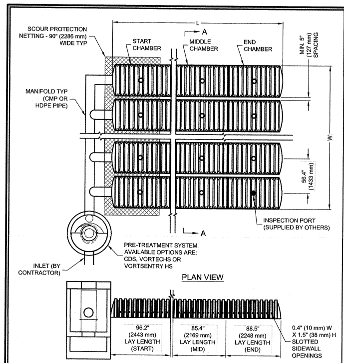


TYPICAL LAYOUT

CHAMBERMAXX DESIGN DETAILS

FEATURE	START CHAMBER	MIDDLE CHAMBER	END CHAMBER
OVERALL CHAMBER HEIGHT - IN (mm)	30.3 (770)	30.3 (770)	30.3 (770)
OVERALL CHAMBER WIDTH - IN (mm)	51.4 (1306)	51.4 (1306)	51.4 (1306)
ACTUAL LENGTH - IN (mm)	98.4 (2500)	91.0 (2311)	92.0 (2337)
INSTALLED LAY LENGTHS - IN (mm)	96.2 (2443)	85.4 (2169)	88.5 (2248)
CHAMBER STORAGE VOLUME - CF (m³)	52.5 (1.49)	49.3 (1.39)	48.2 (1.36)
CHAMBER STORAGE PER LINEAR FOOT - CF/LF (m³/m)	6.5 (0.604)	6.9 (0.641)	6.5 (0.604)
*MIN. INSTALLED CHAMBER VOLUME - CF (m³)	78.7 (2.23)	76.7 (2.17)	76.1 (2.15)
*MIN. INSTALLED CHAMBER VOLUME PER LINEAR FOOT - CF/LF (m³/m)	9.8 (0.910)	10.8 (1.003)	10.3 (0.957)
CHAMBER WEIGHT - LB (kg)	85 (38.55)	77 (34.92)	76 (34.47)

*6" (152 mm) OF STONE ABOVE AND BELOW CHAMBER, 5" (127 mm) CHAMBER SPACING AND 40% POROSITY

* SITE SPECIFIC DATA REQUIREMENTS	
FOR DETAILED DESIGN ASSISTANCE REFERENCE CHAMBERMAXX DYODS (DESIGN YOUR OWN DETENTION SYSTEM) SOFTWARE AND CHAMBERMAXX STAGE STORAGE CALCULATOR @ WWW.CONTECHSTORMWATER.COM	
TOTAL REQUIRED STORAGE VOLUME (CF OR m³)	
DEPTH TO INVERT BELOW ASPHALT (FT OR m)	
LIMITING WIDTH (FT OR m)	
LIMITING LENGTH (FT OR m)	
POROUS STONE ABOVE CHAMBER (IN OR mm)	
POROUS STONE BELOW CHAMBER (IN OR mm)	
STONE POROSITY (0 TO 40%)	
MANIFOLD SYSTEM DIAMETER (IN OR mm)	
* PER ENGINEER OF RECORD	

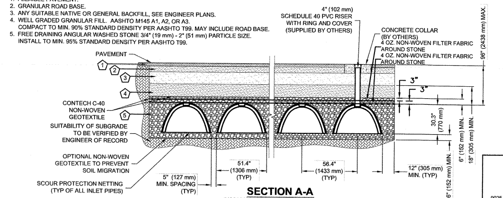
GENERAL NOTES

1. ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS SHALL BE VERIFIED BY THE ENGINEER OF RECORD.
2. PRIOR TO INSTALLATION OF THE CHAMBERMAXX SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE SYSTEM, THE GENERAL CONTRACTOR, SUB-CONTRACTORS AND THE ENGINEER.
3. CHAMBERMAXX CHAMBERS ARE MANUFACTURED FROM POLYPROPYLENE PLASTIC.
4. CHAMBERMAXX SYSTEM TO MEET AASHTO HS20/HS25 LIVE LOADING, PER AASHTO LRFD SECTION 12.
5. ACCESS COVERS TO MEET AASHTO HS20/HS25 LIVE LOADING.
6. MINIMUM COVER IS 18-INCHES (457 mm) AND MAXIMUM COVER IS 96-INCHES (2438 mm) TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. FOR COVER HEIGHTS GREATER THAN 96-INCHES (2438 mm) CONTACT YOUR LOCAL REPRESENTATIVE.
7. ALL PARTS PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.
8. FOR INFORMATION ON PRE-TREATMENT SYSTEMS, REFERENCE CONTECH PRE-TREATMENT SYSTEM STANDARD DETAILS OR CONTACT YOUR LOCAL REPRESENTATIVE.
9. CHAMBERMAXX BY CONTECH CONSTRUCTION PRODUCTS (800) 925-5240

