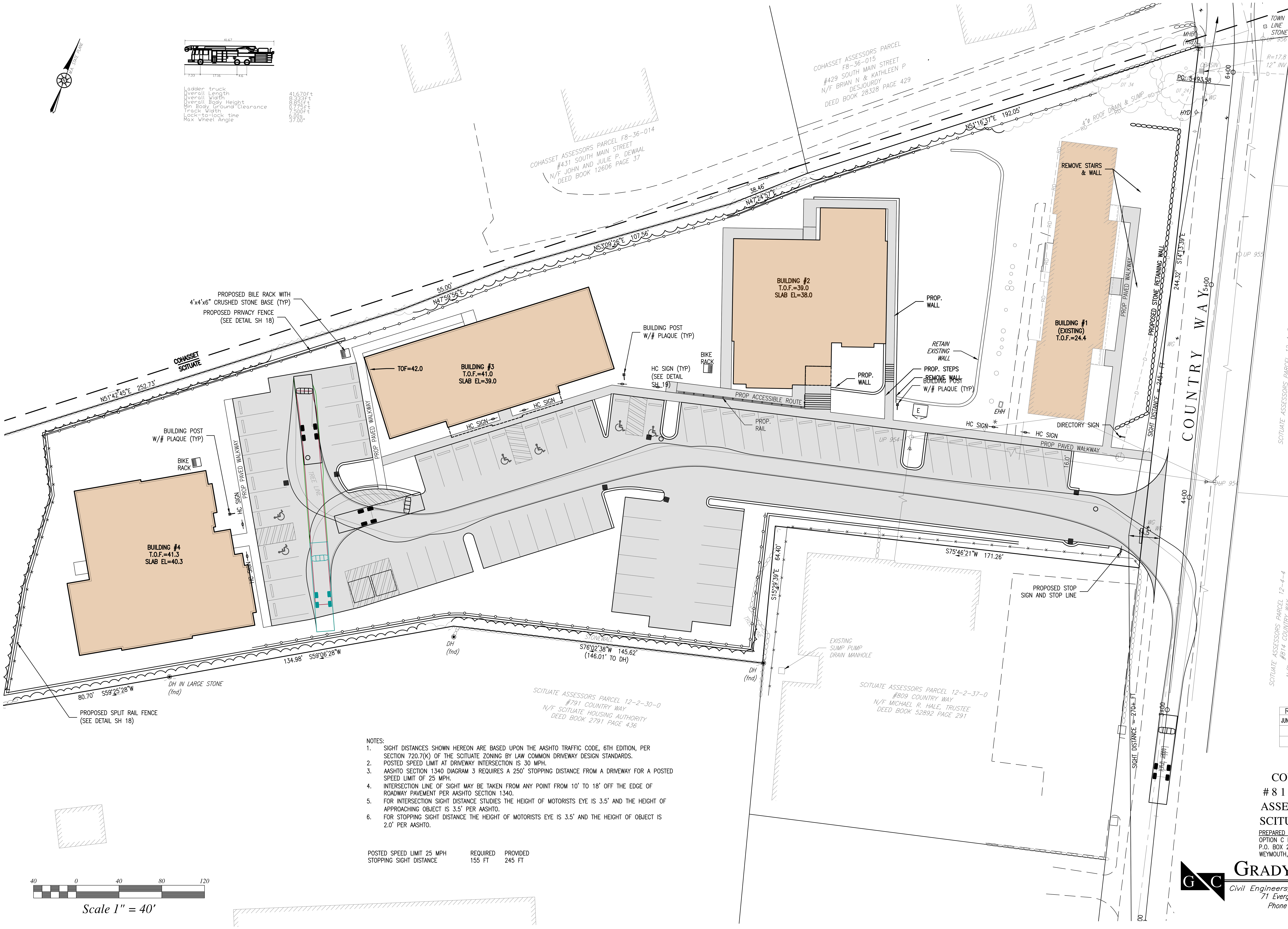


NOTES:

1. SIGHT DISTANCES SHOWN HEREON ARE BASED UPON THE AASHTO TRAFFIC CODE, 6TH EDITION, PER SECTION 720.7(K) OF THE SCITUATE ZONING BY LAW COMMON DRIVEWAY DESIGN STANDARDS.
2. POSTED SPEED LIMIT AT DRIVEWAY INTERSECTION IS 30 MPH.
3. AASHTO SECTION 1340 DIAGRAM 3 REQUIRES A 250' STOPPING DISTANCE FROM A DRIVEWAY FOR A POSTED SPEED LIMIT OF 25 MPH.
4. INTERSECTION LINE OF SIGHT MAY BE TAKEN FROM ANY POINT FROM 10' TO 18' OFF THE EDGE OF ROADWAY PAVEMENT PER AASHTO SECTION 1340.
5. FOR INTERSECTION SIGHT DISTANCE STIJDIES THE HEIGHT OF MOTORISTS EYE IS 3.5' AND THE HEIGHT OF APPROACHING OBJECT IS 3.5' PER AASHTO.
6. FOR STOPPING SIGHT DISTANCE THE HEIGHT OF MOTORISTS EYE IS 3.5' AND THE HEIGHT OF OBJECT IS 2.0' PER AASHTO.

	REQUIRED	PROVIDED
POSTED SPEED LIMIT 25 MPH STOPPING SIGHT DISTANCE	155 FT	245 FT

FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED

DATE: ____________________

SCITUATE PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED PROFESSIONAL ENGINEER

[illegible]

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

SITE PLAN

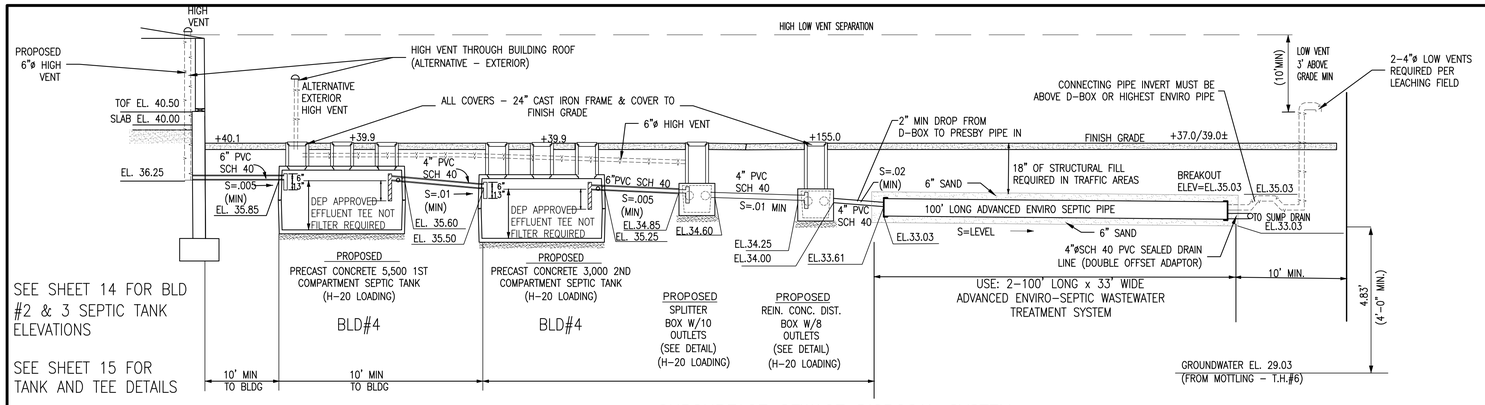
COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: 1"= 20'
JOB No. 20-475

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

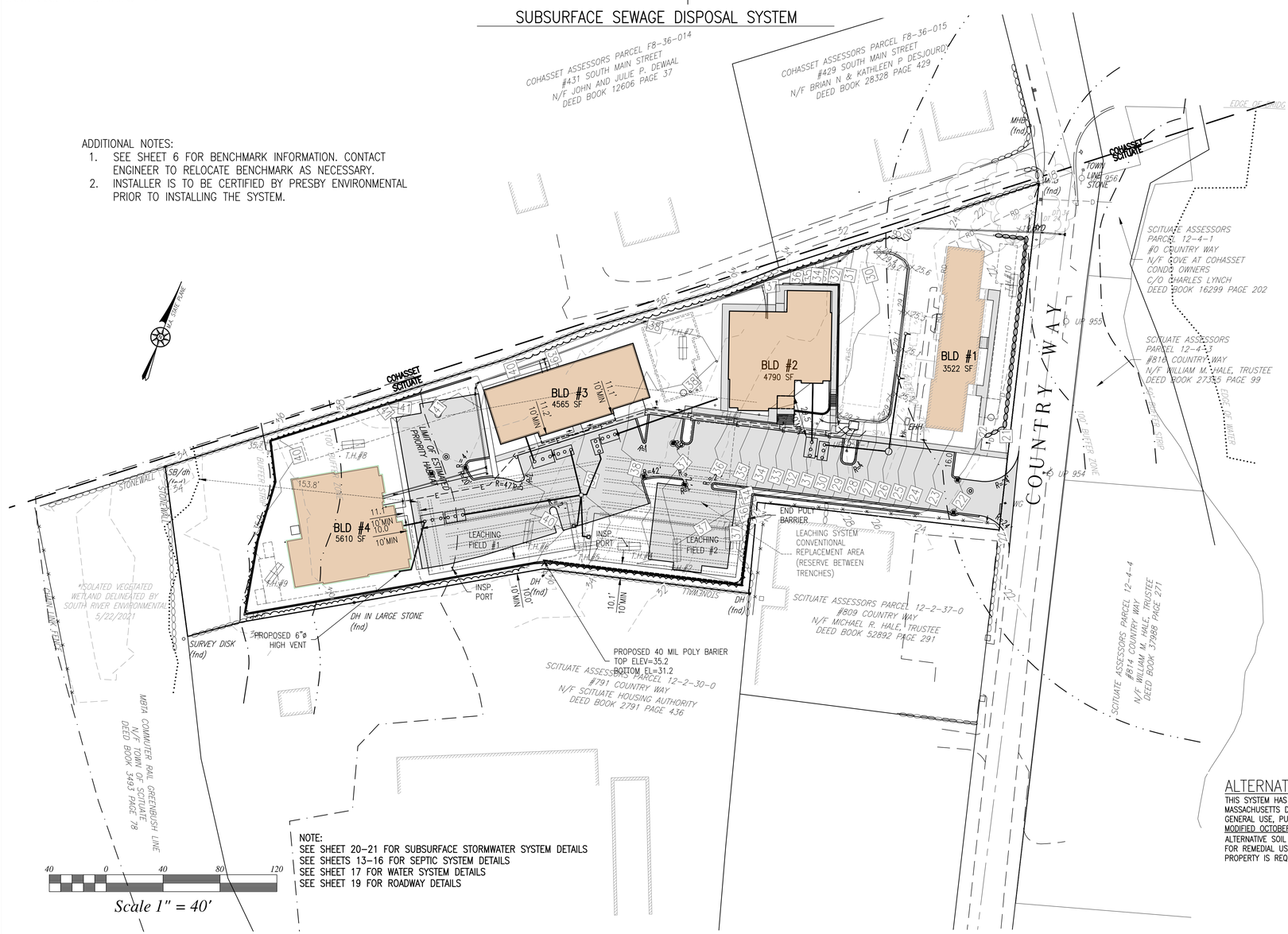
SAFETY & SIGNAGE



SEE SHEET 14 FOR BLD #2 & 3 SEPTIC TANK ELEVATIONS

SEE SHEET 15 FOR TANK AND TEE DETAILS

SUBSURFACE SEWAGE DISPOSAL SYSTEM



NOTE:
SEE SHEET 20-21 FOR SUBSURFACE STORMWATER SYSTEM DETAILS
SEE SHEETS 13-16 FOR SEPTIC SYSTEM DETAILS
SEE SHEET 17 FOR WATER SYSTEM DETAILS
SEE SHEET 19 FOR ROADWAY DETAILS

ADDITIONAL NOTES:
1. SEE SHEET 6 FOR BENCHMARK INFORMATION. CONTACT ENGINEER TO RELOCATE BENCHMARK AS NECESSARY.
2. INSTALLER IS TO BE CERTIFIED BY PRESBY ENVIRONMENTAL PRIOR TO INSTALLING THE SYSTEM.

SEPTIC DESIGN FLOW

UNITS	BEDROOMS	TOTAL BR		DESIGN FLOW
8	16 (OVER 55)	(150 GPD/UNIT)	=	1,200 GPD
18 –	2 BR UNITS	36	=	3,960 GPD
26 –	1 BR UNITS	26	=	2,860 GPD
TOTAL	55 –	69	=	8,020 USE 8,790 GPD

FLOW TO EXISTING SYSTEM = 2,740 GPD
FLOW TO PROPOSED SYSTEM = 6,050 GPD

SEPTIC DESIGN (NOT DESIGNED FOR GARBAGE GRINDER)

TITLE 5
1. DESIGN DAILY FLOW

RETAIN EXISTING SYSTEM
CAPACITY = 25 BR OR 2,750 GPD
8 OVER 55 BR (1,200 GPD) + 14 BR (1,540 GPD) FROM BUILDING #2 TO EXISTING SYSTEM)
= 1,200 + 1,540 = 2,740 GPD < 2750 GPD CAPACITY

PROPOSED SYSTEM
CAPACITY = 80 BR –25 BR (TO EXIST SYSTEM) = 55 BR X 110 = 6,050 GPD

2. PERC RATE: P.R. =11 MIN/IN CLASS I

ENVIRO-SEPTIC DESIGN (NOT DESIGNED FOR GARBAGE GRINDER)

*USE 6,050 GPD FOR ENVIRO-SEPTIC DESIGN CRITERIA

TITLE 5 MINIMUM AREA = 6,050 GPD / 0.56 GPD/S.F. = 10,804 S.F.
PER CERTIFICATION FOR GENERAL USE SECTION II(3) 40% REDUCTION IN SOIL ABSORPTION SYSTEM ALLOWED
REQUIRED AREA =10,804 S.F. LESS 40% =6,482 S.F.

USE: 2–104' LONG x 31.75' WIDE ENVIRO-SEPTIC PIPE LEACHING BED SYSTEMS

PROPOSED AREA(PER SYSTEM): 104 X 33.0 x 2 FIELDS =6,864 > 6,482

ENVIRO-SEPTIC PIPE REQUIRED

420 LF FOR FIRST 6 BR + (70 L.F. X 49 BR) = 3850 LF REQUIRED – 4,200 LF PROPOSED
42–100 FT PIPES IN 14 COMBINATION SERIAL SECTION

ENVIRO-SEPTIC MAX FLOW PER SERIAL SECTION = 500 GPD LOADING RATE
6,050 / 500 = 12.1 SERIAL SECTIONS – USE 14 SECTIONS

LOADING RATE 100 GPD PER 50 FT
SERIAL SECTION = 185 LF/50 * 100 GPD = 370 GPD

CONVENTIONAL REPLACEMENT AREA

LEACHING FIELDS: P.R. = 11 MIN/IN

TITLE 5 MINIMUM AREA = 6,050 GPD / 0.56 GPD/S.F. = 10,803 S.F.
USE 19 –100' LONG X 2' WIDE X 2' DEEP LEACHING TRENCHES

19 X 100 X 6 SF/LF = 11,400 X 0.56 = 6,384 > 6,050 GPD

SEPTI TANK DESIGN
SEPTIC TANK (BLD#2 TO EXISTING SYSTEM):
14 BR X 110 = 1540 GPD x 2 =3080: USE 3,500 1ST TANK GAL (MIN)
1540 GPD X 1 =1540: USE 2,000 GALLON SECOND TANK

SEPTIC TANK (BLD#2 TO PROPOSED SYSTEM):
14 BR X 110 = 1100 GPD X 2 =2200: USE 2,500 1ST TANK GAL (MIN)
1540 GPD X 1 =1100: USE 1,500 GALLON SECOND TANK

SEPTIC TANK (BLD#3 TO PROPOSED SYSTEM):
21 BR X 110 = 2310 GPD X 2 =4620: USE 5,000 1ST TANK GAL (MIN)
2310 GPD X 1 =2310: USE 2,500 GALLON SECOND TANK

SEPTIC TANK (BLD#4 TO PROPOSED SYSTEM):
24 BR X 110 = 2640 GPD X 2 =5280: USE 5,500 1ST TANK GAL (MIN)
2640 GPD X 1 =2640: USE 3,000 GALLON SECOND TANK

NOTES:

1. SOILS TESTING BY KEVIN GRADY, GRADY CONSULTING WITNESSED BY RALPH COLE APRIL 27, 2022.
2. CALL DIG SAFE 1–888–344–7233 AT LEAST 4 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. NOTIFY TOWN AND GRADY CONSULTING PRIOR TO BACKFILLING OF SYSTEM.
4. NO KNOWN WELLS EXIST WITHIN 200' OF THE PROPOSED SYSTEM
5. THE SITE IS NOT LOCATED IN AN AQUIFER PROTECTION ZONE II.
6. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED (310 CMR 15.221(12))
7. THE SITE NOT IS LOCATED IN A FLOOD PLAIN DISTRICT ZONE X.
8. NO KNOWN EASEMENTS ARE IN THE AREA OF THE PROPOSED SYSTEM.
9. EXCAVATE ALL MATERIAL (A, B LAYER) TO LOAMY SAND C1 LAYER (30"±), 5' AROUND SYSTEM. REPLACE WITH CLEAN COURSE SAND IN ACCORDANCE WITH 310 CMR 15.255 (3). EXCAVATION TO BE INSPECTED BY GRADY CONSULTING L.L.C. AND TOWN PRIOR TO SOIL REPLACEMENT

APPROXIMATE PRESBY (C-33 SAND) SAND VOLUME = 6864 SF X (35.03 – 33.03) / 27 + 20% = 600± C.Y.
APPROXIMATE PERC SAND VOLUME = 9760 SF x (33.0 – 30.0±) / 27 + 20% = 1,300± C.Y.

ALTERNATIVE SYSTEM APPROVAL REFERENCE

THIS SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION MODIFIED CERTIFICATION FOR GENERAL USE, PURSUANT TO TITLE V, 310 CMR 15.000. REVISED DECEMBER 17, 2013, MODIFIED OCTOBER 30, 2019, MODIFIED FEBRUARY 2, 2022 AND STANDARD CONDITIONS FOR ALTERNATIVE SOIL ABSORPTION SYSTEMS WITH GENERAL USE CERTIFICATION AND/OR APPROVED FOR REMEDIAL USE REVISED MARCH 5, 2018. A DISCLOSURE NOTICE IN THE DEED TO THE PROPERTY IS REQUIRED FOR SYSTEMS INSTALLED UNDER THE REMEDIAL USE APPROVAL.

FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: _____

_____
_____
_____
_____
SCITUATE PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED PROFESSIONAL ENGINEER

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

SITE PLAN

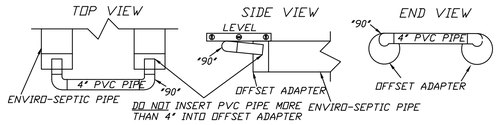
COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: 1"=40'
JOB No. 20-475

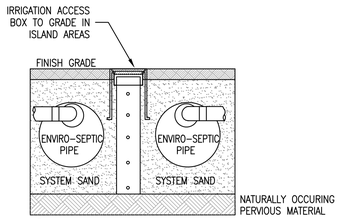
SEPTIC PLAN

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378



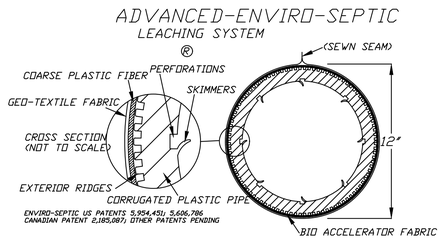
CONNECTION DETAIL

(NOT TO SCALE)



INSPECTION PORT DETAIL

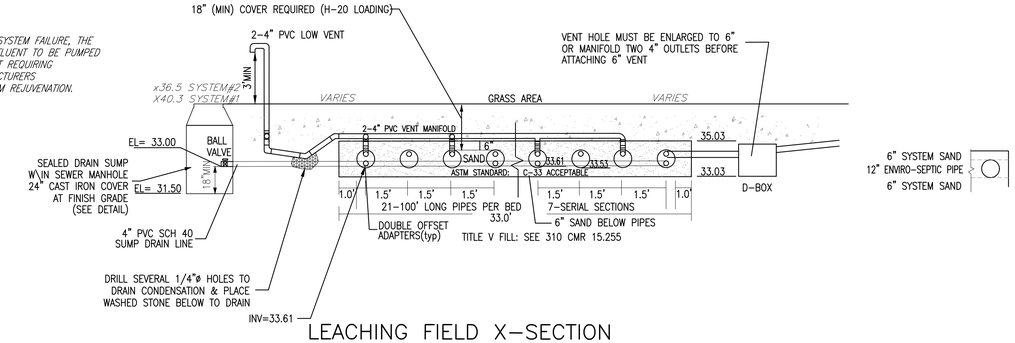
NOT TO SCALE



ADVANCED ENVIRO-SEPTIC PIPE CROSS-SECTION

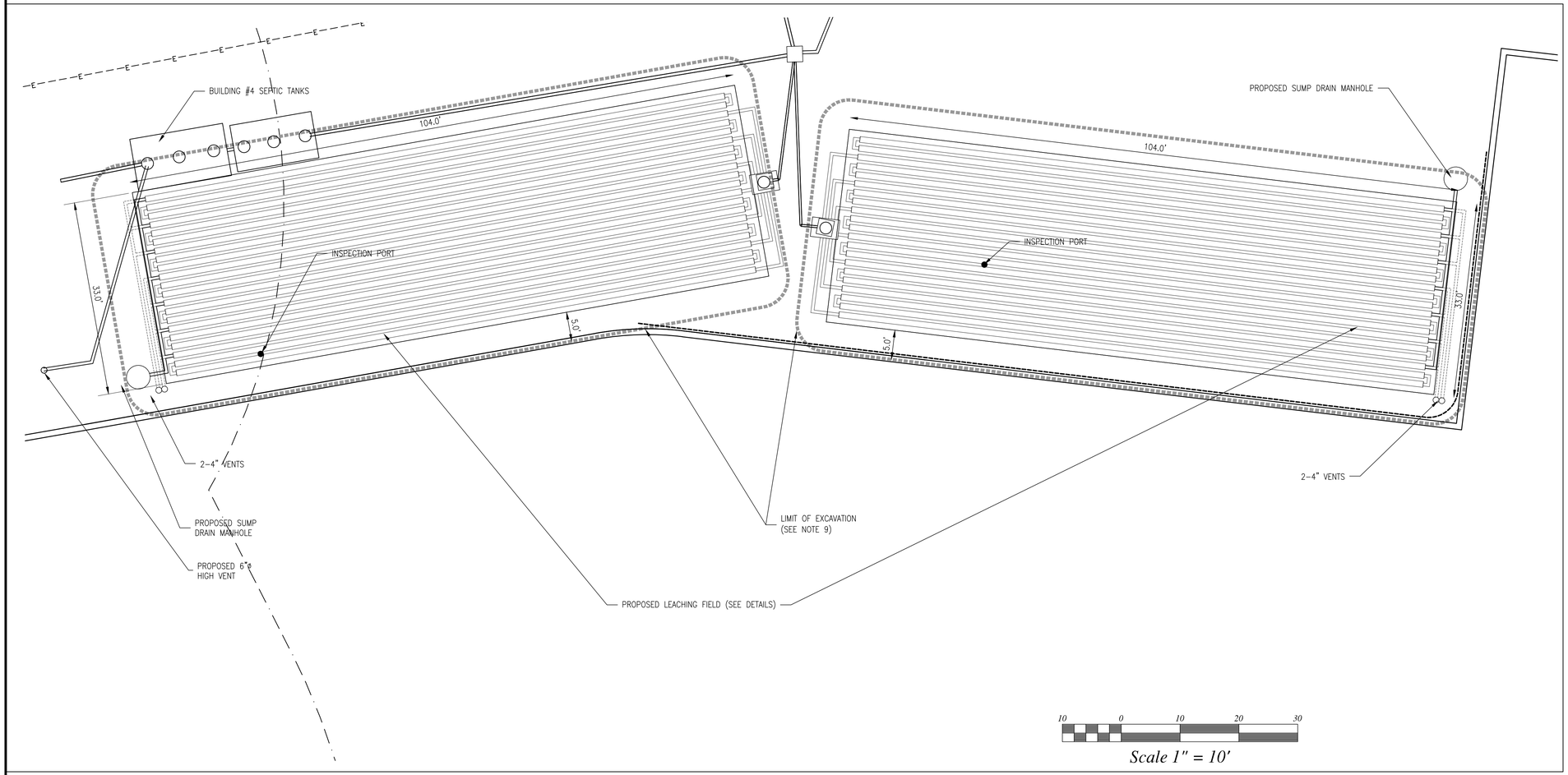
NOT TO SCALE

NOTE: IN THE EVENT OF SYSTEM FAILURE, THE BOTTOM DRAIN ALLOWS EFFLUENT TO BE PUMPED FROM THE SYSTEM WITHOUT REQUIRING EXCAVATION. SEE MANUFACTURERS SPECIFICATIONS FOR SYSTEM REJUVENATION.



LEACHING FIELD X-SECTION

NOT TO SCALE



10 0 10 20 30

Scale 1" = 10'

FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: _____

_____
_____
_____
_____
_____
SCITUATE PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED PROFESSIONAL ENGINEER

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

SITE PLAN

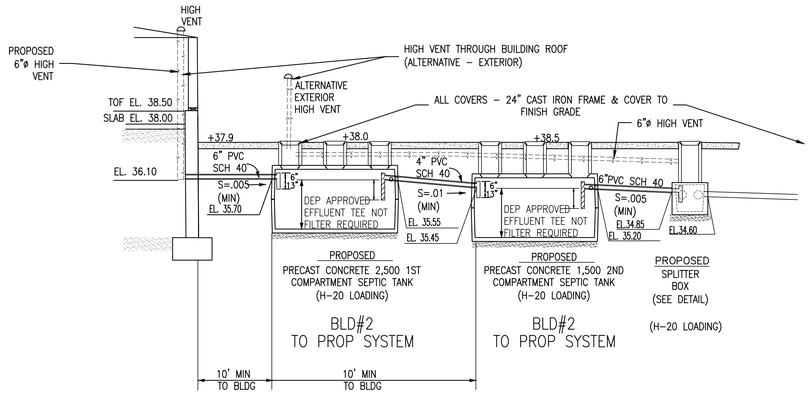
COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: 1"= 20'
JOB No. 20-475

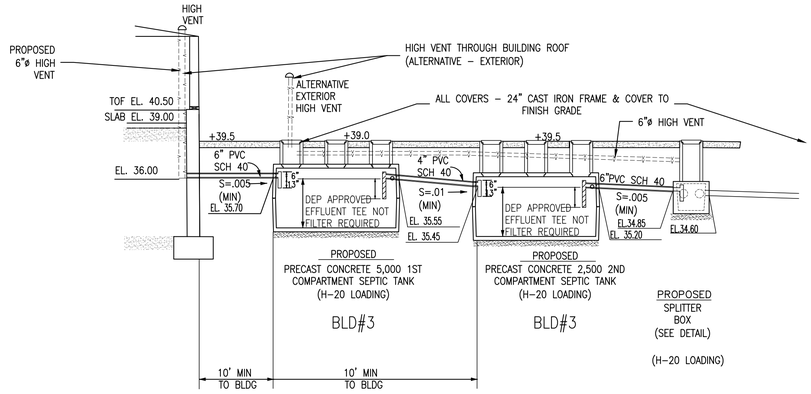
PRESBY LAYOUT DETAILS

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378



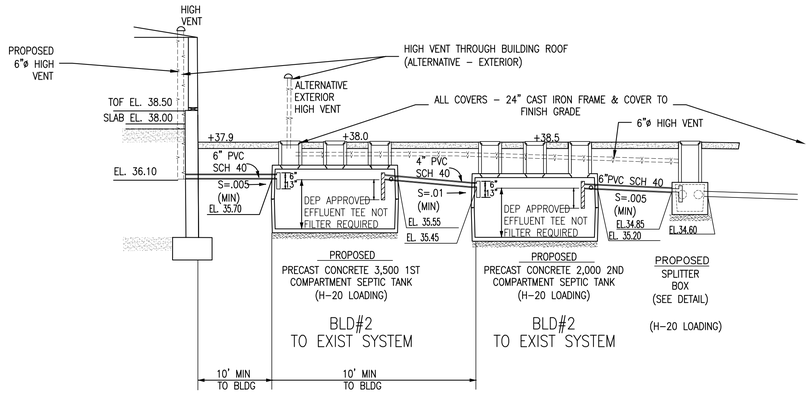
PROPOSED SEPTIC TANKS BLD #2 TO PROPOSED SYSTEM

(NOT TO SCALE)



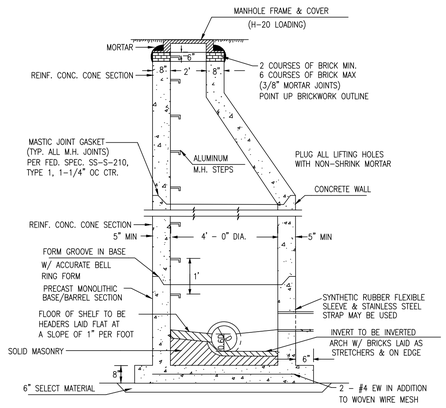
PROPOSED SEPTIC TANKS BLD #3

(NOT TO SCALE)



PROPOSED SEPTIC TANKS BLD #2 TO EXISTING SYSTEM

(NOT TO SCALE)



SANITARY SEWER MANHOLE

NOT TO SCALE

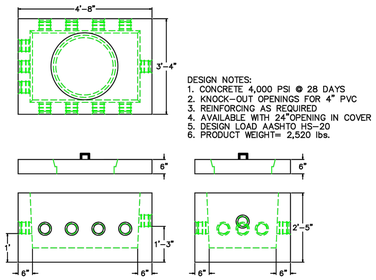
SOIL LOGS

T.H.1 EL. 32.44		T.H.2 EL. 32.44		T.H.3 EL. 31.68		T.H.4 EL. 33.52		T.H.5 EL. 34.73		T.H.6 EL. 36.03		T.H.7 EL. 35.16		T.H.8 EL. 37.13		T.H.9 EL. 35.22		T.H.10 EL. 20.23
0"–10" A FILL/LOAM	31.60	0"–12" A FILL/LOAM	31.44	0"–10" A FILL/LOAM	30.84	0"–8" A FILL/LOAM	32.85	0"–10" A FILL/LOAM	33.89	0"–12" A FILL/LOAM	35.03	0"–8" A FILL/LOAM	35.03	0"–12" A LOAM	36.13	0"–4" A LOAM	34.88	0"–48" FILL	
10"–26" B LOAMY SAND	30.27	12"–22" B LOAMY SAND	30.60	10"–25" B LOAMY SAND	29.59	8"–30" B LOAMY SAND	31.02	10"–24" B LOAMY SAND	32.73	12"–26" B LOAMY SAND	33.86	8"–30" B SANDY LOAM	33.86	12"–30" B LOAMY SAND	34.63	4"–22" B SANDY LOAM	33.38		16.23
26"–68" C1 LOAMY SAND	26.77	22"–80" COARSE LOAMY SAND	PERC @ 36"–54" P.R.=11 MIN/IN	25"–120" C LOAMY SAND	21.68	30"–120" C LOAMY SAND	PERC @ 37"–55" P.R.=4 MIN/IN	24"–120" C LOAMY SAND	PERC @ 37"–55" P.R.=4 MIN/IN	24"–120" C LOAMY SAND	PERC @ 28"–46" P.R.=7 MIN/IN	30"–72" C SANDY LOAM	26.03	30"–64" C LOAMY SAND	31.79	22"–50" C1 SANDY LOAM	31.05	48"–60" B LOAMY SAND	15.23
68"–132" C2 SANDY LOAM	21.44	D=6'–8" MOTTLING @ 5'–0" (EL=27.44)	25.77	D=10'–0" MOTTLING @ 4'–10" (EL=26.84)		D=10'–0" MOTTLING @ 7'–0" (EL=26.52)	23.52	D=10'–0" MOTTLING @ 7'–0" (EL=25.73)	24.73	D=10'–0" MOTTLING @ 7'–0" (EL=29.03)	26.03	D=6'–0" MOTTLING @ 4'–0" (EL=31.16)		D=6'–0" MOTTLING @ 3'–6" (EL=33.63)		50"–76" C LOAMY SAND	28.88	60"–84" C1 LOAMY SAND	13.23
D=11'–0" MOTTLING @ 5'–8" (EL=26.67)																D=6'–4" MOTTLING @ 2'–10" (EL=32.38)		D=7'–0" MOTTLING @ 6'–0" (EL=14.23)	

SOILS TESTING (TH #1–8)BY KEVIN GRADY, GRADY CONSULTING WITNESSED BY RALPH COLE APRIL 27, 2022.

TESTHOLES #9 & 10 BY KEVIN GRADY, GRADY CONSULTING
DRAINAGE TESTHOLES DECEMBER 22, 2022

11–OUTLET DISTRIBUTION BOX



DESIGN NOTES:
1. CONCRETE 4,000 PSI @ 28 DAYS
2. KNOCK–OUT OPENINGS FOR 4" PVC
3. REINFORCING AS REQUIRED
4. AVAILABLE WITH 24"OPENING IN COVER
5. DESIGN LOAD AASHTO HS–20
6. PRODUCT WEIGHT= 2,520 lbs.

SCITUATE COMPANIES
SCITUATE, RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1–800–440–0009
FAX # 781–837–4320
CONTRACTOR:
JOB NAME:
DATE:
DRAWING: DB–11
DRAWING BY: C.J. SCOTT

WWW.SCITUATECOMPANIES.COM

NOTES:
1. 3–INLETS REQUIRED TO BE PRECAST OR CORED AND MORTARED
2. CONTRACTOR MAY SUBSTITUTE AN EQUIVALENT DISTRIBUTION BOX UPON APPROVAL OF THE DESIGN ENGINEER.
3. H–20 LOADING REQUIRED
4. 24" CAST IRON MANHOLE TO GRADE REQUIRED

PROPOSED DISTRIBUTION BOX

(NOT TO SCALE)

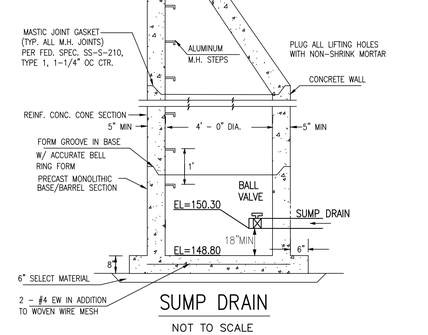
FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: _____

SCITUATE PLANNING BOARD



SUMP DRAIN

NOT TO SCALE

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

KEVIN S. GRADY CIVIL No. 45264 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

SITE PLAN

COUNTRY WAY ESTATES

#817 COUNTRY WAY

ASSESSORS PARCEL 12-2-38-F

SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: AS NOTED
JOB No. 20–475

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585–2300 Fax (781) 585–2378

SEPTIC DETAILS

WWW.SCITUATECOMPANIES.COM

SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

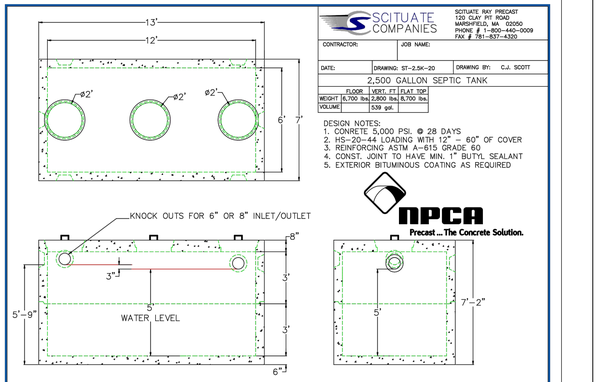
CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-2.5K-20 DRAWING BY: C.J. SCOTT

2,500 GALLON SEPTIC TANK

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	6,700 lbs.	2,800 lbs.	8,700 lbs.
VOLUME		539 gal.	

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" - 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
5. EXTERIOR BITUMINOUS COATING AS REQUIRED



NPCA Precast ... The Concrete Solution.

