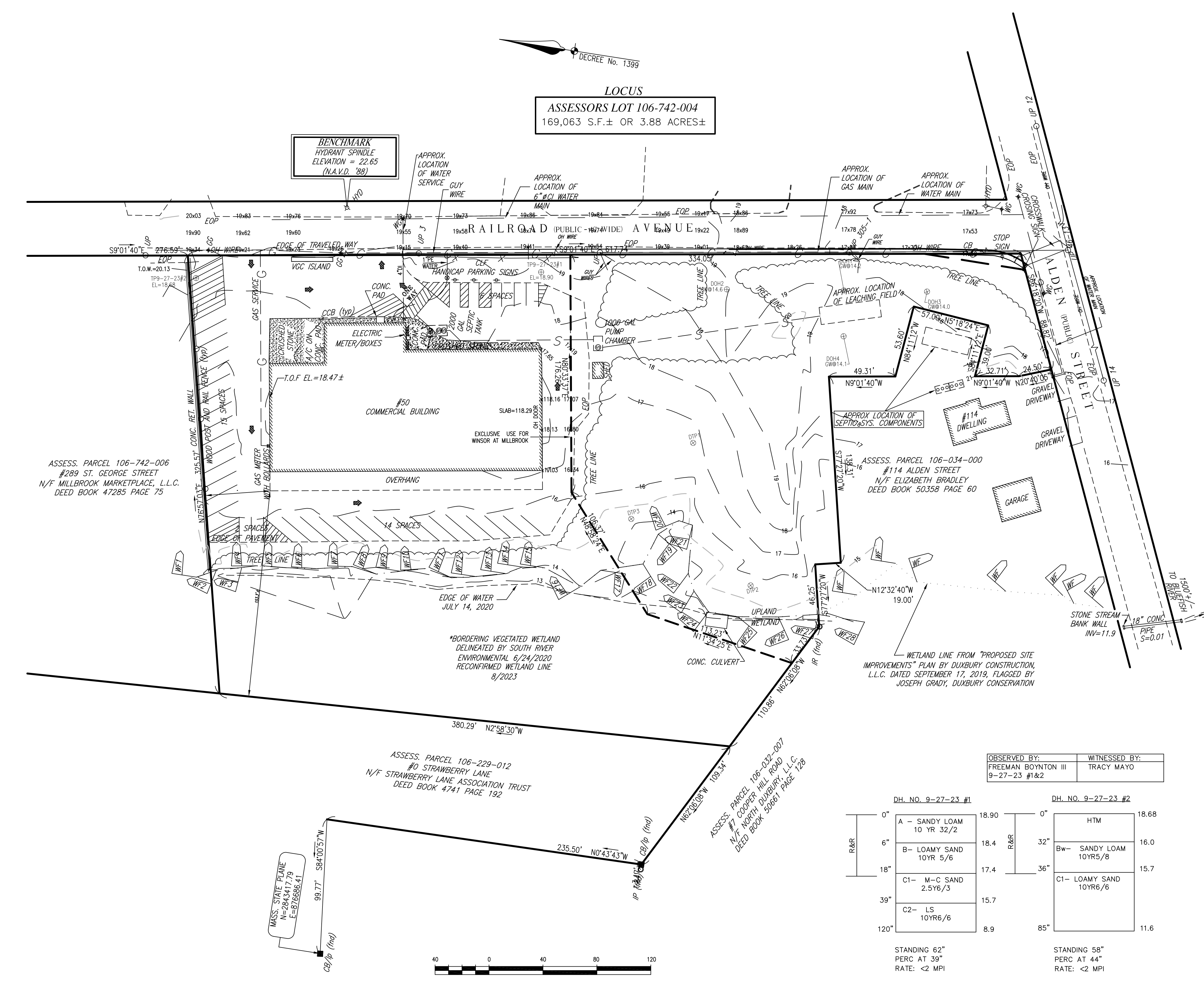
ADJ GND WTR 38" (EL=14.0)
STANDING 51"
PERC AT 30"
RATE: <2 MPI

MOTTLING @ 48" (EL=14.1)
STANDING 96"
PERC AT 58"
RATE: 2 MPI

OBSERVED BY: JOHN SCHNAIBLE, CEC D.O.H. 1-3
ROY OKUROWSKI, CEC D.O.H. 4

WITNESSED BY: GEORGE MICHOV GALE ASSOC., INC
ROY OKUROWSKI, CEC GALE ASSOC., INC

THE ABOVE SOIL LOGS REPRESENTS THE SOIL CONDITION AT THEIR PARTICULAR LOCATION. THE SOIL CONDITIONS MAY VARY IN OTHER LOCATIONS.
ESTIMATED HI-GROUND WATER IS BASED ON TP-2, ELEVATION 69.8-- USING FRIMPTER--



OBSERVED BY: FREEMAN BOYNTON III 9-27-23 #1&2
WITNESSED BY: TRACY MAYO

D.H. NO. 9-27-23 #1		D.H. NO. 9-27-23 #2	
0"	A - SANDY LOAM 10 YR 32/2	0"	HTM
6"	B- LOAMY SAND 10YR 5/6	32"	Bw- SANDY LOAM 10YR5/8
18"	C1- M-C SAND 2.5Y6/3	36"	C1- LOAMY SAND 10YR6/6
39"	C2- LS 10YR6/6	85"	
120"			

STANDING 62"
PERC AT 39"
RATE: <2 MPI

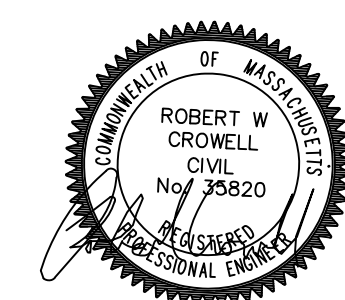
STANDING 58"
PERC AT 44"
RATE: <2 MPI

EXISTING CONDITIONS PLAN

THE WINSOR
at
MILLBROOK VILLAGE
DUXBURY, MA

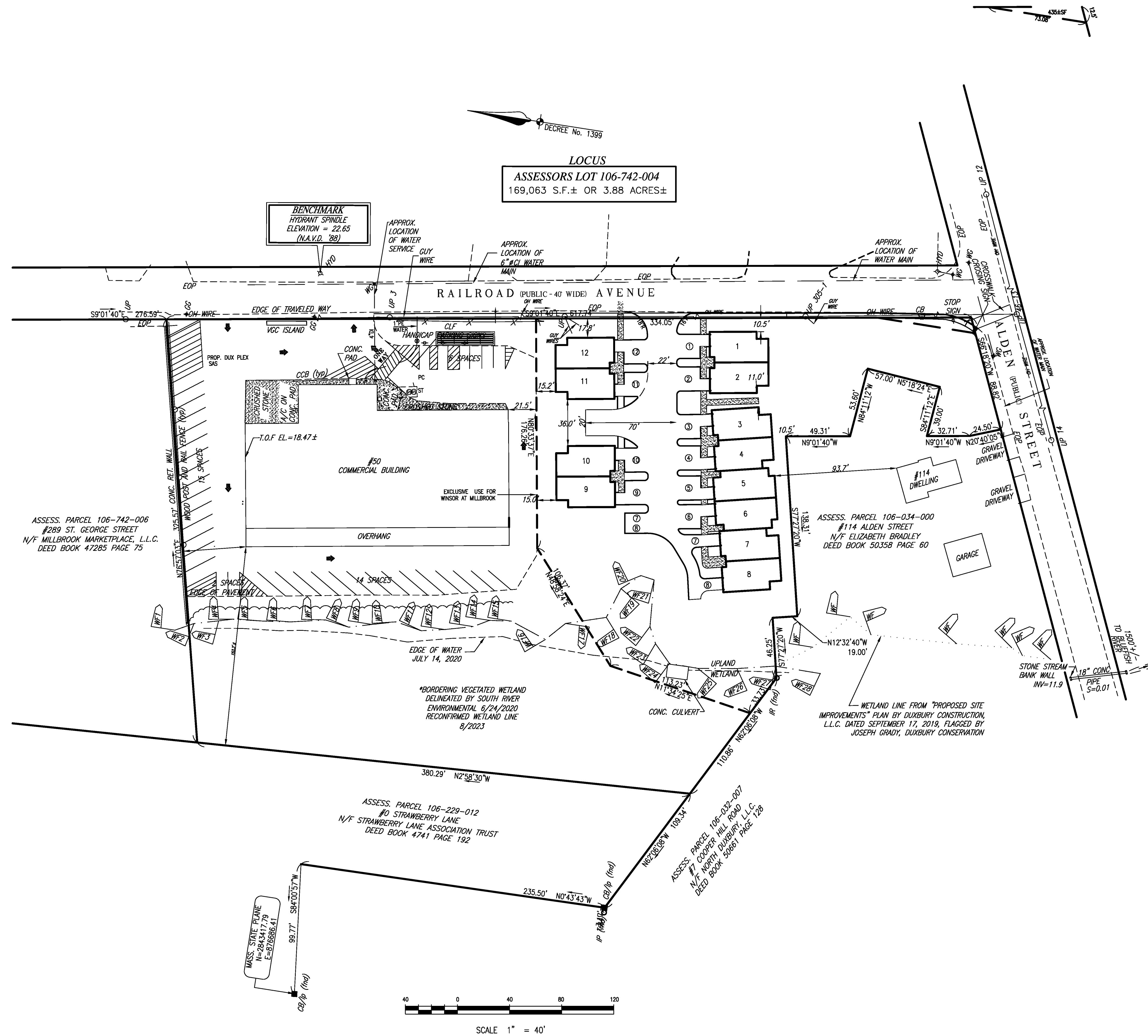
PREPARED FOR
THE WINSOR
at
MILLBROOK VILLAGE LLC

CROWELL ENGINEERING
981 LONG POND ROAD
PLYMOUTH, MA 02360
774-283-0443



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2	REVIEW ENGINEER	7-5-23			
3	REVIEW ENGINEER	9-12-23			
4	REVIEW ENGINEER	9-22-23			

DWG. SCALE: 1"=40'
DRAWN BY: BC
REVIEWED BY:
PROJECT NO:



ZONING TABLE				
ZONING DISTRICT	NEIGHBORHOOD BUSINESS-2 NB-2			
OTHER DISTRICTS	---			
ZONING CRITERIA	REQUIRED	EXISTING		
		DUXPLEX	DUXPLEX	THE WINSOR
MINIMUM LOT AREA	15,000 S.F.	169,063±SF	106,600 S.F.	62,463 S.F.
MINIMUM FRONTAGE	100'	617.7'	283.38'	334.4'
MINIMUM DEPTH	100'	325±'	325±'	176±'
MAX. GROSS COVERAGE	50%	32.3%	49.9%	36.3%
MIN. FRONT SETBACK	10'	33.4'	33.4'	10.5'
MIN. SIDE SETBACK	0'	46.6'	21.5'	10.5'
MIN. REAR SETBACK	0'	153.3'	153.3'	110.1'
MAX. BLDG. HEIGHT	30'	22'	22'	30'
PARKING SPACES	*	47	47	36
PARKING CRITERIA * (THE WINSOR)	Dwelling units: 2-spaces/unit 12units = 24 spaces 1-garage space/unit = 12 spaces Total = 36 spaces			
GROSS COVERAGE COMPUTATION (THE WINSOR)	Building Area: 11,941 s.f. Pavement & Concrete: 10,729 s.f. 22,670 = 36.8% Total Covered Area: 22,670 s.f. 62,473			