INSTALLATION NOTES

1. CHAMBERMAXX INSTALLATION GUIDE TO BE REVIEWED BY CONTRACTOR PRIOR TO INSTALLATION.
2. PRIOR TO PLACING BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, A TENSAR BX GEOGRID SHALL BE UTILIZED OR UNSUITABLE MATERIAL SHALL BE REMOVED AND BROUGHT BACK TO GRADE WITH FILL MATERIAL AS APPROVED BY THE ENGINEER OF RECORD. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE BEDDING MATERIAL CAN BE PLACED.
3. THE SCOUR PROTECTION NETTING TO EXTEND 1'-0" (305 mm) BEYOND OUTSIDE EDGE OF INLET CHAMBERS.
4. COVER ANY OPEN VOID SPACES GREATER THAN ¾" (19 mm) ON CHAMBERS WITH A NON-WOVEN GEOTEXTILE TO PREVENT INFILTRATION OF BACKFILL MATERIAL.
5. STONE EMBEDMENT MATERIAL SHALL BE INSTALLED TO 95% STANDARD PROCTOR DENSITY AND PLACED IN 6-INCH (152 mm) TO 8-INCH (203 mm) LIFTS SUCH THAT THERE IS NO MORE THAN A TWO LIFT DIFFERENTIAL BETWEEN ANY OF THE CHAMBERS AT ANY TIME. GRANULAR BACKFILL MATERIAL SHALL BE COMPACTED TO 90% SPD. BACKFILLING SHALL BE ADVANCED ALONG THE LENGTH OF THE CHAMBER ROWS AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING AND DISPLACEMENT OF THE CHAMBERS. THE MINIMUM CHAMBER SPACING MUST BE MAINTAINED.
6. REFER TO CHAMBERMAXX INSTALLATION GUIDE FOR TEMPORARY CONSTRUCTION LOADING GUIDELINES.
7. IT IS ALWAYS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.
8. GENERAL INSTALLATION METHODS AND MATERIALS TO BE IN ACCORDANCE WITH ASTM D2321.

KEY
1. FLEXIBLE PAVEMENT.
2. GRANULAR ROAD BASE.
3. ANY SUITABLE NATIVE OR GENERAL BACKFILL, SEE ENGINEER PLANS.
4. WELL GRADED GRANULAR FILL. AASHTO M145 A1, A2, OR A3. COMPACT TO MIN. 90% STANDARD DENSITY PER AASHTO T99. MAY INCLUDE ROAD BASE.
5. FREE DRAINING ANGULAR WASHED STONE 3/4" (19 mm) - 2" (51 mm) PARTICLE SIZE. INSTALL TO MIN. 95% STANDARD DENSITY PER AASHTO T99.



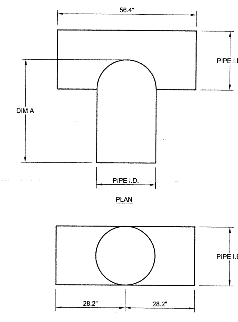
SECTION A-A
(HS20/HS25 LIVE LOAD) PER AASHTO 12

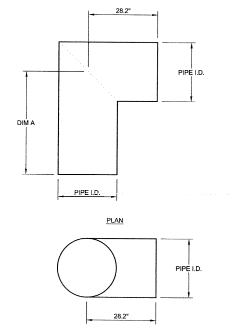
CHAMBERMaxx® PATENT PENDING

CONTECH® CONSTRUCTION PRODUCTS INC.
www.contech-cpi.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CHAMBERMAXX STORMWATER RETENTION STANDARD DETAIL PRE-TREATMENT STRUCTURE OPTION

