SITE DESIGN PLAN

FOR

357 GROVE STREET
BRAINTREE, MASSACHUSETTS

GENERAL NOTES:

1. EXISTING CONDITIONS DEPICTED WERE OBTAINED FROM A NEPONSET VALLEY SURVEY ASSOCIATES PLAN DATED JULY 7, 2017 AND SUPPLEMENTED WITH AERIAL MAPPING ON FILE WITH THE TOWN OF BRAINTREE ENGINEERING DEPARTMENT.
2. HORIZONTAL DATUM – NAD '83
   VERTICAL DATUM – NGVD '29
3. UTILITIES SHOWN HEREON WERE COMPILED FROM RECORD AND FIELD DATA. THEREFORE LOCATION IS ONLY APPROXIMATE. BEFORE CONSTRUCTION BEGINS DIGSAFE MUST BE NOTIFIED.
4. WETLANDS SHOWN ARE A RESULT OF A DELINEATION BY TUNISEN ENVIRONMENTAL CONSULTANTS, LLC.

EROSION CONTROL NOTES:

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A DAILY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

357 Grove Street, Braintree
Test Pit / Soil Log
Date: 12/23/19 Weather: Clouds, 30 degrees
Soil Evaluator: Shawn Hardy, P.E.

Test Pit #1

Depth (in)	Horizon	Soil Texture	Color	Notes
0-18	A	Loose Fill		
18-33	B	Sand		
33-58	C	Sand	10YR 5/4	

Notes: Cobbles with high gravel %
Weeping at 58"
Mottles at 58"

Test Pit #2

Depth (in)	Horizon	Soil Texture	Color	Notes
0-11	A	Loamy Sand		
11-22	B	Loam Sand	10YR 4/4	
22-52	C	Fine Sand	10YR 5/4	

Notes: Mottles at 42"
Weeping at 52"

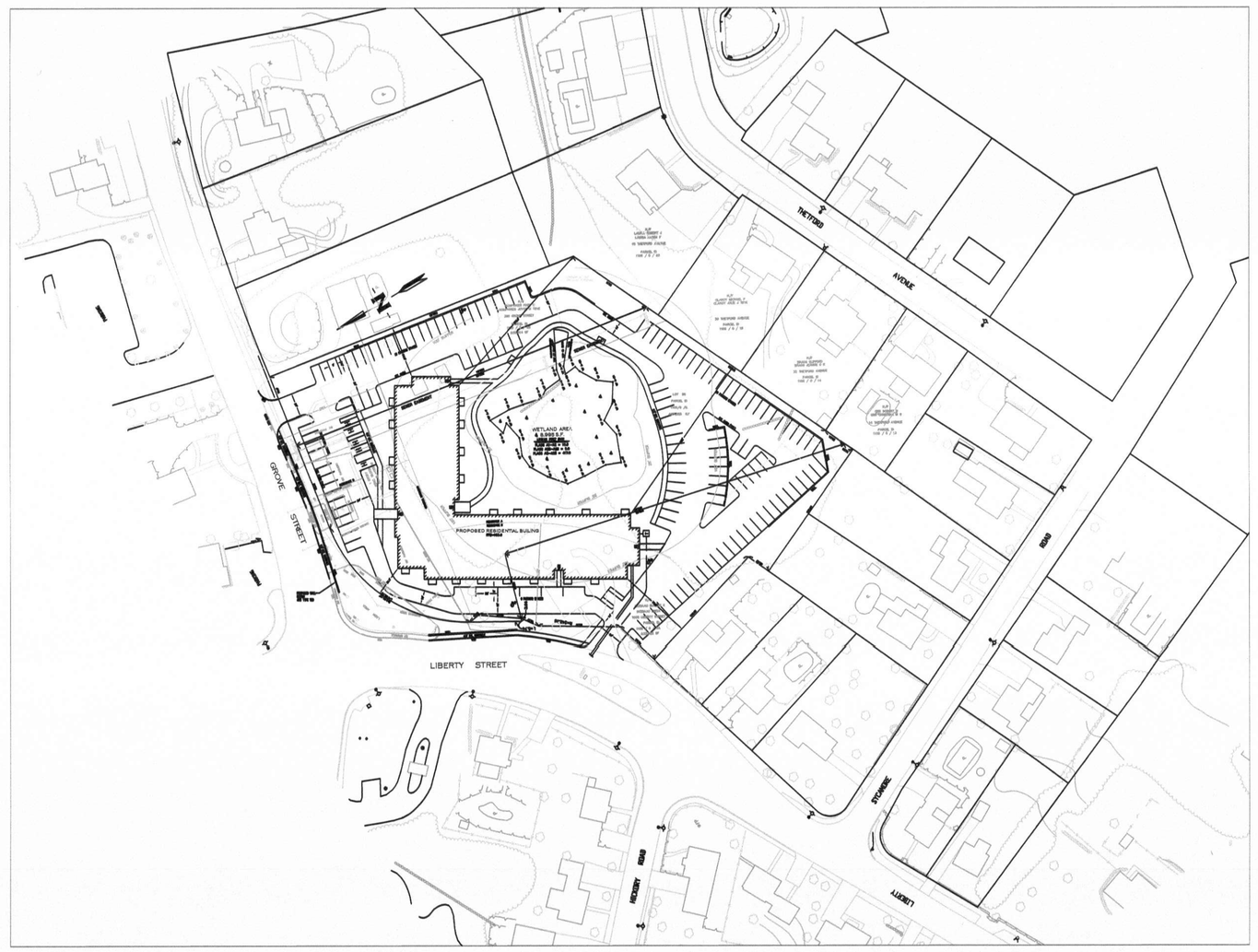
Test Pit #3

Depth (in)	Horizon	Soil Texture	Color	Notes
0-40	Fill	Fill		
40-53	z			
53-97	C	Fine Sand, no gravel with clay-firm		
97-115	C2	Fine Sand with gravel	10YR 5/3	