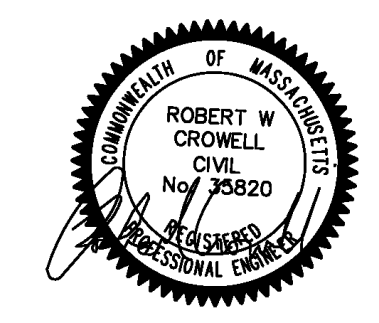
A ZONING WAIVER IS REQUIRED FOR: USAGE

DESCRIPTION	DUXPLEX EXISTING		DUXPLEX PROPOSED		THE WINSOR PROPOSED	
	AREA S.F.	PERCENT	AREA S.F.	PERCENT	AREA S.F.	PERCENT
BUILDING AREA	19,116 S.F.	11.3%	19,019 S.F.	17.8%	11,941 S.F.	19.1%
DRIVE/PARKING AREA	35,444 S.F.	21.0%	34,187 S.F.	32.1%	9,386 S.F.	15.0%
WALKWAY AREA	---	---	---	---	1,709 S.F.	2.7%
TOTAL IMPERVIOUS AREA	54,560 S.F.	32.3%	53,206 S.F.	49.9%	23,036 S.F.	36.8%
WETLAND AREA	45,742 S.F.	27.1%	40,884 S.F.	38.4%	4,858 S.F.	7.8%
TOTAL GREEN AREA	114,503 S.F.	67.7%	53,394 S.F.	50.1%	39,427 S.F.	63.2%
TOTAL LOT AREA	169,063 S.F.	100.0%	106,600 S.F.	100.0%	62,463 S.F.	100.0%

WETLAND AREAS	EXISTING DUXPLEX	PROPOSED DUXPLEX	THE WINSOR
WETLAND AREA	45,742 S.F.	40,884 S.F.	4,858 S.F.
LOT AREA WITHIN THE 25' BUFFER ZONE	13,518 S.F.	7,670 S.F.	5,848 S.F.
LOT AREA WITHIN THE 50' BUFFER ZONE	26,890 S.F.	14,865 S.F.	12,025 S.F.
LOT AREA WITHIN THE 100' BUFFER ZONE	53,095 S.F.	28,695 S.F.	19,060 S.F.
UPLAND AREA	123,321 S.F.	65,716 S.F.	57,605 S.F.

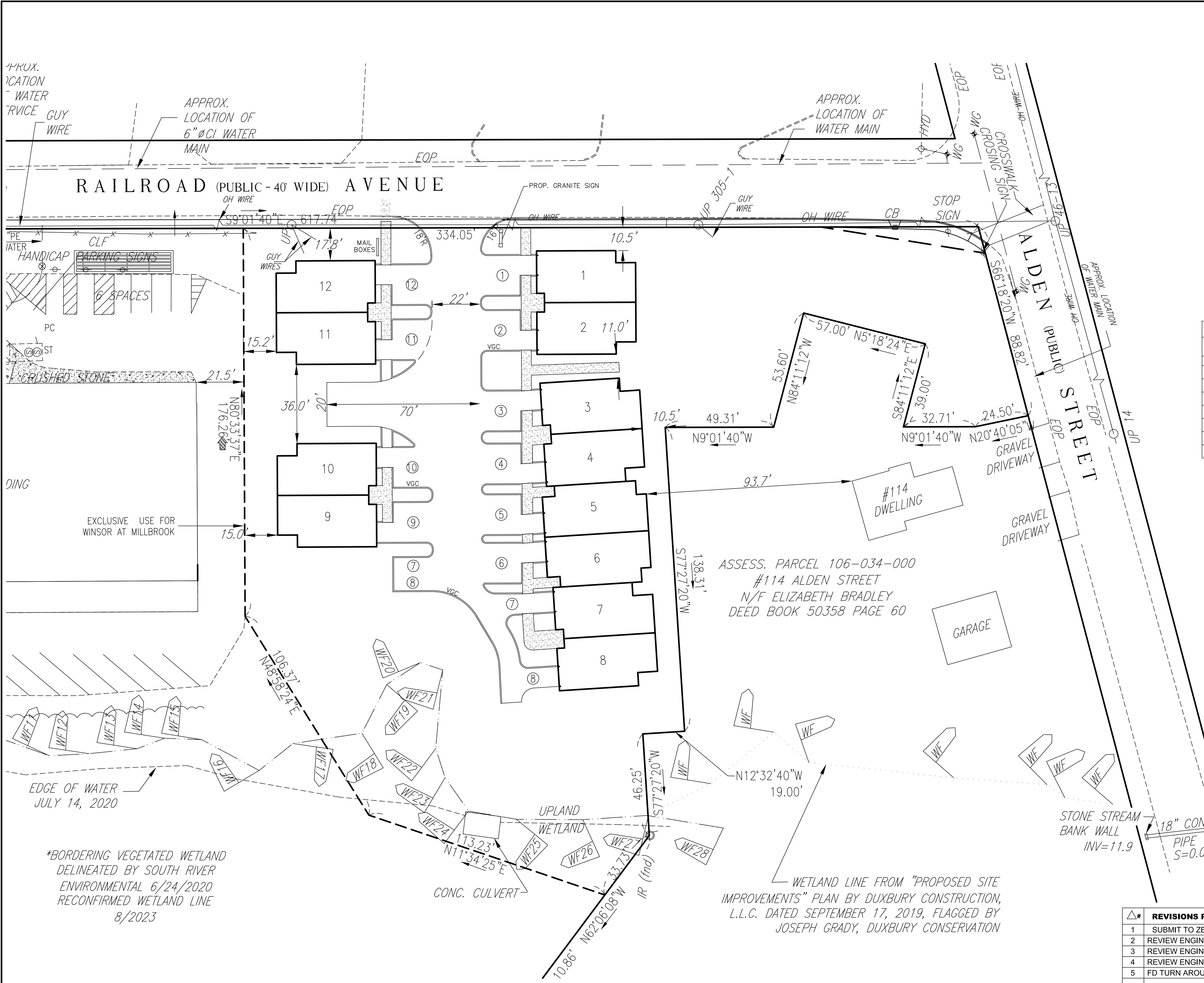
- UNIT BEDROOMS
- 1 2-BDRMS
- 2 3-BDRMS
- 3 3-BDRMS
- 4 2-BDRMS
- 5 3-BDRMS
- 6 3-BDRMS
- 7 3-BDRMS
- 8 3-BDRMS
- 9 3-BDRMS
- 10 3-BDRMS
- 11 3-BDRMS
- 12 3-BDRMS

- 10- THREE BDRM UNITS
- 2- TWO BDRM UNITS
- 12- UNITS
- 30-BDRMS
- 4-BDRMS
- 34- BEDROOMS



SITE LAYOUT PLAN
THE WINSOR
 at
MILLBROOK VILLAGE
 DUXBURY, MA
 PREPARED FOR
THE WINSOR
 at
MILLBROOK VILLAGE LLC
CROWELL ENGINEERING
 981 LONG POND ROAD
 PLYMOUTH, MA 02360
 774-283-0443

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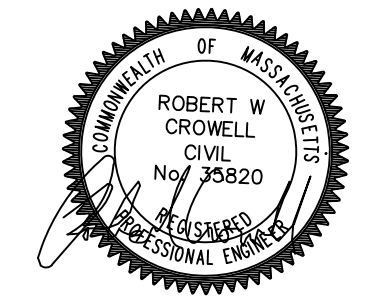
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AREA CALCULATIONS						
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WETLAND AREAS			
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UNIT	BEDROOMS	10-THREE BDRM UNITS	30-BDRMS
1	2-BDRMS	2-TWO BDRM UNITS	4-BDRMS
2	3-BDRMS	12- UNITS	34- BEDROOMS
3	3-BDRMS		
4	2-BDRMS		
5	3-BDRMS		
6	3-BDRMS		
7	3-BDRMS		
8	3-BDRMS		
9	3-BDRMS		
10	3-BDRMS		
11	3-BDRMS		
12	3-BDRMS		