WWW.SCITUATECOMPANIES.COM

SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

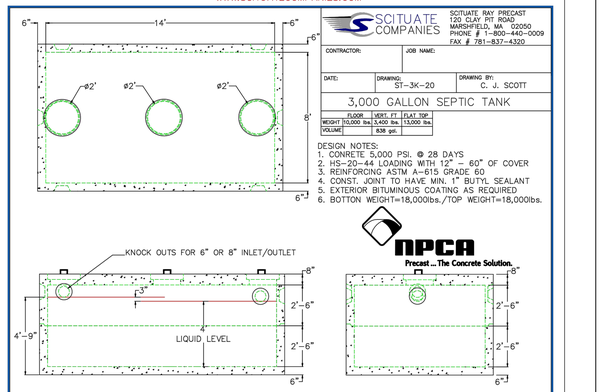
CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-3K-20 DRAWING BY: C. J. SCOTT

3,000 GALLON SEPTIC TANK

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	10,000 lbs.	3,400 lbs.	13,000 lbs.
VOLUME		838 gal.	

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" - 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
5. EXTERIOR BITUMINOUS COATING AS REQUIRED
6. BOTTON WEIGHT=18,000lbs./TOP WEIGHT=18,000lbs.



NPCA Precast ... The Concrete Solution.

WWW.SCITUATECOMPANIES.COM

SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

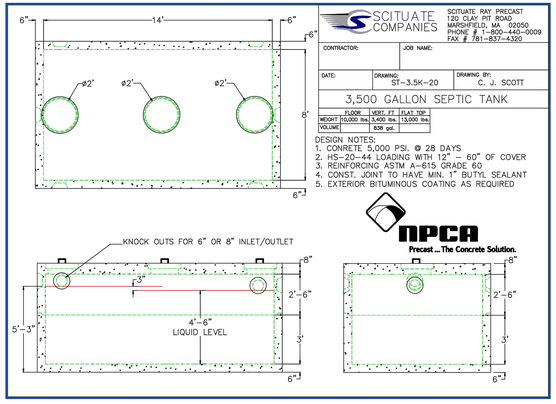
CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-3.5K-20 DRAWING BY: C. J. SCOTT

3,500 GALLON SEPTIC TANK

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	10,000 lbs.	3,400 lbs.	13,000 lbs.
VOLUME		838 gal.	

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" - 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
5. EXTERIOR BITUMINOUS COATING AS REQUIRED



NPCA Precast ... The Concrete Solution.

WWW.SCITUATECOMPANIES.COM

SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

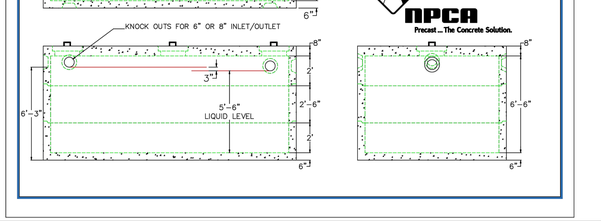
CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-5.5K-20 DRAWING BY: C. J.

5,500 GALLON SEPTIC TANK

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	72,500 lbs.	3,800 lbs.	16,500 lbs.
VOLUME		1,070 gal.	

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" - 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
5. EXTERIOR BITUMINOUS COATING AS REQUIRED



NPCA Precast ... The Concrete Solution.

WWW.SCITUATECOMPANIES.COM

SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-5K-20 (9X16) DRAWING BY: C. J.

5,000 GALLON SEPTIC TANK

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	72,500 lbs.	3,800 lbs.	16,500 lbs.
VOLUME		1,070 gal.	

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" - 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
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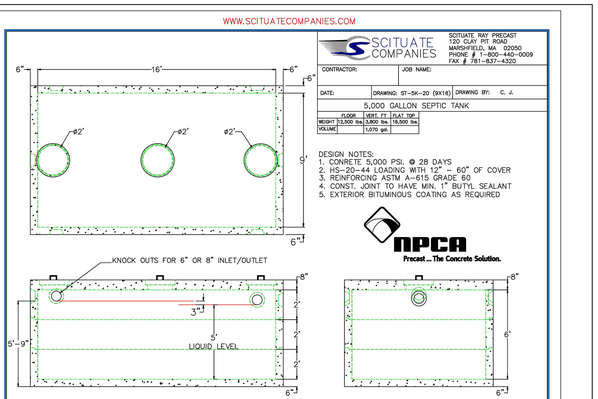
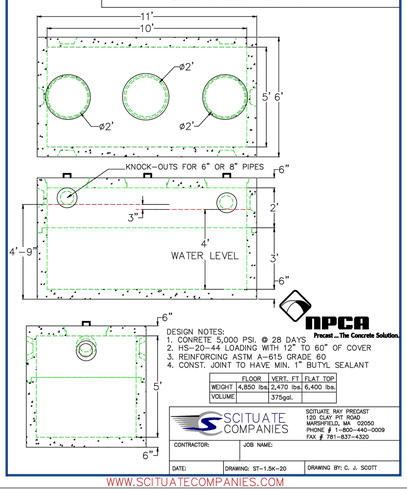


NPCA Precast ... The Concrete Solution.

1,500 GALLON SEPTIC TANK



NPCA Precast ... The Concrete Solution.

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" TO 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	4,850 lbs.	2,470 lbs.	6,400 lbs.
VOLUME		375gal.	

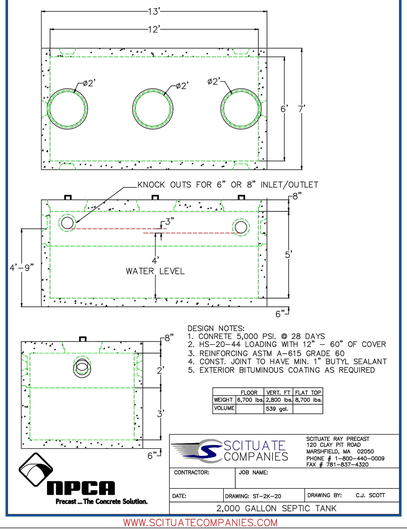
SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-1.5K-20 DRAWING BY: C. J. SCOTT

WWW.SCITUATECOMPANIES.COM

2,000 GALLON SEPTIC TANK



NPCA Precast ... The Concrete Solution.

DESIGN NOTES:
1. CONRETE 5,000 PSI. @ 28 DAYS
2. HS-20-44 LOADING WITH 12" - 60" OF COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT
5. EXTERIOR BITUMINOUS COATING AS REQUIRED

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	6,700 lbs.	2,800 lbs.	8,700 lbs.
VOLUME		539 gal.	

SCITUATE COMPANIES
SCITUATE RAY PRECAST
120 CLAY PIT ROAD
MARSHFIELD, MA 02050
PHONE # 1-800-440-0009
FAX # 781-837-4320

CONTRACTOR: JOB NAME:

DATE: DRAWING: ST-2K-20 DRAWING BY: C.J. SCOTT

2,000 GALLON SEPTIC TANK

WWW.SCITUATECOMPANIES.COM

NOTES REGARDING TEES:

THERE SHALL BE AN AIR SPACE OF AT LEAST THREE INCHES BETWEEN THE TOPS OF THE TEES AND THE INSIDE OF THE TANK COVER. THE TOPS OF THE TEES SHALL BE LEFT OPEN TO PROVIDE VENTILATION OR SEPARATE VENTILATION SHALL BE PROVIDED. ALL OUTLET TEES SHALL BE EQUIPPED WITH A GAS BAFFLE OR A DEPARTMENT APPROVED EFFLUENT TEE FILTER.

THE INLET TEE SHALL EXTEND A MINIMUM OF TEN INCHES BELOW THE FLOW LINE. THE OUTLET SHALL BE PROVIDED WITH A TEE EXTENDING BELOW THE FLOW LINE IN ACCORDANCE WITH THE FOLLOWING TABLE:

LIQUID DEPTH IN SEPTIC TANK	DEPTH OF OUTLET TEE BELOW FLOW LINE
4 FEET	14 INCHES
5 FEET	19 INCHES
6 FEET	24 INCHES
7 FEET	29 INCHES
8 FEET	34 INCHES

FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: _____

_____
_____
_____
_____
_____
SCITUATE PLANNING BOARD

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN

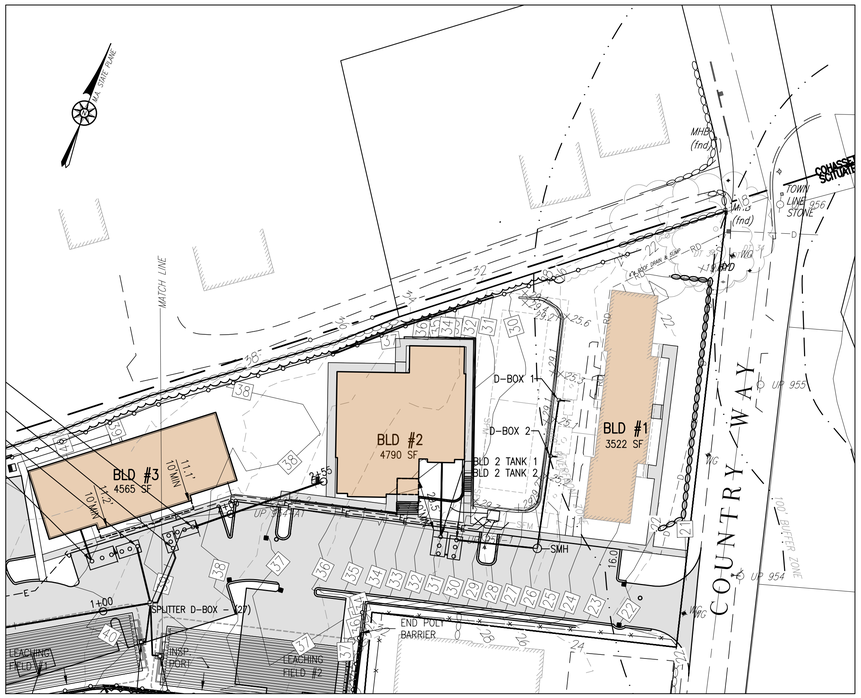
COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

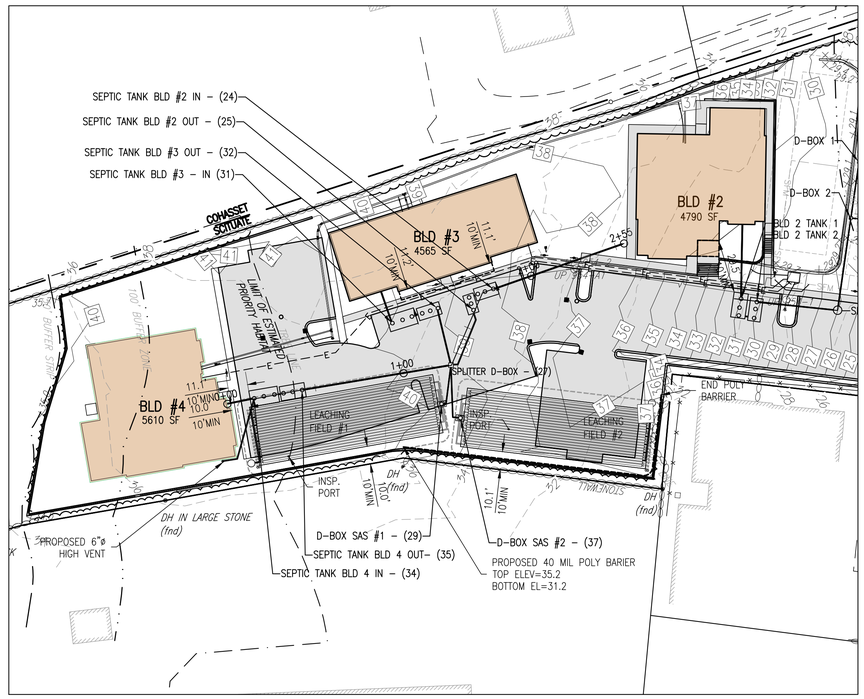
PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: AS NOTED
JOB No. 20-475

SEPTIC DETAILS

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378





FOR REGISTRY USE ONLY

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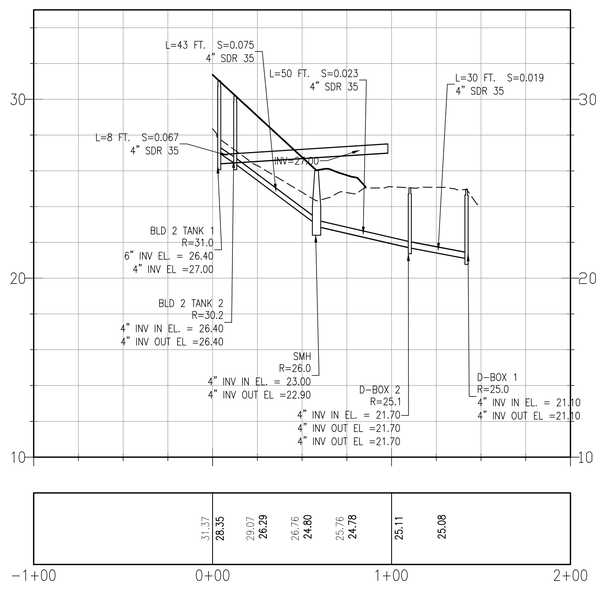
TIMOTHY R. BENNETT P.L.S. #36856 DATE

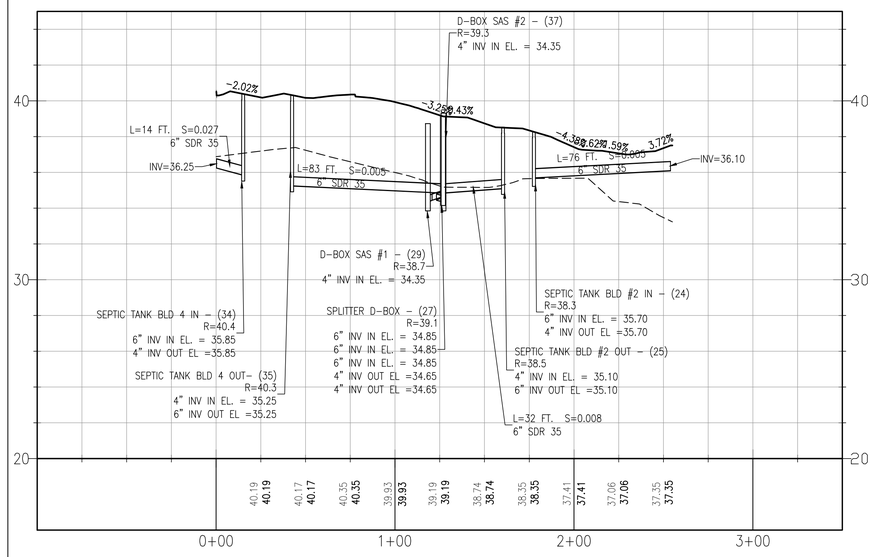
SITE PLAN APPROVED
DATE: _____

_____
_____
_____
_____
_____
SCITUATE PLANNING BOARD

Alignment – (SEPTIC BLD#2 TO EXISTING SYSTEM) PROFILE



Alignment – (Main Septic) PROFILE



40 0 40 80 120

Scale 1" = 40'

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

KEVIN S. GRADY CIVIL No. 49264 REGISTERED PROFESSIONAL ENGINEER

SITE PLAN

COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: 1"= 20'
JOB No. 20-475

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

SEPTIC PLAN AND PROFILES

WATER SPECIFICATIONS

RESILIENT SEATED WEDGE GATE VALVES
a. VALVES SHALL BE IRON BODY, BL-DIRECTIONAL, RESILIENT TYPE, DESIGNED FOR 200 PSI WORKING PRESSURE AND CONFORM TO THE LATEST REVISION OF AWWA C-509-87.
b. VALVES SHALL HAVE O RING SEALS, NON-RISING SEAM AND 2" OPERATING VALVES SHALL OPEN LEFT.
c. VALVES SHALL HAVE MECHANICAL JOINT END, UNLESS OTHERWISE NOTED,
d. VALVES INTERIORS AND EXTERIORS SHALL BE EPOXY COOLED LN ACCORDANCE WITH AWWA SPECIFICATION C-550.
e. VALVES SHALL BE AS MANUFACTURED MUELLER, CLOW OR AMERICAN DARLING.

VALVE BOXES
a. VALVE BOXES SH.ALL BE CAST IRON, TOR COATED, TELESCOPING HEAVY POHERN TYPE, CONSISTING OF FLANGED BOTTOM, FLANGED TOP AND COVER WITH THE WORD "WATER" COST IN THE COVER.

FITTINGS
a. FITTINGS SHALL BE FULL FLOW, COMPACT SIZE CONFORMING TO THE LATEST REVISION OF AWWA SPECIFICATION C-153 AND HAVE A WORKING PRESSURE RATING OF 200 PSI.
b. UNLESS OTHERWISE APPROVED, ALL FITTINGS SHALL HOVE MECHANICAL JOINT ENDS WITH APPROPRIATE GLANDS, GASKETS, NUTS, BOLTS AND ACCESSORIES.
A. RESTRAINED JOINTS FOR MECHANICAL JOINT FITTINGS SHALL BE MECHANICAL AS MANUFACTURED BY EBBA IRON CO.

DUCTILE IRON
a. ALL DUCTILE IRON PIPE SHALL BE DESIGNED IN ACCORDANCE WITH ANS A21.50 AND MANUFACTURED IN ACCORDANCE WITH ANS A21.51.
b. ALL DUCTILE IRON PIPE SHALL BE CEMENT LINED CLASS 52 WITH AN EXTERIOR TAR COAT IN ACCORDANCE WITH ANS 21.50/SAWWA C150/AWWA C111.
c. ALL DUCTILE IRON PIPE SHALL BE CEMENT LINED IN ACCORDANCE WITH ANS A21.4.
d. ALL PIPE JOINTS SHALL BE OF THE BELL SPIGOT TYPE.

METALLIC INDICATOR TAPE
a. METALLIC INDICATOR LOPE WITH "CAUTION WATER MAIN BURIED BELOW" SHALL BE PLACED IN TRENCH 1' FROM FINAL GRADE.

CORPORATION STOP
a. THE CORPORATION STOP SHALL BE OF OLL BRONZE CONSTRUCTIONS. THE INLET THREAD SHALL BE OF C.C. TYPE. OUTLET CONNECTIONS SHALL BE COMPRESSION SUITABLE FOR USE WITH TYPE K COPPER TUBING.
B. FOR PURPOSES OF STANDARDIZATION, CORPORATION STOP SHALL BE MODEL F-1000CC A& MANUFACTURED BY THE FORD METER BOX CO,.