Notes: Weeping at 53"

INDEX OF CIVIL PLANS

SHEET NO.	TITLE	SCALE
C-1	COVER SHEET/GENERAL NOTES	AS NOTED
EX-1	EXISTING CONDITIONS PLAN	1' = 20'
C-2	LAYOUT AND UTILITY PLAN	1' = 20'
C-3	GRADING AND DRAINAGE PLAN	1' = 20'
C-4	EROSION CONTROL PLAN	1' = 20'
C-5	SITE DETAILS	AS NOTED



LOCUS
1"=100'

PARKING SUMMARY TABLE

ZONING ITEM	REQUIRED	PROPOSED
96 RESIDENTIAL UNITS	146	146
NUMBER OF HANDICAPPED SPACES	5	5

DIMENSIONAL REQUIREMENTS

ZONING ITEM	RES A	RES B	GBD	PROPOSED
MIN. LOT WIDTH (FT)	125	100	100	408.2
MIN. LOT DEPTH (FT)	120	100	100	520.7
MIN. LOT FRONTAGE (FT)	75	50	100	549.23
MIN. YARD – FRONT (FT)	20	20	10	31.3
MIN. YARD – SIDE (FT)	10	10	10	53.0
MIN. YARD – REAR (FT)	30	30	20	174.3
MAX. BUILDING HEIGHT (FT)	35	35	50	62.0
MAX. # OF STORIES	3	3	3	4
% OF BUILDING COVERAGE (%)	35	35	70	16.4%
% OF LOT COVERAGE (%)	70	70	90	55.6%
% OF OPEN SPACE (%)	30	30	10	44.4%
OPEN SPACE AREA/UNIT (SF)	N/A	N/A	N/A	676.7

ZONING:
RES A/RES B/GBD

RECORD OWNER:
EUGENE AND LINDA MCISAAC
PARCEL ID 1109/0/6A

FRED AND JOYCE HUMPHRIES
PARCEL ID 1109/0/6B

LIBERTY GROVE LLC
PARCEL ID 1109/0/6

COMMONWEALTH OF MASSACHUSETTS
SHAWN P. HARDY
No. 41650
REGISTERED PROFESSIONAL ENGINEER

SHAWN P. HARDY, P.E.

REVISIONS:		
NO.:	COMMENTS:	DATE:

General Notes & Locus
357 GROVE STREET
BRAINTREE, MASSACHUSETTS

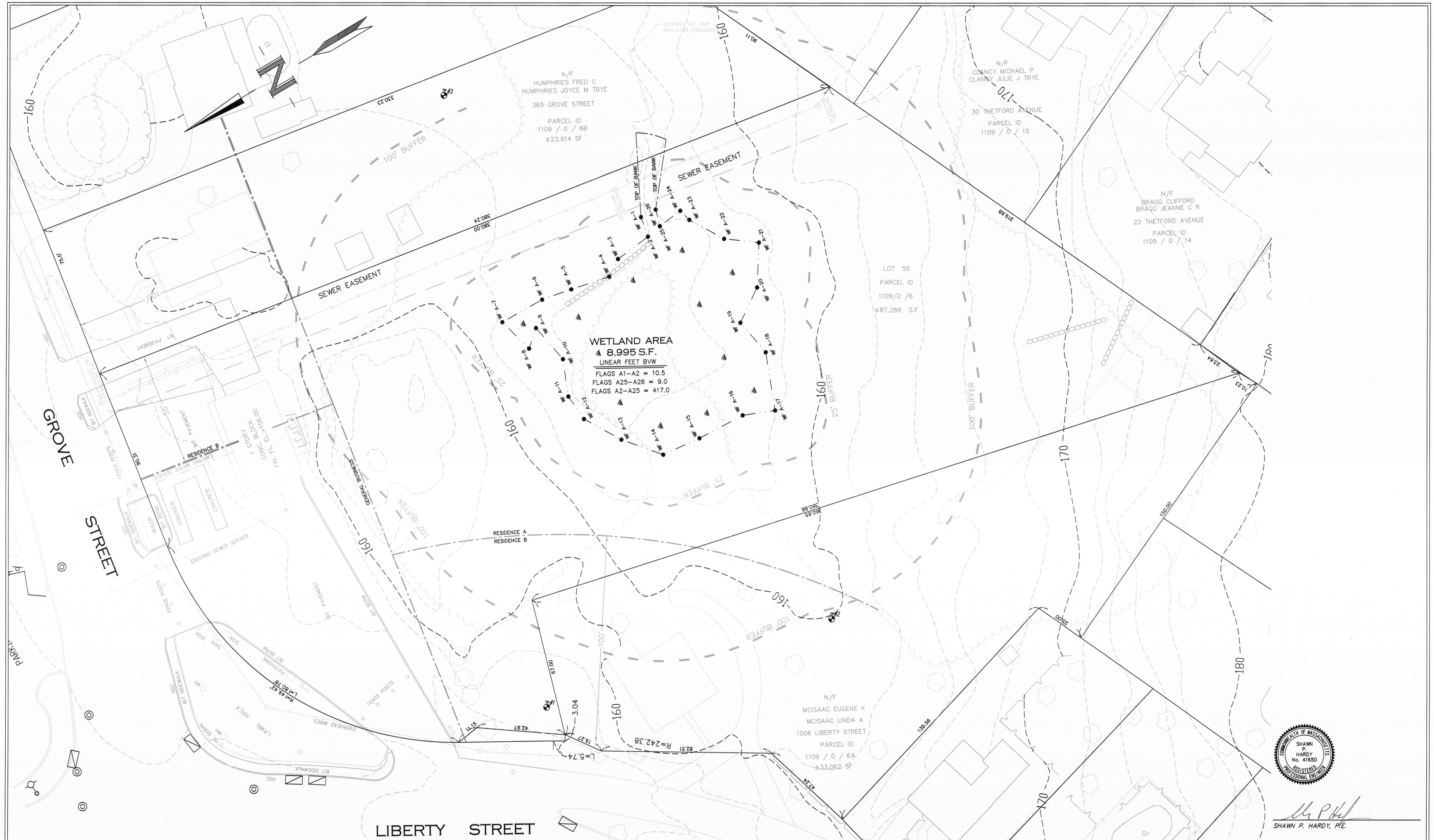
DRAWN BY: JABI
DESIGNED BY: SPH
CHECKED BY: CYM
DATE: 1-20-2020
LATEST REVISION:

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING

1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464

PREPARED FOR:
Permitting

SHEET
C-1



REVISIONS:		
NO.:	COMMENTS:	DATE:

Existing Conditions Plan
357 GROVE STREET
BRAINTREE, MASSACHUSETTS

DRAWN BY: JABI
DESIGNED BY: SPH
CHECKED BY: CYM

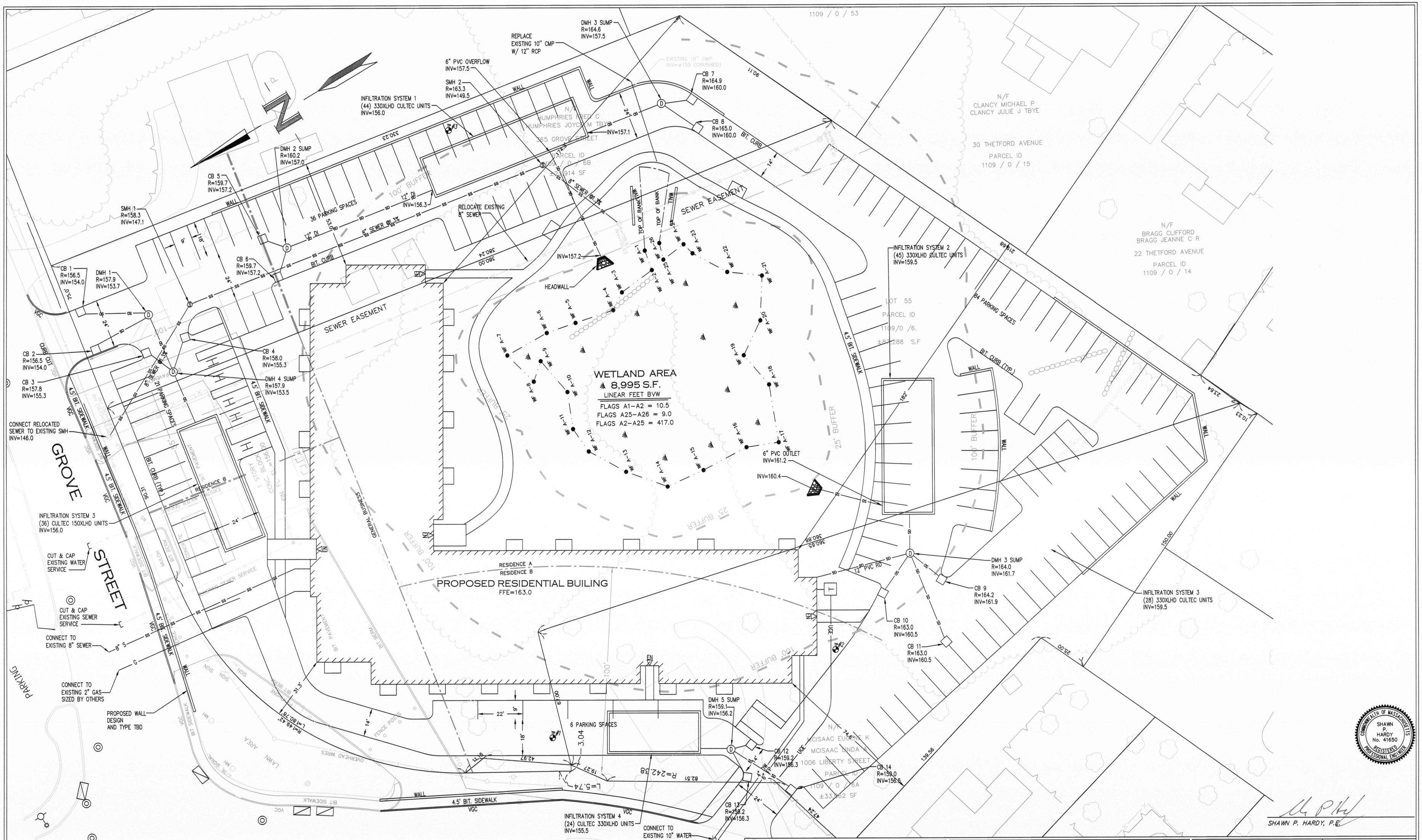
DATE: 1-20-2020
LATEST REVISION:

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING

1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464

PREPARED FOR:
Permitting

SHEET
EX-1



SHAWN P. HARDY, P.E.

