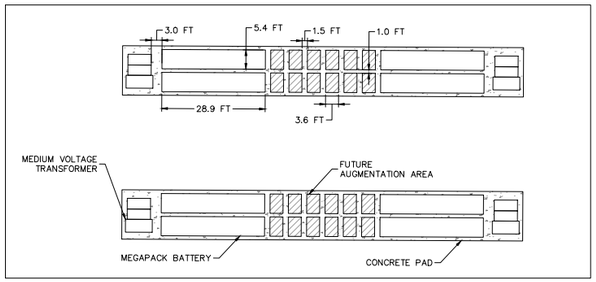

BATTERY ENERGY STORAGE SYSTEM INSET

20 0 5 10 20
SCALE: 1 INCH = 20 FEET

Retaining Wall

Sound Wall

This drawing shows the limits of the retaining and sound walls for the project

WETLAND BUFFER IMPACT AREA #1 (6,130 SF)
ACCESS ROAD
10 FT
15 FT
20 FT (TYP)
R65 FT
R45 FT
25 FT WIDE GAS LINE EASEMENT
9 FT X 18 FT PARKING STALL (TYP)
20 FT WIDE ELECTRIC EASEMENT
10-FT TALL CHAIN LINK SECURITY FENCE (TYP)
PROPERTY LINE (TYP)
SEE LANDSCAPE PLANS
FIRE HYDRANT (TYP)
MEDIUM VOLTAGE TRANSFORMER (TYP)
8 FT (TYP)
± 607 LF 22'-FT TALL METAL PANEL SOUND WALL
15 FT
SETBACK LINE (TYP)
BATTERY ENERGY STORAGE SYSTEM – SEE INSET
ESTABLISH NEW EDGE OF PAVEMENT
CONCRETE BOLLARD (TYP)
RETAINING WALL (TYP)
ASPHALT PAVEMENT (TYP)
MILFORD STREET (ROUTE 109)
5 FT
CRUSHED STONE (TYP)
20' X 20' ELECTRICAL EQUIPMENT PAD
± 710 LF 22' TALL METAL PANEL SOUND WALL
345-34.5kV TRANSFORMER
345kV BREAKER
345kV DISCONNECT SWITCH
LIGHTNING MAST
ACCESS ROAD; GEN-TIE CONNECTION LIMITS TO BE COORDINATED WITH TRANSMISSION CORRIDOR PLANS BY OTHERS
PROPOSED UNDERGROUND CABLE TERMINATION STRUCTURE
LIMITS OF CRUSHED STONE COVER – TRANSITION TO SEED MIX. SEE LANDSCAPE PLANS
STORMWATER BASIN ACCESS PATH
10-FT TALL CHAIN LINK SECURITY FENCE WITH BARBED WIRE (TYP)
RETAINING WALL (TYP)
34.5kV SWITCHGEAR BUILDING
15 FT
30 FT
8 FT
R65 FT
R45 FT
R20 FT
12 FT
R38 FT
10 FT
20 FT
PAVED ACCESS DRIVE
SWING GATE (TYP)
SNOW STORAGE (TYP)
LEASE AREA
LIMIT OF WORK (TYP)
GUARDRAIL (TYP)
HEADWALL
WETLAND BUFFER IMPACT AREA #3 (1,610 SF)
200' RIVERFRONT AREA LIMITS (TYP)
100' WETLAND BUFFER (TYP)
100' RIVERFRONT AREA LIMITS (TYP)
WETLAND BUFFER IMPACT AREA #2 (29,250 SF)
WETLAND LIMITS (TYP)
25' WETLAND "NO DISTURB" ZONE (TYP)
STORMWATER MANAGEMENT FEATURE
RESTORATION AREA (SHED TO BE REMOVED, 710 SF)
APPROXIMATE LIMIT OF CENTER BROOK RIVER
RESTORATION AREA (PAVEMENT WITHIN STORMWATER BASIN TO BE REMOVED, 2,070 SF)
RESTORATION ENHANCEMENT AREA (3,720 SF)
RESTORATION AREA (PAVEMENT OUTSIDE STORMWATER BASIN TO BE REMOVED, 2,610 SF)
RESTORATION ENHANCEMENT AREA (7,610 SF)
RESTORATION ENHANCEMENT AREA (0'-100' RIVERFRONT AREA, 140 SF)
RESTORATION AREA (PAVEMENT OUTSIDE STORMWATER BASIN TO BE REMOVED, 0'-100' RIVERFRONT AREA, 210 SF)
RESTORATION AREA (PAVEMENT TO BE REMOVED IN ROW, 100'-200' RIVERFRONT AREA, 330 SF)
RESTORATION AREA (PAVEMENT TO BE REMOVED IN ROW, 0'-100' RIVERFRONT AREA, 200 SF)
MATCHLINE: CS102
MATCHLINE: CS101