CURB STOPS
a. CURB STOPS SHALL BE OF ALL BRONZE CONSTRUCTION WITH A DRAIN AND INLET AND OUTLET COMPRESSION CONNECTION SUITABLE FOR USE WITH TYPE K COPPER TUBING. CURB STOPS SHALL OPEN LEFT.
C. FOR PURPOSES OF STANDARDIZATION, THE CURB STOP SHALL BE MODEL NO. 244-444SW OS MANUFACTURED BY THE FORD METER BOX CO.

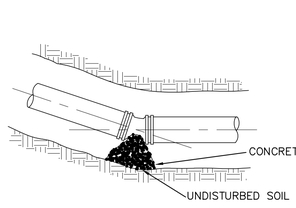
CURB BOX
a. THE CURB BOX SHALL BE COST IRON TAR COATED TELESCOPING "ERIES" TYPE WITH ROD, CONSISTING OF A BOTTOM, TOP AND COVER SECURED BY C PENTAGON NUT.

SADDLES
a. SADDLES FOR SERVICE CONNECTIONS SHALL BE ALL BRASS WITH A MINIMUM 1"CC OUTLET.
b. FOR THE PURPOSES OF STANDARDIZATION, THE SADDLE SHALL BE MODEL 202-BS-1110X4CC AS MANUFACTURED BY THE FORD METER CO.

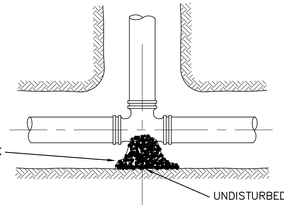
SERVICE CONNECTIONS
a. ALL SERVICE CONNECTIONS SHALL CONSIST OF O SADDLE, CORPORATION STOP, CURB STOP, CURB BOX, COPPER TYPE K TUBING, STAINLESS STEEL TNSERTS AND METALLIC INDICATOR TAPE.

HYDRANTS
a. ALL HYDRANTS SHALL BE THE MUELLER SUPER CENTURLON.

METERS
EACH UNIT WILL REQUIRE A 5/8" WATER METER.

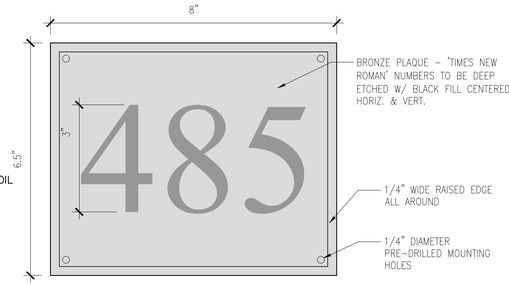


PLAN HORIZONTAL BEND

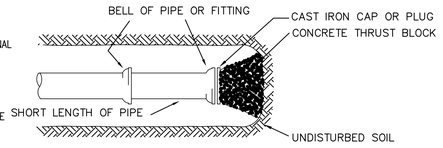


PLAN TEE

NOTE: COVER MECHANICAL JOINTS WITH 3 MIL POLYETHYLENE TO PROTECT BOLTS FROM CONCRETE THRUST BLOCK

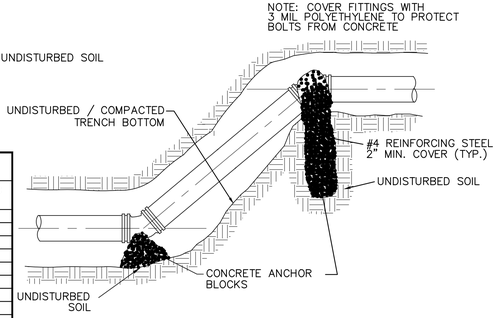


NUMBER PLATE / PLAQUE DETAIL (DRIVEWAY POST AND HOUSE)
N.T.S.



PLAN PLUG END OF LINE

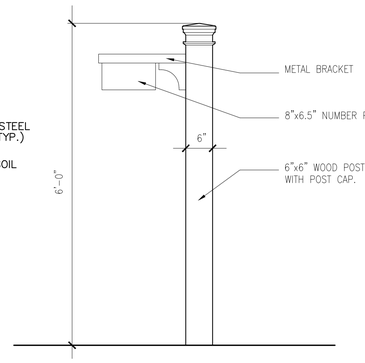
THRUST BLOCK REQUIREMENTS	
FITTING	MIN BEARING AREA (SF)
8"X 1/8 BEND	12
12"X 8" TEE	12
10"X 8" TEE	10
8"X 8" TEE	9
8"X 6" TEE	5
8" CAP / PLUG	12
12"X 8" REDUCER	8
10"X 8" REDUCER	6
8" X 6" REDUCER	4
8" 22 1/2": & 45° BENDS	8
ALL TEES AND VALVES	10
HYDRANTS	9



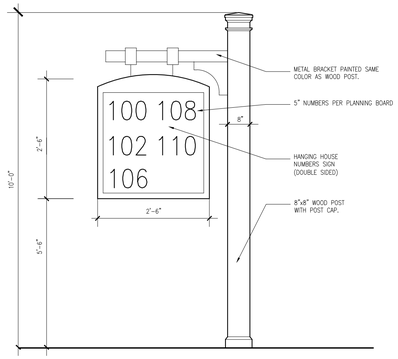
ELEVATION - VERTICAL BENDS

ANCHORAGE DETAILS

NOT TO SCALE



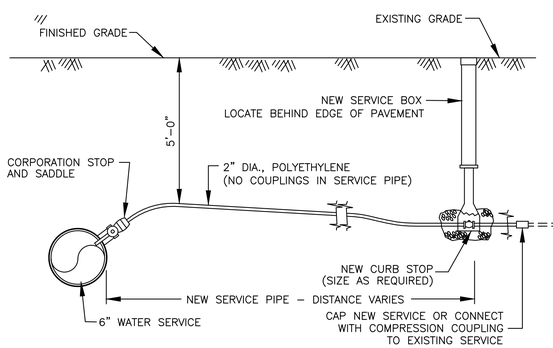
BUILDING POST
N.T.S.



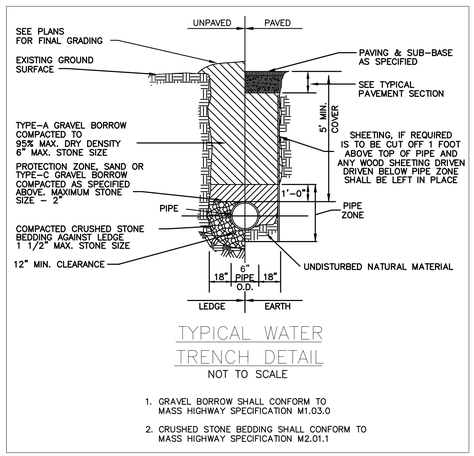
HANGING DIRECTORY SIGN
N.T.S.

WATER SUPPLY NOTES

1. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER, OR APPURTENANCE THERETO WHICH WOULD PERMIT THE PASSAGE OF ANY WASTEWATER OR POLLUTED WATER INTO THE POTABLE SUPPLY.
2. SEWER LINES MAY BE LAID CLOSER THAN 10 FEET TO A WATER MAIN PROVIDED THAT IT IS
   A. LAID IN A SEPARATE TRENCH, AND
   B. THE ELEVATION OF THE TOP(CROWN) OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM(INVERT) OF THE WATER MAIN.
3. WHENEVER SEWERS MUST CROSS UNDER WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. WHEN THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR RECONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHOULD BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.
4. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF MECHANICAL JOINT CAST IRON PIPE AND SHALL BE PRESSURE TESTED TO ASSURE WATERTIGHTNESS.

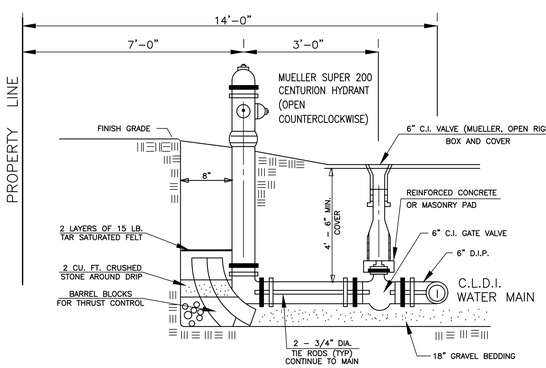


2"ø DOMESTIC WATER SERVICE DETAIL

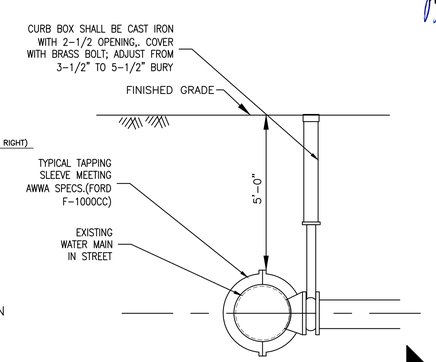


TYPICAL WATER TRENCH DETAIL
NOT TO SCALE

1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1



HYDRANT DETAIL
(NOT TO SCALE)



TAPPING SLEEVE DETAIL
(NOT TO SCALE)

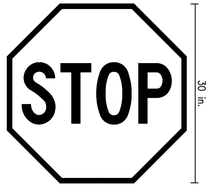
FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: _____

_____
_____
_____
_____
_____
SCITUATE PLANNING BOARD



STOP SIGN SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WITH THE EXCEPTION OF BEING DIAMOND GRADE

12" WIDE X 12 FT LONG STOP LINE TO BE PLACED 4 FT IN ADVANCE OF NEAREST CROSSWALK.

IN THE ABSENCE OF MARKED CROSSWALK THE STOP LINE SHALL BE PLACED NO MORE THAN 30 FT NOR LESS THAN 4 FT FROM THE NEAREST EDGE OF THE INTERSECTING TRAVELED WAY.

STOP SIGN DETAIL
(NOT TO SCALE)

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED PROFESSIONAL ENGINEER

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

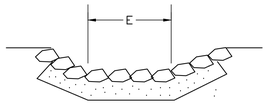
SITE PLAN
COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

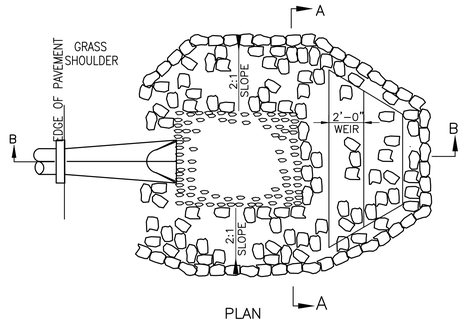
PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

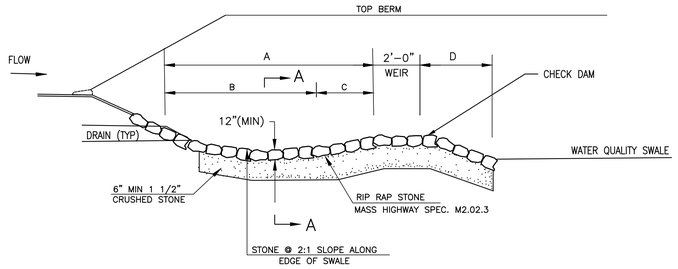
FEBRUARY 2, 2023
SCALE: AS NOTED
JOB No. 20-475

DETAILS - WATER

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378





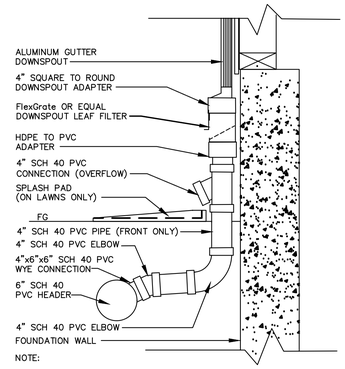


PIPE DIA.	12"	8"	6"
A	10'-0"	8'-0"	6-0"
B	7'-6"	5'-6"	4'-6"
C	2'-6"	2'-6"	1'-6"
D	3'-0"	2'-0"	1'-0"
E	4'-0"	3'-0"	2'-6"

SECTION A-A

OUTLET PROTECTION DETAIL

NOT TO SCALE



NOTE:

1. SPLASH PAD TO BE USED FOR DOWN SPOUTS HAVING OVERFLOW DISCHARGING ON GROUND SURFACES ONLY.
2. SPLASH PAD NOT REQUIRED FOR DOWN SPOUTS HAVING OVERFLOW DISCHARGES ON PARKING AREAS.

(2) DOWN SPOUT CONNECTION DETAIL

Scale: NONE

FOR REGISTRY USE ONLY

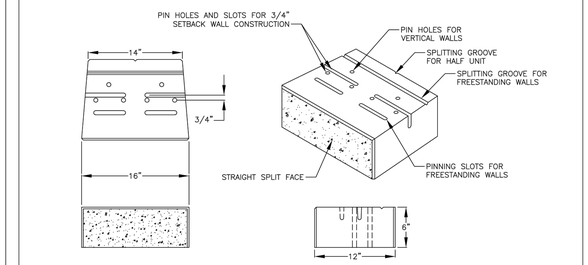
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: _____

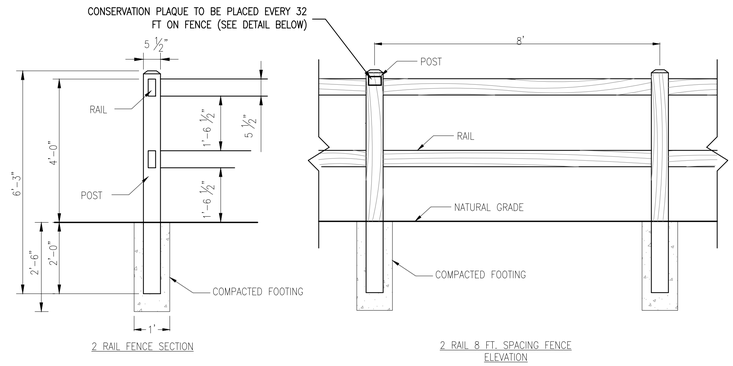
_____
_____
_____
_____

SCITUATE PLANNING BOARD



VERSA-LOK UNIT

UNIT DIMENSIONS
SCALE: NONE

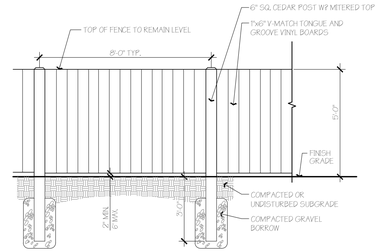


2 RAIL FENCE SECTION

2 RAIL 8 FT. SPACING FENCE ELEVATION

SPLIT RAIL FENCE DETAIL

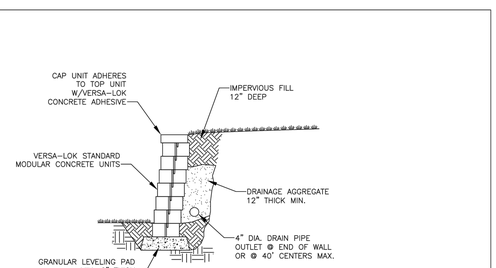
N.T.S.



NOTE:
1. ALL SCREWS AND FASTENERS TO BE STAINLESS STEEL
2. ALL FASTENERS AND PLUGS SHOULD BE ALIGNED TO FORM A PATTERN

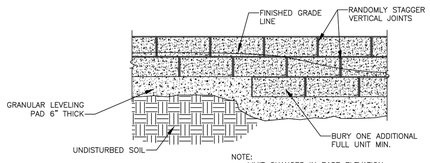
(00) PRIVACY FENCE 5' CEDAR

1/2" = 1'-0" DETAIL-FILE



TYPICAL SECTION-UNREINFORCED RETAINING WALL

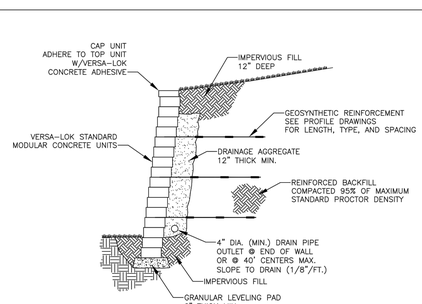
SCALE: NONE



NOTE:
- LIMIT CHANGES IN BASE ELEVATION TO 6" PER STEP TO AVOID DIFFERENTIAL SETTLEMENT
- STEP AS NEEDED TO MINIMIZE BURIED UNITS AND MAINTAIN MINIMUM REQUIRED EMBEDMENT

STEPPING BASE DETAIL

SCALE: NONE



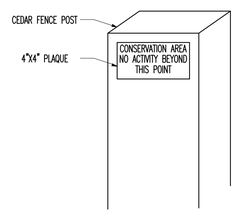
TYPICAL SECTION-REINFORCED RETAINING WALL

MODULAR CONCRETE UNIT
SCALE: NONE

NOTES:
1. STRUCTURAL DESIGN BY OTHERS
2. WALL SUBSTITUTIONS ALLOWED WITH APPROVAL FROM SITE ENGINEER.