COMMONWEALTH OF MASSACHUSETTS
SHAWN P. HARDY
No. 41650
REGISTERED PROFESSIONAL ENGINEER

REVISIONS:		
NO.:	COMMENTS:	DATE:

Layout & Utility Plan
357 GROVE STREET
BRAINTREE, MASSACHUSETTS

DRAWN BY: JABI
DESIGNED BY: SPH
CHECKED BY: CYM

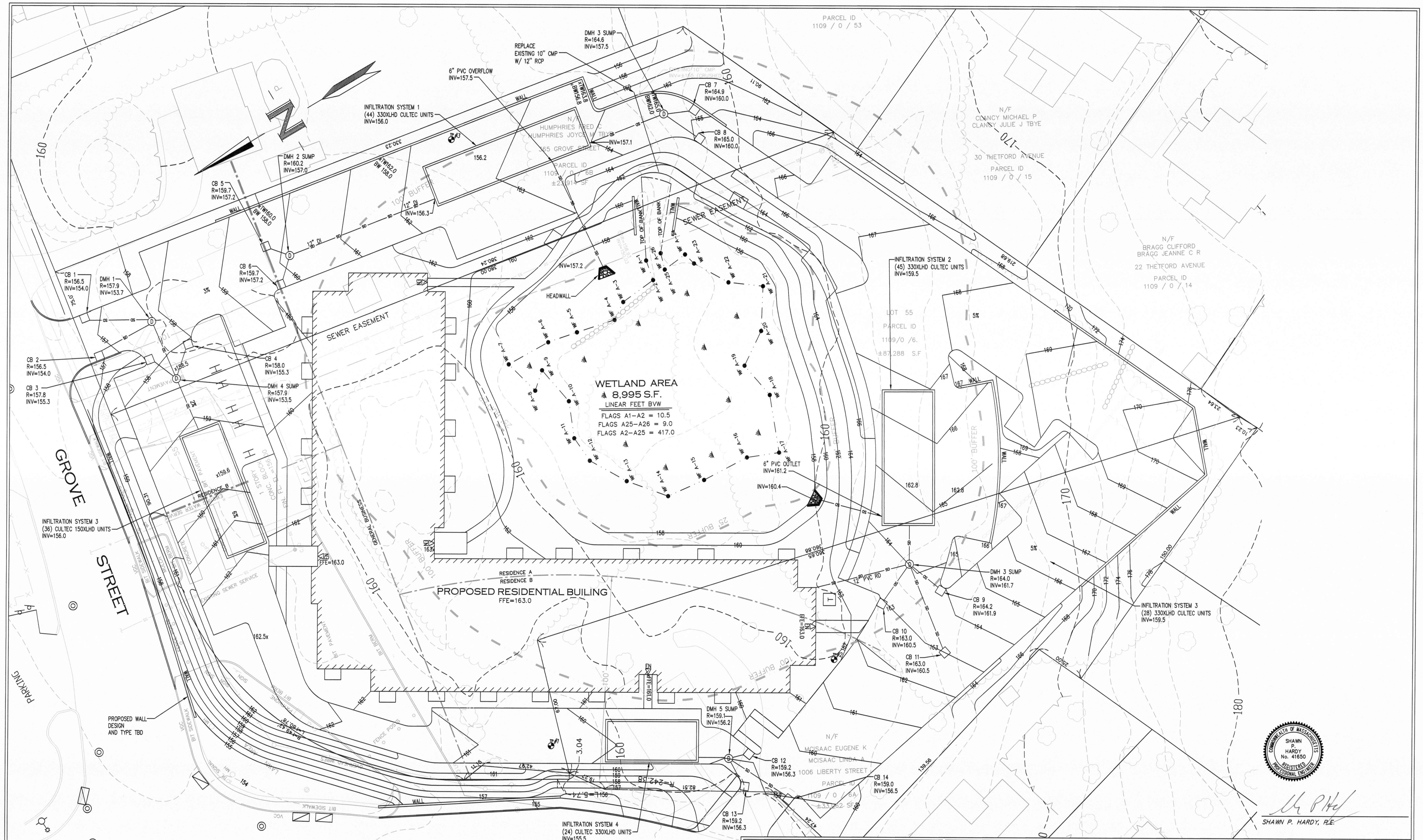
DATE: 1-20-2020
LATEST REVISION:

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & DEVELOPMENT CONSULTING

1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464

PREPARED FOR:
Permitting

SHEET
C-2



REVISIONS:		
NO.:	COMMENTS:	DATE:

Grading and Drainage Plan
357 GROVE STREET
BRAINTREE, MASSACHUSETTS

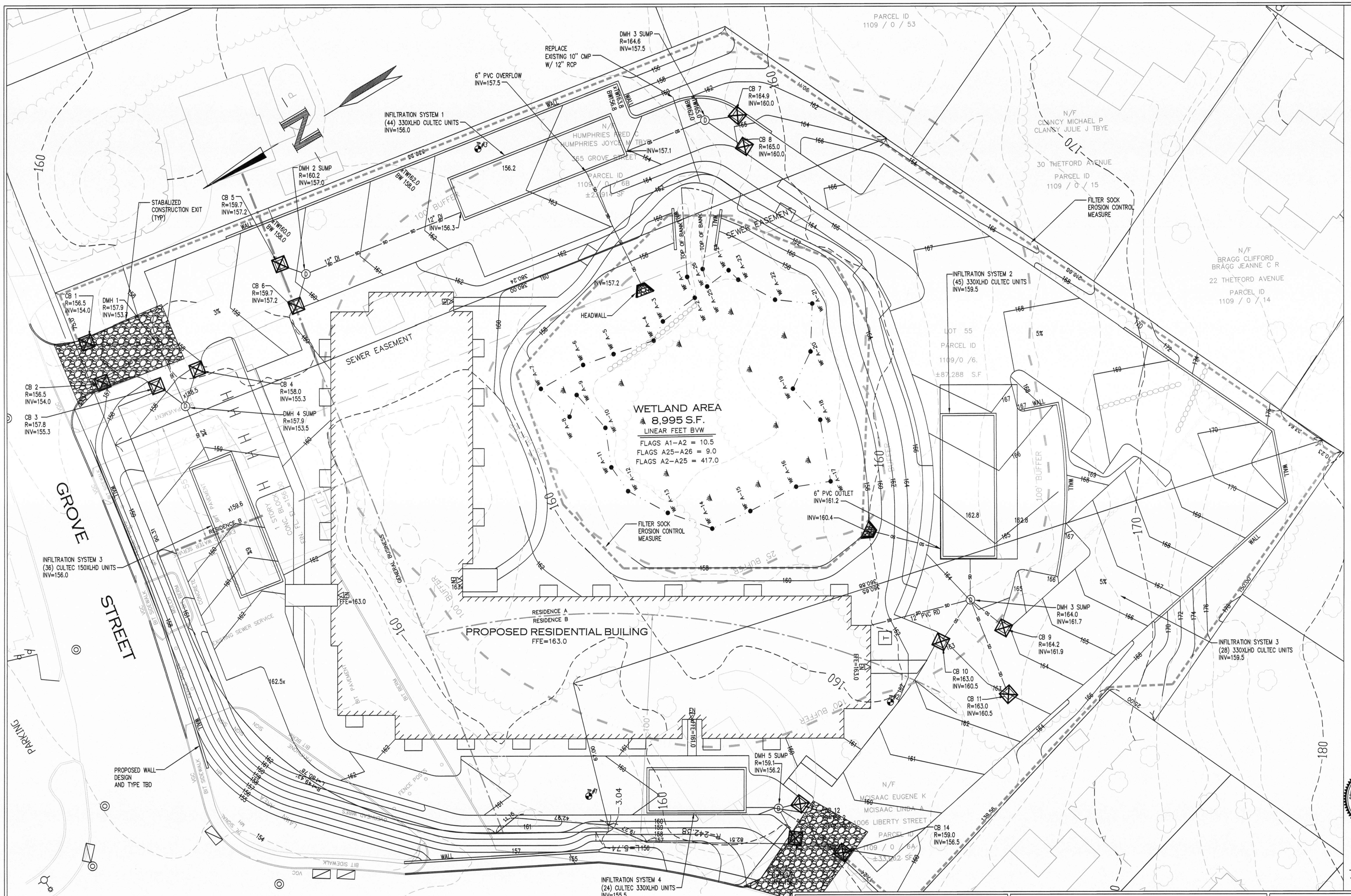
DRAWN BY: JABI
DESIGNED BY: SPH
CHECKED BY: CYM

DATE: 1-20-2020
LATEST REVISION:

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING
1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464

PREPARED FOR:
Permitting

SHEET
C-3



COMMONWEALTH OF MASSACHUSETTS
SHAWN P. HARDY
No. 41650
REGISTERED PROFESSIONAL ENGINEER

SHAWN P. HARDY, P.E.

REVISIONS:		
NO.:	COMMENTS:	DATE:

Erosion Control Plan
357 GROVE STREET
BRAINTREE, MASSACHUSETTS

DRAWN BY: JABI
DESIGNED BY: SPH
CHECKED BY: CYM

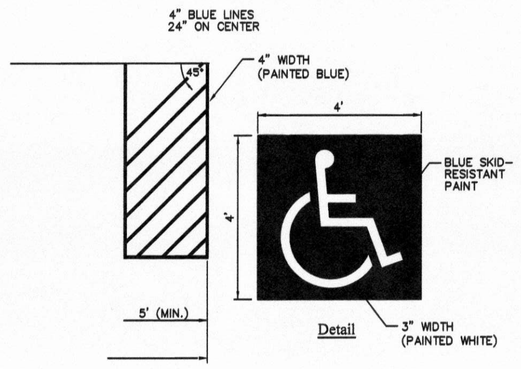
DATE: 1-20-2020
LATEST REVISION:

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING

1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464

PREPARED FOR:
Permitting

SHEET
C-4



Notes:

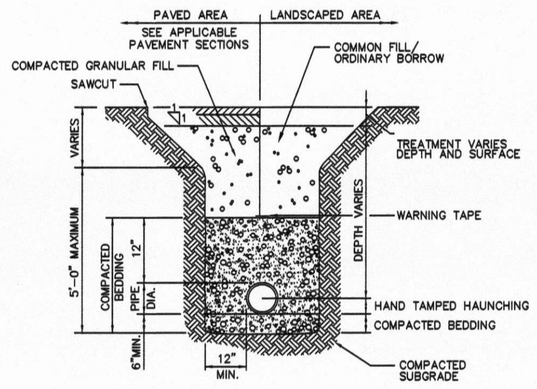
ALL DIMENSIONS TO EDGES OF 4" PAVEMENT STRIPING.