CONTECH® STANDARD CHAMBERMAXX
NOT TO SCALE





STANDARD MANIFOLD COMPONENTS				
	AVAILABLE DIAMETERS (IN)			
TEE	12	15	18	24
ELBOW	12	15	18	24
DIM A	42	42	48	48

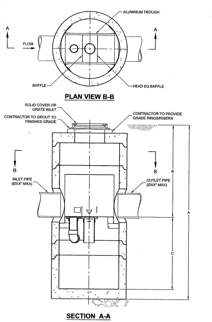
GENERAL NOTES:
1. FITTING MATERIAL TO BE MANUFACTURED FROM CORRUGATED HIGH DENSITY POLYETHYLENE, AASHTO M294 PIPE.
2. FITTINGS TO BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO M294.
3. FITTINGS DESIGNED TO PROTRUDE 6" INTO END OF THE INLET CHAMBERS.
4. MANIFOLD TEE AND ELBOW JOINTS TO BE CONNECTED UTILIZING MAR MAC POLYSEAL COUPLERS. REFERENCE WWW.MARMAC.COM

CHAMBERMaxx™ PATENT PENDING

CONTECH® STANDARD MANIFOLD COMPONENTS
NOT TO SCALE

CONTECH® STORMWATER SOLUTIONS contechstormwater.com

CHAMBERMAXX STORMWATER RETENTION SYSTEM STANDARD MANIFOLD DETAILS



VortSentry

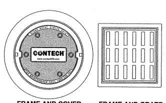
VORTSENTRY HS DESIGN NOTES

VSHS RATED TREATMENT CAPACITY IS SHOWN IN THE TABLE BELOW, OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY VARIES. CONTACT YOUR CONTECH REPRESENTATIVE FOR ADITIONAL INFORMATION.

THE STANDARD SOLID COVER CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW.

	CONFIGURATION OPTION DESCRIPTION
	GRATE INLET (NO INLET PIPE)
	GRATE INLET WITH INLET PIPE

VortSentry Model	Manhole Diameter (ID)		Total Treatment Flow Rate		Typical Total Distance Rim to Outside Bottom A		Typical Distance Rim to Invert B		Typical Depth Below Invert (Inside) C		Approximate Minimum Distance Rim to Invert		Maximum Pipe Diameter (ID)	
	ft	mm	cfs	l/s	ft	m	ft	m	ft	mm	ft	m	in	mm
HS36	3	900	0.55	15.6	10.16	3.10	4.08	1.24	5.58	1702	3.00	0.91	18	450
HS48	4	1200	1.20	34.0	13.25	4.04	6.00	1.83	6.75	2057	4.00	1.22	24	600
HS60	5	1500	2.20	62.3	15.13	4.61	6.50	1.98	7.96	2426	4.82	1.47	30	750
HS72	6	1800	3.70	104.8	16.56	5.05	6.75	2.06	9.15	2788	5.59	1.70	36	900
HS84	7	2100	5.60	158.6	18.85	5.75	7.75	2.36	10.35	3156	5.00	1.52	42	1050
HS96	8	2400	8.10	229.4	20.87	6.36	8.50	2.59	11.54	3518	6.91	2.11	48	1200



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

FRAME AND GRATE
(24" SQUARE)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS)	*		
PEAK FLOW RATE (CFS)	*		
RETURN PERIOD OF PEAK FLOW (YRS)	*		
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION	*		
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	*	*	
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. VORTSENTRY HS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.

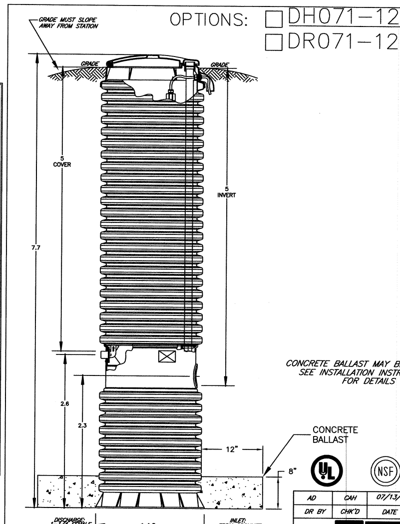
INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTSENTRY HS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH® ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

VORTSENTRY HS STANDARD DETAIL

CONTECH® VORTSENTRY HS
NOT TO SCALE

OPTIONS: ☐ DH071–124 (HARD WIRED LEVEL CONTROLS)
☐ DR071–124 (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS

AD	CAH	07/13/07	A	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

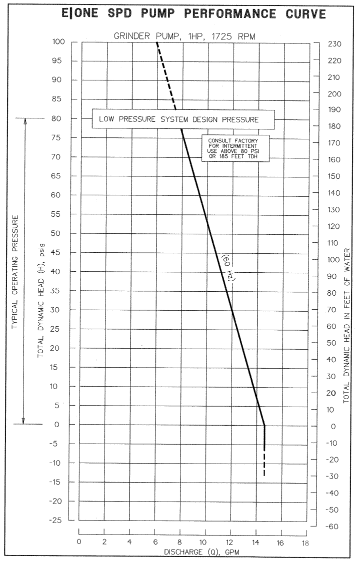
E|one SEWER SYSTEMS

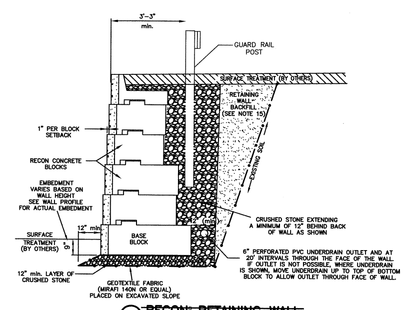
MODEL DH071-124 / DR071-124

NA0050P07

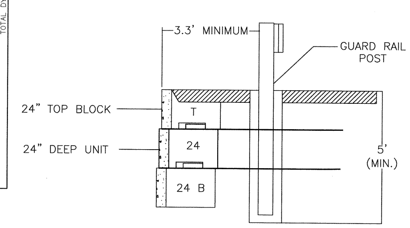
E|ONE® GRINDER PUMP
NOT TO SCALE

E|ONE SPD PUMP PERFORMANCE CURVE





~~RECON® RETAINING WALL~~
NOT TO SCALE



GUARD RAIL DETAIL
NOT TO SCALE

Prepared For:
Owner / Applicant
SEB/Wellesley 680, LLC
165 Chestnut Hill Ave. #2
Brighton, MA 01945

Prepared By:
Hayes Engineering, Inc.
603 Salem Street
Wakefield, MA 01880
Ph: 781.246.2800
Fax: 781.246.7596
www.hayeseng.com

Design By:
Drawn By: EBL
Checked By: WRB
Project File: WEL-0011
Comp. No: WEL10
☐ Issued For Permit
☐ Issued For Review
☐ Issued For Bid
☐ Issued For Construction
☐ Not For Construction