RETAINING WALL DETAIL

NOT TO SCALE



CONSERVATION AREA SIGN DETAIL

(NOT TO SCALE)

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED PROFESSIONAL ENGINEER

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

SITE PLAN

COUNTRY WAY ESTATES

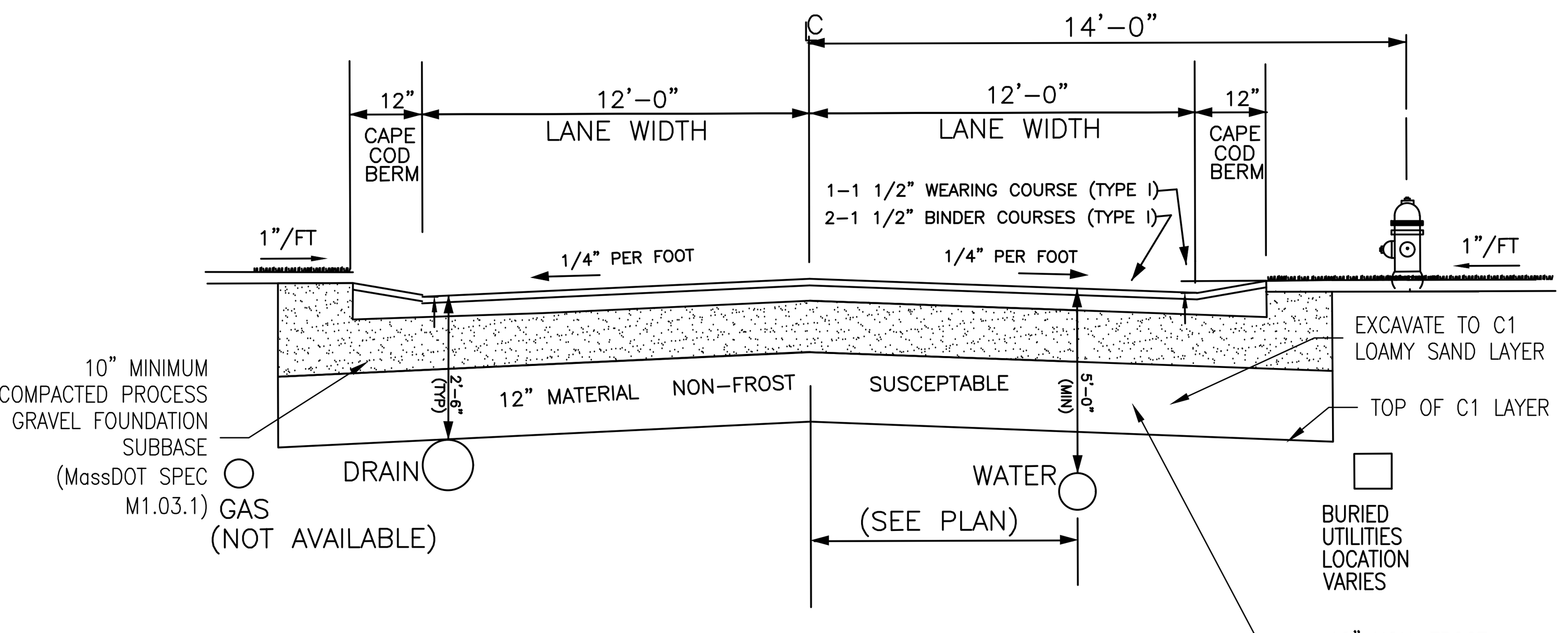
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

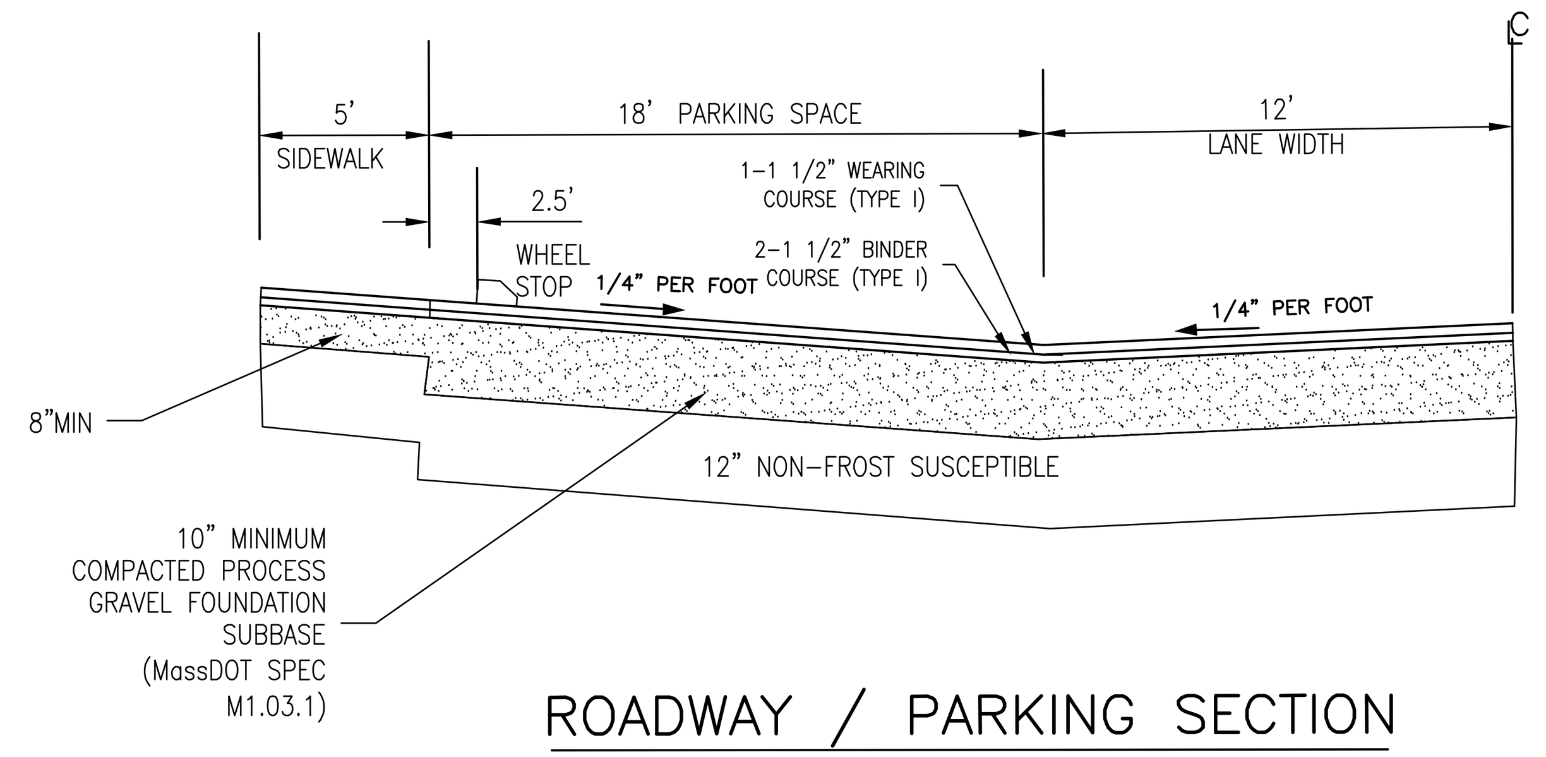
FEBRUARY 2, 2023
SCALE: AS NOTED
JOB No. 20-475

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

DETAILS - SITE

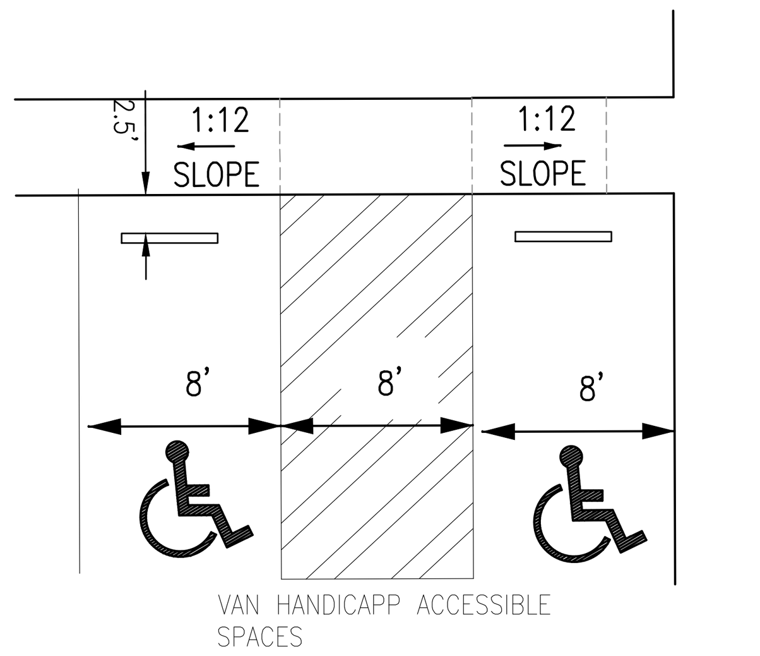


ROADWAY SECTION
(NOT TO SCALE)

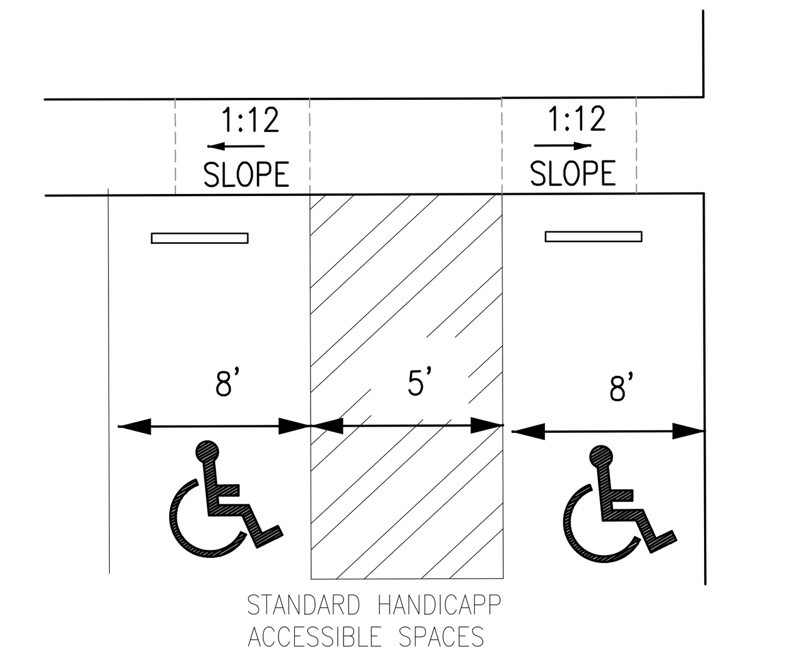


ROADWAY / PARKING SECTION
(NOT TO SCALE)

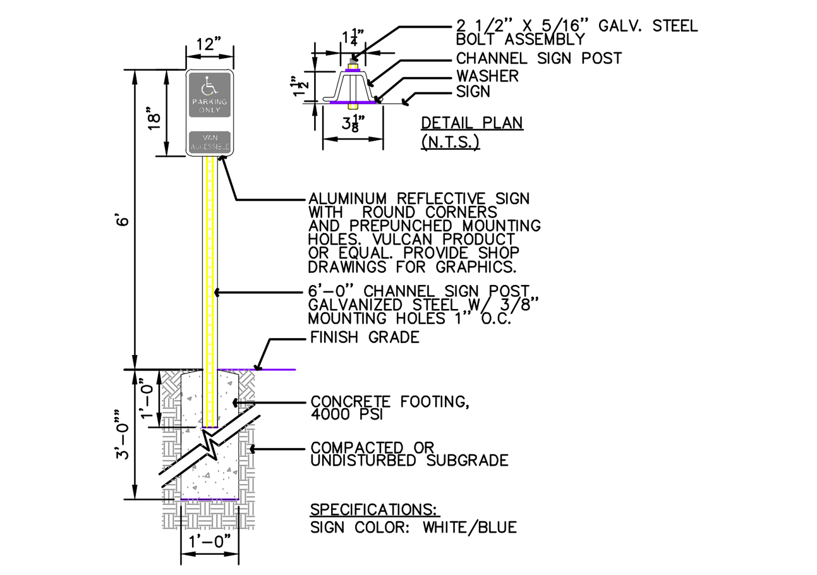
1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 2% (2%MIN)
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%
3. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING
4. BROOM FINISH SURFACE AT RIGHT ANGLES TO DIRECTION OF TRAVEL
5. EACH SPACE TO HAVE A SIGN DESIGNATING AN ACCESSIBLE SPACE **ONE** OF WHICH SHALL BE "VAN ACCESSIBLE" (521 CMR 23.6)



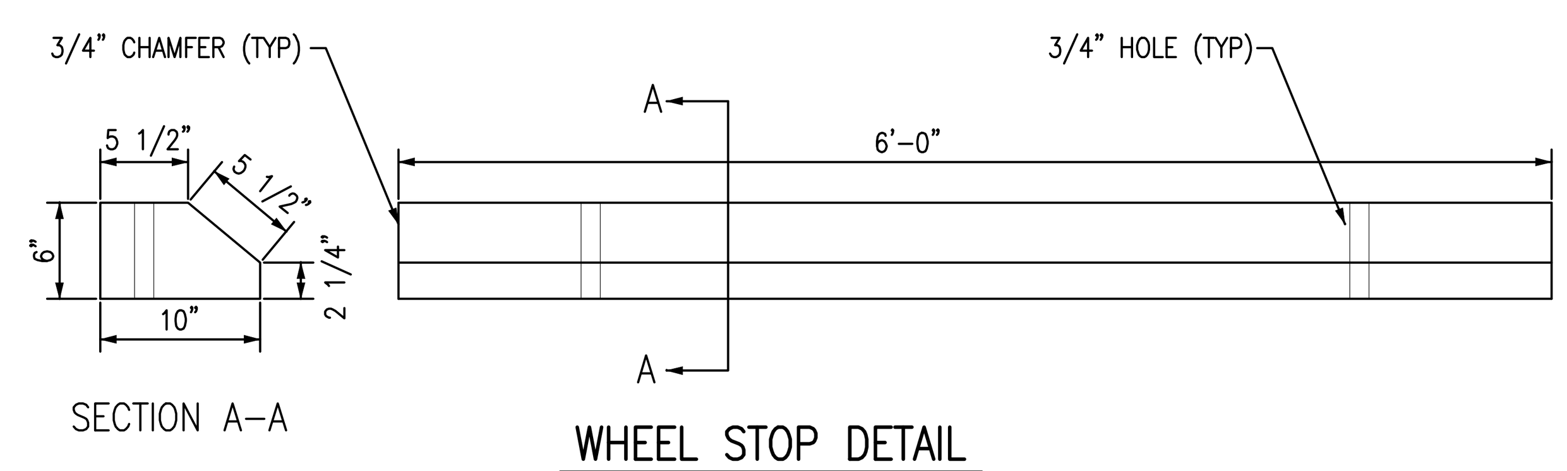
HANDICAP SPACE STRIPING DETAIL
(NOT TO SCALE)



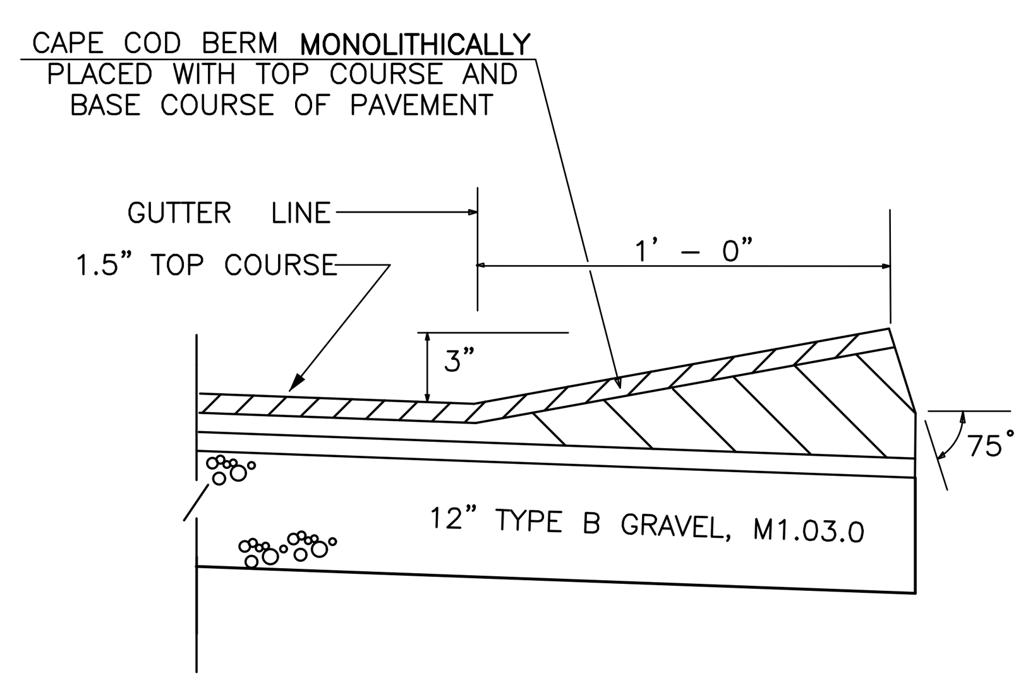
HANDICAP SPACE STRIPING DETAIL
(NOT TO SCALE)



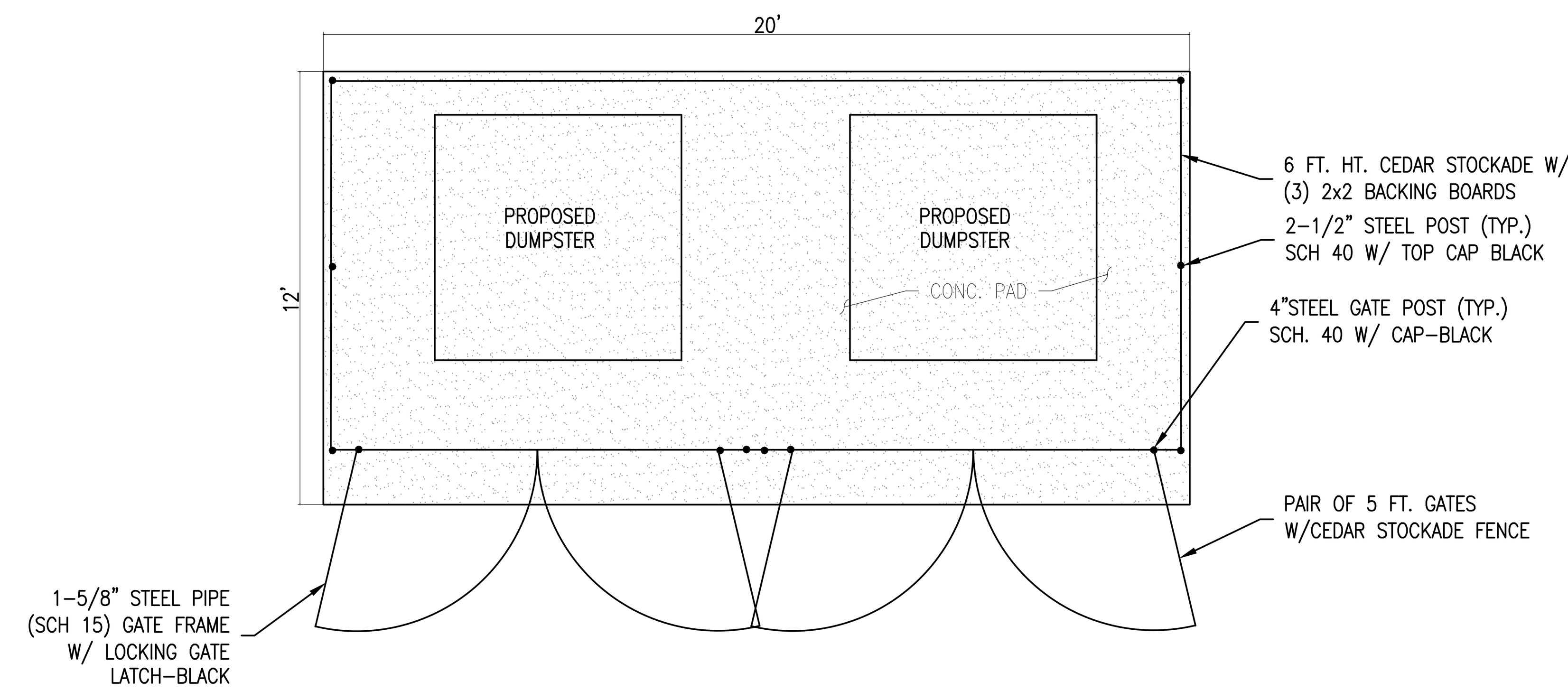
(00) VAN ACCESSIBLE HANDICAP PARKING SIGN