SITE LAYOUT PLAN
 THE WINSOR
 at
 MILLBROOK VILLAGE
 DUXBURY, MA
 PREPARED FOR
 THE WINSOR
 at
 MILLBROOK VILLAGE LLC



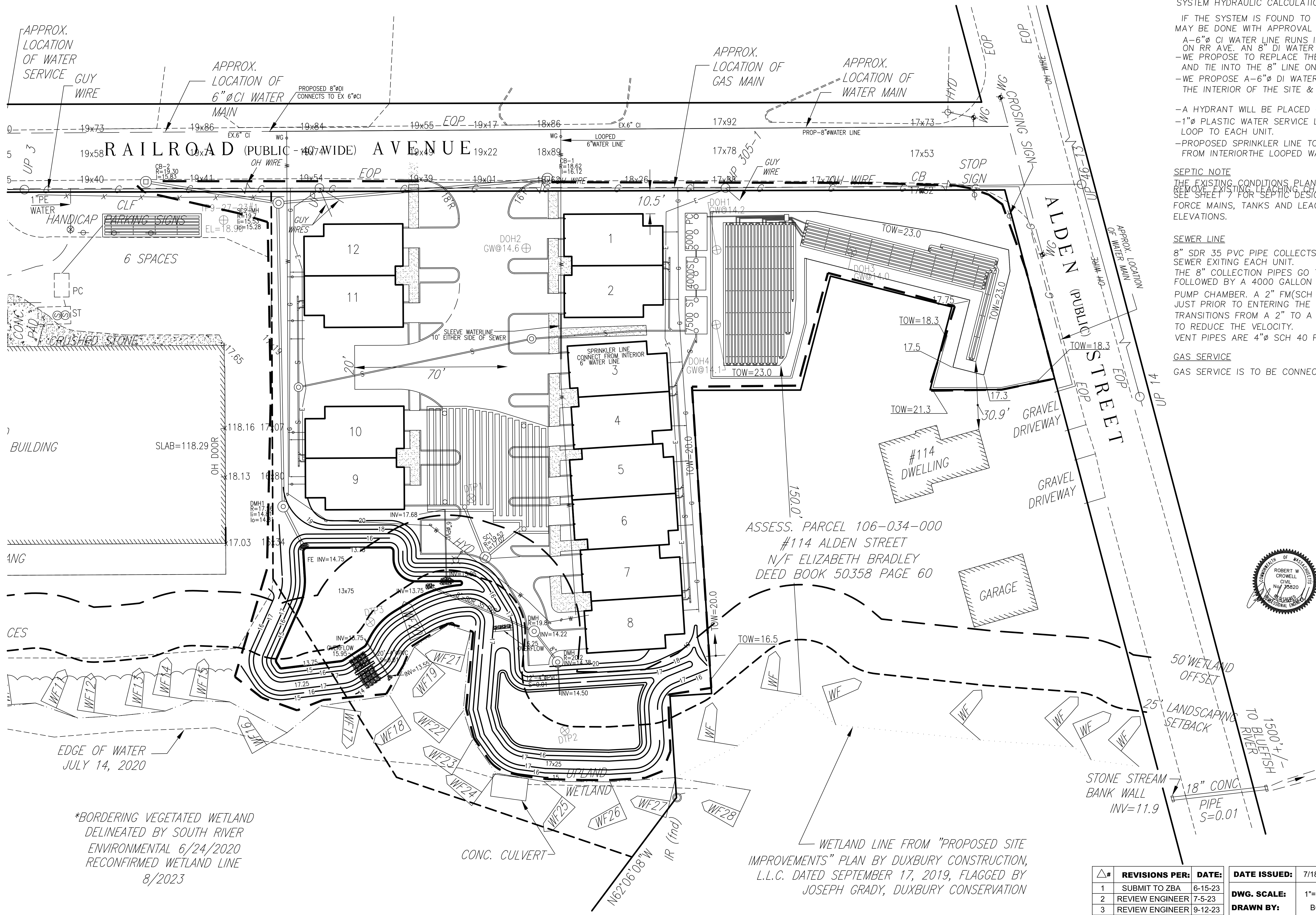
CROWELL ENGINEERING
 981 LONG POND ROAD
 PLYMOUTH, MA 02360
 774-283-0443

*BORDERING VEGETATED WETLAND DELINEATED BY SOUTH RIVER ENVIRONMENTAL 6/24/2020 RECONFIRMED WETLAND LINE 8/2023

WETLAND LINE FROM "PROPOSED SITE IMPROVEMENTS" PLAN BY DUXBURY CONSTRUCTION, L.L.C. DATED SEPTEMBER 17, 2019, FLAGGED BY JOSEPH GRADY, DUXBURY CONSERVATION

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DATE ISSUED:	7/18/22	DRAWING NAME:
DWG. SCALE:	1"=20'	SITE LAYOUT PLAN
DRAWN BY:	BC	
PROJECT NO:		



WATER LINES
 PRIOR TO ANY CONSTRUCTION ON SITE, THE WATER MAINS IN THE STREET SHALL BE TESTED FOR WATER PRESURE, AND SPRINKLER SYSTEM HYDRAULIC CALCULATIONS.

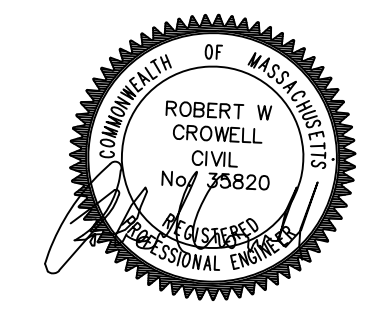
IF THE SYSTEM IS FOUND TO BE LACKING THE FOLLOWING MAY BE DONE WITH APPROVAL OF THE FIRE, WATER & DPW:
 -A 6" CI WATER LINE RUNS IN FRONT OF THE PROJECT ON RR AVE. AN 8" DI WATER LINE RUNS ALONG ALDEN ST.
 -WE PROPOSE TO REPLACE THE 6" CI IN FRONT OF THE PROJECT AND TIE INTO THE 8" LINE ON ALDEN ST.
 -WE PROPOSE A 6" DI WATER LINE TO LOOP FROM RR AVE THRU THE INTERIOR OF THE SITE & CONNECT BACK ONTO RR AVE.

-A HYDRANT WILL BE PLACED OFF THE 6" DI LOOP.
 -1" DI PLASTIC WATER SERVICE LINES WILL RUN FROM THE 6" DI LOOP TO EACH UNIT.
 -PROPOSED SPRINKLER LINE TO CONNECT FROM 6" DI FROM INTERIOR THE LOOPED WATER LINE, WITHIN SIXPLEX

SEPTIC NOTE
 THE EXISTING CONDITIONS PLAN SHOWS THE EX. SAS. REMOVE EXISTING LEACHING CHAMBER/FIELD. SEE SHEET 7 FOR SEPTIC DESIGN & DETAILS.
 FORCE MAINS, TANKS AND LEACHING FIELD, PROFILES AND ELEVATIONS.

SEWER LINE
 8" SDR 35 PVC PIPE COLLECTS THE 4" SCH 40 PVC SEWER EXITING EACH UNIT.
 THE 8" COLLECTION PIPES GO TO A 7500 GALLON SEPTIC TANK FOLLOWED BY A 4000 GALLON TANK AND INTO A 5000 GAL PUMP CHAMBER. A 2" FM (SCH 40 PVC) GOES TO A DBOX. JUST PRIOR TO ENTERING THE DBOX, AN EXPANDER TRANSITIONS FROM A 2" TO A 4" (SCH 40 PVC) PIPE TO REDUCE THE VELOCITY.
 VENT PIPES ARE 4" SCH 40 PVC PIPING.

GAS SERVICE
 GAS SERVICE IS TO BE CONNECTED TO THE REAR OF EACH UNIT.



ASSESS. PARCEL 106-034-000
 #114 ALDEN STREET
 N/F ELIZABETH BRADLEY
 DEED BOOK 50358 PAGE 60

UTILITY PLAN
 THE WINSOR
 at
 MILLBROOK VILLAGE
 DUXBURY, MA
 PREPARED FOR
 THE WINSOR
 at
 MILLBROOK VILLAGE LLC

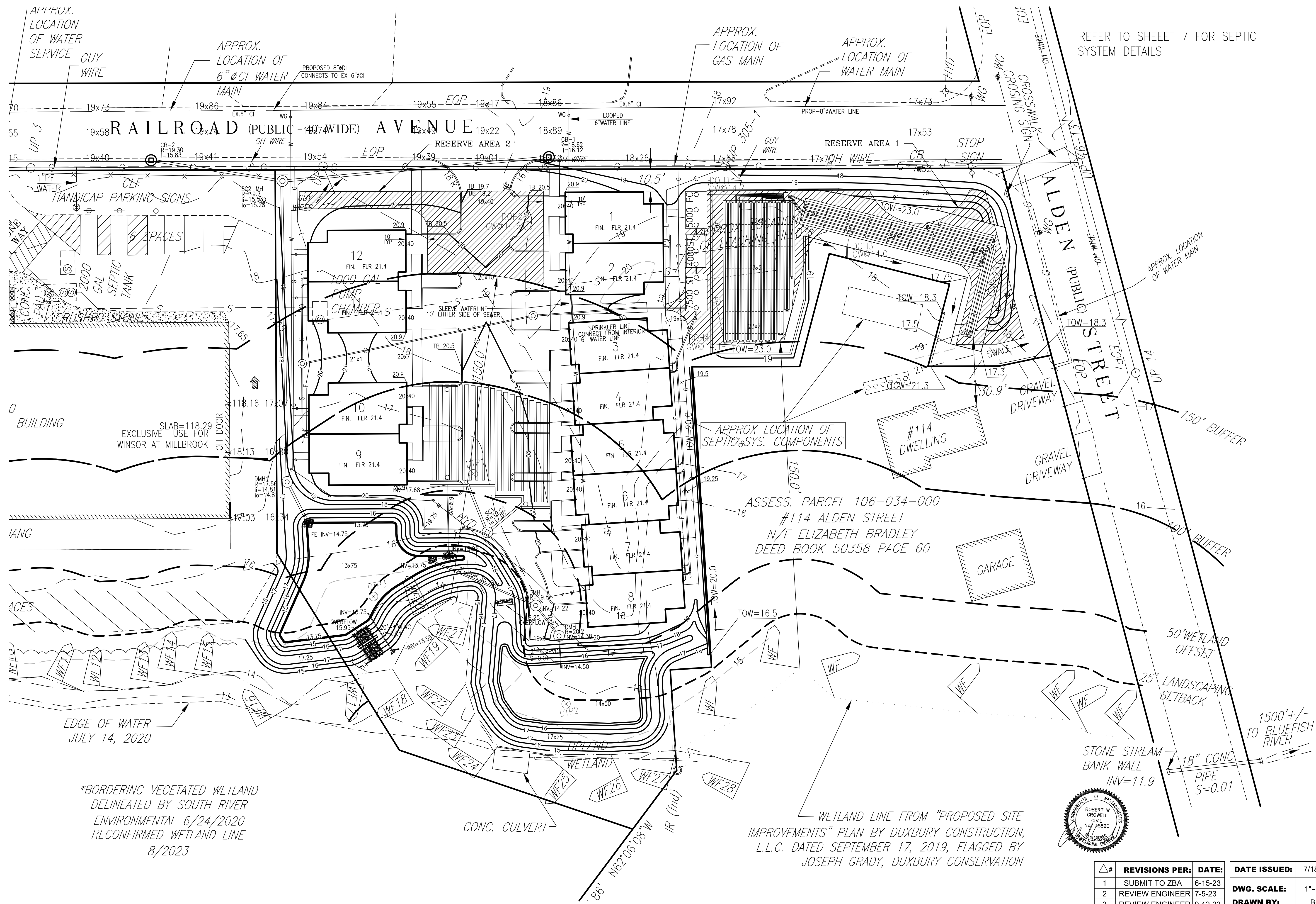
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5	MOVE WATER	10-4-23		