No.	Revision	Date
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

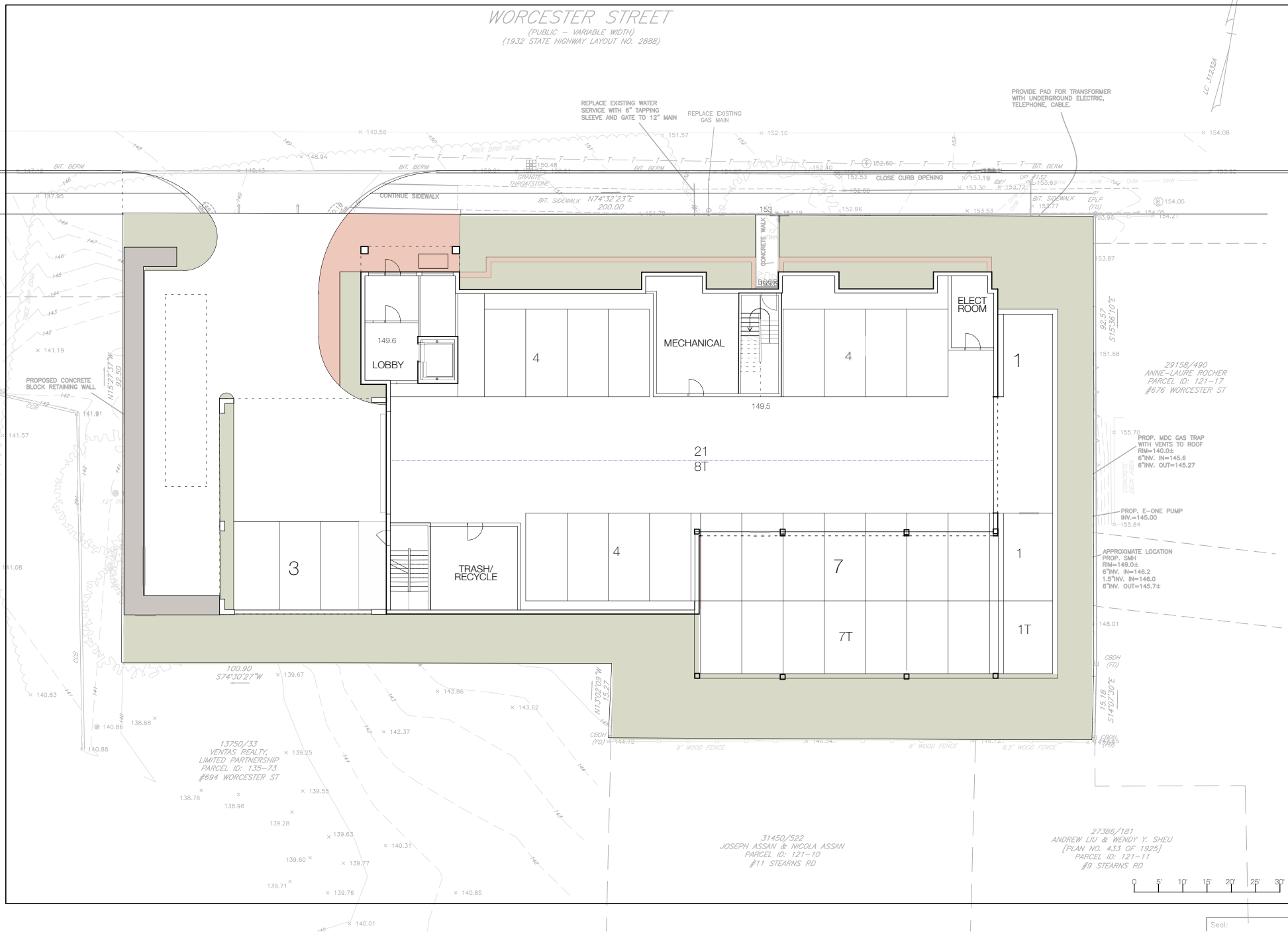
Scale: 1"=N.T.S.
Date: May 9, 2016

Drawing Title:
DETAIL SHEET
#680 WORCESTER STREET
CHAPTER 40B COMPREHENSIVE PERMIT
WELLESLEY, MASS.

Seal: COMMONWEALTH OF MASSACHUSETTS William R. Bergeron CIVIL No. 29464 REGISTERED PROFESSIONAL ENGINEER

Drawing No.:
C8

SHEET 8 OF 8



Grazado Velleco Architects
Little Harbor
Marblehead, MA 01945

SEB,LLC
165 Chestnut Hill Ave. #2
Brighton, MA 02135

680 Worcester Street
Wellesley, MA

GRADE
GARAGE LEVEL

DATE: 5.9.16
SCALE: 1/8"=1'-0"