8' STALL WIDTH REFERS TO 8' CLEAR BETWEEN INSIDE EDGES OF PAVEMENT MARKINGS.

ALL SLOPES THROUGHOUT THE ACCESSIBLE PARKING AND AISLE AREAS SHALL NOT EXCEED 1.5%.

Accessible Parking Space

N.T.S.



Notes:

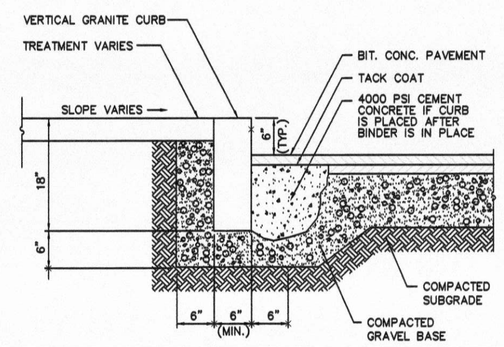
WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.

USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.

PAVEMENT SECTION TO CONFORM TO CITY OF NEWTON DEPARTMENT OF PUBLIC WORKS (DPW) SPECIFICATION.

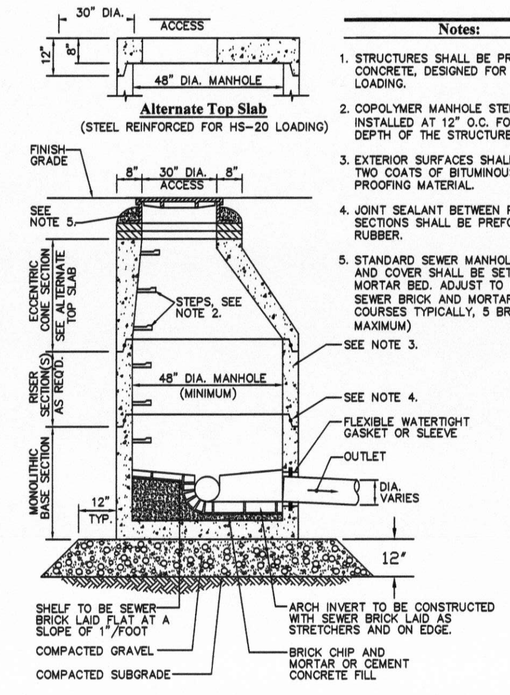
Utility Trench

N.T.S.



Vertical Granite Curb (VGC)

N.T.S. Source: VHB 6/12 LD_402

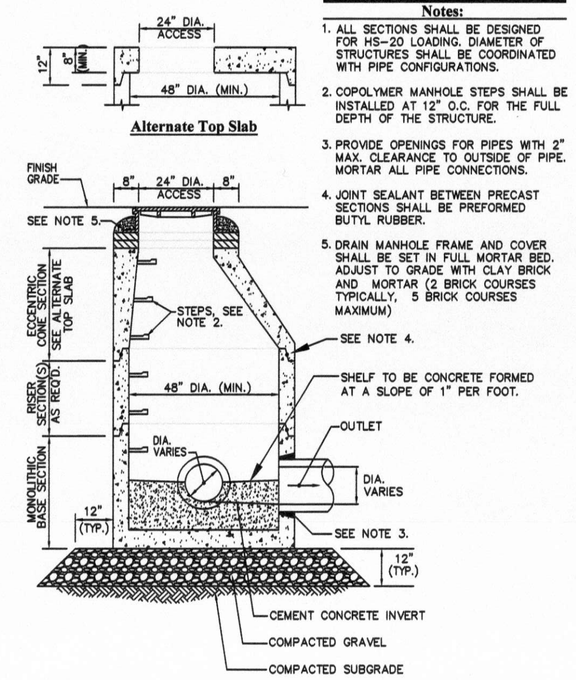


Notes:

1. STRUCTURES SHALL BE PRECAST CONCRETE, DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER-PROOFING MATERIAL.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. STANDARD SEWER MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH SEWER BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

Sanitary Sewer Manhole (SMH)

N.T.S.

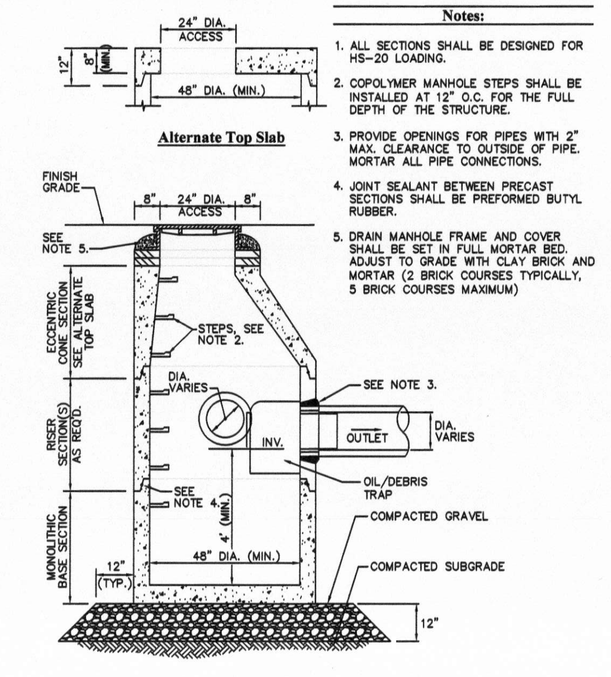


Notes:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATED WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

Drain Manhole (DMH)

N.T.S.