50 0 25 50
SCALE: 1 INCH = 50 FEET

Date	Description	No.
08/24/23	NOI COMMENT REVISIONS	1

Revisions

FRANK HOLMES CIVIL No. 40203 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

LANGAN
Langan Engineering and Environmental Services, Inc.
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Project
MEDWAY BATTERY ENERGY STORAGE SYSTEM
MEDWAY
NORFOLK COUNTY MASSACHUSETTS

Drawing Title
SITE PLAN

Project No.	Drawing No.
151033401	CS101
Date: 06/08/2023	
Drawn By: JNW	
Checked By: FH	

Project No. 151033401

Date: 8/22/2023 Time: 14:52 User: jpark Style Table: Langan.stb Layout: CS100 Document Code: 151033401-0501-CS101-0001

PLANT SCHEDULE

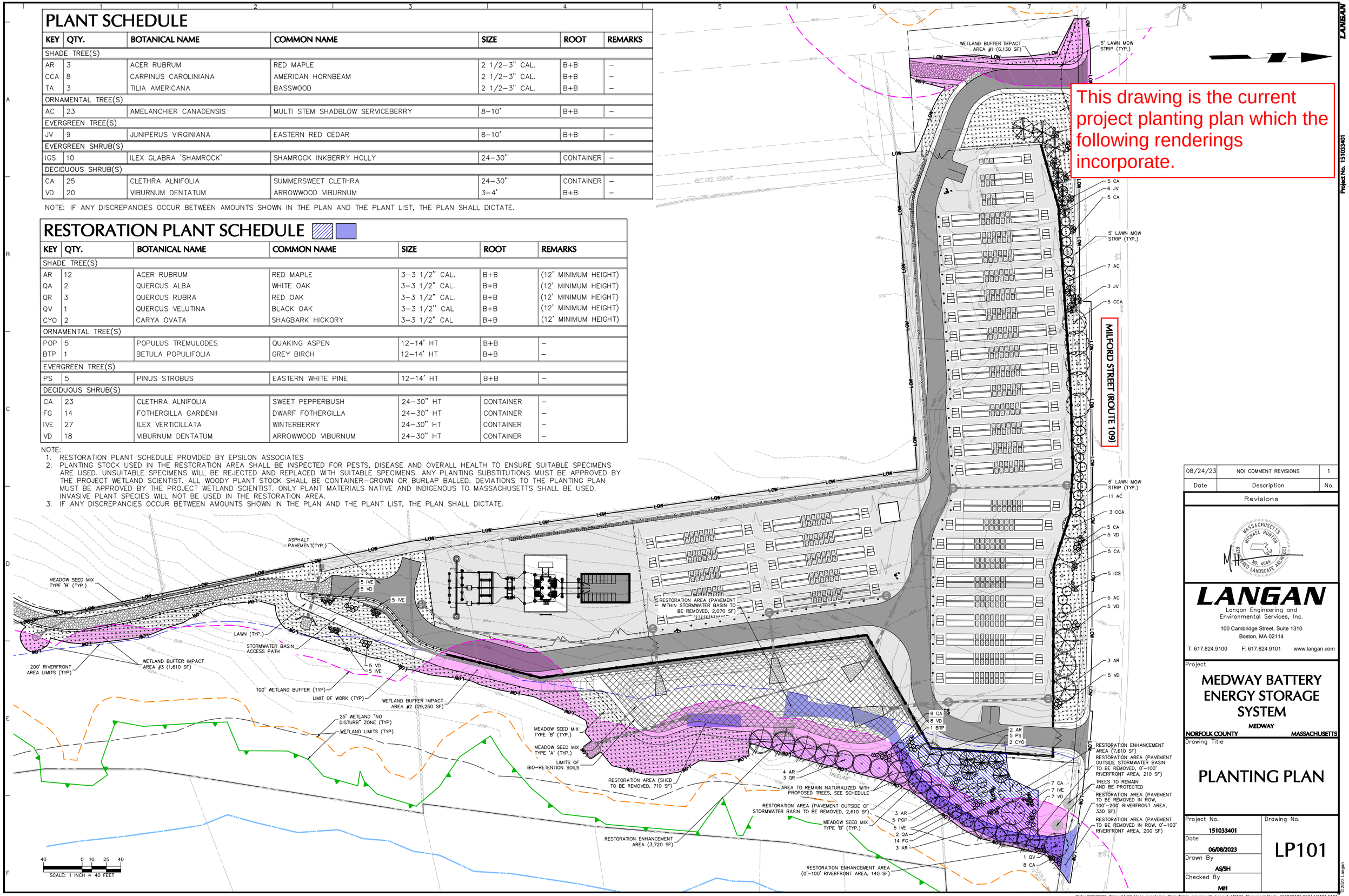
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
SHADE TREE(S)						
AR	3	ACER RUBRUM	RED MAPLE	2 1/2–3" CAL.	B+B	–
CCA	8	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2 1/2–3" CAL.	B+B	–
TA	3	TILIA AMERICANA	BASSWOOD	2 1/2–3" CAL.	B+B	–
ORNAMENTAL TREE(S)						
AC	23	AMELANCHIER CANADENSIS	MULTI STEM SHADBLOW SERVICEBERRY	8–10'	B+B	–
EVERGREEN TREE(S)						
JV	9	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	8–10'	B+B	–
EVERGREEN SHRUB(S)						
IGS	10	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	24–30"	CONTAINER	–
DECIDUOUS SHRUB(S)						
CA	25	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	24–30"	CONTAINER	–
VD	20	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	3–4'	B+B	–