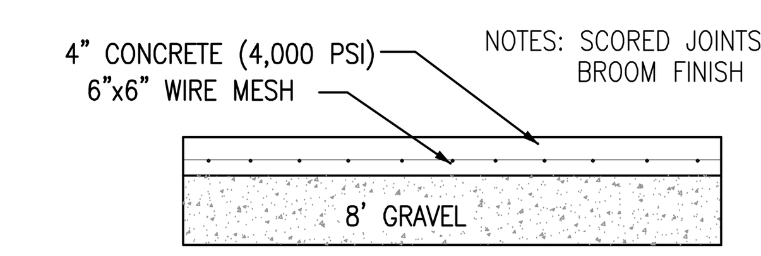


WHEEL STOP DETAIL
(NOT TO SCALE)



CAPE COD BERM DETAIL
(NOT TO SCALE)





DUMPSTER DETAIL
NOT TO SCALE

WINTER STABILIZATION

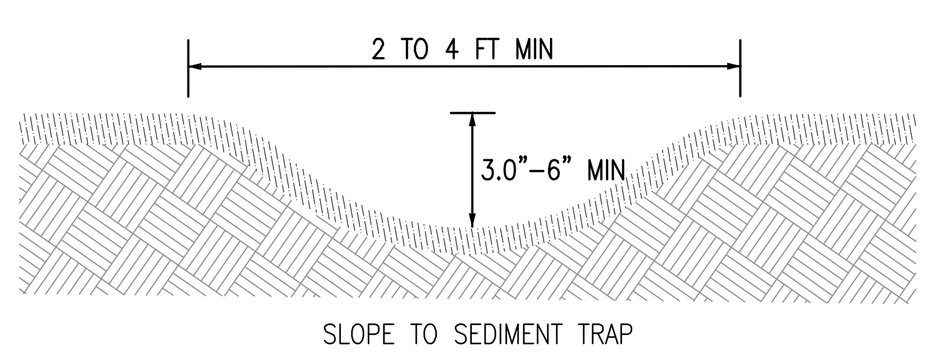
New England Roadside Matrix Upland Seed Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Desmodium paniculatum	Panicledleaf Tick Trefoil	
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Rhus typhina	Staghorn Sumac	
Cornus racemosa	Grey Dogwood	FAC
Cornus amomum	Silky Dogwood	FACW
Oenothera biennis	Evening Primrose	FACU-
Asclepias tuberosa	Butterfly Milkweed	NI
Rudbeckia hirta	Black Eyed Susan	FACU-
Chamaecrista fasciculata	Partridge Pea	FACU
Eupatorium fistulosum (Eutrochium fistulosum)	Hollow-Stem Joe Pye Weed	FACW

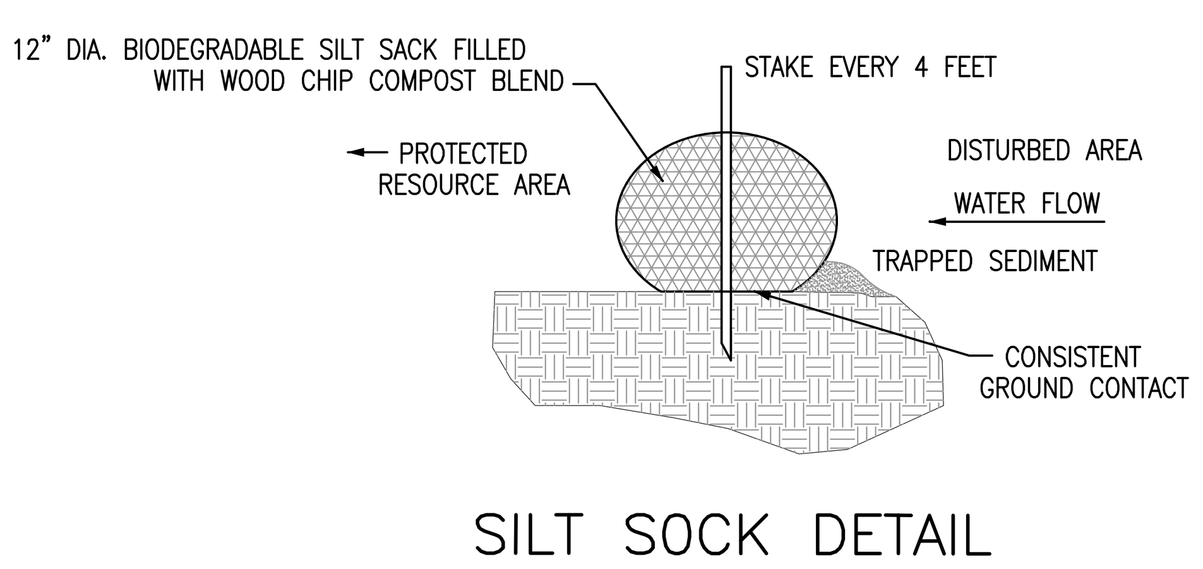
PRICE PER LB. $69.00 MIN. QUANITY 1 LBS. **TOTAL:** $69.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Roadside Matrix Mixes are designed for use along roads and highways. These mixes are unusual in that tey contain native grasses, wildflowers, and shrubs that are blended together as a native matrix seed mix. In areas that receive frequent mowing, the cold season grasses will dominate, such as those areas closet to the roadway shoulder. In areas farther from the road, which may be mown only once each year, or in hard to mow areas, such as around sign posts, the wildflower component will become dominant.. Along cuts and side slopes which may never be mown, the shrub component will add diversity and beauty to the roadside plantings.it is a particularly appropriate seed mix for roadsides, industrial sites, or cut and fill slopes. These mixes may be applied by hydroseeding, or by mechanical spreader. Always apply on a clean, wed-free seed bed. After sowing, lightly rake or roll the site to improve seed-to-soil contact. Best results are obtained with a mid-late spring seeding.summer seeding will benefit from a light mulching of clean, weed-free straw to conserve soil moisture

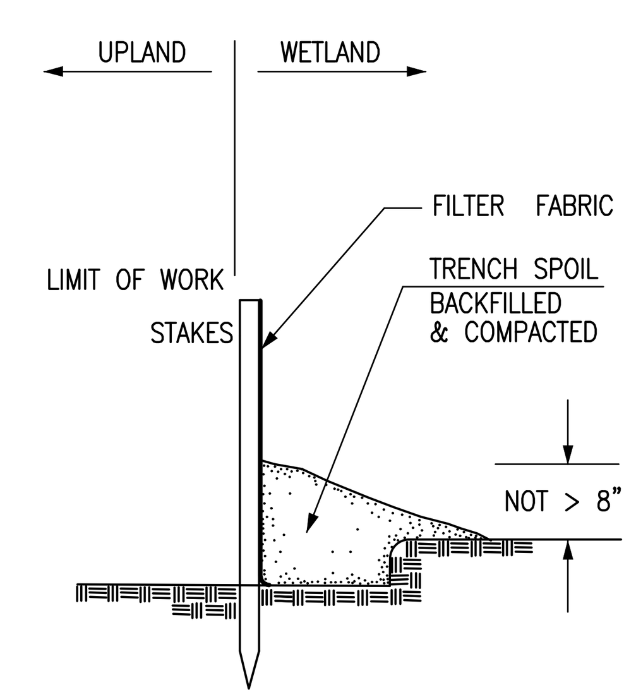
New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.



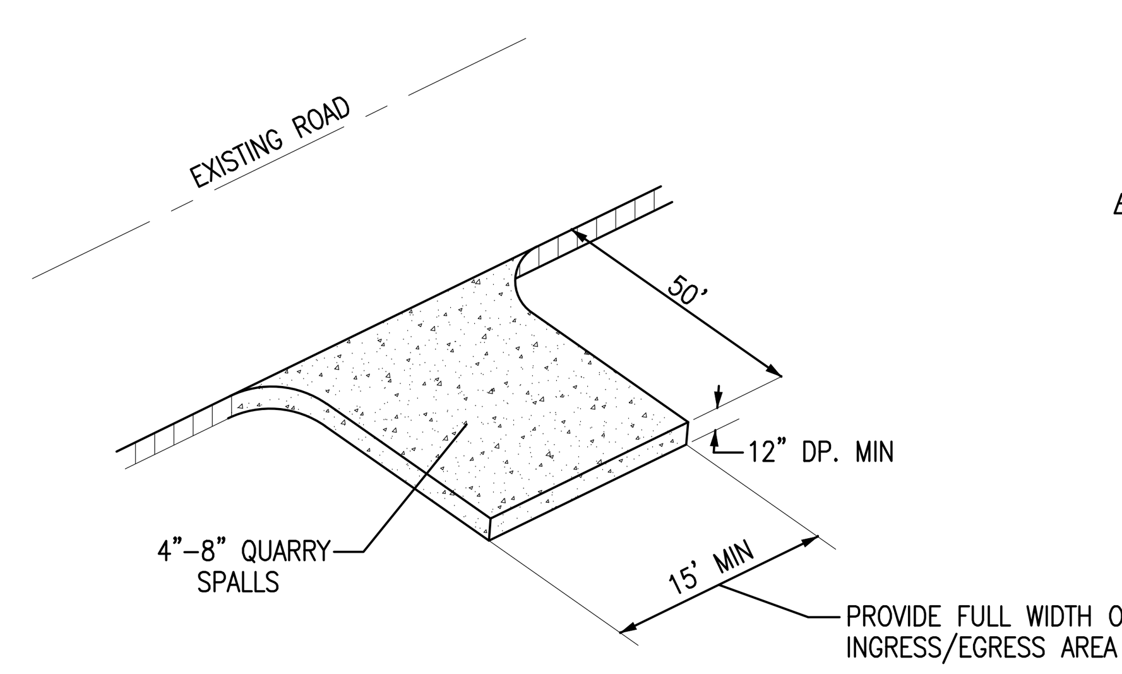
SWALE DETAIL
NOT TO SCALE



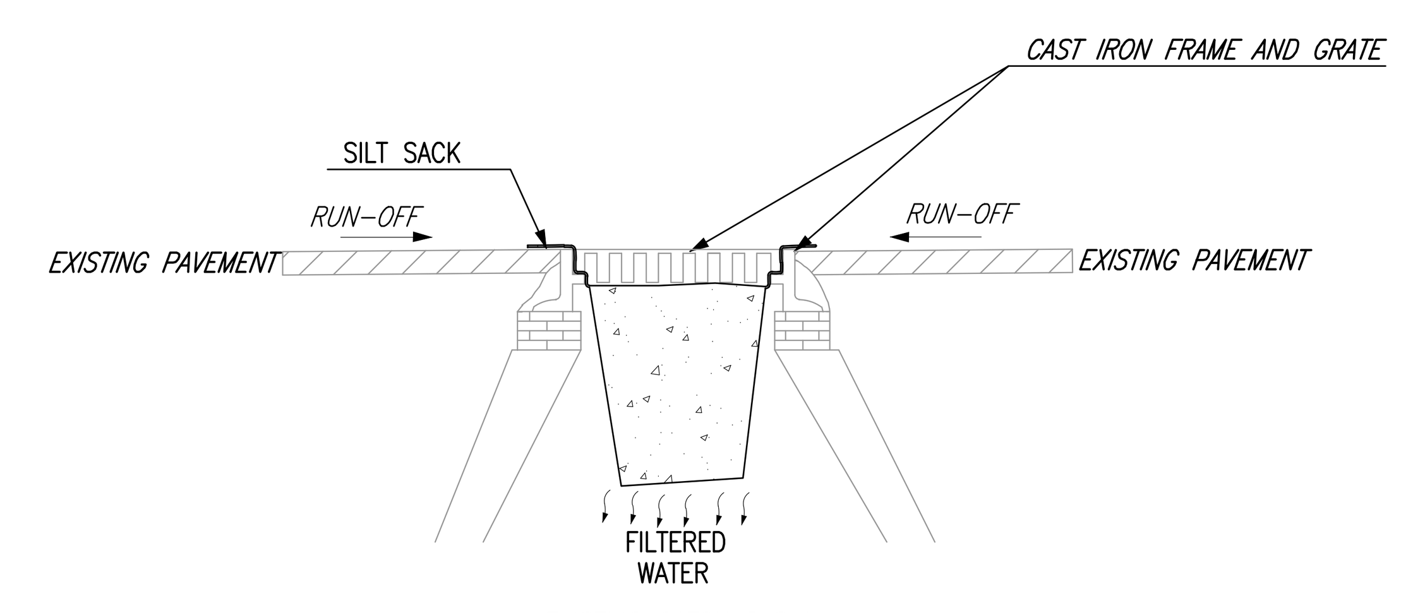
SILT SOCK DETAIL
NOT TO SCALE



SILT FENCE/TURTLE BARRIER (CONSTRUCTION PHASE)
(NOT TO SCALE)



CRUSHED STONE CONSTRUCTION ENTRANCE
(NOT TO SCALE)



NOTE: SILT SACKS SHALL BE INSPECTED DAILY AND SILT SHALL BE REMOVED WHEN ACCUMULATED TO ALLOW CATCH BASIN TO FUNCTION PROPERLY. REMOVE PERMANENTLY WHEN SITE STABILIZATION HAS OCCURRED.

SILT SACK
(NOT TO SCALE)

FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: ______________________

SCITUATE PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

DETAILS – PAVING

SITE PLAN
COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

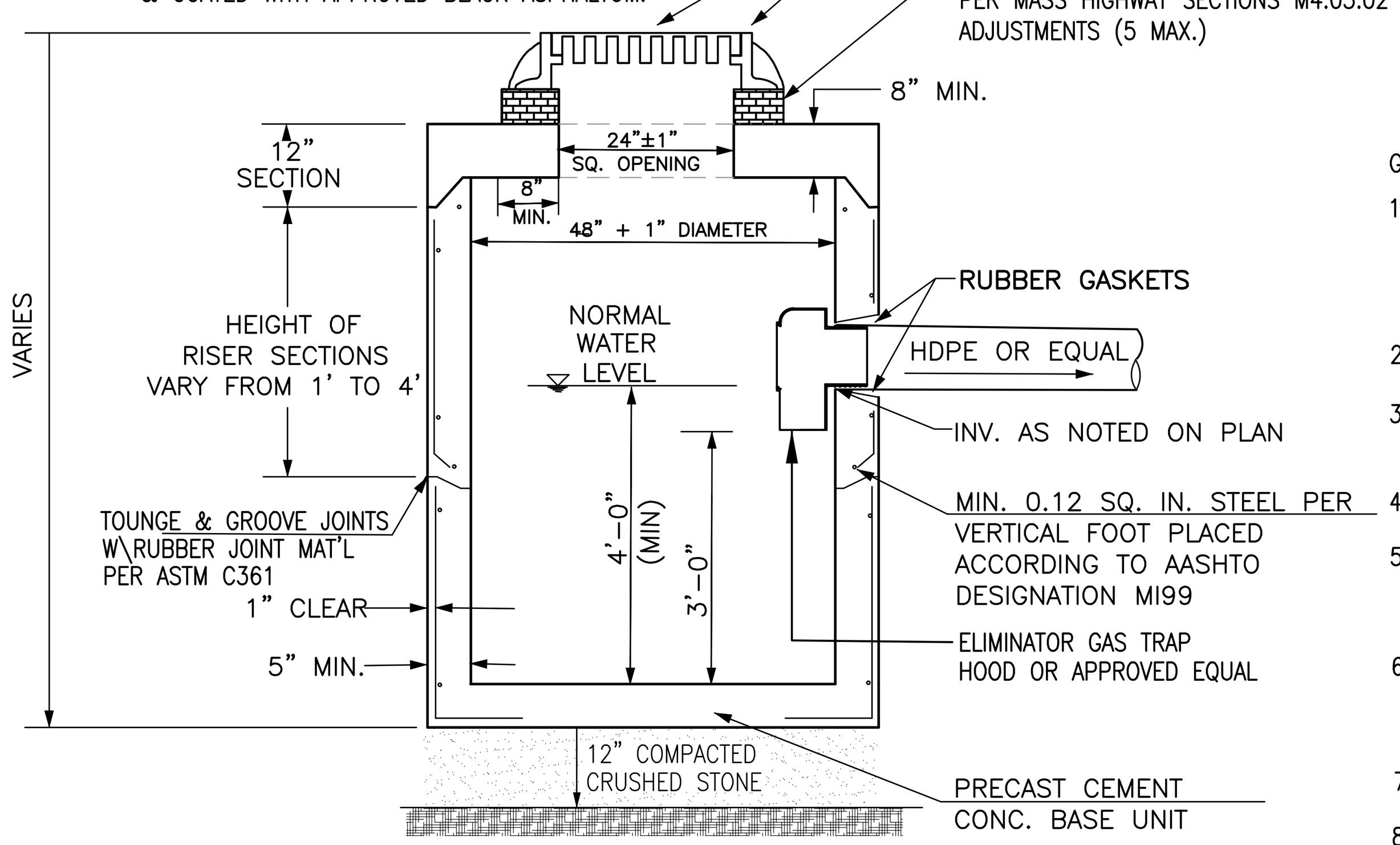
PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: AS NOTED
JOB No. 20-475

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

NOTES:

1. PRECAST CONCRETE UNITS TO CONFORM TO THE MASS HIGHWAY SECTION M4.02.14
2. 4000 PSI MINIMUM COMPRESSIVE STRENGTH
3. PRECAST UNITS TO BE HS-20 LOADING
4. EXTERIOR SURFACES TO BE SEALED W\ COLD APPLIED BITUMINOUS SEALER
5. CASTINGS FOR FRAME, GRATES, COVERS & HOODS TO CONFORM TO ASTM A48, GRADE 30 MINIMUM & COATED WITH APPROVED BLACK ASPHALTUM.