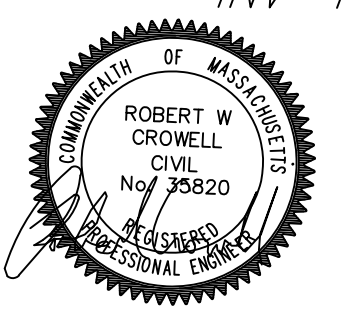
DRAWING NAME:
 UTILITY PLAN
 5



REFER TO SHEET 7 FOR SEPTIC SYSTEM DETAILS

SEPTIC PLAN
 THE WINSOR
 at
 MILLBROOK VILLAGE
 DUXBURY, MA
 PREPARED FOR
 THE WINSOR
 at
 MILLBROOK VILLAGE LLC

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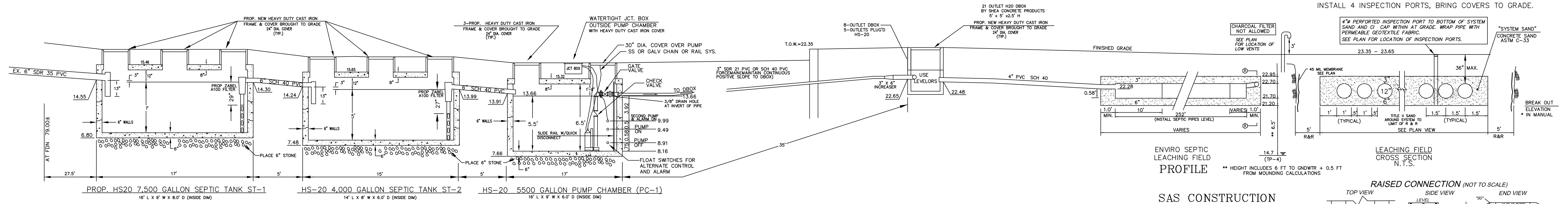
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WETLAND LINE FROM "PROPOSED SITE
 IMPROVEMENTS" PLAN BY DUXBURY CONSTRUCTION,
 L.L.C. DATED SEPTEMBER 17, 2019, FLAGGED BY
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DRAWN BY: BC
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DRAWING NAME:
 SEPTIC PLAN
6



PUMP CHAMBER—PC
 —5500 GAL PRECAST TANK W/36" CI FRAME & COVER
 — MUST BE MADE WATER TIGHT
PUMP
 USE 2-GOULD'S 3885 WE0532H SUBMERSIBLE SEWAGE PUMP OR EQUAL
 1/2HP, 230V, 3 PH, 1750 RPM, 100 GPM AT 6' TDH
 HANDLE 2" # SOLIDS
 6-CYCLES/DAY (14 HR CYCLES)
 0.58" DRAIN DOWN/CYCLE

CONTROL PANEL REQUIREMENTS
 DUPLEX CONTROLLER WITH ALTERNATOR AND ALARM
 — OFF-AUTO-ON SWITCH (MINIMUM 3 SWITCH SYSTEM)
 — ALARM WITH LIGHT AND BUZZER/BELL
 — ALARM TEST SWITCH
 — ALARM ON SEPARATE CIRCUIT FROM PUMP
 — WIRE PUMP TO PERMIT GENERATOR CONNECTION

FORCE MAIN
 — 2" # P.E. PIPE OR SCH. 40 PVC
 — FORCE MAIN TO HAVE AN UPWARD SLOPE (NO-SAGS) FROM PUMP CHAMBER TO DBOX W/DRAIN BACK CAPABILITY.

PUMP DESIGN CALCULATIONS
 DESIGN FLOW 3740 GPD
 6 DOSES PER DAY = 623.3 GAL/DOSE + 6 GAL FLOW BACK = 629.3 GAL/DOSE
 CYCLE TIME
 4 HRS BETWEEN DOSINGS
 FLOW BACK
 $35'(2" \text{ DIAM PIPE}) \times \frac{\pi (17')^2}{4} = 0.79 \text{ FT}^3 = 6 \text{ GAL}$
 TDH
 $\text{TDH} = 13.74 + \frac{72(24/100)}{100} = 5.6$
 GPM @ TDH = 80 GPM @ 16 FT

PUMP CHAMBER RESERVE CAPACITY (VOLUME & TIME)
 RESERVE CAPACITY AFTER ALARM = 1077.3 GAL/FT x 3.92 = 4222.9 GPD 1.3 DAYS
 LENGTH OF TIME FOR ONE DOSE
 $629 \text{ GAL} / 100 \text{ GPM} = 7.5 \text{ MIN}$

D.O.H. 1 (12-29-05)

0"	18.0
20"	16.33
72"	12.0
84"	11.0
132"	7.0

ADJ GND WTR 40"(EL=14.7)
 STANDING 59"
 PERC AT 48"
 RATE: <2 MPI

D.H. NO. 3 (12-29-05)

0"	17.2
10"	16.4
23"	15.3
50"	11.0
144"	5.2

ADJ GND WTR 38"(EL=14.0)
 STANDING 51"
 PERC AT 30"
 RATE: <2 MPI

D.O.H. 4 (11-8-06)

0"	80.9
18"	36
36"	36
50"	76.3
168"	66.9

MOTTLING @ 48"(EL=14.1)
 STANDING 96"
 PERC AT 58"
 RATE: 2 MPI

OBSERVED BY: JOHN SCHNAIBLE, CEC
 D.O.H. 1 & 3
 ROY OKUROWSKI, CEC
 D.O.H. 4

WITNESSED BY: GEORGE MICHOV, GALE ASSOC., INC
 ROY OKUROWSKI, CEC
 GALE ASSOC., INC

THE ABOVE SOIL LOGS REPRESENTS THE SOIL CONDITION AT THEIR PARTICULAR LOCATION. THE SOIL CONDITIONS MAY VARY IN OTHER LOCATIONS.
 ESTIMATED HI-GROUND WATER IS BASED ON TP-2, ELEVATION 69.8— USING FRIMPTER—

- SAS CONSTRUCTION NOTES**
- 1) SYSTEM TO BE INSTALLED IN ACCORDANCE WITH PRODUCT DESIGN AND INSTALLATION MANUAL, STATE AND LOCAL REGULATIONS.
 - 2) MINIMUM OF 6" OF MEDIUM TO COARSE SAND WITH LESS THAN 2% # PASSING A # 200 SIEVE REQUIRED AROUND CIRCUMFERENCE OF ENVIRO-SEPTIC PIPES. SEE DESIGN AND INSTALLATION MANUAL FOR COMPLETE SAND AND FILL SPECIFICATIONS.
 - 3) DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.
 - 4) NO DRAINS, HOT TUBS, SHAWNS, GARBAGE DISPOSALS ETC. SHALL BE INCORPORATED INTO THIS SYSTEM UNLESS OTHERWISE SPECIFIED.
 - 5) SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE ACCORDANCE WITH THE CERTIFICATION FOR GENERAL USE FOR THE ENVIRO-SEPTIC. "APPROVAL FOR CONSTRUCTION" IS VALID FOR 4 YEARS FROM DATE OF ISSUE.
 - 6) NO INSTALLER SHALL INSTALL THE SYSTEM UNLESS HE HAS BEEN TRAINED BY THE COMPANY ON THE INSTALLATION OF THE SYSTEM, OR INSTALLATION IS OVERSEEN BY A COMPANY REPRESENTATIVE.
 - 7) THE SYSTEM OWNER SHALL HAVE THE SYSTEM INSPECTED ANNUALLY BY AN OPERATOR TRAINED BY THE COMPANY AND SHALL SUBMIT THE RESULTS OF THAT INSPECTION, ON A TECHNOLOGY CHECKLIST, TO THE LOCAL APPROVING AUTHORITY.
 - 8) THE FIELD AND THE ENVIRO-SEPTIC PIPING SHALL BE LAID LEVEL.

- GENERAL NOTES**
1. ALL ELEVATIONS REFER TO M.S.L. SEE PLAN FOR LOCATION.
 2. ALL CONSTRUCTION SHALL CONFORM TO 310 CMR 15.00, TITLE V AND THE REGULATIONS OF THE DUXBURY BOARD OF HEALTH.
 3. THIS PLAN DOES NOT WARRANT OR IMPLY ANY SUBSURFACE SOIL CONDITIONS OTHER THAN THOSE OBSERVED AT THE IMMEDIATE TEST PIT LOCATIONS. IF UNSUITABLE MATERIAL IS ENCOUNTERED, ALL CONSTRUCTION SHALL CEASE, AND THE DESIGN ENGINEER SHALL BE CONTACTED IMMEDIATELY.
 4. ALL TANKS, U-BOXES, AND CHAMBERS SHALL BE SET LEVEL AND TRUE TO GRADE ON A MECHANICALLY COMPACTED STABLE BASE.
 5. IF THE D-BOX IS DOSED OR THE INLET SLOPE EXCEEDS 8%, AN INLET TEE OR AN EXPANDER SHALL BE REQUIRED.
 6. AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED TO MINIMIZE EROSION. THE AREA OVER THE SYSTEM SHALL BE GRADED TO A MINIMUM OF 2% SLOPE TO PROVIDE POSITIVE SURFACE DRAINAGE. THIS PLAN SHALL NOT BE USED FOR THE REPRODUCTION OF PROPERTY LINES, NOR SHALL IT BE USED AS A MORTGAGE PLOT PLAN OR TITLE SURVEY. CONFORMANCE TO LOCAL BYLAWS SHALL BE DETERMINED BY THE OWNER PRIOR TO CONSTRUCTION.
 8. THE OWNER IS RESPONSIBLE FOR THE DETERMINATION OF THE LOCATIONS OF ALL BURIED UTILITIES. CALL DIGSAFE @ 811.
 9. FOR PROPER PERFORMANCE, THE SEPTIC TANKS SHOULD BE INSPECTED AT LEAST ONCE A YEAR AND PUMPED WHEN THE TOTAL DEPTH OF SOLIDS EXCEEDS 1/4 THE LIQUID DEPTH OF THE TANK. THE TANK MAY 2025 COULD LEAD TO SERIOUS DAMAGES OR UNEXPECTED CONSEQUENCES.
 10. ANY ALTERATIONS MUST BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION WITH CONSTRUCTION.
 11. THE SYSTEM MUST BE INSPECTED BY THE BOARD OF HEALTH OR ITS AGENT AND BE CERTIFIED BY THE DESIGN ENGINEER.
 12. CONSERVATION COMMISSION APPROVAL IS REQUIRED.
 13. THE SYSTEM SHALL BE VENTED AS SHOWN ON PLAN.
 14. SEE 310 CMR 15.255 FOR FILL SPECIFICATIONS. SEE 310 CMR 15.247 FOR AGGREGATE SPECIFICATIONS.
 15. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC TAPE OR OTHER MEANS TO LOCATE SYSTEM.

DESIGN ELEVATIONS

UNIT	INV @ FDN
1	16.00
2	16.00
3	16.00
4	16.00
5	16.50
6	16.50
7	17.50
8	17.50
9	18.50
10	18.50
11	18.50
12	18.50

DESIGN

UNIT	BEDROOMS
1	2-BDRMS
2	3-BDRMS
3	3-BDRMS
4	2-BDRMS
5	3-BDRMS
6	3-BDRMS
7	3-BDRMS
8	3-BDRMS
9	3-BDRMS
10	3-BDRMS
11	3-BDRMS
12	3-BDRMS

10—THREE BDRM UNITS 30-BDRMS
 2—TWO BDRM UNITS 4-BDRMS
 12— UNITS 34— BEDROOMS

34 BDRMSx110 GPD/BDRM = 3740 GPD

DESIGN PERC RATE: 2 MIN/INCH
 REQUIRED LEACH FIELD = FLOW/LTAR
 = 3,740 GPD/0.74 GPD/SF
 = 5,054 S.F. (REQ'D RESERVE AREA = 5,054 S.F.)