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

RESTORATION PLANT SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
SHADE TREE(S)						
AR	12	ACER RUBRUM	RED MAPLE	3–3 1/2" CAL.	B+B	(12' MINIMUM HEIGHT)
QA	2	QUERCUS ALBA	WHITE OAK	3–3 1/2" CAL.	B+B	(12' MINIMUM HEIGHT)
QR	3	QUERCUS RUBRA	RED OAK	3–3 1/2" CAL.	B+B	(12' MINIMUM HEIGHT)
QV	1	QUERCUS VELUTINA	BLACK OAK	3–3 1/2" CAL	B+B	(12' MINIMUM HEIGHT)
CYO	2	CARYA OVATA	SHAGBARK HICKORY	3–3 1/2" CAL	B+B	(12' MINIMUM HEIGHT)
ORNAMENTAL TREE(S)						
POP	5	POPULUS TREMULODES	QUAKING ASPEN	12–14' HT	B+B	–
BTP	1	BETULA POPULIFOLIA	GREY BIRCH	12–14' HT	B+B	–
EVERGREEN TREE(S)						
PS	5	PINUS STROBUS	EASTERN WHITE PINE	12–14' HT	B+B	–
DECIDUOUS SHRUB(S)						
CA	23	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	24–30" HT	CONTAINER	–
FG	14	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	24–30" HT	CONTAINER	–
IVE	27	ILEX VERTICILLATA	WINTERBERRY	24–30" HT	CONTAINER	–
VD	18	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	24–30" HT	CONTAINER	–

NOTE:
1. RESTORATION PLANT SCHEDULE PROVIDED BY EPSILON ASSOCIATES
2. PLANTING STOCK USED IN THE RESTORATION AREA SHALL BE INSPECTED FOR PESTS, DISEASE AND OVERALL HEALTH TO ENSURE SUITABLE SPECIMENS ARE USED. UNSUITABLE SPECIMENS WILL BE REJECTED AND REPLACED WITH SUITABLE SPECIMENS. ANY PLANTING SUBSTITUTIONS MUST BE APPROVED BY THE PROJECT WETLAND SCIENTIST. ALL WOODY PLANT STOCK SHALL BE CONTAINER–GROWN OR BURLAP BALLED. DEVIATIONS TO THE PLANTING PLAN MUST BE APPROVED BY THE PROJECT WETLAND SCIENTIST. ONLY PLANT MATERIALS NATIVE AND INDIGENOUS TO MASSACHUSETTS SHALL BE USED. INVASIVE PLANT SPECIES WILL NOT BE USED IN THE RESTORATION AREA.
3. IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.