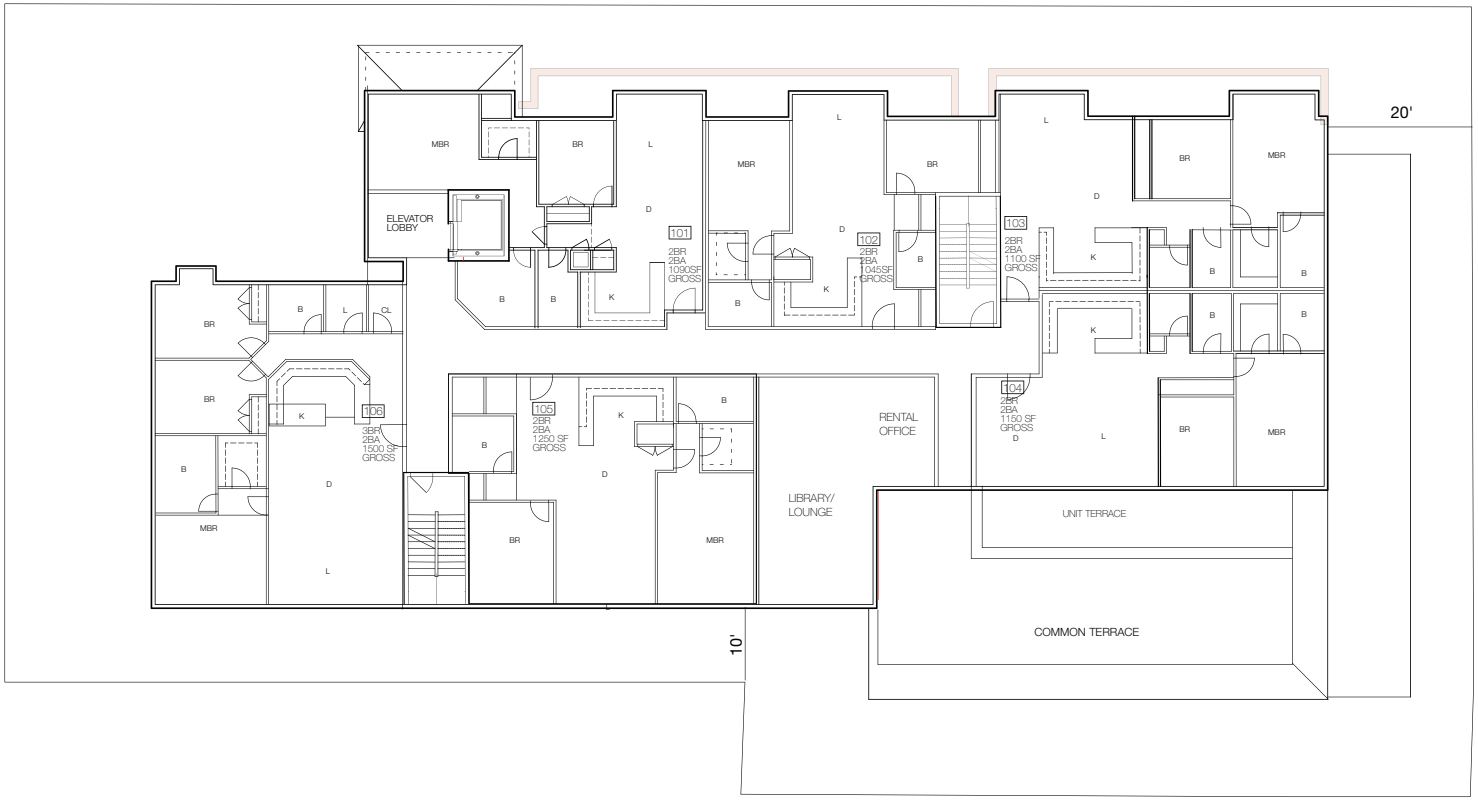
A1

WELLESLEY, MASS.

Date: May 4, 2016

Seal:

Drawing No.:



0 5' 10' 15' 20' 25' 30'

Grazado Velleco Architects
Little Harbor
Marblehead, MA 01945

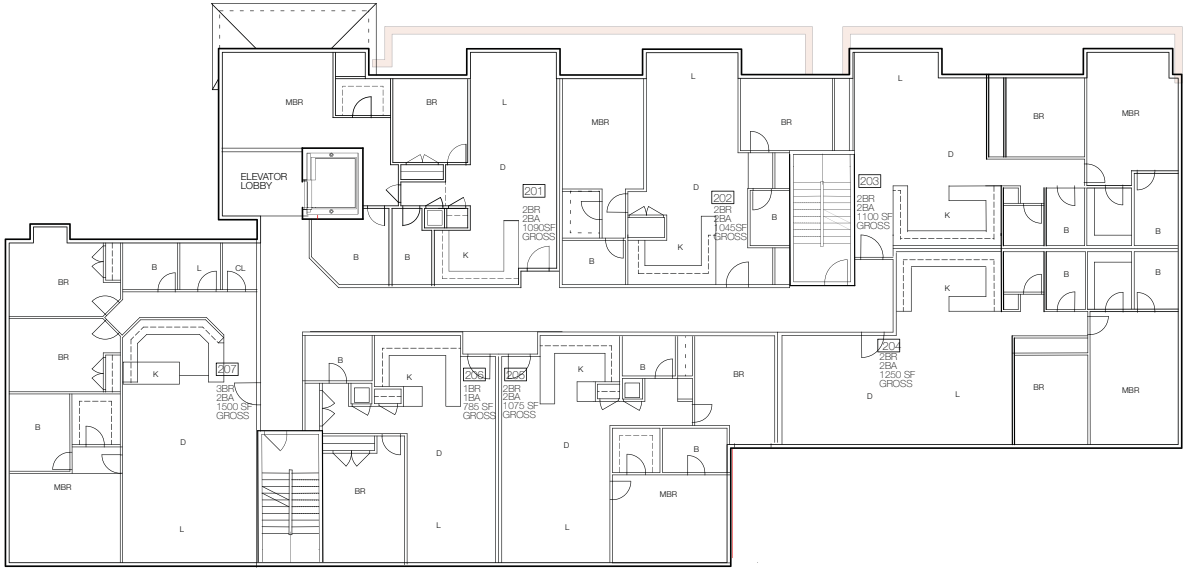
SEB,LLC
165 Chestnut Hill Ave. #2
Brighton, MA 02135