USING PRESBY ALLOWS A 40% FIELD REDUCTION
 60% x 5,054 S.F. = 3,033 S.F.

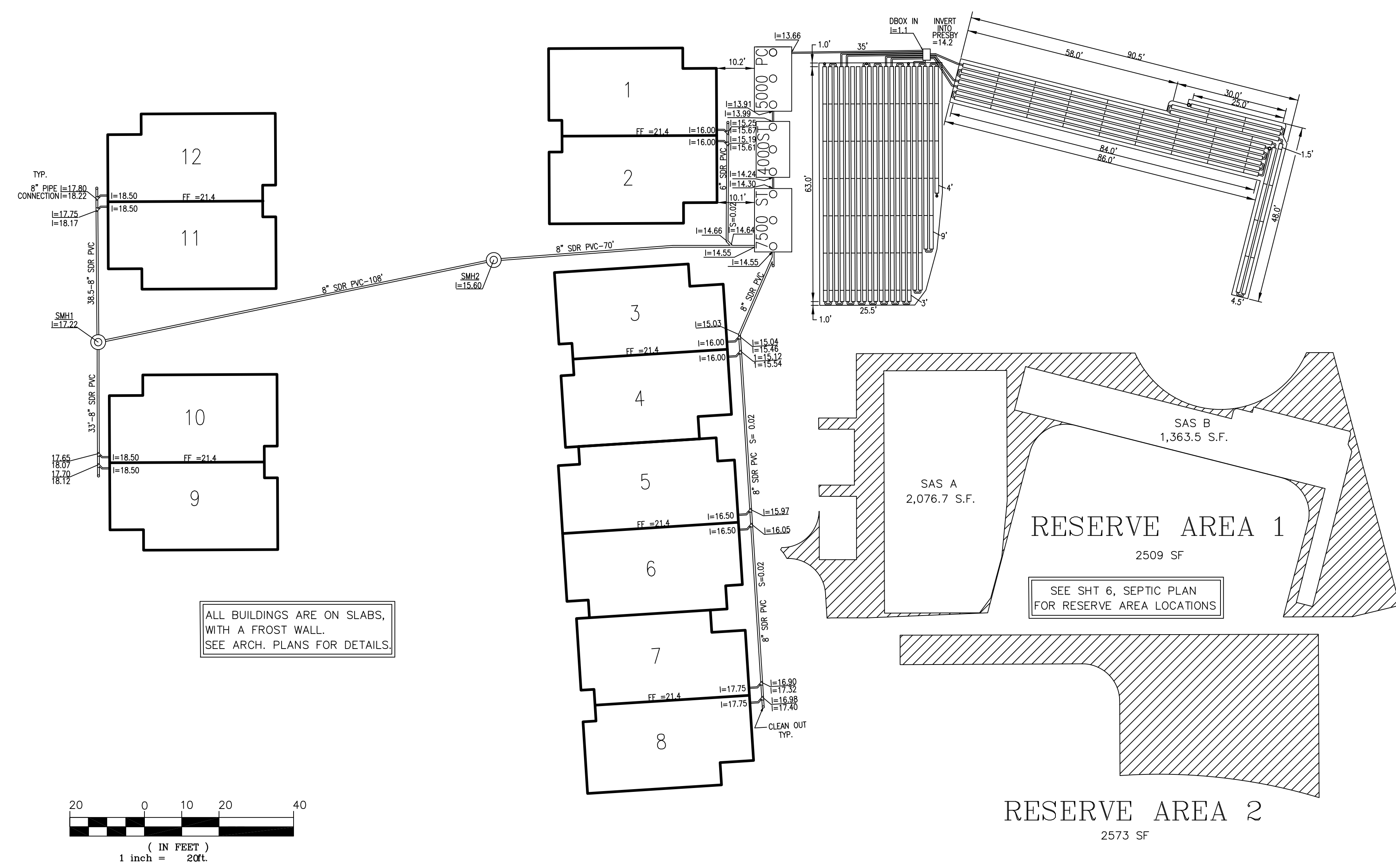
PROVIDED LEACHING AREAS:
 SAS-A = 2,076.7 S.F.
 SAS-B = 1,363.5 S.F.
 TOTAL AREA = 3,440.2 S.F. > 3,033 SF

LEACHING PROVIDED: = 3,440.2 SF x 0.74 GPD/SF/0.6 = 4,242.9 GPD

RESERVE AREA:
 RESERVE AREA #1 = 5949.2 - 3440.2 = 2509.0 SF
 RESERVE AREA #2 = 2573.0 SF
 TOTAL RESERVE AREA = 5082.0 SF > 5,074 SF

PIPING REQUIRED FOR RESIDENTIAL USE:
 —50 FT PER 100 GAL
 —MAX 500 GAL PER SERIAL LOADED SECTION OF PIPING.
 3,740 GPD x 50 FT/100 GAL = 1,870 FT (MIN REQ'D)
 3,740 GPD/500 GPD/PIPE = 7.48 USE 8 SECTIONS
 8-SECTIONS— EACH SECTION IS 252 FT LONG = 2016 FT OF PIPING > 1870 FT

TANK SIZING
 ST-1 3,740 GPD x 200% = 7,480 GALLONS USE 7500 GAL H2O TANK
 ST-2 3,740 GPD x 100% = 3,740 GALLONS USE 4000 GAL H2O TANK



7500 GAL ST	14.55
INV IN	14.30
INV OUT	14.24
4000 GAL ST	13.99
INV IN	13.91
INV OUT	13.66
5000 GAL PC	13.91
INV IN	13.66
INV OUT	22.02
D-BOX	21.85
INV IN	22.10
INV AT PRESBY	21.68
BOTTOM OF PIPE	21.10
BOT OF SAND	20.60
DIST TO GND WTR	6.5'
GRND WTR	14.10

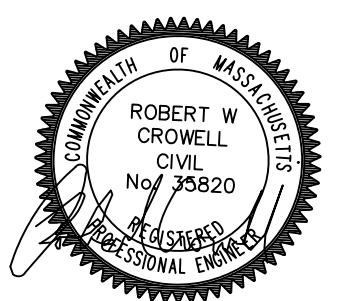
SEPTIC DESIGN & DETAILS

THE WINSOR
 at
MILLBROOK VILLAGE
 DUXBURY, MA
 PREPARED FOR
THE WINSOR
 at
MILLBROOK VILLAGE LLC

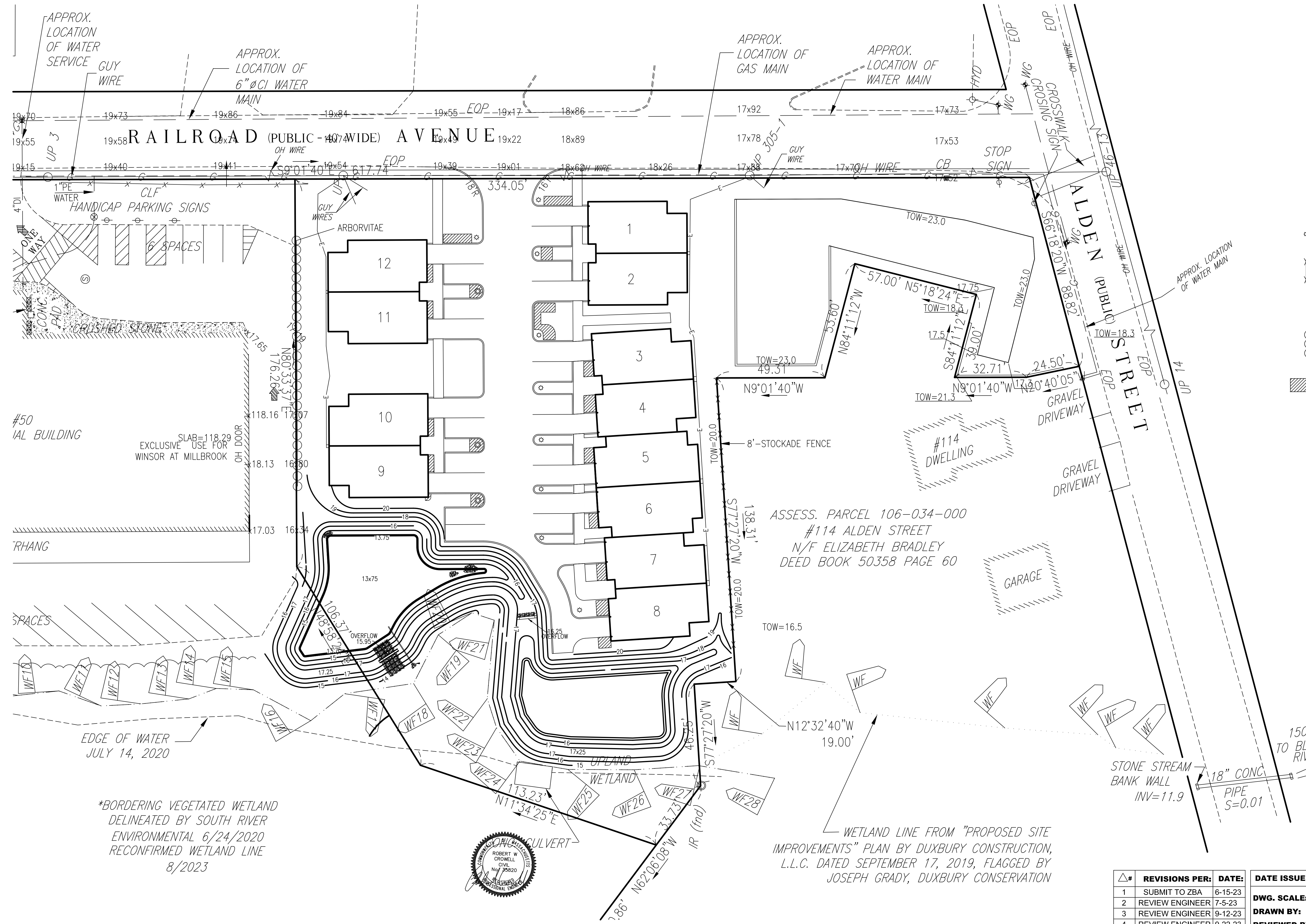
CROWELL ENGINEERING
 981 LONG POND ROAD
 PLYMOUTH, MA 02360
 774-283-0443

Δ#	REVISIONS PER:	DATE:	DATE ISSUED:	11/30/22
1	SUBMIT TO ZBA	6-15-23	DWG. SCALE: 1"=20'	DRAWN BY: BC
2	REVIEW ENGINEER	7-5-23		
3	COMPLETE SEPTIC	9-12-23		
REVIEWED BY:				PROJECT NO:
PROJECT NO:				

DRAWING NAME:
SEPTIC DESIGN
7



ROBERT CROWELL, P.E. DATE
 I CERTIFY THAT THIS SYSTEM HAS BEEN DESIGNED IN CONFORMANCE WITH 310 CMR 15.00 AND LOCAL REQUIREMENTS OF THE DUXBURY B.O.H. REGULATIONS.