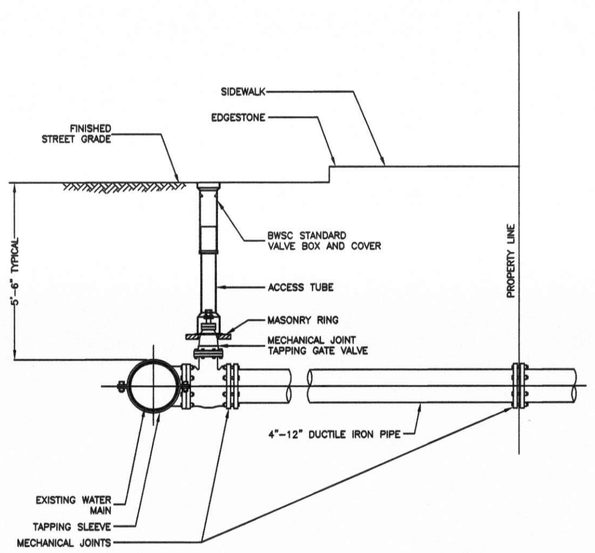


Notes:

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

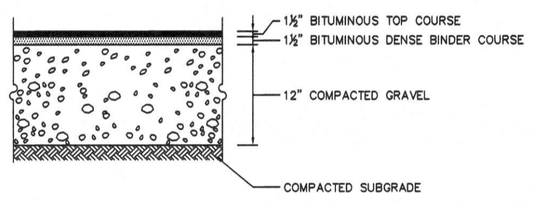
Drain Manhole (DMH) with Oil Debris/Trap

N.T.S.



Water Connection to Existing Main

N.T.S.



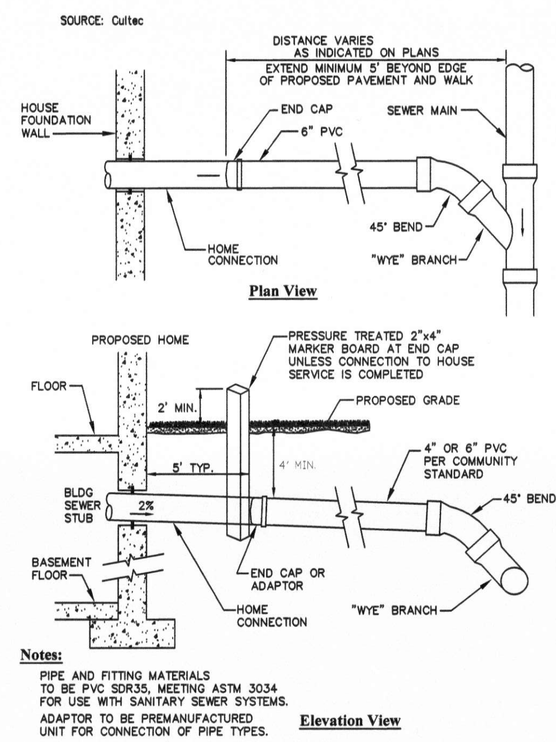
Standard Duty Flexible Pavement

Note:

PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

Bituminous Concrete Pavement Sections

N.T.S.

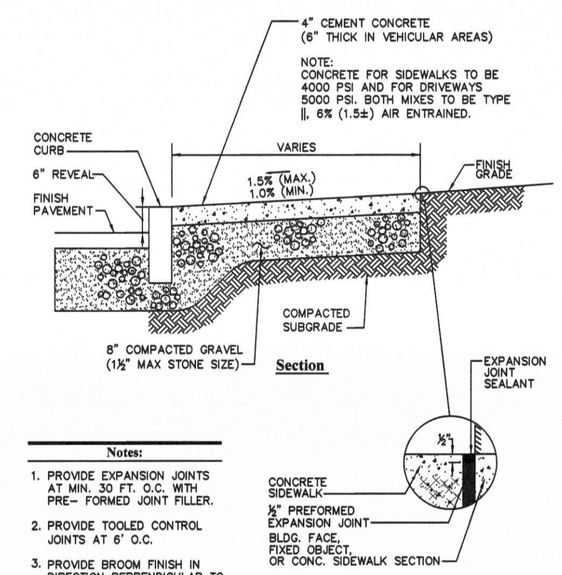


Notes:

1. PIPE AND FITTING MATERIALS TO BE PVC SDR35, MEETING ASTM 3034 FOR USE WITH SANITARY SEWER SYSTEMS.
2. ADAPTOR TO BE PREMANUFACTURED UNIT FOR CONNECTION OF PIPE TYPES.

Typical Wye Connection Detail

N.T.S.