PROVIDE RUBBER GASKETS AND EXTERIOR COATED WITH BITUMINOUS SEAL PER PLANNING BOARD RULES AND REGULATIONS

GENERAL NOTES:

1. PROVIDE 24" x 24" OPENING AND EAST JORDAN FRAME AND GRATE FOR SINGLE GRATE CATCH BASIN (CB) OR APPROVED EQUAL.
2. CATCH BASIN HOOD WILL NOT BE INSTALLED.
3. SET FRAME IN FULL BED OF MORTAR. BRICKS MAY BE USED FOR GRADE ADJUSTMENT.
4. MORTAR ALL JOINTS.
5. PROVIDE "V" KNOCKOUTS FOR PIPES W\ 2" CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
6. REINFORCED STEEL CONFORMS TO LATEST ASTM SPEC. 0.12 SQ. IN.\LINEAR FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
7. CONCRETE COMPRESSIVE STRENGHT-4000 PSI MIN.
8. MANHOLE DESIGN SPECS CONFORM TO LATEST ASTM C-478 SPEC FOR "PRECAST CONCRETE MANHOLE SECTIONS"

FLAT-TOP PRECAST GASOLINE TRAP CATCH BASIN

(NOT TO SCALE)

ADS

TECHNICAL NOTE

Minimum and Maximum Cover Heights for Corrugated HDPE Pipe (per AASHTO)

TN 2.01
September 2014

Introduction

The information in this document is designed to provide answers to general cover height questions; the data provided is not intended to be used for project design. The design procedure described in the *Structures* section (Section 2) of the Drainage Handbook provides detailed information for analyzing most common installation conditions. This procedure should be utilized for project specific designs.

The two common cover height concerns are minimum cover in areas exposed to vehicular traffic and maximum cover heights. Either may be considered "worst case" scenario from a loading perspective, depending on the project conditions.

Minimum Cover in Traffic Applications

Pipe diameters from 4- through 48-inch (100-1200 mm) installed in traffic areas (AASHTO H-25 or HS-25 loads) must have at least one foot (0.3m) of cover over the pipe crown, while 54- and 60-inch (1350 and 1500 mm) pipes must have at least 24 inches (0.6m) of cover. The backfill envelope must be constructed in accordance with the *Installation* section (Section 5) of the Drainage Handbook and the requirements of ASTM D2321. The backfill envelope must be of the type and compaction listed in Appendix A-5, Table A-5-2 of the Drainage Handbook. In Table 1 below, this condition is represented by a Class III material compacted to 90% standard Proctor density, although other material can provide similar strength at slightly lower levels of compaction. Structural backfill material should extend six inches (0.15m) over the crown of the pipe; the remaining cover should be appropriate for the installation and as specified by the design engineer. If settlement or rutting is a concern, it may be appropriate to extend the structural backfill to grade. Where pavement is involved, sub-base material can be considered in the minimum burial depth. While rigid pavements can be included in the minimum cover, the thickness of flexible pavements should not be included in the minimum cover.

Additional information that may affect the cover requirements is included in the *Installation* section (Section 5) of the Drainage Handbook. Some examples of what may need to be considered are temporary heavy equipment, construction loading , paving equipment and similar loads that are less than the design load, the potential of pipe flotation, and the type of surface treatment which will be installed over the pipe zone.

Table 1
Minimum Cover Requirements for ADS N-12®, N-12 ST, and N-12 WT (per AASHTO) with AASHTO H-25 or HS-25 Load

Inside Diameter, ID, in.(mm)	Minimum Cover ft. (m)	Inside Diameter, ID, in.(mm)	Minimum Cover ft. (m)
4 (100)	1 (0.3)	24 (600)	1 (0.3)
6 (150)	1 (0.3)	30 (750)	1 (0.3)
8 (200)	1 (0.3)	36 (900)	1 (0.3)
10 (250)	1 (0.3)	42 (1050)	1 (0.3)
12 (300)	1 (0.3)	48 (1200)	1 (0.3)
15 (375)	1 (0.3)	54 (1350)	2 (0.6)
18 (450)	1 (0.3)	60 (1500)	2 (0.6)

Note: Minimum covers presented here were calculated assuming Class III backfill material compacted to 90% standard Proctor density around the pipe and a minimum of 6-inches (0.15m) structural backfill over the pipe crown, as recommended in Section 5 of the Drainage Handbook, with an additional layer of compacted traffic lane sub-base for a total cover as required. In shallow traffic installations, especially where pavement is involved, a good quality compacted material to grade is required to prevent surface settlement and rutting.

ADS

Maximum Cover

Wall thrust generally governs the maximum cover a pipe can withstand and conservative maximum cover heights will result when using the information presented in the *Structures* section (Section 2) of the Drainage Handbook.

The maximum burial depth is highly influenced by the type of backfill and level of compaction around the pipe. General maximum cover limits for ADS N-12, N-12 ST, N-12 WT pipe, (ASTM F2306 and AASTHO M252/M294 Type S pipes) are shown in Table 3 for a variety of backfill conditions.

Table 3 was developed assuming pipe is installed in accordance with ASTM D2321 and the *Installation* section (Section 5) of the Drainage Handbook. Additionally, the calculations assume zero hydrostatic load, incorporate the maximum safety factors represented in Structures section of the Drainage Handbook, use material properties consistent with the expected performance characteristics for N-12 (per ASTM F2306) materials as shown in Table 2 below, and assume the native soil is of adequate strength and is suitable for installation. For applications requiring fill heights greater than those shown in Table 3 or where hydrostatic pressure due to groundwater is present, contact an ADS engineering representative.

Figure 1
ADS N-12®, N-12 ST, and N-12 WT (per AASHTO) Trench Detail Under Pavement

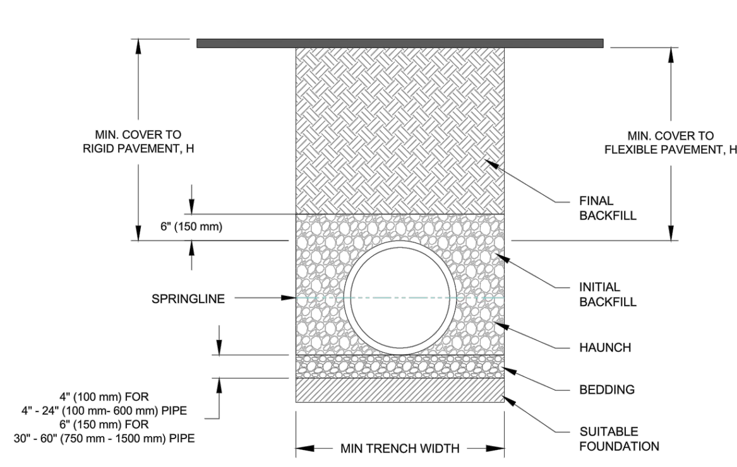
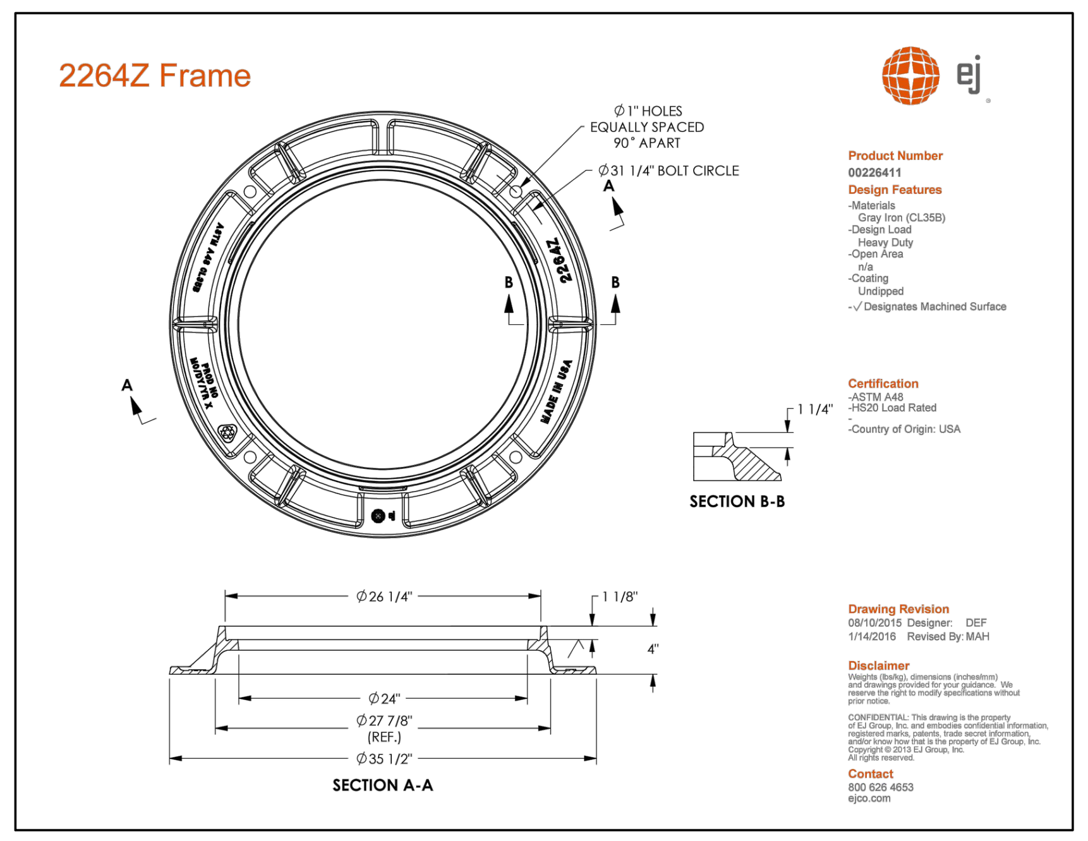


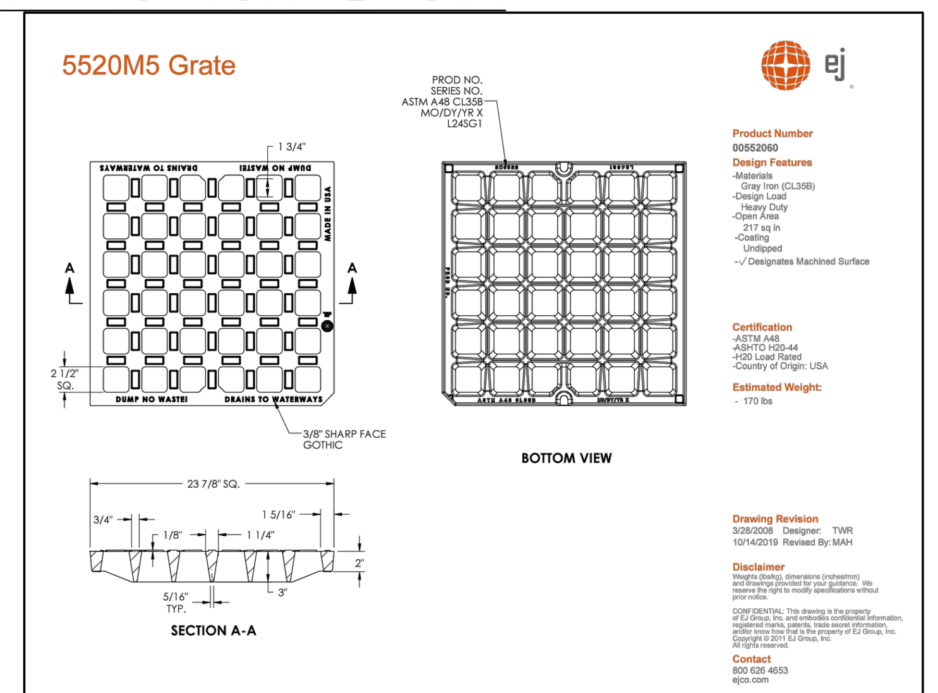
Table 2
ADS N-12 (per AASHTO) Mechanical Properties

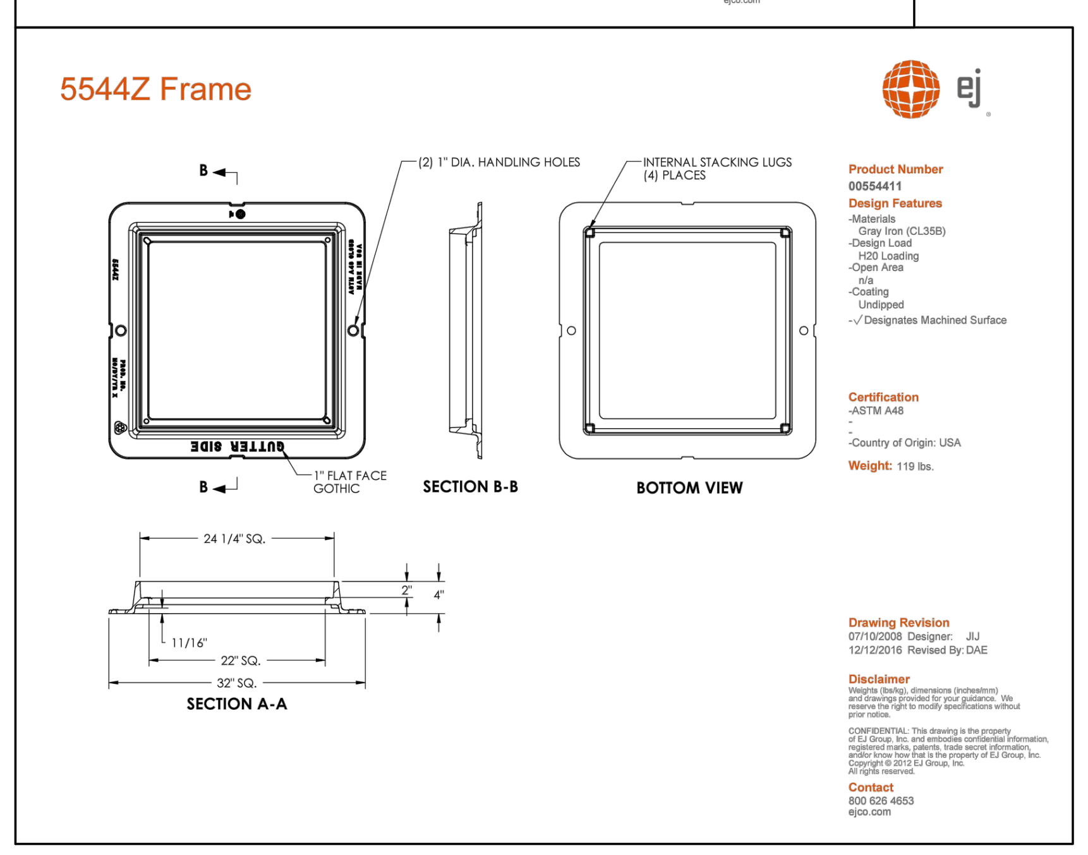
Cell Class	Factored Compressive Strain (%)	Tension Strain (%)	Initial Fu (psi)	Initial E (psi)	75-Year Fu (psi)	75-Year E (psi)
ASTM D3350 435400C	4.1	5.0	3,000	110,000	900	21,000

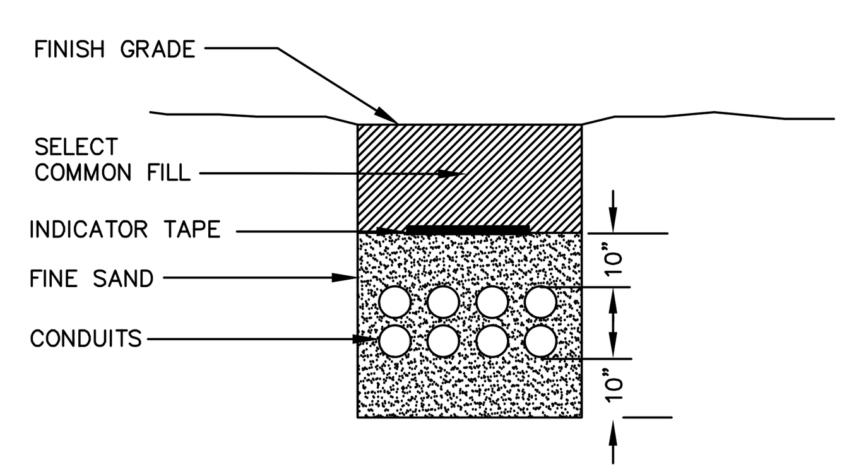
DRAIN PIPE INSTALLATION REQUIREMENT

NOT TO SCALE





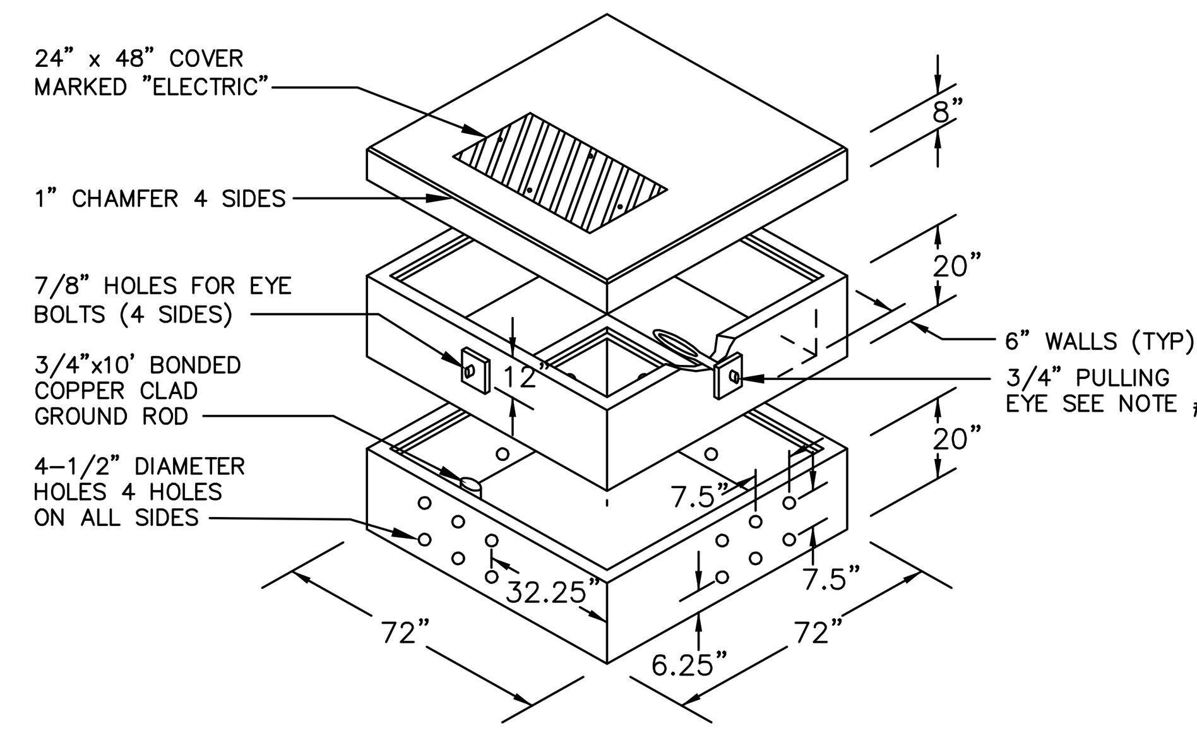




NOTE: SAND BEDDING AND SELECT FILL TO BE THOROUGHLY TAMPED

12 ELEC. CONDUIT DETAIL

Scale: NONE



NOTES:
1. INSTALL GALVANIZED PULLING EYES, ONE ON EACH WALL (4) 3/4" EYES.
2. CONCRETE TO BE 5000 PSI HIGH EARLY STRENGTH.
3. CONDUIT OPENING TO HAVE 4" BELL ENDS FLUSH WITH INSIDE WALL.
4. DO NOT BURY MORE THAN 18" BELOW FINAL GRADE.
5. INSTALL VAULT ON A 12" BED OF CRUSHED STONE WHEN REQUIRED.