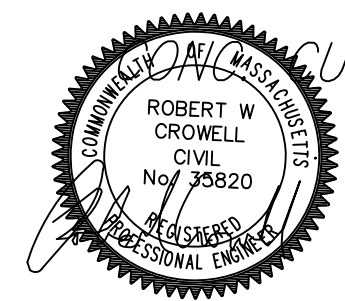
- ⊛ POST LIGHTS (ONION LIGHTS)
TO BE MADE OF BRASS
LED LIGHT 60 W EQUIVALENT
 - ⌘ 8'-STOCKADE FENCE
 - PLANTINGS
 - ARBORVITAE
 - ▨ COMBINATION OF:
HYDRANGEA
&
BEACH GRASS
- ALL OTHER AREAS AROUND BUILDINGS
TO BE LOAMED & SEEDING.

ASSESS. PARCEL 106-034-000
#114 ALDEN STREET
N/F ELIZABETH BRADLEY
DEED BOOK 50358 PAGE 60

LANDSCAPE &
LIGHTING PLAN
THE WINSOR
at
MILLBROOK VILLAGE
DUXBURY, MA
PREPARED FOR
THE WINSOR
at
MILLBROOK VILLAGE LLC

CROWELL ENGINEERING
981 LONG POND ROAD
PLYMOUTH, MA 02360
774-283-0443

*BORDERING VEGETATED WETLAND
DELINEATED BY SOUTH RIVER
ENVIRONMENTAL 6/24/2020
RECONFIRMED WETLAND LINE
8/2023



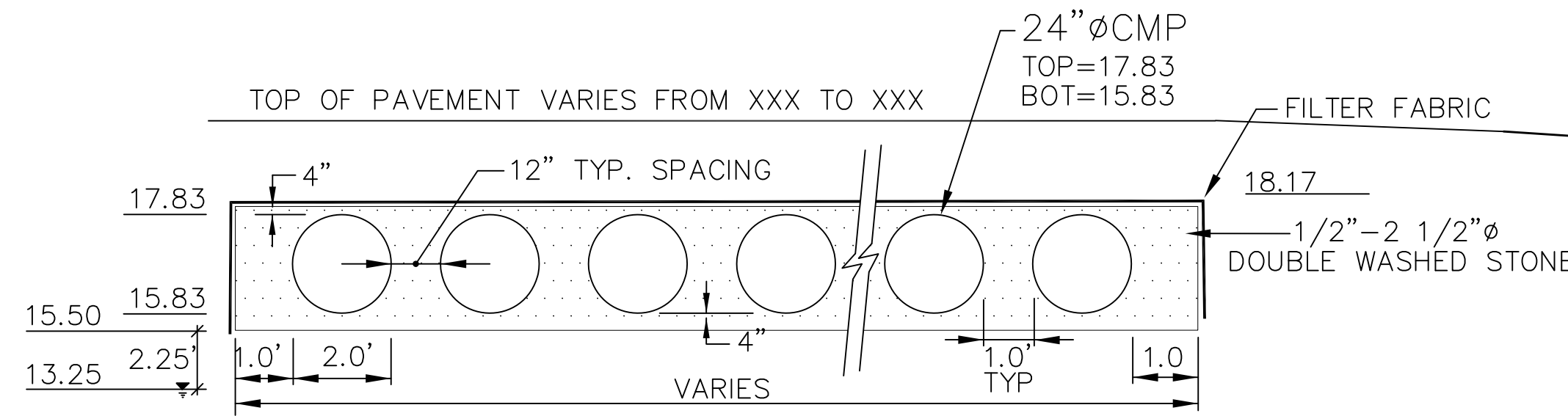
WETLAND LINE FROM "PROPOSED SITE
IMPROVEMENTS" PLAN BY DUXBURY CONSTRUCTION,
L.L.C. DATED SEPTEMBER 17, 2019, FLAGGED BY
JOSEPH GRADY, DUXBURY CONSERVATION

Δ#	REVISIONS PER:	DATE:	DATE ISSUED:	7/18/22
1	SUBMIT TO ZBA	6-15-23	DWG. SCALE:	1"=40'
2	REVIEW ENGINEER	7-5-23	DRAWN BY:	BC
3	REVIEW ENGINEER	9-12-23	REVIEWED BY:	
4	REVIEW ENGINEER	9-22-23	PROJECT NO:	

DRAWING NAME:
**LANDSCAPE &
LIGHTING PLAN**
9

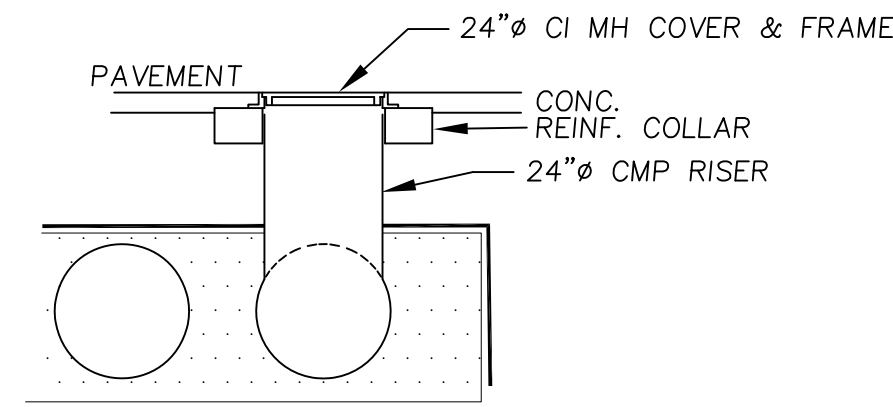
INFILTRATION BASIN-1

15' AT CLOSEST PT INFIL SYS.
18.0 (100YR STORM EVENT) BREAKOUT



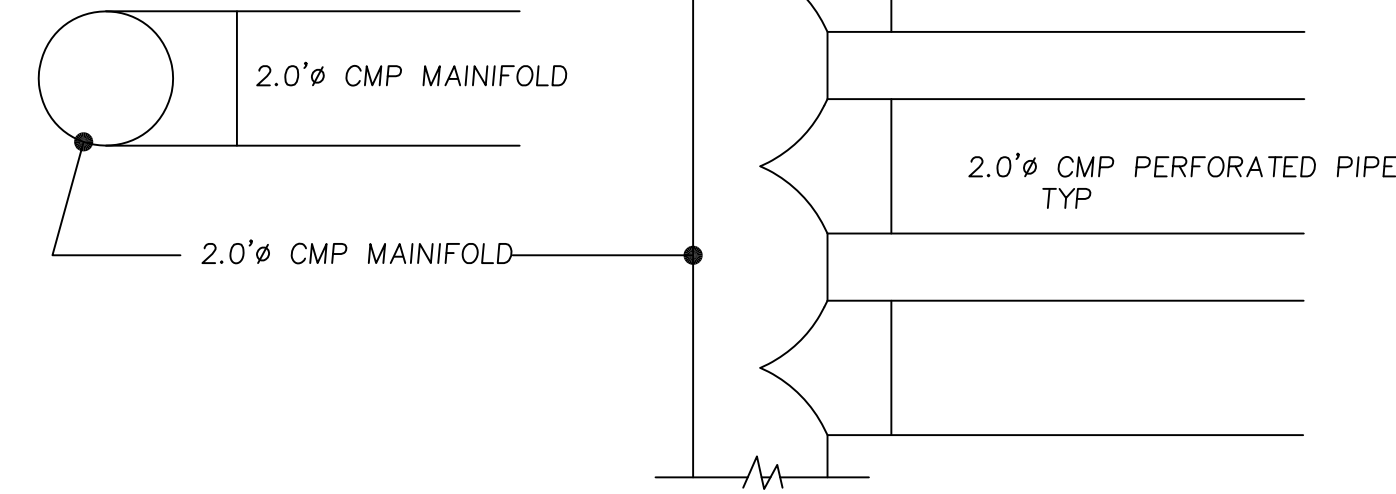
X-X INFILTRATION SYS

18-ROWS OF 2.0"ØCMP (VARYING LEGNTHS)
1.0' AROUND CMP-3/4"-1 1/2" DOUBLE WASHED STONE
BOT AREA = 3121 S.F.
24" CMP PIPE & MANIFOLD = 999'