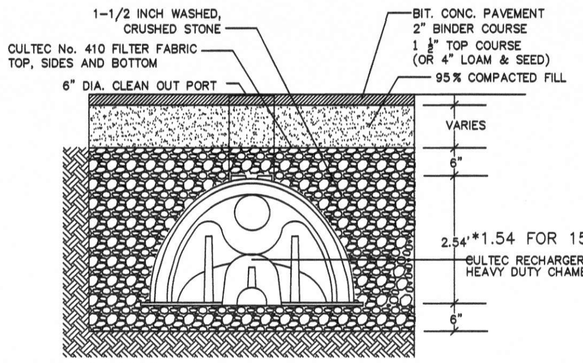


Notes:

1. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE-FORMED JOINT FILLER.
2. PROVIDE TOOLED CONTROL JOINTS AT 6' O.C.
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

Concrete Sidewalk

N.T.S.



GENERAL NOTES:
RECHARGER 330XLHD BY CULTEC, INC. OF BROOKFIELD, CT.
ALL RECHARGER 330XLHD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
ALL RECHARGER 330XLHD HEAVY DUTY UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.

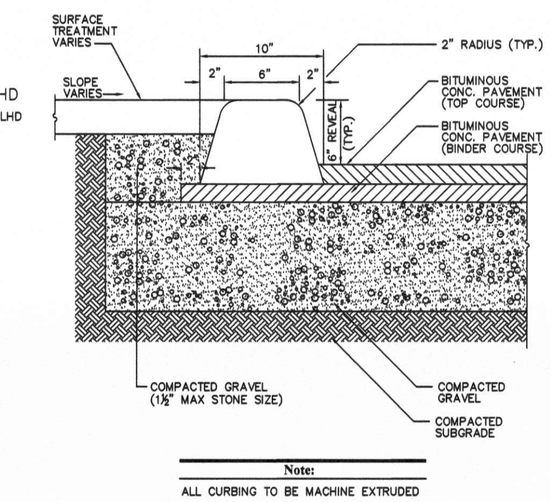
CULTEC SYSTEM ELEVATIONS

	1	2	3*	4
MIN. GROUND ELEVATION	160.0	163.5	159.0	160.0
TOP OF STONE	159.0	162.5	158.0	159.0
TOP OF CHAMBER	158.5	162.0	157.5	158.5
BOTTOM OF CHAMBER	156.0	159.5	156.0	156.0
BOTTOM OF STONE	155.5	159.0	155.5	155.5
OUTLET	157.5	161.2	NONE	NONE

*ALL SYSTEMS TO BE CULTEC 330XLHD EXCEPT SYSTEM 3 WHICH IS TO BE 150XLHD

Cultec Recharger 330XLHD Chamber

N.T.S.

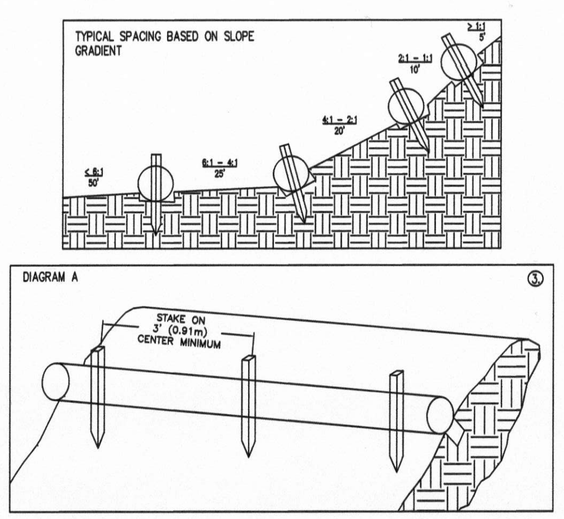


Note:

ALL CURBING TO BE MACHINE EXTRUDED

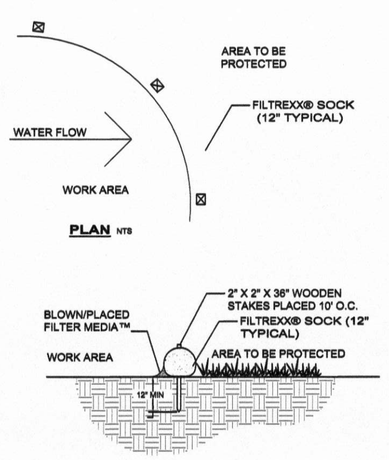
Bituminous Curb (BC)

N.T.S.



FILTER SOCK INSTALLATION GUIDE

1. BEGIN AT THE LOCATION WHERE THE SOCK IS TO BE INSTALLED BY EXCAVATING A 2-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE SOCK IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE SOCK ON THE UPHILL SIDE. ADJACENT SOCKS SHOULD TIGHTLY ABUT.
3. SECURE THE SOCK WITH 18-24" (45.7-61 CM) STAKES EVERY 3-4' (0.9 -1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE SOCK. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

Filtrexx Sediment Control

N.T.S. Source: Filtrexx

COMMONWEALTH OF MASSACHUSETTS
SHAWN P. HARDY
No. 41650
REGISTERED PROFESSIONAL ENGINEER

SHAWN P. HARDY, P.E.

REVISIONS:		
NO.:	COMMENTS:	DATE:

Site Details
357 GROVE STREET
BRAINTREE, MASSACHUSETTS

DRAWN BY: JABI
DESIGNED BY: SPH
CHECKED BY: CYM

DATE: 1-20-2020
LATEST REVISION:

HARDY + MAN DESIGN GROUP, PC
CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING

1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464

PREPARED FOR:
Permitting

SHEET
C-5