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Revisions

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Project
MEDWAY BATTERY ENERGY STORAGE SYSTEM
MEDWAY
NORFOLK COUNTY MASSACHUSETTS

Drawing Title
PLANTING PLAN

Project No.	Drawing No.
151033401	LP101
Date: 06/08/2023	
Drawn By: AS/SH	
Checked By: MH	

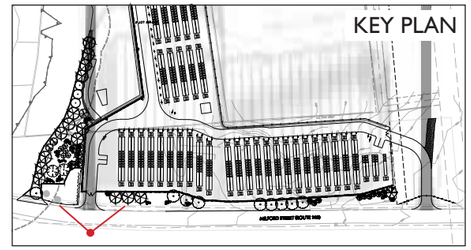
LANGAN Project No. 151033401

MEDWAY GRID
BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA

JUNE 2024

LANGAN



VIEW 1 (EXISTING)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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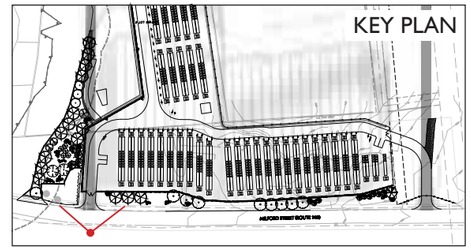

VIEW 1 (TIME OF PLANTING)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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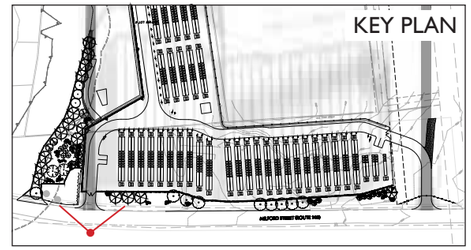

VIEW 1 (5 YEARS)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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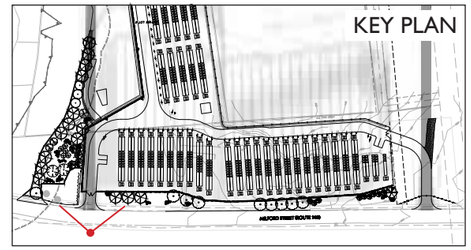

VIEW 1 (10 YEARS)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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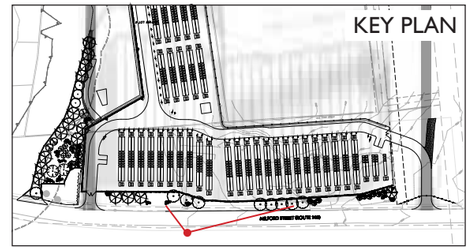

VIEW 2 (EXISTING)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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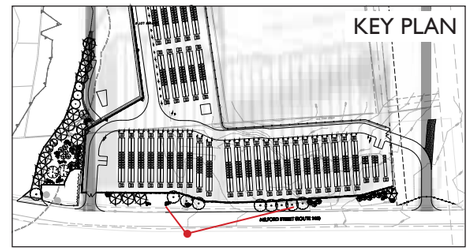

VIEW 2 (TIME OF PLANTING)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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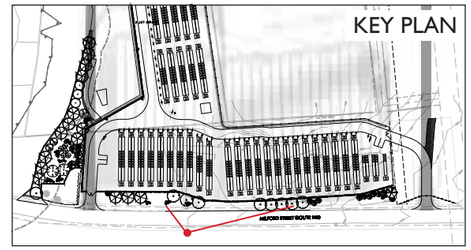

VIEW 2 (5 YEARS)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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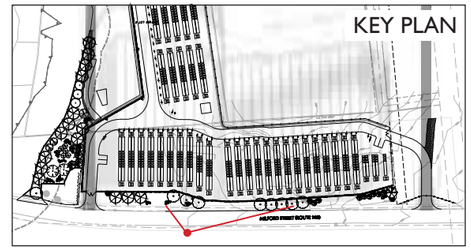

VIEW 2 (10 YEARS)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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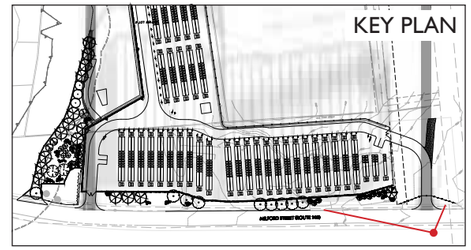

VIEW 3 (EXISTING)

MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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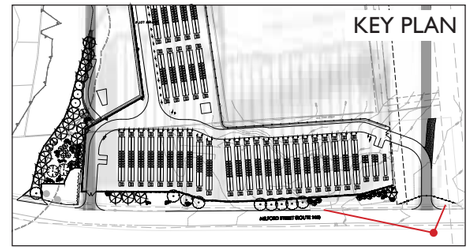
VIEW 3 (TIME OF PLANTING)



MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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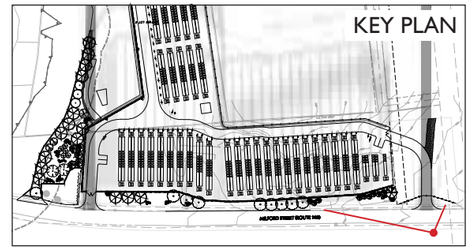
VIEW 3 (5 YEARS)



MEDWAY GRID BATTERY ENERGY STORAGE SYSTEM

MEDWAY, MA
JUNE 2024

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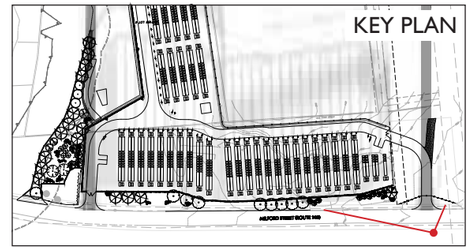
VIEW 3 (10 YEARS)



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MEDWAY, MA
JUNE 2024

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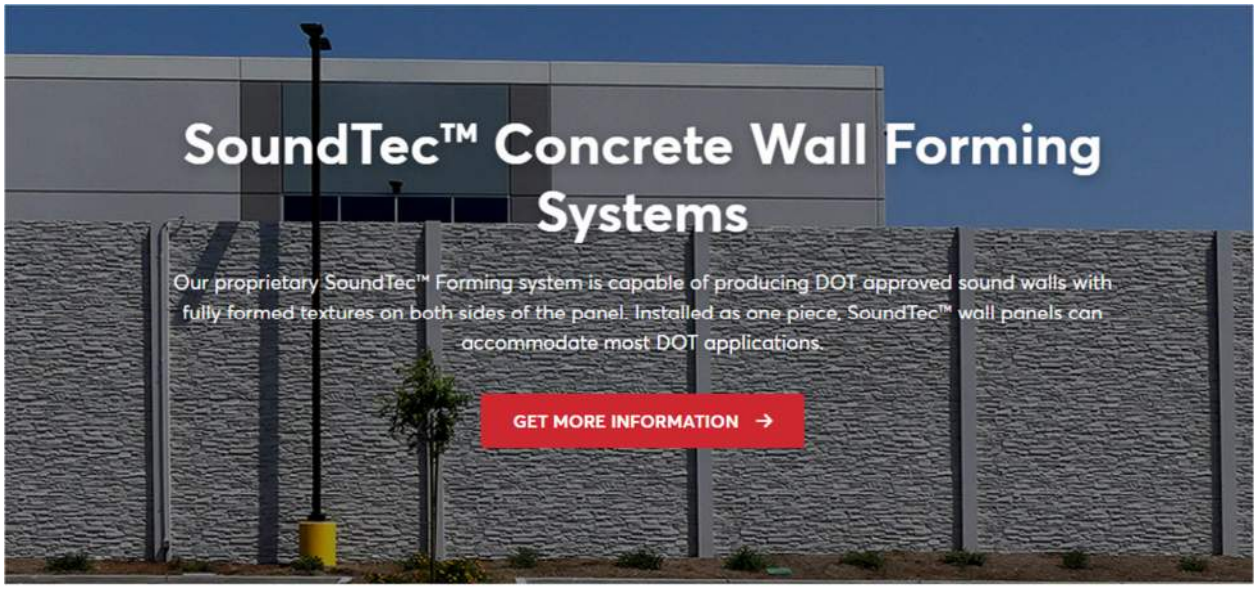
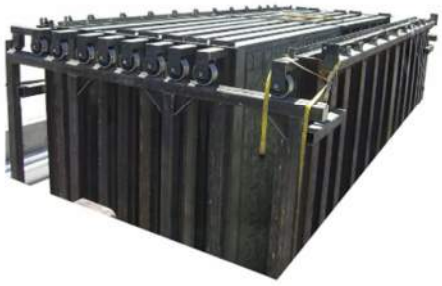


SoundTec™ Forming Systems

AFTEC designs and develops custom versatile SoundTec™ forming systems, which are highly customizable panel form capable of producing either large monolithically cast sound wall panels as single units up to 24 feet high, or panels that can be stacked to build sound walls up to any engineered height.