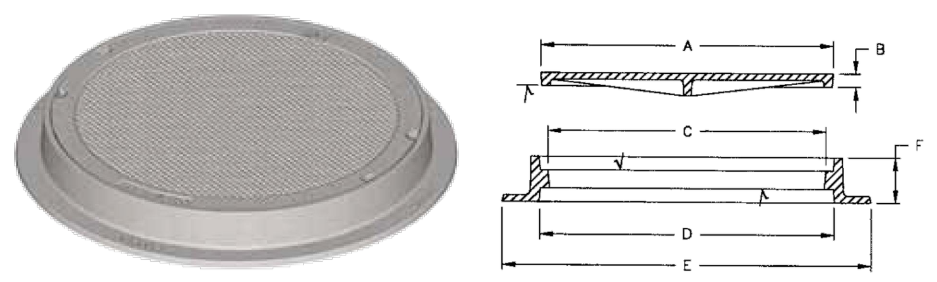
6 3 PHASE TRANSFORMER VAULT

UP TO 500 KVA

Scale: NONE

New England Municipal and Construction Castings Massachusetts Municipal Manhole Frames and Covers

V-1600/V-1800 FRAMES AND COVERS



V-1600-4 assembly

Features
Heavy duty
Reversible frame (BF = V-1600, TF = V-1800)

Options
Solid or vented covers
Special lettered covers
Custom logo covers
Bolted assemblies
Grates (see V-3600/V-3800)
Hinged unit available in select sizes

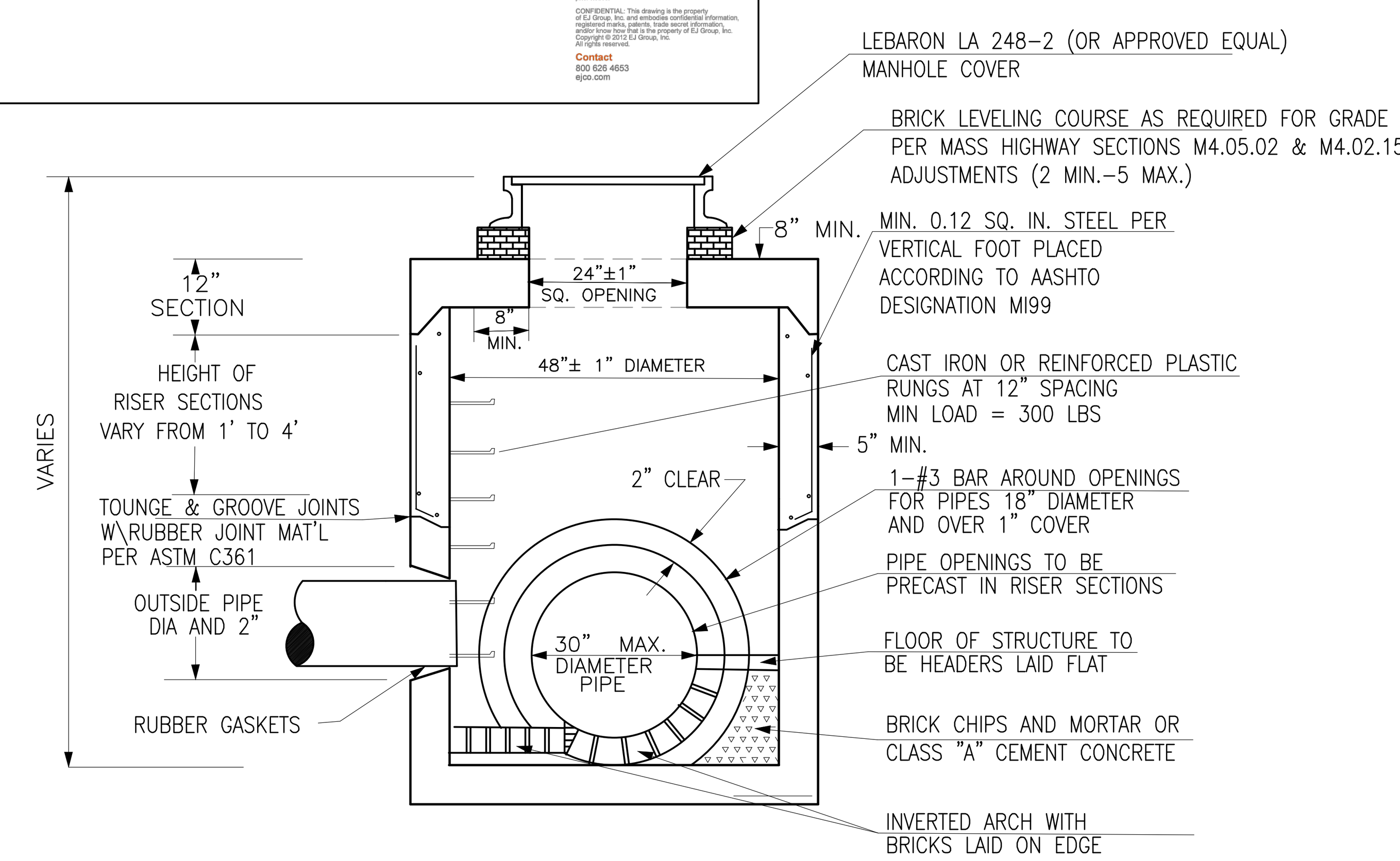
USE V-1800-2 OR APPROVED EQUAL

V-1660/V-1800 Frame and Cover Options

Catalog Number	A Cover Diameter	B Cover Thickness	C Clear Opening	D Frame Opening	E Flange Diameter	F Height
V-1600-1	19 1/4	1 1/2	18 1/4	19 1/2	24	4
V-1600-2	23 1/2	1 1/2	22	23 3/4	28 1/2	4
V-1600-3	25 3/8	1 1/2	24	25 5/8	32 1/8	4
V-1600-4	31 3/4	1 3/8	30	32 1/8	38	4
V-1600-5	38	2	36	38 1/4	46	6
V-1600-6	50 1/4	2	48	50 1/2	56 1/2	6
V-1800-1	19 1/4	1 1/2	18 1/4	20 1/2	24	4
V-1800-2	23 1/2	1 1/2	22	24 3/4	28 1/2	4

NOTES:

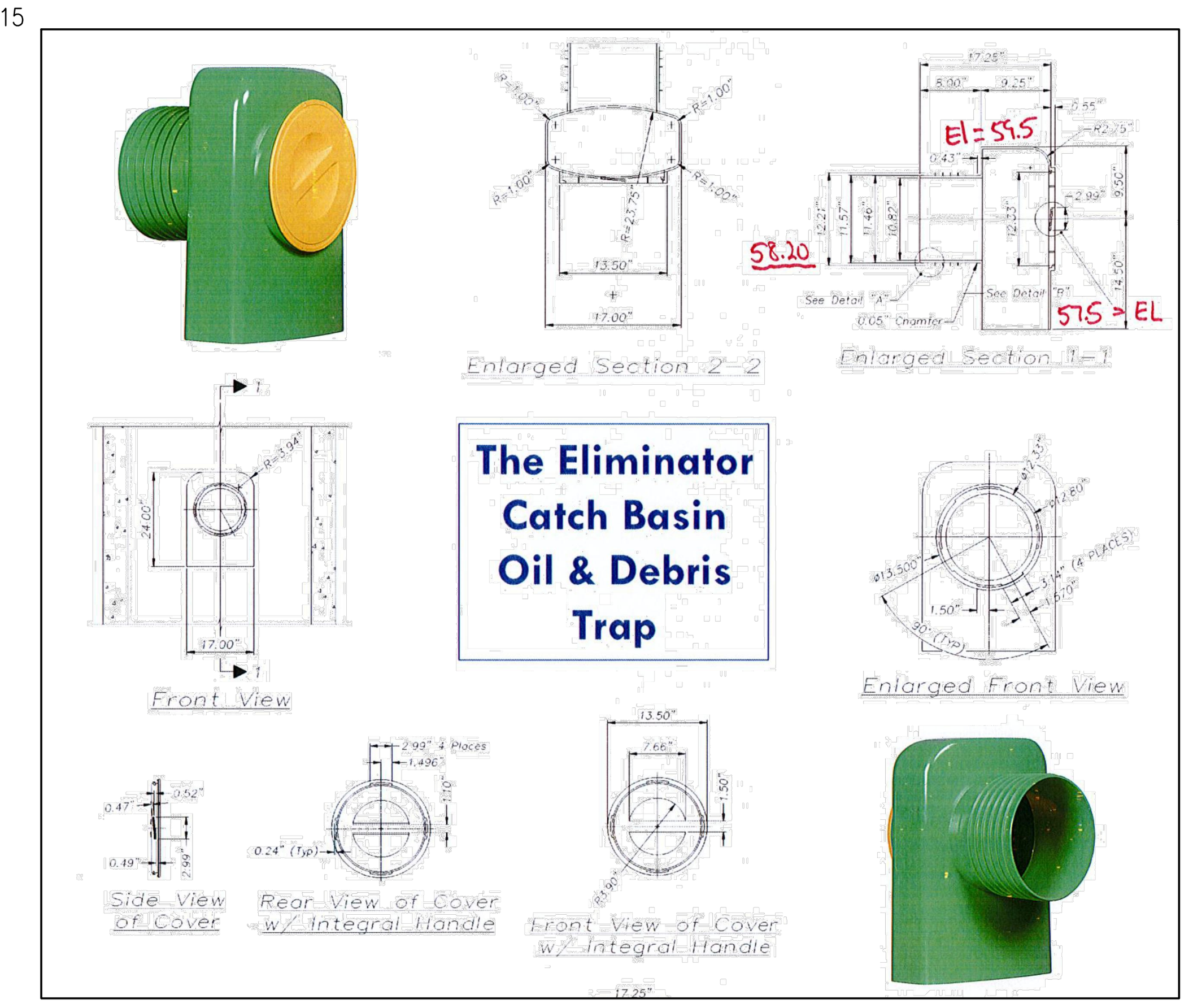
1. PRECAST CONCRETE UNITS TO CONFORM TO THE MASS HIGHWAY SECTION M4.02.14
2. 4000 PSI MINIMUM COMPRESSIVE STRENGTH
3. PRECAST UNITS TO BE HS-20 LOADING
4. EXTERIOR SURFACES TO BE SEALED W\ COLD APPLIED BITUMINOUS SEALER
5. CASTINGS FOR FRAME, GRATES, COVERS & HOODS TO CONFORM TO ASTM A48, GRADE 30 MINIMUM & COATED WITH APPROVED BLACK ASPHALTUM.

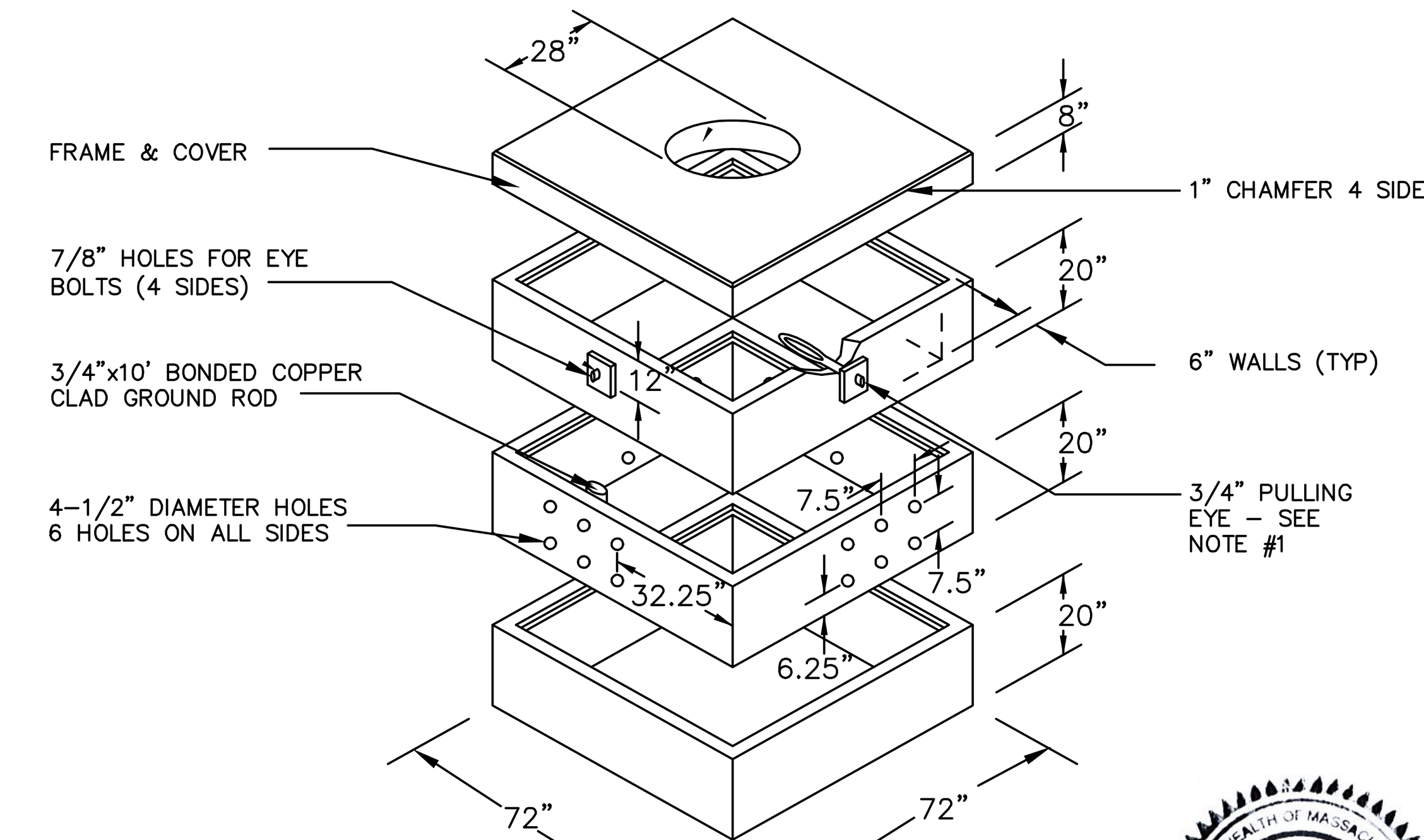


PROVIDE RUBBER GASKETS AND EXTERIOR COATED WITH BITUMINOUS SEAL PER PLANNING BOARD RULES AND REGULATIONS

PRECAST CONCRETE MANHOLE

(NOT TO SCALE)





NOTES:
1. INSTALL GALVANIZED PULLING EYES, ONE ON EACH WALL (4) 3/4" EYES.
2. CONCRETE TO BE 5000 PSI HIGH EARLY STRENGTH.
3. CONDUIT OPENING TO HAVE 4" BELL ENDS FLUSH WITH INSIDE WALL.
4. DO NOT BURY MORE THAN 18" BELOW FINAL GRADE.
5. TO BE INSTALLED ON A 12" BED OF CRUSHED STONE WHEN REQUIRED.
6. COVER TO BE MARKED ELECTRIC.

9 UTILITY PULL BOX DETAIL

Scale: NONE

FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TIMOTHY R. BENNETT P.L.S. #36856 DATE

SITE PLAN APPROVED
DATE: ______________________

SCITUATE PLANNING BOARD

COMMONWEALTH OF MASSACHUSETTS
KEVIN S. GRADY
CIVIL
No. 46264
REGISTERED
PROFESSIONAL ENGINEER

[illegible]

REVISIONS	
JUNE 19, 2023	RESPOND TO TEC PEER REVIEW COMMENTS

SITE PLAN

COUNTRY WAY ESTATES
#817 COUNTRY WAY
ASSESSORS PARCEL 12-2-38-F
SCITUATE, MASSACHUSETTS

PREPARED FOR:
OPTION C PROPERTIES L.L.C.
P.O. BOX 263
WEYMOUTH, MA 02190

FEBRUARY 2, 2023
SCALE: AS NOTED
JOB No. 20-475

DETAILS - DRAINAGE

GRADY CONSULTING, L.L.C.
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