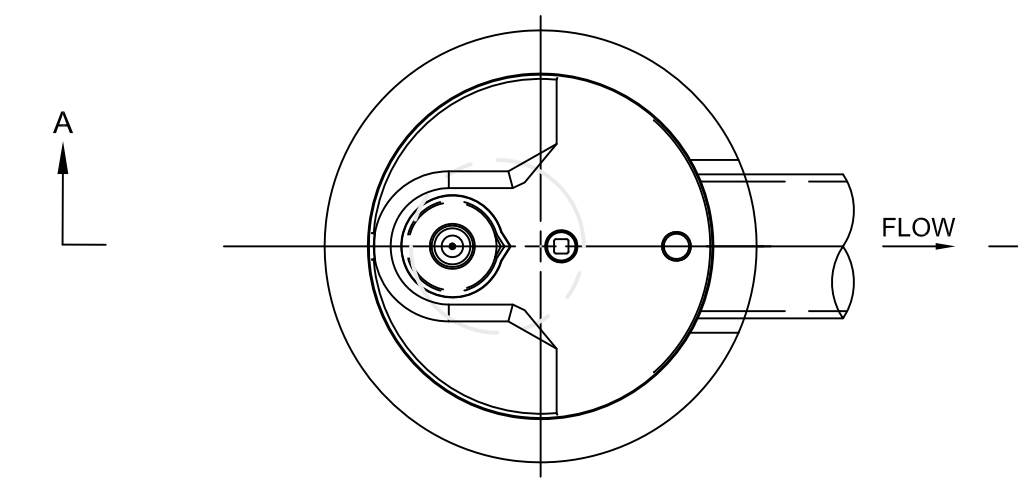


RISER DETAIL

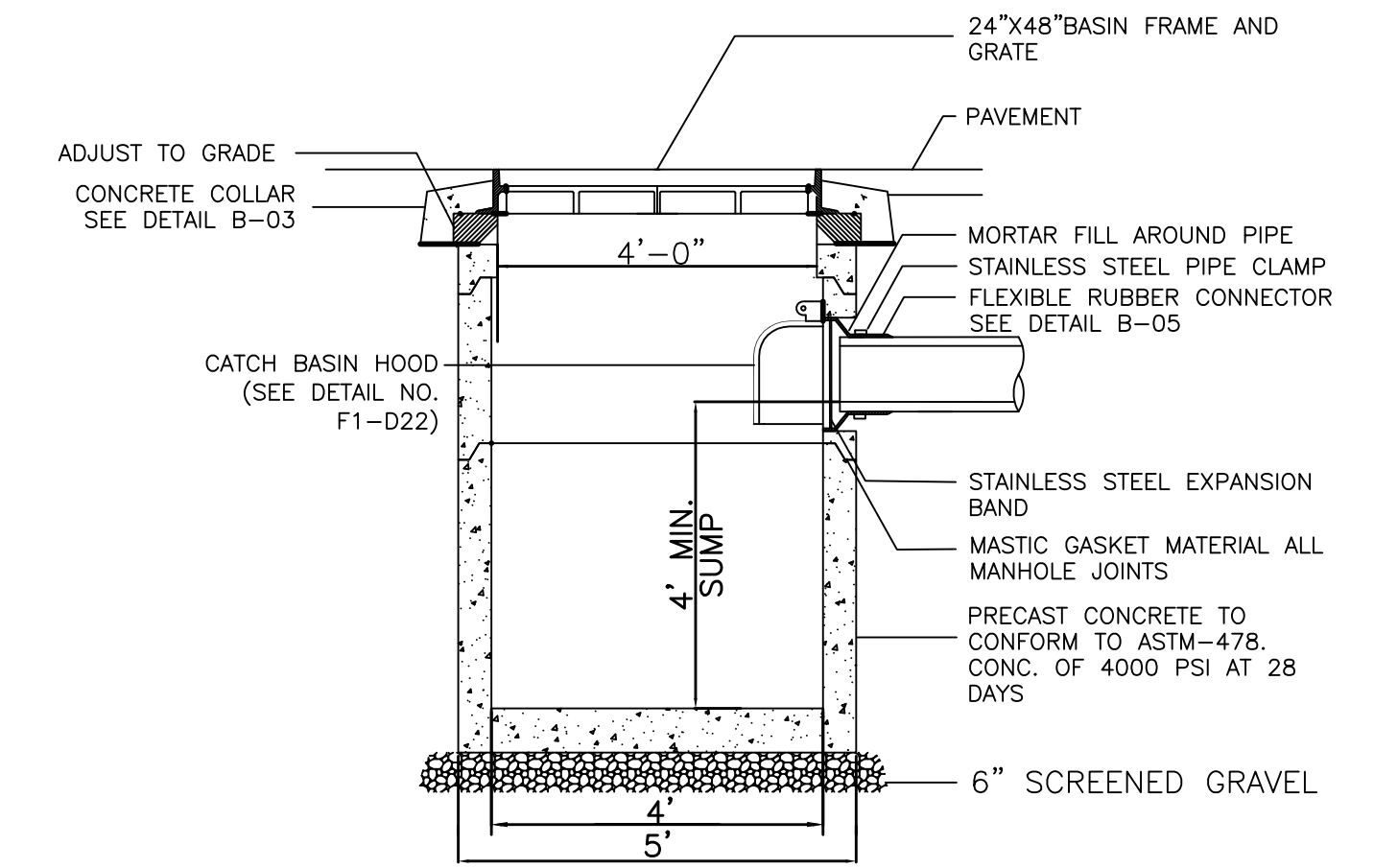
2 RISERS AT EACH INFILTRATION SYSTEM
--FOR INSPECTION--



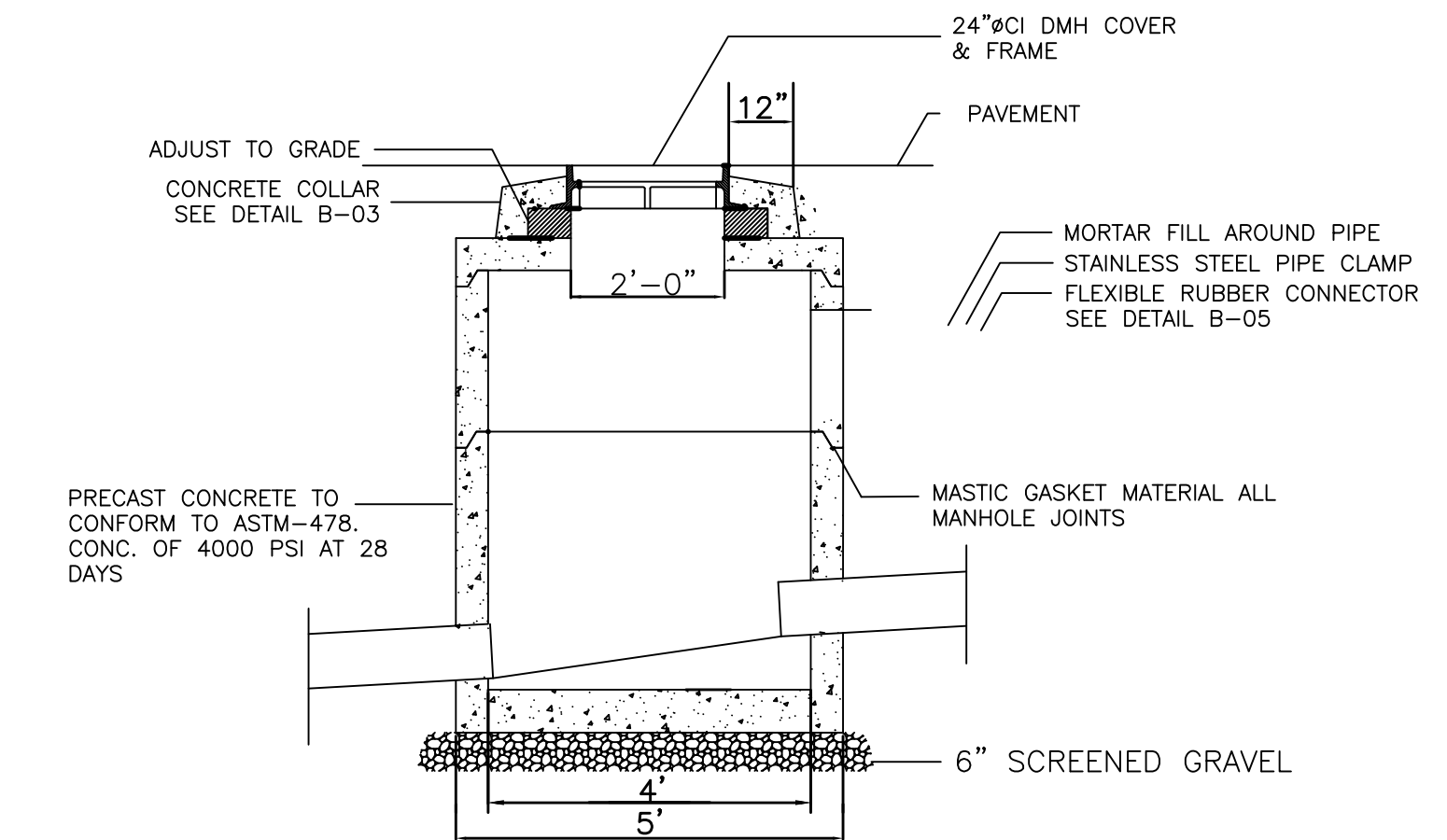
MANIFOLD DETAIL



PLAN VIEW
TOP SLAB NOT SHOWN

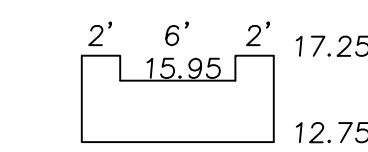


TYPICAL CATCH BASIN

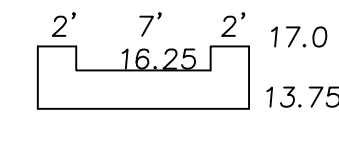


TYPICAL MAN HOLE

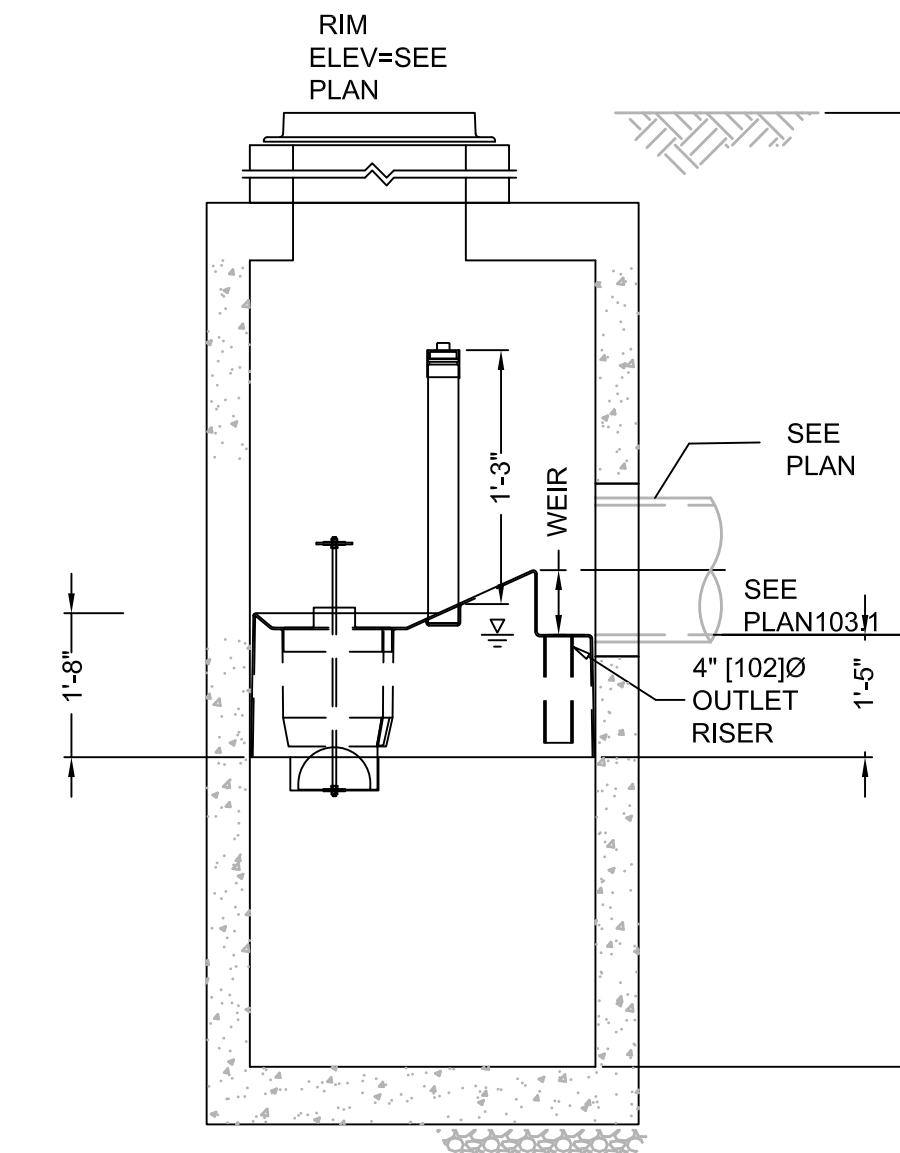
STORM EVENT	PEAK ELEVATIONS		
	INFILTRATION SYSTEM	DETENTION BASIN NO. 1	DETENTION BASIN NO. 2
2yr	16.73	14.43	14.78
10yr	17.42	14.90	14.94
25yr	17.81	15.20	15.05
100yr	18.07	15.85	15.22