Additional features of the SoundTec™ Forming System is the ability to produce panels in varying lengths, heights, and thickness, with formed texture on one or both sides. All SoundTec™ wall panels have reflective sound attributes on one side or both. AFTEC can also provide a formed absorptive layer of materials integrally cast with the structural part of the panels and this application is also available in a vertical casting format, allowing a highly defined formed texture on both sides of the panel, the first of its kind in the industry.

All SoundTec™ Forming systems use interchangeable textured liners that are available in a variety of designs – custom liners are also available upon request. Due to its customizable nature, SoundTec™ Forms can be designed to meet the specifications of many state DOT's requirements, ensuring the panels will be formed to the exact spec of the project.

SoundTec™ Column Forms integrate with the SoundTec™ Wall Panels and are also available in various sizes and lengths.

WHAT IS A NOISE BARRIER?

Noise Barriers — Also Known As Sound Walls, Sound Berms, Sound Barriers.

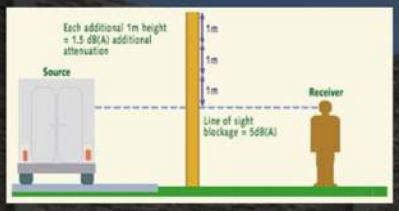
Noise barriers — also known as sound walls, sound berms, sound barriers or acoustical barriers — are outdoor walls that provide the most effective method for blocking noise from busy roads, highways, railways and industrial sources. They're designed to reduce the transmission of sound, protecting people against noise pollution that can cause stress and other adverse effects.

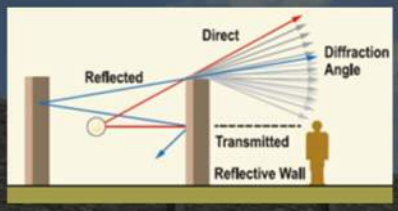
Noise barriers interrupt sound from a source like vehicles traveling to a receiver, such as a home. The sheer mass of the barrier stops the sound energy and redirects it. About three-quarters of noise barriers are made of precast concrete or masonry block.

GET MORE INFORMATION →

How Does A Noise Barrier Work?

Noise barrier walls physically reduce noise by absorbing or reflecting it; or by forcing it to take a roundabout path that causes it to dissipate. The sound is a type of energy that grows stronger as they travel away from their point of origin. Vehicles on a road generate sound waves — mostly from the sticking and peeling off of rubber tires on pavement — that travel in all directions. When the waves arrive at a barrier or obstacle, they either are absorbed or bounce off.



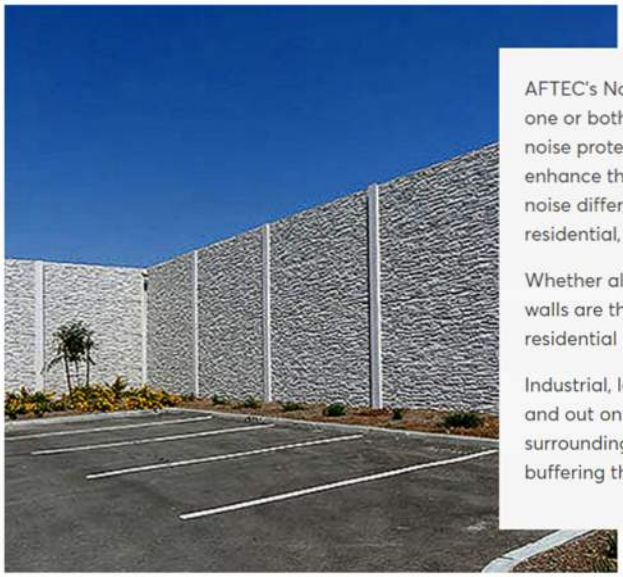


As clearly defined by the Federal Highway Administration, a noise barrier can achieve a 5 dB noise level reduction when it is tall enough to break the line-of-sight from the highway to the receiver, such as a home or person. After it breaks the line-of-sight, it can achieve approximately 1.5dB of additional noise level reduction for each meter of barrier height.