680 Worcester Street
Wellesley, MA

FIRST RESIDENTIAL LEVEL

DATE: 5.9.16
SCALE: 1/8"=1'-0"

A2



0 5' 10' 15' 20' 25' 30'

Grazado Velleco Architects
Little Harbor
Marblehead, MA 01945

SEB,LLC
165 Chestnut Hill Ave. #2
Brighton, MA 02135

680 Worcester Street
Wellesley, MA

SECOND
RESIDENTIAL LEVEL

DATE: 5.9.16
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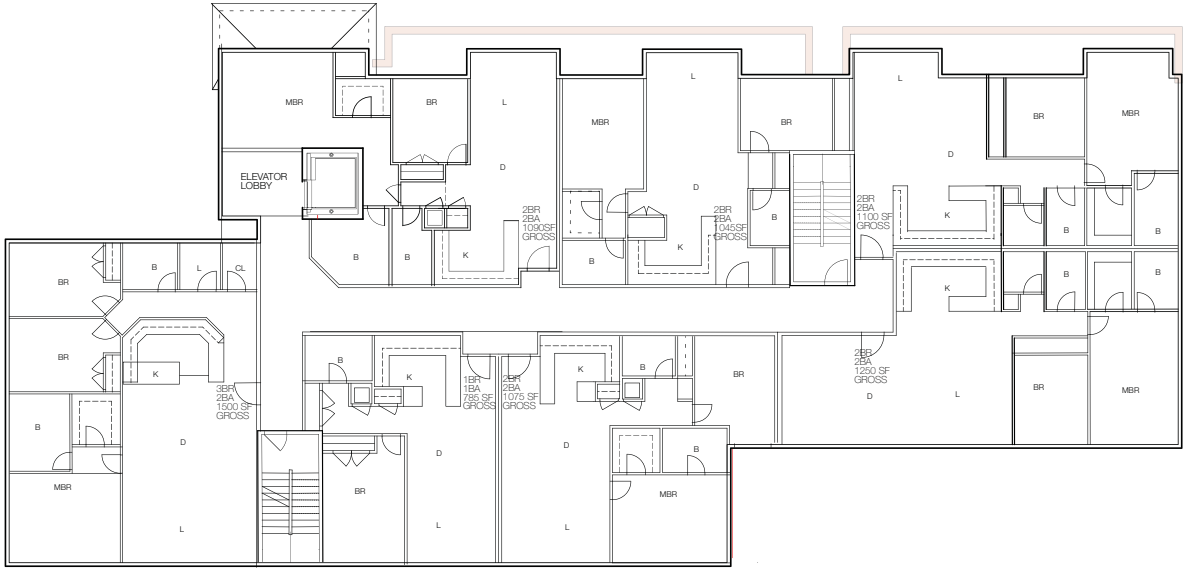
A3



0 5' 10' 15' 20' 25' 30'

Grazado Velleco Architects
Little Harbor
Marblehead, MA 01945

SEB,LLC
165 Chestnut Hill Ave. #2
Brighton, MA 02135

680 Worcester Street
Wellesley, MA

THIRD
RESIDENTIAL LEVEL

DATE: 5.9.16
SCALE: 1/8"=1' -0"

A4

East Elevation

North Elevation

0 5' 10' 15' 20' 25' 30'

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Little Harbor
Marblehead, MA 01945