BASIN 1 OVERFLOW CONTROL



BASIN 2 OVERFLOW CONTROL

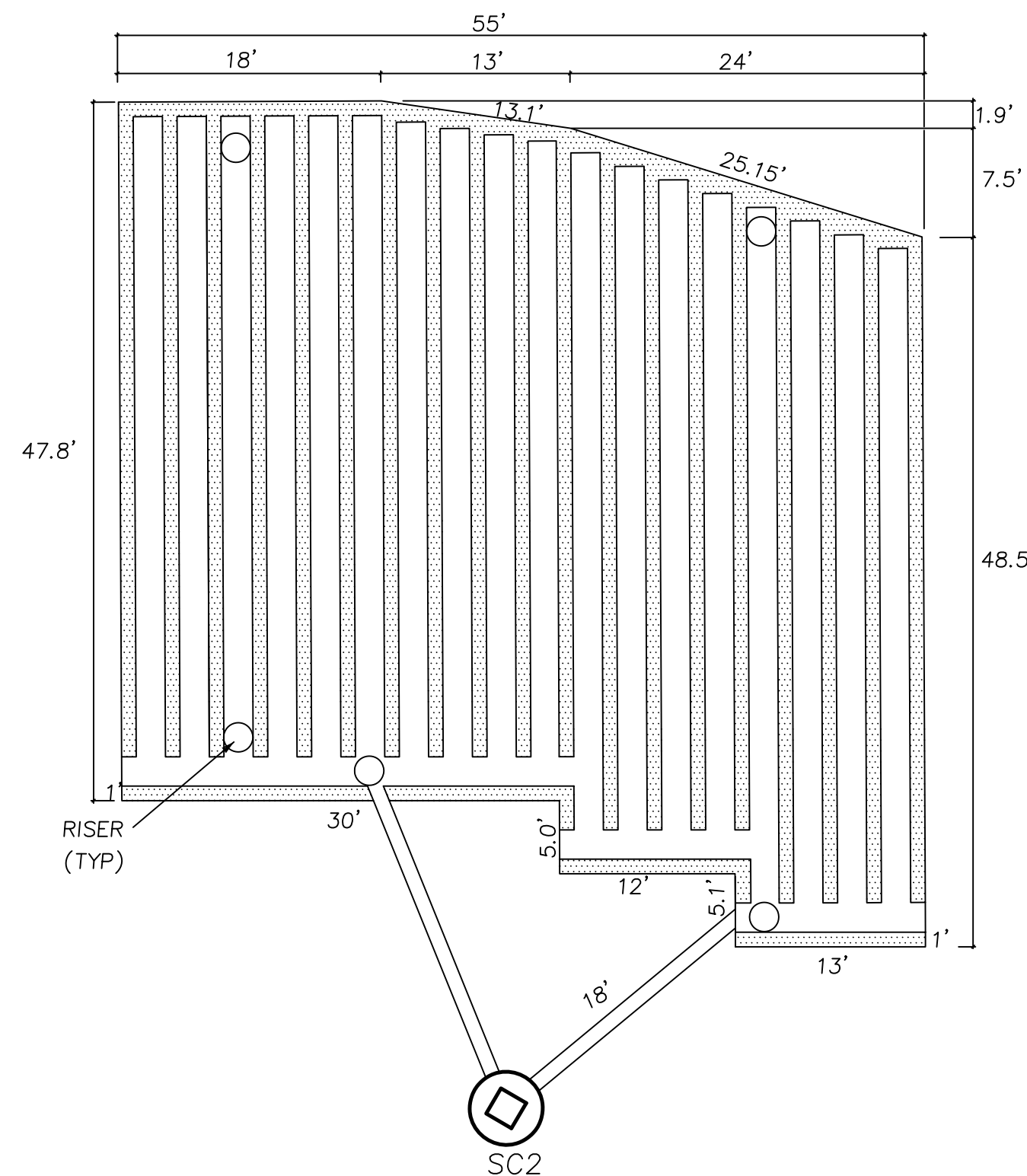


SECTION A-A

HYDRO DYNAMIC SEPARATORS

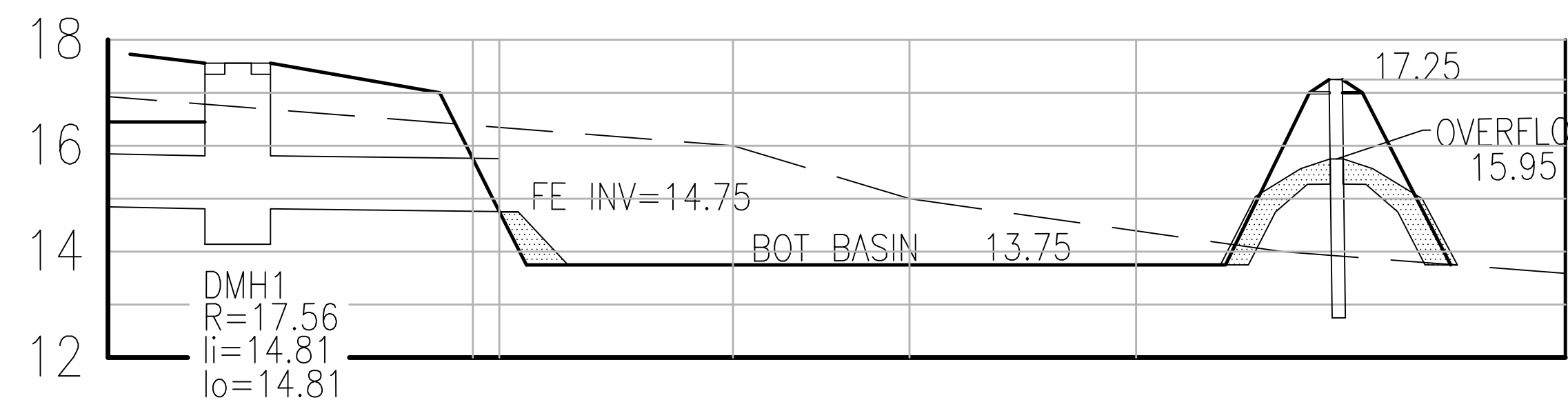
HYDRO-DYNAMIC SEPARATORS BY:
CONTECH ENGINEERED SOLUTIONS
CONTACT: DAVE ADAMS 207-885-6191

STRUCTURE	MODEL
SC1	STC 450i

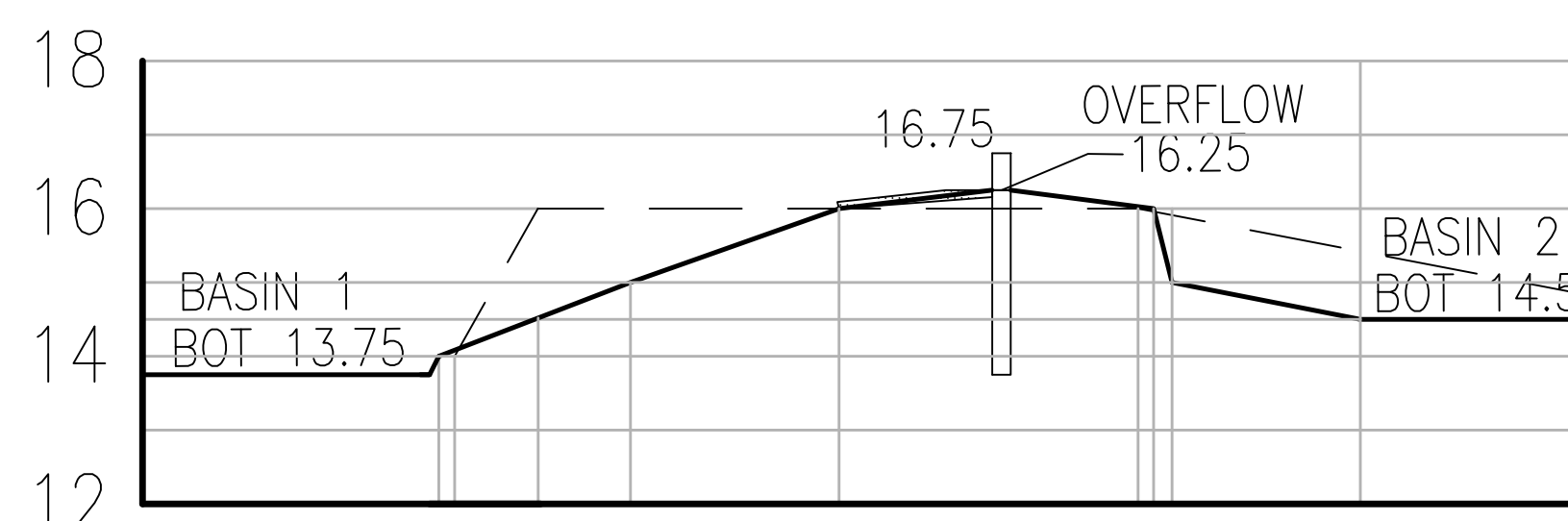


INFILTRATION SYS. PLAN

1" = 10'

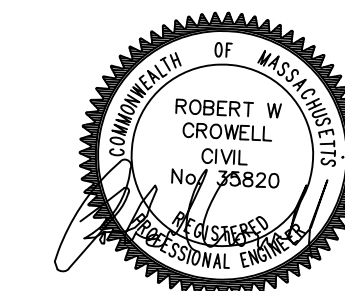


BASIN 1 X-SECTION



BASIN 2 TO BASIN 1 TRANSITION X-SECTION

DRAINAGE
DETAIL PLAN
THE WINSOR
at
MILLBROOK VILLAGE
DUXBURY, MA
PREPARED FOR
THE WINSOR
at
MILLBROOK VILLAGE LLC



CROWELL ENGINEERING
981 LONG POND ROAD
PLYMOUTH, MA 02360
774-283-0443

Δ#	REVISIONS PER:	DATE:	DATE ISSUED:	7/18/22	DRAWING NAME:
1	SUBMIT TO ZBA	6-15-23	DWG. SCALE: AS NOTED DRAWN BY: BC REVIEWED BY: PROJECT NO:		DRAINAGE DETAIL PLAN 11
2	REVIEW ENGINEER	7-5-23			
3	REVIEW ENGINEER	9-12-23			
4	REVIEW ENGINEER	9-22-23			