Reflective noise barriers — which causes sound waves to bounce off in a different direction — are one of the most effective methods for blocking noise. Reflective walls of solid concrete that create a barrier and push sound away from homes or other areas being shielded.

AFTEC Precast Concrete Sound Barrier Fence

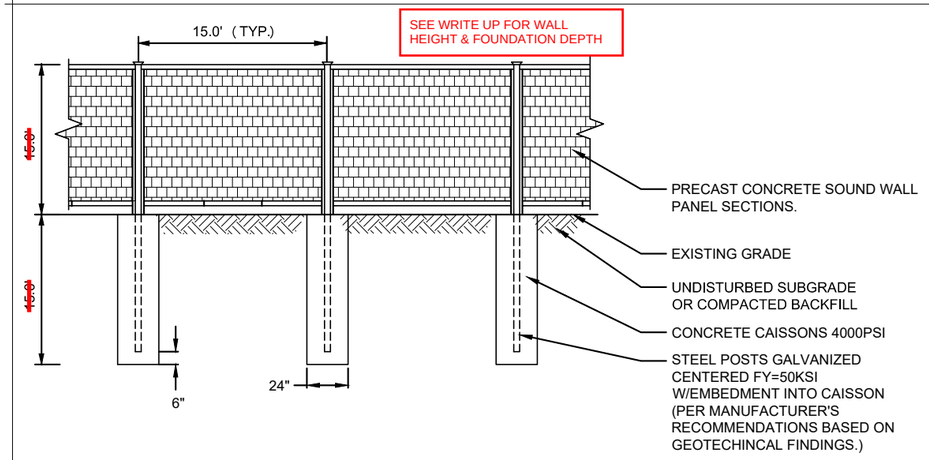
AFTEC's noise barrier walls are the ideal solution for reducing sound around many different types of facilities, such as logistics companies and distribution centers where truck traffic is ongoing 24/7. Precast concrete sound barriers reduce noise pollution significantly.



AFTEC's Noise Barrier Walls which have decorative formed textures on one or both sides, not only addresses the issue of sound transference and noise protection but also provides aesthetically pleasing finishes that enhance the areas where they are installed. Different textures break up noise differently and AFTEC has a wide array of designs available for residential, commercial, and industrial applications.

Whether along highways or surrounding industrial facilities, noise barrier walls are the ideal solution for blocking sound waves from reaching residential neighborhoods.

Industrial, logistic and commercial facilities alike, have trucks coming in and out on a regular basis which causes significant noise pollution to the surrounding neighborhoods. Sound barrier walls are the best solution for buffering the noise emitting from these facilities.



NOTES

1. PRECAST CONCRETE PANEL SOUND WALL BY AFTEC OR APPROVED EQUAL.

2. FOLLOW MANUFACTURER'S DESIGN AND INSTALLATION INSTRUCTIONS. DESIGN SUBMISSION TO BE STAMPED BY A MASSACHUSETTS REGISTERED ENGINEER.

3. CONSULT WITH ARCHITECT FOR COLOR AND FINISH.

8 15' PRE-CAST CONCRETE SOUND WALL

N.T.S.

REFLECTIVE SOUND WALL SYSTEM DESIGN SPECS

FENCE PANEL DESIGN NOTES:

1. BASIS OF DESIGN: DESIGN OF REFLECTIVE SOUND WALL IS BASED ON PRODUCTS INDICATED. IF COMPARABLE PRODUCTS OF OTHER MANUFACTURERS ARE PROPOSED, PROVIDE ENGINEERING DESIGN FOR PROPOSED PRODUCTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.
2. DELEGATED DESIGN: PROVIDE DESIGN OF REFLECTIVE SOUND WALL, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.

DESIGN PARAMETERS:

3. 15' MAX. COLUMN SPACING
4. WALL HEIGHT = 15' - 0 " ABOVE F.G.
5. WIND PRESSURE: REFER TO STRUCTURAL DRAWINGS FOR WIND LOAD INFOMRATION.