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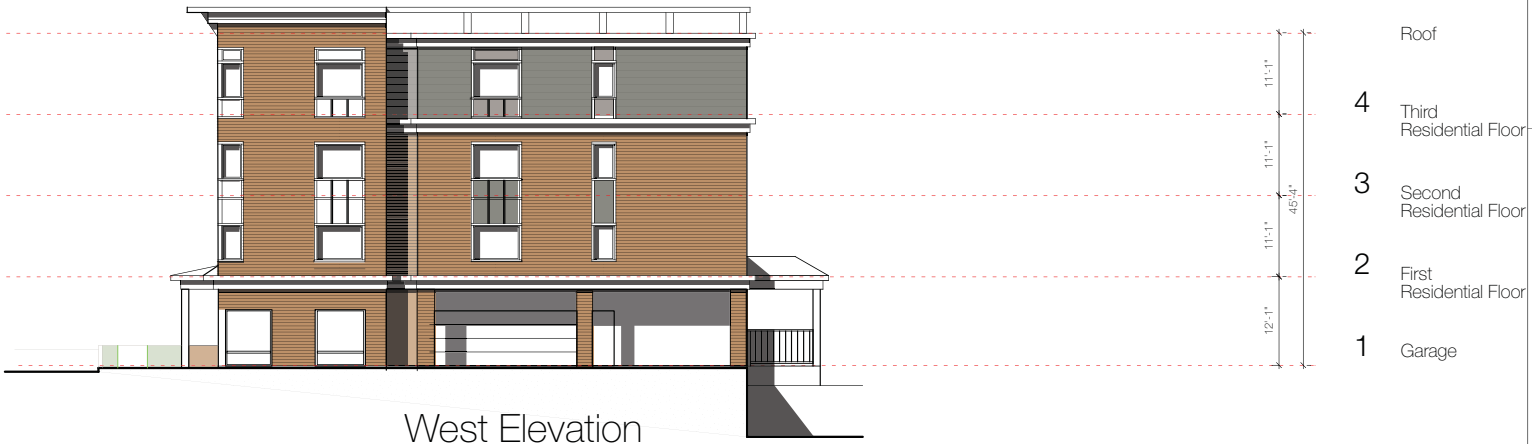
165 Chestnut Hill Ave. #2
Brighton, MA 02135

680 Worcester Street
Wellesley, MA

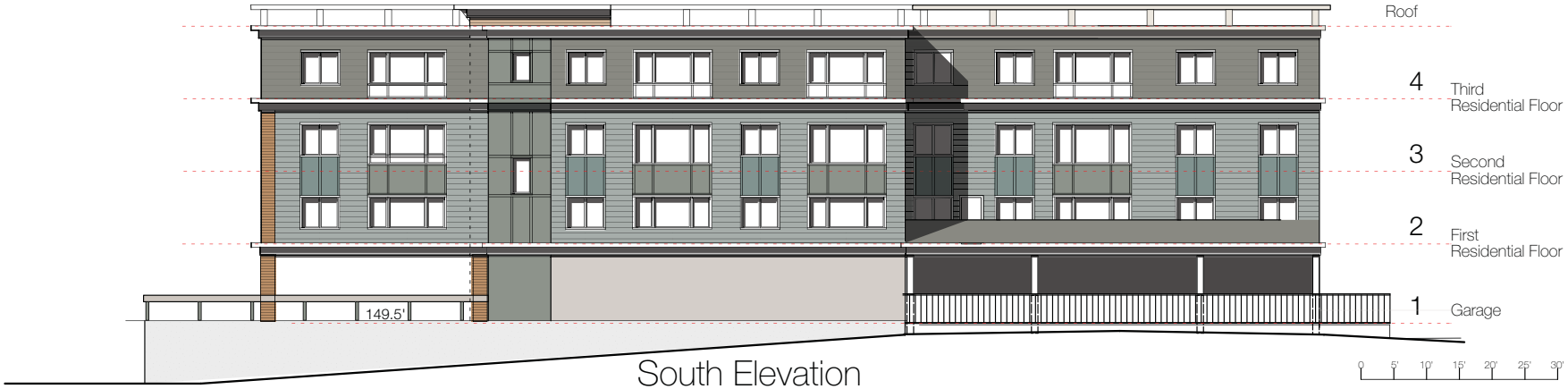
North and East Elevations

DATE: 5.9.16
SCALE: 1/8" = 1' -0"

A5



West Elevation



South Elevation

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Marblehead, MA 01945

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165 Chestnut Hill Ave. #2
Brighton, MA 02135

680 Worcester Street
Wellesley, MA

South and West Elevations

DATE: 5.9.16
SCALE: 1/8"=1'-0"

A6

A7	Street Level Sketch DATE: 5.9.16	680 Worcester Street Wellesley, MA	SEB,LLC 165 Chestnut Hill Ave. #2 Brighton, MA 02135	Grazado Velleco Architects Little Harbor Marblehead, MA 01945

A8	Aerial View DATE: 5.9.16	680 Worcester Street Wellesley, MA	SEB,LLC 165 Chestnut Hill Ave. #2 Brighton, MA 02135	Grazado Velleco Architects Little Harbor Marblehead, MA 01945