MATERIALS:

1. CONCRETE f'c: 5000psi ... STRIPPING STRENGTH: 3500psi
2. REINFORCEMENT BAR - ASTM A615 GRADE 60 ... WELDED WIRE MESH - ASTM A106 GRADE 65
3. PRECAST PANELS SHALL HAVE FORMED STACKED STONE TEXTURE WITH .75" RELIEF ON EACH SIDE OF THE WALL WITH 4.5" STRUCTURAL
4. PRECAST PANELS SHALL BE COLORED WITH SHERWIN WILLIAMS H & C CONCRETE STAIN, SOLID COLOR, WATER-BASED PRODUCT

GENERAL NOTES:

1. DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES WITH WIND LOAD PER ASCE 7 – 10
2. CONTRACTOR TO VERIFY THAT ALL INFORMATION SHOWN ON DRAWINGS (INCLUDING PIECE GEOMETRY AND REQUIRED QUANTITIES) HAS BEEN THOROUGHLY CHECKED, COMPLIES WITH THE CONTRACT DOCUMENTS AND IS ADEQUATE TO MEET THE FIELD CONDITIONS.

CAISSON DESIGN NOTES:

1. DESIGN ED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES & TRAFFIC SIGNALS.
2. CONCRETE STRENGTH = 3.000 PSI (MIN)
3. REINFORCING STEEL - REINFORCEMENT BAR - ASTM A615 GRADE 60
4. EPOXY COATED STEEL POSTS - 50KSI STRENGTH

STEEL COLUMN DESIGN NOTES:

1. W & MC SHAPES SHALL BE ASTM 572 GRADE 50, FINAL ASSEMBLY TO BE SANDBLASTED & EPOXY COATED WITH
   a. SSPC-SP6 COMMERCIAL BLAST
   b. APPLY SHERIN WILLIAMS MACROPOXY 646 PRIMER – @ 5.0 DFT MILS TO TOP 16' OF EACH BEAM


717
716
715
714
713
712

REDI-ROCK

PRODUCTS & SOLUTIONS

GRAVITY SOLUTIONS

NO GEOGRID OR TIE-BACKS IN MANY APPLICATIONS

LIMESTONE COBBLESTONE LEDGESTONE

TOP BLOCK

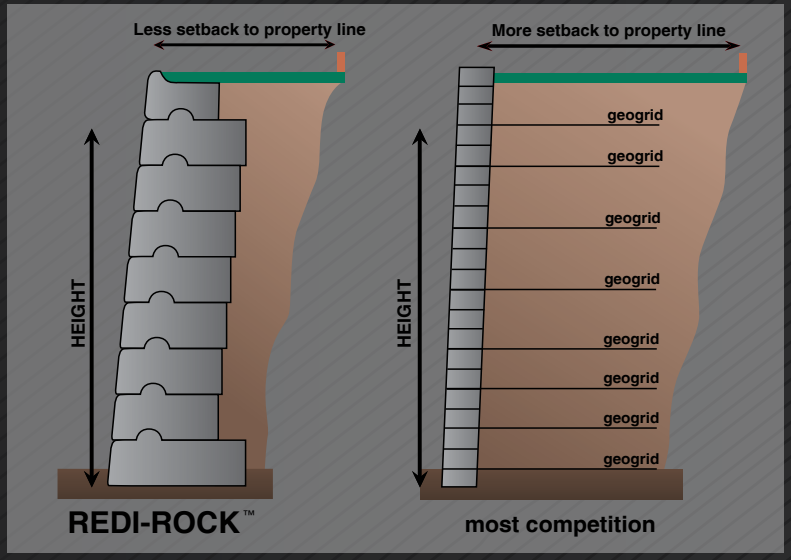
Weight: 1225 lbs.
46" x 28" x 18" High
5.75 sq. ft. of face

MIDDLE BLOCK

Weight: 2400 lbs.
46" x 41" x 18" High
5.75 sq. ft. of face

BOTTOM BLOCK

Weight: 2500 lbs.
46" x 41" x 18" High
5.75 sq. ft. of face



REINFORCED SOLUTIONS

BUILD EVEN TALLER WALLS

REDI-ROCK'S POSITIVE CONNECTION (PC) SYSTEM

Weight: 1540 lbs.
46" x 28" x 18" High
5.75 sq. ft. of face

AVAILABLE IN ALL THREE TEXTURES

- Provides superior seismic performance over other geosynthetic reinforced wall systems
- Utilizes a corrosion-free reinforcement system without special connection components
- Increases wall height with reduced geosynthetic reinforcement requirements
- Incorporates a massive, ¾ ton, precast concrete block facing unit
- Addresses the long term connection requirements in the AASHTO LRFD specifications

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